

**INFLUENCE OF EPISTEMOLOGICAL BELIEFS, ACHIEVEMENT  
GOALS AND SELF REGULATED LEARNING STRATEGIES  
ON ACHIEVEMENT IN ACCOUNTANCY OF HIGHER  
SECONDARY SCHOOL STUDENTS**

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*Thesis*

*Submitted for the Degree of*

**DOCTOR OF PHILOSOPHY IN EDUCATION**

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## **DECLARATION**

I, **Niranjana K. P.**, do hereby declare that this thesis, entitled “**INFLUENCE OF EPISTEMOLOGICAL BELIEFS, ACHIEVEMENT GOALS AND SELF REGULATED LEARNING STRATEGIES ON ACHIEVEMENT IN ACCOUNTANCY OF HIGHER SECONDARY SCHOOL STUDENTS**” is a genuine record of the research work done by me under the supervision of **Prof. (Dr.) P. Usha**, Professor, Department of Education, University of Calicut, and that no part of the thesis has been presented earlier for the award of any other Degree, Diploma or Associateship in any other University

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## **CERTIFICATE**

This is to certify that the thesis entitled “**INFLUENCE OF EPISTEMOLOGICAL BELIEFS, ACHIEVEMENT GOALS AND SELF REGULATED LEARNING STRATEGIES ON ACHIEVEMENT IN ACCOUNTANCY OF HIGHER SECONDARY SCHOOL STUDENTS**” is an authentic record of research work carried out by **Smt. Niranjana K. P.**, for the Degree of Philosophy in Education of University of Calicut, under my supervision and guidance and that no part thereof has been presented before for any other Degree, Diploma or Associateship in any other University.

The thesis is revised as per modification and recommendation reported by the adjudicators and re-submitted.

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**Prof. (Dr.) P. USHA**  
(Supervising Teacher)

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## *Chapter 1*

# **Introduction**

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- *Need and Significance of the study*
- *Statement of Problem*
- *Definition of Key Terms*
- *Variables Selected for the Study*
- *Objectives of the Study*
- *Hypotheses*
- *Methodology in Brief*
- *Scope of the Study*
- *Limitations of the Study*
- *Organization of the Report*

Education is a process which imparts, improves, or changes the knowledge, understanding, skills, and attitudes of the people which enable an individual to transform as a good citizen and to become a successful member in the society, nation, and the world. It must enable an individual to develop creative power to the ultimate so that intellectually, morally, physically, and spiritually the individual is in a position to enrich his personality. Education is the medium through which an individual acquires the abilities to fight with the increasing challenges of the personal, social, and national life. It plays a vital role in the entire life of an individual by helping them to develop those capabilities, potentials, skills, attitudes, and personality which are essential to live successfully in specific culture and society. In today's world, among all the resources, human capital is considered as the greatest national resource and educated individual as an asset for the country. On one hand an educated person can explore better opportunities for their own development and on other hand, the person can work for the development as well for the benefit of the entire nation.

Education has formal stages which start from pre-school education or kindergarten and progresses through primary school, secondary school, and then to tertiary or university education. While considering the broad objectives of education, it comprises of liberal education which intends at

fostering an attitude of objective enquiry and understanding the needs of the society and social change among the students which in turn develops a capacity to appreciate the finer values of life. Even though each stages of education has specific objectives, in sum total the education at all stages aims at the development of the individual by progressing their intellectual, emotional, and physical abilities through gaining knowledge and skills to produce creative human beings who can understand the meaning of life and what the society demands. The policy makers and curriculum planners are trying to incorporate a large number of practices under the general curriculum to prepare students for their life. The curricular aim emphasizes rigorous changes at all levels of education and acquiring applied knowledge to cope up with the rapid changes in the world by meeting the demands of the individual and demands of the society.

In this 21<sup>st</sup> century, education system is now being reoriented and recast in terms of learner centered education principles by giving importance to continuous urge for change and quality. Education must enable the individual to develop the skill to earn and thereby increasing the standard of living. Commerce education is that part of general education which focuses on direct and practical training for specific trade, industry, or business by taking into account the broad aims of education and enables individuals to earn for a livelihood. Commerce education is that area of education which develops the required knowledge, skills, and attitudes for the successful

handling of trade, commerce, and industry. In Indian context, commerce education can be described as that broad area of knowledge and practices which explains and defines the role of business in the economic development of the country as an Indian enterprise system and also provides necessary understanding as well as experiences which help to mould an individual for effective participation as a productive citizen and successful consumer in the Indian society. Thus, commerce education not only prepares an individual to lead a civilized life but also enables an individual to earn for a livelihood by providing training in commercial practices and preparing for proficiently taking up the duties and responsibilities of the business world. Commerce education satisfies the cultural aspect of education by preparing the individuals according to the needs of the individual and satisfies the practical side of education by preparing young people intended for business careers to meet the demands of the society.

During the Vedic period, among the four basic castes, commerce was the monopoly of Vaishyas. The younger generations of Vaishyas were educated about business by the elders. With the passage of time Vaishyas began to accept other professions and people of other castes entered into the field of commerce. The entry of individuals from various castes without relevant knowledge and experience in the field of business necessitated the need of imparting formal education of commerce and business in ancient India. In the Middle Ages, as a form of apprenticeship the tradesmen taught

book keeping to their children in order to keep the records of business. During the last quarter of 18<sup>th</sup> century, more attention was paid towards the scientific side of management due to the advancement of technology. The history of formal commerce education can be trace back to the Hunter Commission Report in 1882, the first Indian Education Commission, emphasized the need for introducing diversified courses with academic as well as practical emphasis (Government of India, 1883). Following the recommendations of Hunter Commission, in 1886, Government of Madras under the trustees of Pachyappa Charities by setting up the first commercial school laid the foundation of formal commercial education in India (Singh, 1990). More and more professional institutions were set up in the field of commerce as a result of need for commerce education which aroused from industrial sector in twenties and afterwards. Commerce subjects were taught in technical schools following the recommendations of Sargeant Report in 1944 and in the light of recommendations of Secondary Education Commission in 1952-53 to start diversified courses in multi-purpose higher secondary schools, commerce education gained its importance in secondary stage also (Singh, 1990). The public commerce education was highly influenced by the adoption of 10 + 2 pattern of education. Formerly commerce subjects were taught in secondary schools and as a result of new pattern of education, majority of the state boards of secondary education permitted to offer commerce as a stream at

senior secondary stage also. Now, in almost all states of India, commerce subjects are taught in general stream and at vocational stream.

Commerce education can be viewed as general education as well as a vocational education. In the aspect of general education it satisfies the goals and objectives of education. Commerce education aims at the development of knowledge related to business and to develop personal, social, and economic competencies of an individual. In order to satisfy the vocational aspect of education, commerce education includes development of technical competencies to meet the business standards. It aims at providing training in job and to develop job potential among the individuals in various areas of business. Commerce education is a generic term which is used to cover all types and levels of education which facilitates the functions and operations of business. Trade, industry, and commerce play an important role in our day to day life and almost all activities of our life are related with these aspects. The increasing complexity of business and commerce organization in the present day world would make it mandatory for students to be conversant with modern principles and practices of management and accounting. The demand from the private sector to handle with increasing complexities of the business world also necessitated the introduction of commerce subjects as a part of the curriculum in our country. Hence, commerce education undoubtedly plays a key role in the development of a country in this age of globalization, urbanization, privatization, and industrialization.

Commerce education prepares the students for entry into and advancement in jobs in the areas of business and is also important for preparing the students to handle their own business affairs in daily life and to function as an intelligent consumer as well as a citizen in the business economy. Popham, Schrag, and Blockhus (1975) explained the facets of commerce education which described the role of commerce education in the development of students. The facets of commerce education are general education and vocational education. The general education deals with *education about business* which includes development of economic competency, career exploration, social adjustment, and knowledge about the areas of business along with its functioning by including subjects such as basic business, business law, consumer economics, marketing, and functional management. The vocational part of commerce education deals with *education for business* which includes development of job competency, career preparation, work adjustment, and subjects such as accountancy, data processing, office procedures, and secretarial procedures. According to Herrick (1904), commerce education is that form of instruction that both directly and indirectly prepares the businessman for his calling. Thus, all those experiences received by the child in job training for business that may take place in and out of the school which helps the individual to adjust with the business environment is considered as commerce education. According to Tonne, Popham, and Freeman (1957) commerce education is a general

education, as it helps the students to become an intelligent consumer of business goods and services. It also provides the individual with some understanding of the national economic system and helps individuals to become a more intelligent and more useful member of the community. Thus, commerce education helps the individuals to adjust to his business environment by providing with essential abilities to use their specialized skills in business world. Commerce education also meets the vocational demands of the society by preparing several workers needed in all phases of business, commerce, and industry.

Shollapur (2007) mentioned the importance of commerce education by stating that during the first ten years of schooling students are not given any formal instruction relating to commerce and accountancy subjects. In order to overcome this backdrop, it becomes necessary that at higher secondary stage, students should be given instruction in these two aspects so as to receive a good understanding of the principles and practices bearing on commerce, trade, and industry and their relationship to society. The students need to be exposed to the realities of business world as a part of economic, legal, and social environment. This will facilitate them to be aware of and appreciate the functions and extent of business activities in the economic set up. Higher secondary stage is a critical and transitional stage in between the school and university education or secondary and higher education. The intellectual levels of the students begin to widen and more experiences related



to real life situation is gathered at this stage. The higher secondary pattern was introduced with a view to develop employable skills among the students while completing their career in school to get jobs. Commerce as a stream of education as such bears its own significance in nurturing industrial and commercial activities which are essential for our daily life. Thus, commerce education becomes an important part of curriculum at higher secondary stage.

The Central Board of Secondary Education included business studies and accountancy subjects in the commerce curriculum, as part of restructuring the curriculum in the academic year 1995-96, to explain and understand the enlarged functions and scope of commercial activities to the students at higher secondary stage (Shollapur, 2007). While considering the subjects provided in commerce stream in our country, accountancy is an important subject in commerce education as it is necessary to satisfy the vocational needs. A business organization communicates its financial information to the interested parties through accounting practices. Thus, accounting is well thought-out as the language of business. In 1941, the American Institute of Certified Public Accountant (AICPA) defined “Accounting as the art of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least of a financial character and interpreting the results thereof” (Maheshwari & Maheshwari, 2010). Accounting is a field of study that requires sound analytical and logical reasoning to record, measure, classify, and analyze financial transactions. In early stages

accounting is used only by businessman to track their transactions in a systematic manner. Later, accounting is recognized as an indispensable tool for economic development as well for balancing the financial aspects of all sectors of society. It is the responsibility of the accountancy teacher to develop positive attitude towards accountancy subject among the students. The study conducted by Chawla, Jain, and Mahajan (2013) examined the attitude of senior secondary school students towards accountancy subject and revealed that even though the students are having positive attitude towards accountancy teacher and the methodology of teaching, they are having negative attitude towards the subject and dilemma about the numerical as well as confusing nature of the subject. Thus, the studies for enhancing accountancy learning will be helpful for the students as well as the teachers to facilitate learning.

### **Need and Significance of the Study**

Educational scenario of India is going through an era of constructivism in which innovative activities are used by the teachers as well as students for transacting and mastering the content. The constructivist approach to education necessitated the incorporation of learner centered approaches in classroom environment. In learner centered approaches, the teachers encourage the students to think, generate hypothesis, collect necessary information, analyze and evaluate the collected information, and find out

solution for a problematic situation. The control over the learning process is vested with the teacher as well the students and students are encouraged to reflect upon their own activities related to learning. The factors affecting students' learning process include both the factors connected with the learner and factors associated with the learning process. The factors associated with learner includes motivation, readiness, ability of the learner, level of aspiration and achievement, attention, mental health, physical health, attitude, maturation level of the learner, self-efficacy beliefs, and emotional condition. Factors related to learning process involves home environment, school environment, methods of learning, use of instructional strategies, and knowledge of result feedback.

The educationists and psychologists have carried out large number of research to understand the relation of epistemological beliefs to various aspects of learning and evidences indicate that the students epistemological beliefs about learning influence the problem solving behaviours, academic performance, use of cognitive strategies, comprehension skills, motivation to learn, and learning processes (Ryan, 1984; Schommer, 1990, 1994; Windschitl, 1997; Schommer & Walker, 1997; Paulsen & Feldman, 1999). Schommer and Walker (1997) examined the relationship between beliefs about the nature of knowledge or epistemological beliefs and their attitudes toward education of high school students. The students who believed less in fixed ability to learn and quick learning are more likely to support going to

college and having positive attitude to appreciate the role of school in education, gaining employment, and living everyday life. Paulsen and Feldman (1999) in their study found that there exists positive relationship between students' motivation to learn and their epistemological beliefs. The students having more sophisticated epistemological beliefs are having high motivation to learn. Ryan (1984) examined the individual differences in text comprehension of undergraduate students and found that epistemological beliefs about knowledge affect the students' comprehension standards. The study also reported that the low level comprehension strategies, such as recalling factual information are used by dualist students while relativist students tend to use high level comprehension strategies like applying new information to different contexts. The results of the study confirms that the students using high level comprehension strategies secure better course grades than those who are using low level comprehension strategies. According to Windschitl (1997) the epistemological beliefs influence the conceptual development and potential conceptual change and students in larger cooperative groups can have their attitudes and achievement influenced by their partners.

The empirical studies conducted in the area of epistemological beliefs provide evidences that more sophisticated epistemological beliefs are related to more adequate learning strategies and therefore better learning outcomes. Hofer (2002) opined that the beliefs associated to knowledge and knowing

had a strong impact on learning and understanding the learning process which in turn would enhance the effectiveness of the instruction. The research studies in epistemological beliefs showed that learning beliefs affect the degree of students' active involvement and persistence in learning in addition to that the epistemological beliefs play an important role in reading comprehension, mathematical problem solving, formation of conceptual understanding, handling anomalous data, and coping with ill-structured questions or tasks (Schommer, 1994; Manson, 2000). Epistemological beliefs and learning approaches change, as pupil progress in their studies and the relationship between epistemological beliefs and academic achievement is mediated by approaches to learning. The studying skills, higher cognition level, and problem solving are considered to be in relation with epistemological beliefs as it affects the decisions on finding the correct strategies in order to cope with the challenging nature of the mental functions (Öngen, 2003). Perry (1968) found that the students' attitudes towards knowledge and learning change over time. The students' develop more complex and integrated ways of viewing the world progressively, starting with the dualistic view that knowledge is simple and certain and that knowledge is to be transmitted by authorities later moving on to the relativist views believing that the knowledge is complex, tentative, and uncertain. According to Schommer (1993a), the belief in simple knowledge, certain

knowledge, and quick learning decreased from freshman to senior year students.

The domain specific research studies exploring epistemological beliefs reported the findings proving that domain specific epistemological beliefs has influence on study strategies and problems solving in history, mathematics, and hypermedia learning (Buehl & Alexander, 2001; Schommer-Aikins, Duell, & Hutter, 2005; Schommer-Aikins & Duell, 2013). Paulsen and Wells (1998) examined the differences in the epistemological beliefs of college students across the hard vs. soft and pure vs. applied fields of study and identified that the dimensions of epistemological beliefs such as simple knowledge, quick learning, and certain knowledge, the beliefs of the students vary across the domains. But beliefs in fixed ability do not differ significantly across the domains. The findings of the study indicated that students in pure fields are less likely to hold naive beliefs in simple knowledge, quick learning, and certain knowledge, than those in applied fields. Furthermore, the students belonging to soft or pure fields were less likely to hold naive beliefs in certain knowledge than others. Palmer and Marra (2004) in their grounded theory described that the students move from simple to complex epistemological beliefs more naturally in humanities and social science than the science subjects. Students' epistemological beliefs may not be consistent across knowledge domains and they may vary with respect to the context of studying the subjects. Thus, understanding the epistemological beliefs or

beliefs about the nature of knowledge and knowing across the domains are important to explain how students develop their perceptions about knowledge and how they are using these beliefs to acquire information.

Motivation an internal process which encourages an individual to move towards their goal is considered as the central factor in learning. Achievement goal is an important perspective in contemporary research on student motivation, learning, and competence in academic achievement. (Elliott & Dweck, 1988; Dweck & Leggett, 1988; Ames & Archer, 1988; Ames, 1992; Elliot & McGregor, 2001). Achievement goal is defined as the purpose of students' commitment in tasks which reflects students' general orientations for approaching and evaluating their performance in achievement contexts to accomplish the achievement outcomes (Maehr & Midgley, 1991; Elliot, 1997; Pintrich, 2000a). An individual's goal orientation explains the goal students choose and the methods used to achieve those goals. According to Dweck and Leggett (1988) the two types of goal orientation are mastery goal orientation and performance goal orientation. In mastery goal orientation, students' intention is to improve their competence, abilities, learning, and understanding, whereas, in performance goal orientation the individual's intention is to perform better than others in academic situations.

In the dichotomous classification of achievement goals various names are used to represent these two types of achievement goals such as learning

goals and performance goals (Dweck & Elliott, 1983), task-involved goals and ego-involved goals (Nicholls, 1984). In the trichotomous framework of achievement goal theory, Elliot and Harackiewicz (1996) identified three types of goals such as performance-approach goal, performance-avoidance goal, and mastery goal. The trichotomous framework was extended by Pintrich (2000a) into 2 X 2 achievement goal framework which includes mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goals. Elliot, Murayama, and Pekrun (2011) worked on the 2 X 2 framework of achievement goal construct and developed a 3 X 2 achievement goal model which comprised of task-approach goal, task-avoidance goal, self-approach goal, self-avoidance goal, other-approach goal, and other-avoidance goal.

According to Nicholls (1989), the purpose of achievement activities and strivings of an individual are reflected through the goals adopted by the individual. The research studies in the area of achievement goal revealed that both the mastery goal and performance goal orientations are beneficial for academic achievement of the students at various levels (Dweck, 1986; Ames & Archer, 1988; Eppler & Harju, 1997). According to Dweck (1986), students who set mastery goal perform better in school and are flexible to face difficulties while those students who set performance goals are not prepared to face the challenges rather they seek only those activities which assure academic success. Eppler and Harju (1997) identified that students certified



with learning goals rated higher in performance scores than those certified with performance goals. Mattern (2005) identified that both the high mastery goal group and high performance goal group had significant effect on achievement than those students who followed multiple goal perspective which means combination of mastery goal and performance goal. According to Sharma and Nasa (2016) the students who give more importance to performance approach goals secured higher grades and had beliefs about their abilities.

Research evidences shows that achievement goal orientations are related to various aspects of learning such as self efficacy, academic performance, learning styles, and anxiety (Ames, 1992; Coutinho & Neuman, 2008; Barkur, Govindan, & Kamath, 2013; Rameli & Kosnin, 2016). Ames (1992) noted that students pursuing mastery goals selected challenging tasks, held positive attitude towards learning, adopted deeper, and elaborate study strategies as well as courageous to face difficulties in learning process. On the other hand, the students pursuing performance goals were more likely to select easier tasks, used superficial learning strategies, and engage in maladaptive behavior patterns following difficulty or failure. According to Coutinho and Neuman (2008) the performance-approach and mastery-approach goals are positive predictors and mastery-avoidance and performance-avoidance goals are negative predictors of self efficacy. Both the deep processing and surface processing learning styles are adopted by the

students who pursue mastery goal orientation to attain mastery of the subject matter. Barkur, Govindan, and Kamath (2013) identified that students who pursue mastery-goal and performance-approach goal secured high academic achievement compared to those students who pursue performance-avoidance and work-avoidance goal. Rameli and Kosnin (2016) indicated that the mastery goal orientation and performance avoidance goal orientation correlated significantly with the scores of mathematic anxiety and performance avoidance goal orientation contributes largest to the changes in mathematical anxiety. According to Sharma and Nasa (2016) mastery goal orientation and performance goal orientation are positively correlated with academic self efficacy. Mastery goal orientation is positively correlated with academic help seeking behavior but performance goal orientation is negatively correlated. Thus, the understanding of the achievement goal pursued by the students will help the teachers to provide proper guidance in their learning in order to achieve their goals in the academic context.

Self regulated learning is recognized as an important predictor of student academic motivation, student learning, and academic performance in various subjects. (Pintrich & De Groot, 1990; Zimmerman, 1994; Schunk, 1994; Chen, 2002; Yusuf, 2011; Chandran & Kadhiravan, 2012; Sadi & Uyar, 2013; Kumari & Chamundeswari, 2015; Yıdızlı, Saban, & Ewing, 2016). Self regulated learning integrates learning strategies and mental processes that learners consciously engage to help themselves to learn and achieve better

gains academically (Schunk & Zimmerman, 1998). Zimmerman (1989) theorized the relation between self regulated learning and academic achievement with a social cognitive view that self regulated learning is acquired through an interaction between three important characteristics viz., self-observation, self-judgment, and self-reactions. The self-observation involves monitoring one's actions and seen as the most important of these processes. Self-judgment involves evaluation of one's performance and self-reactions indicate one's response to performance outcomes. According to Pintrich and De Groot (1990), the self regulated learning strategies include cognitive strategies that are used by the students to learn, remember, and understand the material, metacognitive strategies for planning, monitoring, and reflection of academic activities that are used by the students, and the resource management strategies to take control of academic environment. According to Zimmerman (1990), self regulated learners are characterized by their systematic use of metacognitive, motivational, and behavioral strategies and their feedback about the learning performance and perceptions about their academic accomplishments.

Zimmerman (1989, 1990) found that the use of self regulated learning strategies accounted for the academic success among the students in school. According to Zimmerman (1996), the self regulatory process such as learning strategies, goal setting, and self-monitoring is used by the students and the use of strategies predicts academic achievement as well self motivation. Research

evidences show that compared with low achieving students a variety of learning strategies are used by high achievers. Risemberg and Zimmerman (1992) identified that gifted students spontaneously use self regulatory learning strategies more frequently than non gifted students. Throndsen (2011) indicated that students who possess high self regulated learning strategies performed high in achievement scores in mathematics and the basic mathematics skills of young primary school students differ with respect to overt strategies, covert strategies, and retrieval strategies of self regulation. Mahadi and Subramaniam (2013) examined the role of metacognitive self regulated learning strategies in enhancing language performance and suggested that metacognitive self regulated learning strategies assist students to become more self regulated in their learning process which in turn enhances the academic performance of the students.

Students can be taught to become more self regulated learners by acquiring specific strategies that are both successful for them and that enable them to increase their control over their own behavior and environment. Most researchers agree that the best learning occurs when someone carefully observes and considers his own behaviors and acts upon what he has learned. Instead of using a single strategy, it is better to encourage the students to use a combination of various self regulatory strategies which would help them to optimize their efforts in an academic context. Through the studies the researchers established the importance of self regulated learning for students'

at all academic levels and self regulation can be taught, learned, and controlled. Thus, the understanding the use of self regulated learning strategies by students in accountancy learning will help the teachers and parents to support the students' for managing their efforts in academic situations.

The review reveals that the variables, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies, individually contributes either positively or negatively to the academic achievement in the context of various subjects. Review of related literature on Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies indicated that majority of the studies associated with these variables are conducted in foreign countries and only very few studies can be traced related to academic outcome in Indian context. The empirical studies also revealed that the three variables are effective predictors of academic achievement across the domains. But no study can be identified in relation with the academic achievement in accountancy. Hence, the investigator felt that it would be highly significant and useful to study the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. The following research questions are formulated by the investigator to analyze the role of Epistemological Beliefs, Achievement Goals, and Self Regulated

Learning Strategies on Achievement in Accountancy of higher secondary school students.

1. Do Epistemological Beliefs influence Achievement in Accountancy of higher secondary school students?
2. Whether the type of Achievement Goal pursued by the students, influence Achievement in Accountancy?
3. Which type of Achievement Goal contributes more to Achievement in Accountancy of higher secondary school students?
4. Is there any role for Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students?
5. Is there any combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students?
6. To what extent Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies can predict Achievement in Accountancy of higher secondary school students?

### **Statement of the Problem**

The present study is designed to find out the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students.

The study is entitled as “**INFLUENCE OF EPISTEMOLOGICAL BELIEFS, ACHIEVEMENT GOALS AND SELF REGULATED LEARNING STRATEGIES ON ACHIEVEMENT IN ACCOUNTANCY OF HIGHER SECONDARY SCHOOL STUDENTS**”.

### **Definition of Key Terms**

The key terms used for stating the problem are described below.

#### **Epistemological Beliefs**

Epistemological Beliefs have been defined as the beliefs pertaining to what is knowledge and how the knowing and learning occurs (Schommer, 1990).

For the present study, Epistemological Beliefs specifically in the context of Accountancy learning are considered. The epistemological beliefs refer to the beliefs of the students related to the nature of the subject Accountancy and the process of acquiring knowledge in Accountancy which is measured using Scale on Epistemological Beliefs in Accountancy.

#### **Achievement Goals**

Achievement Goals are conceived as cognitive representations of what individuals are trying to do or what they want to achieve and represent the individual's orientation to the task or situation, their general focus or purpose for achievement (Pintrich, Conley & Kempler, 2003).

For the present study, Achievement Goals refer to the purpose and motivation of an individual to engage in academic activity. The type of achievement goal viz., mastery goal, performance-avoidance goal, and performance-approach goal, which is pursued by the students while engaging in academic and learning tasks are considered and they are measured with the help of Achievement Goal Inventory.

### **Self Regulated Learning Strategies**

Self Regulated Learning Strategies refer to the combined use of cognitive strategies, metacognitive strategies, and resource management strategies by the students to take control of their effort and classroom learning environment (Pintrich & De Groot, 1990).

For the present study, the Self Regulated Learning Strategies are the strategies used by the students to achieve their goal in classroom and academic related activities. The cognitive, metacognitive, and resource management strategies adopted by the students in completing learning tasks are measured using a Scale on Self Regulated Learning Strategies.

### **Achievement in Accountancy**

The term Achievement in Accountancy refers to the relative accomplishments of students in accountancy as measured by a Test of Achievement in Accountancy constructed and standardized for higher secondary school students of Kerala.



### **Higher Secondary School Students**

The term higher secondary school students refer to the students studying in standard XI and XII of the recognized higher secondary schools in Kerala State.

For the present study, higher secondary school students refer to those students studying in commerce stream of higher secondary schools of Kerala state.

### **Variables Selected for the Study**

The following are the independent and dependent variables selected for the present study.

#### **Independent Variables**

- Epistemological Beliefs
- Achievement Goals
- Self Regulated Learning Strategies

#### **Dependent Variable**

Achievement in Accountancy is selected as the dependent variable.

### **Objectives of the Study**

The objectives of the study are:

1. To find out whether there exist any gender, type of management, and locale differences for the selected independent variables namely, Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and the dependent variable, Achievement in Accountancy among higher secondary school students.
2. To study the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for the total sample and subgroups based on gender, type of management, and locale of schools.
3. To find out the individual and combined contributions of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.
4. To work out the equation to the regression lines for predicting Achievement in Accountancy based on the variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies.

## **Hypotheses**

The study is carried out to test the following hypotheses:

1. There is significant gender difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students.
2. There is significant difference in the mean scores of Epistemological Beliefs Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students based on the type of management of schools.
3. There is significant locale difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students.
4. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for total sample.
5. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement

Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for girls of higher secondary schools.

6. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for boys of higher secondary schools.
7. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for government higher secondary school students.
8. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for aided higher secondary school students.
9. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent

variable, Achievement in Accountancy for rural higher secondary school students.

10. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for urban higher secondary school students.
11. There is significant individual and combined contribution of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.

### **Methodology in Brief**

#### **Method**

The study adopted survey method as it is intended to find out the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy among higher secondary school students.

#### **Sample**

The population considered for the study is higher secondary school students of commerce stream in Kerala state who follow Kerala state syllabus. The present study was carried out on a representative sample of 1012 higher

secondary school students studying in standard XI of commerce stream selected from Kasargode, Kozhikode, Malappuram, Palakkad, Thrissur, Ernakulam, and Thiruvananthapuram districts of Kerala State. Stratified sampling technique was used for selecting the sample by giving due representation to the subgroups on the basis of gender, type of management of the schools, and locale of the schools.

### **Tools Used for Data Collection**

To measure the independent and dependent variables, four tools were used for the present study. The tools used for the study are the following:

#### **1. Scale on Epistemological Beliefs in Accountancy (Usha & Niranjana, 2015)**

To measure the epistemological beliefs of higher secondary school students with respect to Accountancy subject, the investigator developed and standardized a Scale on Epistemological Beliefs in Accountancy with the help of the supervising teacher. The scale consists of 40 items on five dimensions of Epistemological Beliefs such as certainty of knowledge, structure of knowledge, source of knowledge, control of knowledge, and speed of knowledge acquisition. The items related to naive and sophisticated beliefs of students about Accountancy and the process of learning related to Accountancy subject are included in the scale. The draft scale was prepared by including 55 items and was standardized by the investigator.

## **2. Achievement Goal Inventory (Usha & Niranjana, 2015)**

The investigator developed and standardized an Achievement Goal Inventory with the help of the supervising teacher to measure the type of achievement goal pursued by higher secondary school students. The final inventory consists of 45 items on three types of Achievement Goal pursued by the students' viz., mastery goal, performance-approach goal, and performance-avoidance goal. The draft inventory was prepared by including 56 items related to mastery goal, performance-avoidance goal, and performance-approach goal.

## **3. Scale on Self Regulated Learning Strategies (Usha & Niranjana, 2015)**

In order to understand the use of self regulated learning strategies of higher secondary school students, by using summated rating technique the investigator developed and standardized the Scale on Self Regulated Learning Strategies. The final scale consists of 58 items related to the three components of Self Regulated Learning Strategies viz., cognitive strategies, metacognitive strategies, and resource management strategies. The draft scale was constructed by including 63 items related to various components of Self Regulated Learning Strategies.

#### **4. Achievement Test in Accountancy (Usha & Niranjana, 2015)**

Achievement Test in Accountancy based on the chapters from basic concepts to final accounts was used to measure the Achievement in Accountancy of higher secondary school students studying in standard XI of commerce stream. The achievement test was constructed on the basis of Revised Bloom's Taxonomy of Educational Objectives. The standardized achievement test consists of 40 multiple choice test items from Accountancy subject of standard XI. The draft test consisted of 60 multiple choice test items and was standardized by the investigator with the help of achievement test standardization procedure.

#### **Statistical Techniques Used for the Study**

The present study made use of both descriptive and inferential statistics for the analysis of collected data. The major statistical techniques used for the present study are:

##### **Descriptive Statistics**

Mean, median, mode, standard deviation, skewness, and kurtosis of each of the independent variable, Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies and the dependent variable, Achievement in Accountancy were calculated. The descriptive statistics were calculated for the total sample as well as separately for the subgroups based



on gender, type of management of schools, and locale of schools of higher secondary students.

### **Mean Difference Analysis**

Mean difference analysis was carried out in order to know whether there exists gender difference, difference based on type of management of schools, and locale of schools for Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students. Test of significance of difference between means of large independent sample (t-test) was used.

### **Analysis of Variance with 2X3X2 Factorial Design**

The three-way Analysis of Variance with 2X3X2 factorial design was used to understand the main and interaction effect of three independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy. Epistemological Beliefs in Accountancy were classified into High Epistemological Beliefs group and Low Epistemological Beliefs group. The Achievement Goals were classified into Mastery Goal group, Performance-Avoidance Goal group, and Performance-Approach Goal group. The Self Regulated Learning Strategies were classified into High Self Regulatory Learning Strategy group and Low Self Regulated Learning Strategies group. Data were analyzed for total sample and subgroups based on

gender, type of management of schools, and locale of schools. When  $F$  ratios are found significant, further analysis of Scheffe's Test of Post Hoc Comparison was performed to locate the exact group which differ in mean scores.

### **Multiple Regression Analysis**

Multiple regression analysis was used for the present study to predict the individual and joint contributions of predictor variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the criterion variable, Achievement in Accountancy. The method used for multiple regression is Enter method. Regression equation was also developed to predict the scores of Achievement in Accountancy for the predictor variables.

### **Scope of the Study**

The present study aimed to investigate the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. It is expected that the present study will be helpful to understand the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. The mean difference analysis of scores of the independent and dependent variables were done by the investigator to investigate the mean

differences among girls and boys, government and aided school students, and rural and urban school students at higher secondary level. The investigation of main effect of Epistemological Beliefs will reveal the effect of Epistemological Beliefs on Achievement in Accountancy of higher secondary school students. The investigation of main effect of Achievement Goals will help the investigator to understand which type of achievement goal contributes more to Achievement in Accountancy of higher secondary school students. The effect of Self Regulated Learning Strategies on Achievement in Accountancy among higher secondary school students will throw an insight in to how the use self regulated learning strategies influence the academic performance of the students. The investigation into the interaction effect of the three independent variables on Achievement in Accountancy will enable the researcher to understand how the combined effect of these variables contributes to academic performance of the students and which independent variable is the strongest predictor of Achievement in Accountancy of higher secondary school students.

Accountancy is a field of study that requires development of problem solving skills among the learners for systematic and logical recording, classifying, and analyzing of financial transactions. The findings of the study will help the teachers as well as the educational practitioners to understand and promote the effective use of these variables for enhancing the academic performance in Accountancy among the higher secondary school students.

Promoting more sophisticated epistemological beliefs is helpful for the accounting learners to understand the nature of Accountancy and to form better epistemological beliefs about the Accountancy subject. The development of more sophisticated epistemological beliefs can also benefit other aspects of learning such as performance on learning, problem solving, and reasoning tasks. Pursuing appropriate goal related to the academic activities enable the students to engage in tasks more responsibly and to select appropriate activities to attain their goal. To promote personal and academic success, effort must be placed on developing and incorporating use of self regulated learning strategies among the students.

### **Limitations of the Study**

The limitations identified for the study are presented below.

- The study was conducted only on higher secondary school students studying in commerce stream.
- Among the higher secondary school students studying in commerce stream, the study is confined to students who are studying in standard XI of commerce stream.
- The study is confined only to three independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and only to one dependent variable, Achievement

in Accountancy. The other factors which may affect the Achievement in Accountancy are not considered.

- The commerce stream in higher secondary schools comprises of two major subjects namely, Accountancy and Business Studies. Only the subject, Accountancy is considered for the present study.

### **Organization of the Report**

The report of the study is presented in five chapters namely, introduction, review of related literature, methodology, analysis and interpretation and summary of findings and suggestions. The details of organization of the report are described below.

#### **Chapter I**

This chapter deals with a brief introduction of problem under study, need and significance of the problem, statement of the problem, definition of key terms, variables of the study, objectives of the study, hypotheses, a brief description of the method of study, scope of the study, and limitations of the study.

#### **Chapter II**

This chapter provides a detailed theoretical overview of the variables Epistemological Beliefs, Achievement Goals, and Self Regulated Learning

Strategies and the review of related studies associated with these variables and Accountancy subject.

### **Chapter III**

In this chapter the investigator gives an account of the methodology adopted for the study in detail by including description of variables, objectives of the study, hypotheses, tools employed for data collection, sample drawn, data collection procedure, and statistical techniques used for analyzing the data.

### **Chapter IV**

This chapter describes details of preliminary analysis, mean difference analysis, investigation of main and interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy and the regression analysis of the predictor and criterion variables.

### **Chapter V**

This chapter gives a brief account of the study in retrospect with respect to objectives of the study, hypotheses and methodology, the major findings of the study, educational implications of the study, and suggestions for further research in this area.

## *Chapter 2*

# **Review of Related Literature**

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- *Theoretical Overview of the Variables*
  - *Theoretical Overview of Epistemological Beliefs*
  - *Theoretical Overview of Achievement Goals*
  - *Theoretical Overview of Self Regulated Learning Strategies*
- *Review of Related Studies*
  - *Studies on Epistemological Beliefs*
  - *Studies on Achievement Goals*
  - *Studies on Self Regulated Learning Strategies*
  - *Studies on the Subject Accountancy*

The present study is an investigation to understand the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. In this chapter, in order to get the overview of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies the investigator reviewed the available literature related to the variables. This chapter is divided into two sections. The first section deals with the theoretical overview of the independent variables such as Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies. The second section deals with the review of empirical studies related to the variables. The heading of the chapter are organized as follows:

#### Theoretical Overview of the Variables

- Theoretical Overview of Epistemological Beliefs
- Theoretical Overview of Achievement Goals
- Theoretical Overview of Self Regulated Learning Strategies

#### Review of Related Studies

- Studies on Epistemological Beliefs
- Studies on Achievement Goals
- Studies on Self Regulated Learning Strategies
- Studies on the Subject Accountancy



## **Theoretical Overview of the Variables**

This section deals with the theoretical framework of the independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies.

### **Theoretical Overview of Epistemological Beliefs**

Epistemology is that branch of philosophy which deals with nature of knowledge and methods of acquiring of knowledge. The word Epistemology is derived from the Greek word 'Episteme' which means knowledge and 'logos' means discourse. Thus, the epistemology deals with the nature of human knowledge and the process of verifying or justifying the acquired knowledge. Epistemology is the study of the origin, nature and limitation of knowledge (Good, 1976). Epistemology is distinctively a branch of philosophy which defines the systematic investigation of the nature of knowledge with a view to determine the grounds of its possibility and its objective worth or significance (Raj, 1996). The personal epistemology of human beings consists of specific dimensions that comprise of individual understanding of knowledge and knowing and an epistemological belief is multidimensional concept which explains how students develop their conceptions of knowledge and knowing and how they use these conceptions to develop their outlook about the world (Hofer, 2002). Knowledge can be understood as the understanding of an individual about the subject matter and

its concepts. The scientific basis of knowledge assumes that epistemology deals with the nature of science and scientific way of acquiring knowledge by analyzing how the individual creates knowledge and draws inferences about the gathered information.

Piaget used the term 'genetic epistemology' in his theory of intellectual development to describe the development process of knowledge. Genetic epistemology attempts to explain knowledge on the basis of its history and especially the psychological origin of the notions and operations upon which it is based. Genetic epistemology also takes into account logical formalizations applied to equilibrated thought structures and in certain cases to transformations from one level to another in the development of thought. The genetic epistemology deals with both the formation and meaning of knowledge. It also explains the process of how people develop their cognitive aspects from birth throughout their lives (Piaget, 1971). Piaget believed that human knowledge is a biological function that results from the actions of an individual and is borne out of change and transformation in order to understand how a certain state is brought about. According to Piaget (1971), knowledge is a system of transformations that become progressively adequate and knowledge consists of structures and comes about by the adaptation of these structures with the environment. Piaget viewed that the intellectual abilities of human beings develop as a result of the organization and reorganization of schemas through the processes of assimilation,

accommodation, and equilibration. Piaget's theory of intellectual development conceptualized that the cognitive development of human beings take place as an interaction between the individual and the world throughout four sequential stages such as sensori motor stage (birth to 2 years), pre-operational stage (2-7 years), concrete operational stage (7-11 years), and formal operational stage (11 years onward) (Piaget, 1971).

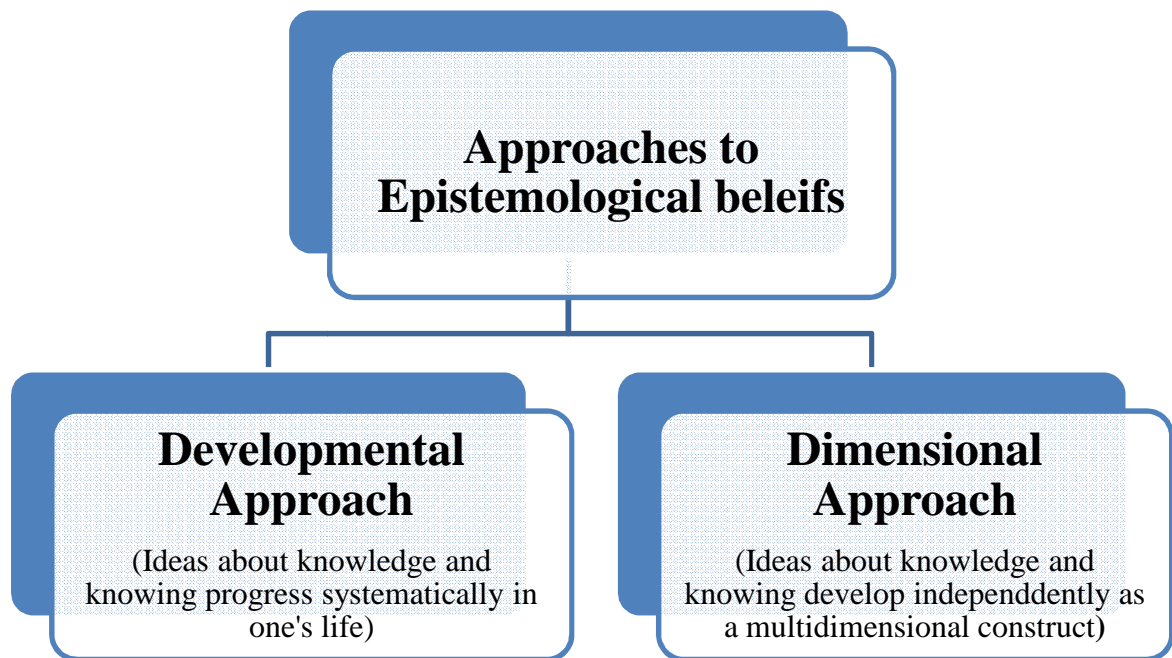
Epistemology has always been concerned with issues such as nature, extent, source, and legitimacy of knowledge. The concept epistemological beliefs find its origin in the work of Perry (1968) and later, Schommer (1990) introduced the concept of personal epistemology by considering a system of more-or-less independent beliefs. The system of beliefs means that there are multiple beliefs that compose personal epistemology and more-or-less independent means these beliefs may or may not develop at synchronous rates (Schommer, 1994; Schommer-Aikins, 2004). Epistemological beliefs are defined by Schommer (1990) as the beliefs pertaining to what is the knowledge and how the knowing and learning occurs. Epistemological beliefs about learning (or learning beliefs) are defined as socially shared intuitions about the nature of knowledge and the nature of learning and involve knowledge about the limits of knowing, the certainty of knowing, and the criterion of knowing (Jehng, Johnson & Anderson, 1993). Hofer and Pintrich (1997) conceptualized epistemological beliefs as beliefs of the individuals on how new knowledge is perceived and

processed. An epistemological belief is a multidimensional and multilayered concept in which individual possesses general beliefs about knowledge and beliefs about more specific forms of knowledge (academic knowledge or domain specific knowledge) (Buehl & Alexander, 2001). Epistemological beliefs in particular includes the beliefs about the definition of knowledge, how knowledge is constructed, how knowledge is evaluated, where knowledge resides, and how knowing occurs (Hofer, 2001). Epistemological beliefs are defined as the system of implicit assumptions and beliefs that students have about the nature of knowledge and its acquisition (Paulsen & Feldman, 2005). Therefore, epistemological beliefs may be defined as the individual's beliefs about knowledge and the process of acquiring as well as verifying the knowledge acquired by the individual.

### **Approaches to Epistemological Beliefs**

Educational researchers and scholars used different ways and various approach to study about epistemological beliefs. The important approaches to study the epistemological beliefs are developmental approach and dimensional approach. The first line of research in the area of epistemological beliefs used structural and developmental sequences. The second line of research to understand the epistemological beliefs of the individual concluded that individual's thinking and reasoning process get influenced by the epistemological assumptions which are similar to the developmental

sequences. The first and second line of research can be grouped under the developmental approach to epistemological beliefs. The third line of research which is most recent is dimensional approach which viewed epistemological beliefs as a system of more or less independent beliefs rather than a systematically arranged developmental structure. The approaches to epistemological beliefs are given in Figure 1.



*Figure 1.* Approaches to Epistemological beliefs

### **Developmental Approach**

The developmental approach to study the epistemological beliefs of individuals suggests that the beliefs about knowledge and knowing of an individual develop and progress systematically through various stages or positions. The origin of developmental approach can be traced back in the

works of Perry (1968). The extension of epistemological development framework was done by the educational researchers such as Belenky, Clinchy, Goldberger, and Tarule (1986), Kuhn (1992), Magolda (1992), and King and Kitchener (1994) by working upon Perry's model of epistemological beliefs and proposed models of epistemological beliefs for specific contexts which are developmental in nature. Perry (1968) in his theory of epistemological development suggested the stages of development of epistemological beliefs where the students in early stages perceived knowledge as right or wrong and believe that authority provides answers for all questions. On progressing through the stages of epistemological development students realize that there are multiple sources for knowledge and at later stages they have commitment to some ideas. Hence, Perry (1970) concluded that through the stages of development of epistemological beliefs students progressively develop more complex and integrated ways of viewing the world. Belenky, Clinchy, Goldberger, and Tarule (1986) analyzed women's ways of knowing and suggested five knowledge positions of cognitive development through which women perceive themselves and deal with the knowledge. The developmental model proposed the knowledge positions of cognitive development in women's ways of knowing which are silence, received knowledge, subjective knowledge, procedural knowledge, and constructed knowledge. The positions are particular to women which moves from the stage were authority of

knowledge viewed powerful to recognition of interrelatedness of knowledge where knowledge is constructed, destructed, and reconstructed.

Kuhn (1992) proposed the model of epistemological development in which there are three levels of epistemological understanding by examining the augmentation reasoning skills of the students. The three levels of epistemological understanding are absolutist epistemological understanding, multiplist epistemological understanding, and evaluativist epistemological understanding which are more or less similar to stages suggested by Perry. From the absolutist epistemological understanding in which the knowledge is absolute and certain, the individual moves to evaluativist epistemological understanding which is a position that the individual believes that each opinion need to be evaluated by weighing their merits as well as demerits before accepting it. Magolda (1992) conducted a longitudinal study of university students and developed epistemological reflection model which emphasized the nature of learning than assumptions about knowledge. The sequence of four ways of knowing suggested in epistemological reflection model is absolute, transitional, independent, and contextual. The absolute knower perceives knowledge as certain and handed down by authority whereas a contextual knower constructs individual perspectives of knowledge specific to context. King and Kitchener (1994) proposed reflective judgment model which explains epistemic assumptions that influence reasoning and thinking after conducting an interview with high school students, graduate

students, and adult learners. The model suggested seven stages in development of knowledge that are categorized in to three levels such as pre-reflective level, quasi-reflective level, and reflective level. The pre-reflective level includes the stages such as knowledge exists absolutely and concretely, knowledge is obtained directly through senses, and knowledge is obtained from authorities. The quasi-reflective level includes the stages such as knowledge is uncertain and knowledge is contextual as well as subjective. The reflective level includes the stages such as knowledge is constructed into individual conclusions and knowledge is the outcome of process of reasonable inquiry.

### **Dimensional Approach**

Another approach to study the personal epistemology of individuals is dimensional approach. The dimensional approach to the study of epistemological beliefs views epistemological beliefs as a set of more or less independent system of beliefs. Schommer (1990) pioneered the multidimensional approach to personal epistemology by reviewing and reconsidering the works of developmental approach to epistemological beliefs. Recent researches in epistemological beliefs are mainly based on the dimensional approach and another important model was developed by Hofer and Pintrich (1997). The followers of dimensional approach to epistemological beliefs perceived epistemological beliefs as that develop as



independent dimension rather than a uniform stage which develop in synchrony. Thus, according to dimensional view epistemological beliefs develop as a multidimensional concept which explains how an individual move through a patterned sequence in their development of beliefs about knowledge and knowing.

Schommer (1990) viewed epistemological beliefs as a multidimensional construct which includes a system made of almost independent dimensions about knowledge and nature of knowing. Schommer (1990) re-conceptualized the one dimensional construct of personal epistemology and suggested a multidimensional constructs of epistemological belief system which explained beliefs about nature of knowledge and also the nature of learning. The multidimensional model of epistemological belief system consists of five dimensions such as certainty of knowledge, source of knowledge, structure of knowledge, speed of knowledge acquisition, and control of knowledge acquisition.

According to Jehng, Johnson and Anderson (1993) learning beliefs consist of the five dimensions such as certainty of knowledge, omniscient authority, orderly process, innate ability, and quick learning. Certainty of knowledge means that the knowledge is more likely to be certain and unchanging rather than tentative and unpredictable. Omniscient authority dimension explains that knowledge is handed down by teachers and other

experts rather than formed by independent reasoning. The dimension of orderly process describes that learning process tend to be systematic than irregular. Innate ability explains that the ability to learn is innate rather than acquired. Learning is an immediate rather than a slow process of accumulating knowledge is explained by the dimension quick learning.

Hofer and Pintrich (1997) reviewed the developmental and dimensional approaches in epistemological beliefs and proposed a theoretical model that describes about the four dimensions of nature of knowledge and knowing. The four dimensions are certainty of knowledge, simplicity of knowledge, source of knowledge, and justification of knowledge. The nature of knowledge is described by using the dimensions of epistemological beliefs such as certainty of knowledge and simplicity of knowledge. The nature of knowing part is described with the help of epistemological dimensions such as source of knowledge and justification of knowledge. Buehl (2003) described epistemological beliefs in terms of the structure of knowledge (simplicity or complexity), the stability of knowledge (changing from one to another one), the source of knowledge (authority or experience), the nature of knowledge (quickly or gradually), and the ability of learning (innate or effort in times).

## **Perry's Theory of Epistemological Development**

Perry (1968) studied college students' ideas about the nature of knowledge and identified nine positions in intellectual and ethical development of the students. The first half of the theory of epistemological development described in Perry's theory is focused on intellectual development and the other part is focused on ethical, moral, and identity development. Perry (1968) analyzed and interpreted Harvard University undergraduate students' educational experiences and found that majority of the first year students believed that knowledge is simple, certain, and handed down by omniscient authority, while majority of the fourth year students believed that knowledge is complex, tentative, and derived through reasoning. Thus, Perry (1968) developed the nine positions in intellectual development which ranges from dualism to relativism. The nine positions in which development of knowledge takes place can be grouped into four major categories such as dualism (positions 1 and 2), multiplicity (positions 3 and 4), relativism (positions 5 and 6), and commitment (positions 7, 8 and 9). The first three positions represent a simple right-wrong structure and their adjustment to diversity, the middle three trace the move to a generalized relativistic structure in which students face the issue of identity through personal commitment in a relative world and the last three represent stages in the growth of commitment (Culver & Hackos, 1982). The nine positions are described as follows:

**Position 1: Basic Duality**

Epistemologically the outlook assumes that knowledge consists of a set of right answers known by the authorities and existing in the absolute, in position one. An individual who is in this position perceives any knowledge, act, or value to be either right or wrong. It is assumed that there is right answer for everything and all answers are either right or wrong. The authorities know which is right and which is wrong and authority cannot be separated from the absolute. The knowledge is certain and any knowledge or act that differs from authority is considered as wrong or evil (Perry, 1968). The learner believes that the truth relies with the authority and receives knowledge from the authority.

**Position 2 : Multiplicity Pre-legitimate**

The Position two is characterized by the student's temperamental and developmental tendency either toward compliance (Adherence) or revolt (Opposition) in relation to authority (Perry, 1968). The individual begins to believe that diversity in opinion exists. Students perceive authorities in question as he presents complexities to the students and helps student to find out the right answers through their own efforts. The authority wants the students' to explore their own truth and places an unwarranted hindrance to the right answer. The individual in this position believes that authorities does not know what is right and wrong and student's go for their own exploration

or multiplicity. Multiplicity refers to plurality of answers. The students become aware about the multiplicity of opinion (Perry, 1970).

### **Position 3: Multiplicity Subordinate**

A person in this position accepts the multiplicity or uncertainty and diversity as unavoidable and legitimate but only in areas where authority has not attained the right answers. The individual believes that uncertainties exist and authorities are trying to find out the right answers or truth (Perry, 1968).

### **Position 4: Multiplicity Correlates or Relativism Subordinates**

In position four, the multiplicity attains a status of a realm of its own, correlate with and over against the world of authority. The position is characterized by two alternative views of the students such as multiplicity correlates and relativism subordinates. In multiplicity correlates, the individual believes that the multiplicity of opinion correlates with absolutism in which right answers are known. Everyone has their own right and there is no absolute right and wrong. The individuals are in a position to understand that the solutions proposed by others are right according to them and the authority wants the individual to arrive at a solution of their own. Relativism subordinate emphasizes that knowledge or truth is not absolute and different approaches exist for one problem for developing one's own thought. Relativism means that the knowledge, truth and morality exist in relation with culture or societal context and are not absolute. (Perry, 1968)

**Position 5 : Relativism Correlate, Competing or Diffuse**

A person in this position perceives relativistic reasoning as what authority wants. The individual believes that truth and morality exist in relation with the context for which the individual seeks solution to the problem or question. The weighing of different approaches to one problem and developing of one's own thoughts occur according to the context. In this position, the individual understands that all proposed solutions have reasons and there is no right and wrong answers. The right and wrong answers may be different for different persons at different time. The individuals have to evaluate the solutions with respect to the context because depending upon the contexts some solutions is better than others. The old believes and identity breakdown are diffused in relation with authority (Perry, 1968,1970).

**Position 6: Commitment Foreseen**

The implication of commitment began to experience by an individual in this position. This position describes a realization of a necessity to commit oneself in a realistic world. The person understands that the realistic world provides plenty of opportunities. The individual also recognizes the necessity of making choices from the alternatives for arriving at a suitable solution for the problematic situation. The individual starts to develop strong belief about an idea or an opinion by relating with the realistic world. The individual is in a position to reason and justify their opinion and ideas assuming at the same

time that the choice is existing. Commitment refers to a person's affirmation of personal values or strong belief in idea or system and orientation in a relative world (Perry, 1968).

### **Position 7: Initial Commitment**

A person in this position is able to undertake his own responsibilities as well as decisions in his/her own life. On the basis of reasoning and evidences the individual starts to believe that some ideas are more reliable than others. The individual begins to learn from experiences and make reflections about their own activities (Perry, 1970).

### **Position 8: Orientation in Implications of Commitment**

A person in this position has begun to experience the implications of commitment and to relate their experiences with the realistic views. The individual relate their experience with the commitment by exploring the subjective issues. The students also start to explore the issues of responsibility (Perry, 1968).

### **Position 9: Developing Commitment**

A person in this position has developed a maturity in which they are in a position to believe their own values and what they think is justifiable and logical. The individual has developed the maturity in which his identity was affirmed in his commitment and associated responsibilities. The individual is

aware that others may think differently as well as in a position to respect others and to learn from others. The person is also aware that the commitment is an ongoing activity and ready to reconsider their views (Perry, 1970).

The nine positions explained by Perry (1968) in theory of epistemological development are summarized in Figure 2.

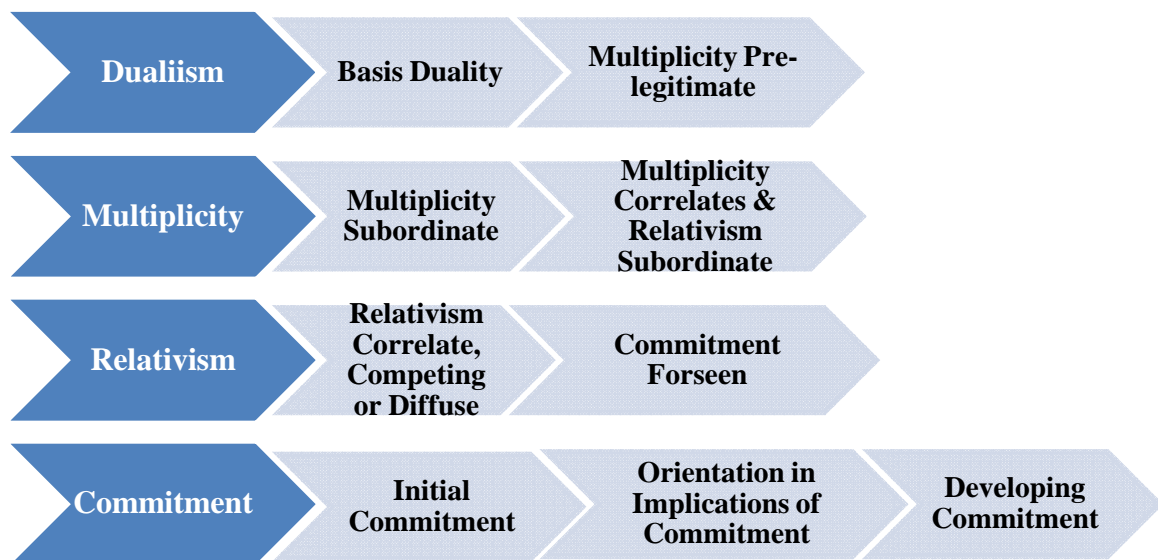


Figure 2. Positions in Theory of Epistemological Development by Perry (1968)

Among the four categories, a person who believes in dualism views knowledge as right or wrong, dualistic, or absolute. The learner believes that there is only one truth and receives knowledge from authorities. The learner who passes to the multiplicity stage recognizes the diverse views of knowledge and the uncertainty of knowledge. The relativism position helps



the learner to understand that there is no right and wrong even though the role of self becomes more dominant. The individuals are able to accept that some views are better than others. The commitment stage helps the learner to establish personal identity by developing commitment within a relativistic world. The person moves from a dualistic view point through multiplicity and contextual relativism to position themselves with commitment in a realistic world.

### **Schommer's Theory of Epistemological Beliefs**

Schommer (1990) conceptualized personal epistemology as a belief system comprised of multiple dimensions of beliefs about nature of knowledge and the nature of knowledge acquisition i.e. leaning. Schommer has systematically studied epistemological beliefs in relationship with different aspects of learning and conceptualized epistemological beliefs as a set of relatively independent beliefs about the structure, source, and certainty of knowledge as well as the control and speed of knowledge acquisition. Five dimensions of epistemological beliefs are proposed by Schommer (1990, 1994). The dimensions of epistemological beliefs are:

- Certainty of knowledge
- Structure of knowledge,
- Source of knowledge,

- Control of knowledge acquisition and
- Speed of knowledge acquisition.

The five dimensions are clustered into three areas such as beliefs about nature of knowledge, beliefs about the process of knowing, and beliefs about nature of learning. Certainty of knowledge and structure of knowledge describes about the individuals beliefs about the nature of knowledge. The source of knowledge explains the beliefs about the process of knowing. Control of knowledge acquisition and speed of knowledge acquisition describes about the nature of learning.

The *certainty of knowledge* refers to belief that knowledge is more likely to be certain and unchanging rather than tentative and unpredictable. A belief in how certain knowledge is ranging from highly certain to highly uncertain. It refers to the extent to which the respondent thinks that knowledge is certain versus imperfect and subject to change. In short, it deals with the belief that knowledge is absolute or certain to knowledge is tentative and evolving (Schommer, 1990,1994).

The *structure of knowledge* is the extent to which a person sees knowledge as a group of individual facts or as concepts that are related to each other. If a student believes knowledge as series of unrelated facts, he tries to memorize the concepts and key terms in the subject. The student who believes knowledge consists of interrelated ideas tries to understand the

information and concepts and make connections with real life situations. In structure of knowledge, the belief of individual extends from knowledge is simple and organized as isolated facts to knowledge is complex and organized as interrelated concepts (Schommer, 1990, 1994).

The *source of knowledge* refers to the belief that knowledge is handed down by teachers and other experts rather than formed by independent reasoning. This belief references whether the knowledge comes from oneself and one's own experience or from authorities such as teachers, text books or experts in the field. The belief of the learner ranges from knowledge is handed down by authority to knowledge as a product of reasoning (Schommer, 1990, 1994).

The dimension, *control of knowledge acquisition* refers to the ability to learn extending from fixed or uncontrollable and cannot be changed to improved and controlled over time. The people views ability to learn as innate ability or can be changed. Some students believe that the ability to learn is fixed at birth while others believe that people can learn how to learn and their ability can be developed (Schommer, 1990, 1994).

The *quick learning* relates to the speed of learning which ranges from learning as an immediate rather than a slow process of accumulating knowledge. Some students believe that learning happens quickly while others believe that learning happens gradually (Schommer, 1990).

The re-conceptualization of epistemological beliefs by Schommer (1990) analyzed the epistemological beliefs of first year and sophomore college students proposed that the beliefs of learners ranging from naïve beliefs to sophisticated beliefs as they proceed in their grade level. The research shows that learning beliefs affect the degree of students' active involvement and persistence in learning, and play an important role in reading comprehension, mathematical problem solving, formation of conceptual understanding, and coping with ill-structured questions or tasks (Schommer, 1994).

### **Measuring Epistemological Beliefs**

By reviewing the literature in epistemological beliefs the investigator identified various tools used to measure epistemological beliefs of students at different levels. Some of the tools used to measure epistemological beliefs of students are described below.

Schommer's Epistemological Questionnaire (SEQ) developed by Schommer (1990) is one of the popular tools used to assess the dimensions of epistemological beliefs. Schommer developed and validated the questionnaire to measure the five dimensions of personal epistemology such as source of knowledge, structure of knowledge, certainty of knowledge, control of knowledge, and speed of knowledge acquisition of first year and sophomore college students. The initial version of questionnaire consists of 63 items

divided into 12 subsets and the factor analysis loaded four factors which tested the predictive validity of the questionnaire. The questionnaire was validated in various studies (Schommer, 1992; Schommer & Walker, 1997; Schommer, Crouse, & Rhodes, 1992; Schommer-Atkins, 1994).

The revision of Epistemological Questionnaire was carried out by many researchers. Qian and Alvermann (1995) revised Epistemological Belief Questionnaire and renamed as Revised Epistemological Questionnaire which consist of 32 items related to the four factors by eliminating the factor omniscient authority. Chan and Elliott (2002) carried out a revision of Schommer's Epistemological Questionnaire and developed Epistemological Beliefs Questionnaire. The instrument which initially consisted of 45 items then reduced to 35 items on the four factors. The internal consistency of the items on Cronbach alpha coefficient value ranges from .60 to .70.

Hofer (2000) developed a discipline focused epistemological beliefs questionnaire based on Schommer's Epistemological Questionnaire to assess the specific belief in psychology and science. The instrument consists of 18 items on four factors such as certain/simple knowledge, justification for knowing, source of knowledge, and attainability of truth. Beliefs about learning Questionnaire was developed by Jehng, Johnson, & Anderson, (1993) which consist of 60 statements that requires students to respond on a

seven point scale based on the five dimensions certain knowledge, omniscient authority, rigid learning, innate ability, and quick process.

The Epistemic Beliefs Inventory (Schraw, Bendixen, & Dunkle, 2002) consisted of 28 items related to the five hypothesized beliefs by Schommer (1990) which measured the aspects related to general epistemological beliefs of undergraduate psychology students. The Epistemic Beliefs Inventory included the dimensions such as certainty of knowledge, simple knowledge, quick learning, omniscient authority, and innate ability. The test retest reliability coefficient obtained for the inventory is .78.

Epistemological Belief Survey for Mathematics developed by Wheeler (2007) is used to measure mathematics related beliefs of university students. Ten to twelve statements were included in the instrument based on the dimensions such as source of knowledge, certainty of knowledge, structure of knowledge, speed of knowledge acquisition, innate ability-general, innate ability-personal, and real-world applicability. The instrument consists of 75 items with alpha coefficient estimate of internal consistency .93.

### **Theoretical Overview of Achievement Goals**

Achievement goal orientation, the aspect of motivational constructs plays a prominent role in determining students' achievement and learning. Motivation is an important determinant of learning and academic performance. Student motivation is a complex psychological process which

includes many personal and situational reasons for the motivated and demotivated behavior of the learner. Motivation to learn is a combination of intrinsic and extrinsic motivation. Children are intrinsically motivated when performing and learning by setting goals within themselves. Whereas, the extrinsically motivated student engage in the academic activity for the sake of material or other rewards that are not intrinsically related to learning. Achievement motivation governs the behavior related to achievement and learning. Among the various approaches to explain achievement motivation, the goal approach to achievement motivation explained adaptive and maladaptive motivational factors.

Competence is the essence of the achievement goal construct. Competence is defined in terms of the referent or standard that is used in performance evaluation (Elliot & McGregor, 2001). Competence or standard is divided into absolute, intrapersonal, and normative. The absolute standard means one has acquired understanding or mastered a task. The intrapersonal standard means improving one's performance or fully developed one's knowledge and skills or compares one's own performance with their own past attainment or maximum potential attainment. Normative standards mean that improving one's performance better than others. Absolute and intrapersonal competences have many conceptual similarities as they both represent mastery of task and the development of one's knowledge. The competence is

valenced in terms of positive which means approaching success and negative which means avoiding failure (Elliot & McGregor, 2001).

The goal adopted by the students is an important factor of students' motivation as it provides proper direction and purpose to engage in an activity for the students (Pintrich & Schunk, 1996). An achievement goal is commonly defined as the purpose for engaging in a task and the specific type of achievement goal adopted by the individual creates a framework for how individuals experience their achievement pursuits. An achievement goal concerns the purposes of achievement behavior (Ames, 1992). Achievement goals are defined as involving a program of cognitive processes that have cognitive, affective, and behavioral consequences (Elliott & Dweck, 1988). Achievement goals are the different ways of approaching, engaging in and responding to achievement related activities by an individual (Dweck & Leggett, 1988). Achievement goals are concrete cognitive representations that direct individuals towards specific end states (Elliot & McGregor, 2001). It has emerged as a dominant framework for studying motivation and competence in academic achievement. The individual give meaning to their achievement on the basis of achievement goal adopted by them. Achievement goals and orientations are assumed to be cognitive representations of what individuals are trying to do or what they want to achieve and are more domain, situation, or task specific (Elliot & Thrash, 2001). Achievement goal refers to the achievement oriented or achievement directed behavior where



success is the goal (Roberts, 2006). Achievement goals are conceptualized as cognitive–dynamic aims that focus on competence and any given achievement goal is thought to contain components from two independent competence dimensions (Elliot & Murayama, 2008). Thus, achievement goals can be described as the cognitive representations as well the activities done by the individuals while approaching and engaging in academic related activities which are directed towards the specific academic goals.

### **Achievement Goal Theory**

Achievement goal theory assumes that individual is an intentional as well as goal directed organism that operates in a rational manner. The researchers in achievement motivation identified that the type of achievement goals pursued by the students influences the motivational process (Dweck & Elliott, 1983; Nicholls, 1984; Elliott & Dweck, 1988; Ames, 1992; Elliot & McGregor, 2001; Elliot & Thrash, 2001). The achievement beliefs and behaviours related to achievement are governed by the achievement goals adopted by the individual.

### **Dichotomous Framework of Achievement Goal Theory**

Traditional achievement goal theory or normative goal theory were viewed and analyzed achievement goals on a dichotomous framework. In 1983, the original goal models by Dweck and Elliott identified two classes of goals such as performance goals and learning goals. The purpose of

performance goal is to validate one's ability or avoid demonstrating a lack of ability. By adopting a performance goal the individual aims to gain favorable judgments of their competence or avoid negative judgments, predicted to produce challenge-avoidance and learned helplessness when perceived ability was low and to promote certain forms of risk-avoidance even when perceived ability was high. On the other hand the purpose of learning goals is to acquire new knowledge or skills. By adopting learning goals the individual aims to increase their competence, predicted to promote challenge-seeking, and a mastery-oriented response to failure regardless of perceived ability (Elliott & Dweck, 1988).

Nicholls (1984) identified achievement behavior into two categories such as task-involved goals and ego-involved goals instead of learning goal and performance goal. An individual who adopts task-involved goal tries to achieve mastery of subject, improve learning, and uses self-referenced measures to demonstrate their ability. The goal of action of an individual who adopts ego-involved goal is to demonstrate their ability with reference to others and tries to outperform others in all activities or being better related to others (Nicholls, 1984, 1989).

According to Ames and Archer (1988), the achievement goals are classified into performance goals and mastery goals. An individual with performance goal orientation aims to show evidence of their ability by

outperforming others and by being successful with little efforts. Whereas, an individual with mastery goal orientation gives much importance to development of skills, process of learning, and dependent on efforts which help to master the task. Hence, the achievement goals are bifurcated into mastery goal orientation and performance goal orientation.

Thus, the normative goal theory or dichotomous framework of achievement goal classifies achievement goals as mastery goal or task-involved or learning goal and performance goal or ego-involved or ability goals. The terms “mastery goal”, “task involved goal”, and “learning goals” are used to explain the goal pursued by the learner that focuses on mastering of task or learning. Whereas, the terms such as “performance goal”, “ego involved goal”, and “ability goals” are used to explain the goal pursued by the learner that focuses on improving their ability or performance better than others.

### **Trichotomous Framework of Achievement Goal Theory**

The trichotomous framework of achievement goal theory bifurcate the performance approach goal into performance-approach goal and performance-avoidance goal by understanding the shortcomings of dichotomous framework of achievement goal theory (Elliot & Harackiewicz, 1996). Thus, the achievement goal construct consists of three types of goals such as performance-approach goal, performance-avoidance goal, and mastery goal.

The performance goal construct is divided into two as approach-avoidance valence. A performance-approach goal is focused on attaining competence relative to others and to demonstrate one's ability or competence to others. An individual who adopts a performance-approach goal towards learning is concerned most with the outcome of learning in particular and tries to outperform others and concentrate on attainment of normative competence. A performance-avoidance goal is focused on avoiding incompetence relative to others or avoidance of normative incompetence. With performance avoidance goal the student is concerned with the avoidance of demonstration of low ability in front of others and tries to avoid situations demonstrating one's incompetence. On the other hand, the mastery goal orientation focuses on the development of one's competence and mastery of task. A student who adopts a mastery goal towards learning is concerned most with the process of learning rather than the product/ outcome and believes that efforts lead to improvement in performance. Thus, the mastery goal focuses on the development of one's own competence, performance-approach goal focuses on the favourable judgment of competence by others and performance-avoidance goal focuses on avoiding the situations or activities which leads to unfavourable judgment of competence of an individual. Mastery and performance-approach goals were aimed at the development of potential positive outcomes whereas performance-avoidance goals concentrated on

potential negative outcomes (Elliot & Harackiewicz, 1996; Elliot & Church, 1997; Elliot, 1999; Middleton & Midgely, 1997; Pintrich, 2000b; Elliot, 2005).

### **2 X 2 Achievement Goal Theory Framework**

The trichotomous classification was revised by bifurcating the mastery goal into mastery-approach goal and mastery-avoidance goal. Thus, the trichotomous framework is extended to 2 X 2 achievement goal framework by adding mastery-avoidance goal (Pintrich, 2000a). According to (Pintrich, 2000a), the mastery goals also have the approach and avoidance version in addition to performance-approach goals and performance-avoidance goals. The trichotomous framework divide only the performance goal into approach and avoidance perspective but in the 2 X 2 framework the distinction of approach-avoidance is also extended to mastery goal (Pintrich, 2000a; Elliot and McGregor, 2001). Thus, the achievement goals were extended to four types of goal such as mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goals. The 2 X 2 achievement goal framework includes the combination of definition and valence dimensions of mastery and performance goal. According to Elliot and McGregor (2001), in the trichotomous framework the mastery goal is treated as mastery-approach goal that defined competence in absolute or intrapersonal terms where the individual strives to attain mastery of the task as well as to improve their performance compared to their past performance or potential attainment and

is positively valenced. Mastery-avoidance goal construct defined competence in terms of absolute or intrapersonal terms where individual strives to master the task or one's own pattern of attainment and is negatively valenced in which incompetence is the focal point of regulatory attention. Mastery-avoidance goals were described as a focus on avoiding self-referential or task-referential incompetence (Elliot, 2005). The performance-approach goal defined competence in normative terms where the individual strives to improve their performance better than others and is positively valenced. The performance-avoidance goal defined competence in normative terms where the individual sets standard to perform better than other by avoiding situations which shows their incompetence and is negatively valenced (Pintrich, 2000a; Elliot & McGregor, 2001). The approach - avoidance states of achievement goal for mastery and performance goals are described by Pintrich (2000a) is given in Table 1.

Table 1

*Approach-Avoidance States of Achievement Goal (Pintrich,2000a)*

	Approach State	Avoidance State
Mastery Goal	Focus on mastering task, learning, and understanding	Focus on avoiding misunderstanding, not learning or not mastering the task
	Use of standards for self improvement, progress, and deep understanding of task	Use of standards of not being wrong, not doing it incorrectly relative to task
Performance Goal	Focus on being superior, best, or smarter, and best in task than others	Focus on avoiding inferior, avoiding situation treating stupid, or dump in comparison with others.
	Use of normative standards for getting highest, or top grades, or for becoming best performer than others	Use of standards for not getting lowest grades, or for not performing worst than others

**3 X 2 Achievement Goal Theory Framework**

Elliot, Murayama and Pekrun (2011) worked on the 2 X 2 framework of achievement goal construct and developed a distinct framework which was separate from the mastery–performance distinction. They referred performance goals as other-oriented goals and mastery goals were distinguished into task-oriented and self-oriented goals. The approach-avoidance distinction was made to the task-oriented goal, self-oriented goal, and other-oriented goal to form the 3 X 2 framework on achievement goals. Thus, the 3 X 2 achievement goal model comprised of task-approach goal, task-avoidance goal, self-approach goal, self-avoidance goal, other-approach goal, and other-avoidance goal. The task-approach goal focused on the

attainment of task-based competence, a task-avoidance goal focused on the avoidance of task-based incompetence, a self-approach goal focused on the attainment of self based competence, a self-avoidance goal focused on the avoidance of self-based incompetence, other-approach goal focused on the attainment of other-based competence, and other-avoidance goal focused on the avoidance of other-based incompetence. The brief summary of various frameworks of achievement goal theory is given in Figure 3.

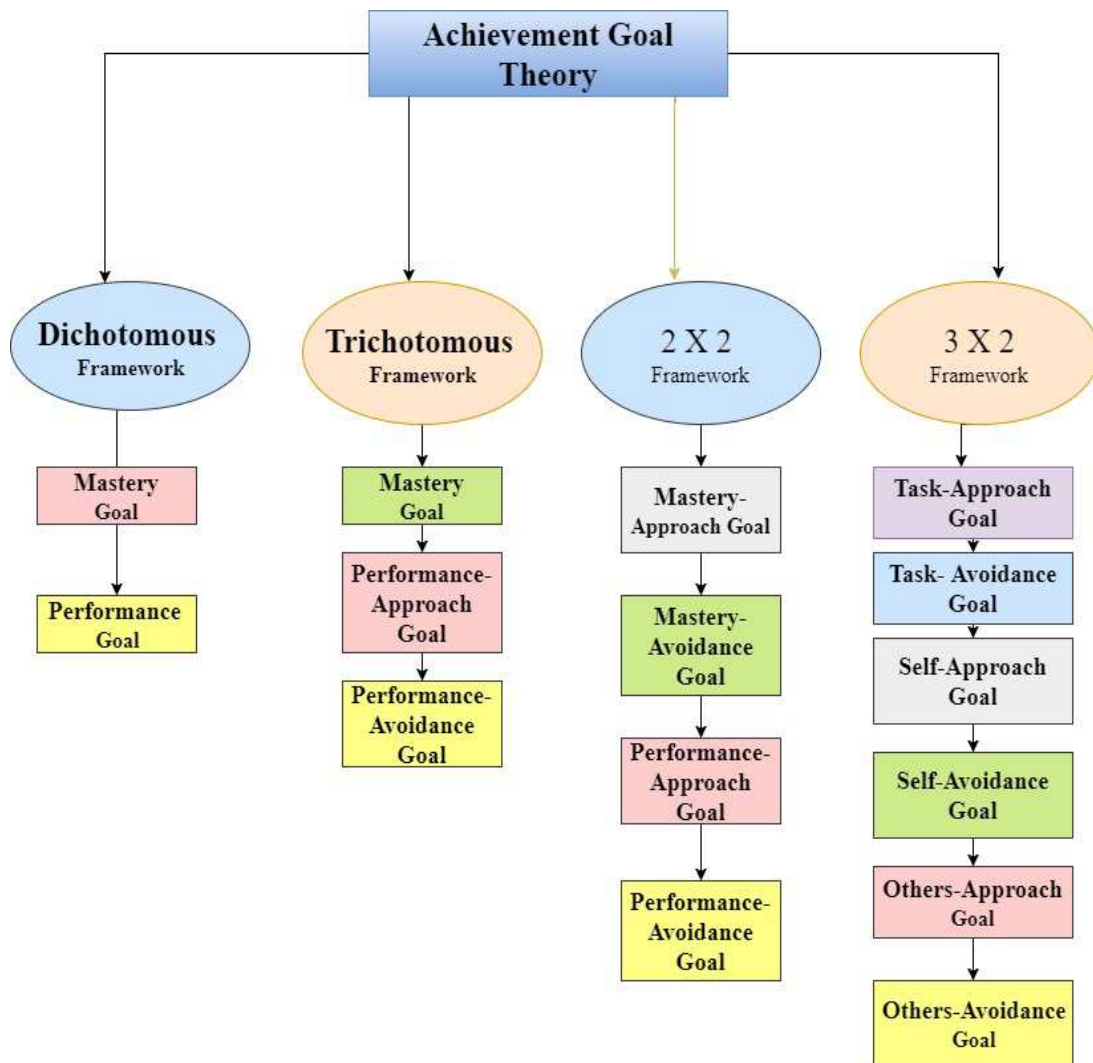


Figure 3. Summary of Achievement Goal Theory Frameworks



## Measurement of Achievement Goals

A large number of tools are developed to measure the achievement goal from dichotomous framework to 3X2 framework. Some instruments used to measure achievement goals are described below:

Roedel, Schraw, and Plake's (1994) developed Goals Inventory to measure the learning and performance goals of college students. The Goals Inventory consists of 25 statements related to attitudes and behaviors that reflect either learning or performance goals. The sub scales of Goals Inventory included 12 items related to learning goals and the remaining 13 items were related to performance goals. The test-retest reliability of items related to learning goals was  $r = 0.73$  and for the performance goals sub scale  $r = 0.76$ . Eppler and Harju (1997) used the Goal Inventory in their study and the Cronbach's alpha was calculated. For the learning goals sub scale, the alpha coefficient is .85 and for the performance goals sub scale the alpha coefficient is .75.

Elliot and Church (1997) devised Achievement Goals Questionnaire to assess the achievement goals of college students. The Achievement Goals Questionnaire is a seven point scale which consists of 18 items. Among these items, six questions were related to mastery goals, six were related to performance-approach goals, and another six were intended to measure performance-avoidance goals. The 18 items in the questionnaire were rated on

a 4 point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Cronbach's alpha for the items were calculated to ensure the reliability. The Cronbach alpha coefficient for mastery goal, performance-approach goal, and performance -avoidance goal are .77, .79, and .85 respectively.

Midgley et al. (1998) developed Patterns of Adaptive Learning Survey (PALS) to assess students' achievement goal orientation on three dimensions of achievement goal such as mastery goal, performance-approach goal, and performance avoidance goal. The instrument consists of 14 items on personal goal oriented in which responses to be marked on a three point Likert scale. Out of 14 items, 5 items represent mastery goal, 5 items represent performance-approach goal, and 4 items represent performance-avoidance goal. The Cronbach alpha coefficient calculated for mastery goal, performance-approach goal, and performance-avoidance goal orientations are .89, .74, and .83 respectively.

Elliot and McGregor (2001) designed an Achievement Goal Questionnaire to assess each of the four achievement goals in the 2 X 2 framework. The items related to mastery-approach goal, performance-approach goal, and performance-avoidance goal were adopted from the tool developed by Elliot (1999), and Elliot and Church (1997). The new items for mastery-avoidance goal were added to measure the 2 X 2 framework of achievement goals. The revised Achievement Goal Questionnaire (AGQ-R)

consisted of 12 items which is equally divided representing the four types of achievement goals i.e. mastery-approach goal, mastery-avoidance goal, performance-approach goal, and performance-avoidance goal. The 12 items in the questionnaire were rated on a 7-point Likert scale. The validity of the instrument was ensured through factor analysis. The Cronbach's alpha coefficient obtained for the tool is .68. Coutinho and Neuman (2008) used the Achievement Goals Questionnaire in their study and the overall Cronbach's alpha coefficient for the items calculated was .83. Based on the Achievement Goal Questionnaire, Elliot and Murayama (2008) revised and developed an Academic Goal Questionnaire-Revised (AGQ-R) to measure the 2 X 2 framework of achievement goals. The questionnaire consisted of 12 statements to measure mastery-approach goal, mastery-avoidance goal, performance-approach goal, and performance-avoidance goal on a five-point scale ranging from strongly disagree (1) to strongly agree (5).

The Achievement Goal Inventory developed by Grant and Dweck (2003) measured the goal orientation factors such as outcome goals, ability goals, normative goals, and learning goals. The normative goals included normative outcome and normative ability goals. The learning goals included learning and challenge-mastery goals. The final version of Achievement Goal inventory consisted of 18 items representing three items each from the six goal orientation factors. The factor analysis showed that the alpha coefficient for outcome goals, ability goals, normative goals, and learning goals were .85,

.81, .92, and .86 respectively. The test retest reliability revealed moderate correlation of .79.

Elliot, Murayama, and Pekrun (2011) devised 3 X 2 Achievement Goal Questionnaire (AGQ) to measure the six achievement goals of under graduate students. The Achievement Goal Questionnaire consisted of 18 items dividing three items to represent task-approach goal, task-avoidance goal, self-approach goal, self-avoidance goal, other-approach goal, and other-avoidance goal. The respondent has to mark their responses on a 7 point Likert scale ranging from 1 (not true to me) to 7 (extremely true to me).

Gafoor and Kurukkan (2015) developed Academic Goal Orientation Inventory to assess the 2 X 2 framework of achievement goal orientation of senior secondary students. The purpose of the inventory is to identify performance-approach, performance-avoidance, mastery-approach, and mastery-avoidance goal orientations of adolescent students. Item analysis was done and the discriminating power of items in performance goal orientation ranges between .31 to .68 and for the mastery goal orientation items, the discriminating power ranges between .33 to .69. Construct validity of the test is ensured by the investigators. The items loading greater than .30 are included in the final tool which consists of 15 stem statements. Cronbach's alpha coefficient obtained for performance goal orientation is .83 and for mastery goal orientation is .75. The test retest correlation coefficient

obtained is .98 for performance-approach, .98 for performance-avoidance, .99 for mastery-approach, and .97 for mastery-avoidance.

### **Theoretical Overview of Self Regulated Learning Strategies**

Self regulation plays an important role in student learning, learning outcomes, and academic performance in classroom context. (Zimmerman, 1989; Pintrich & De Groot, 1990; Zimmerman, 1994; Schunk, 1994; Vrugt & Oort, 2008; Chandran & Kadiravan, 2012). The theories of constructivism and social learning theory form basis for self regulation. The social cognitive theory of self regulation by Bandura (1991) brought together the behavioural and cognitive components and concluded that human beings are able to control their behavior by using self regulation process. According to Zimmerman (1989), the three sub functions of self regulation are self-observation, self-judgment, and self-reaction. Self-observation provides information need for setting goals and ways of realizing these goal as well as monitors and adjusts the behavior according to the situation. Self-judgment process helps an individual to evaluate the consequences of their own behavior and to compare their performance either with personal standards or with the performance of others. Self-reaction is reflection about accomplishments and dissatisfactions as a consequence of their behavior and provides self-reinforcement and self-punishment by comparing with the standards. Self-efficacy beliefs or people's beliefs about their ability to

succeed exert a strong influence on the self regulation process or human thought, affect, motivation and action. The choices made by the individual, their aspirations, the efforts used by the individual to accomplish the task, techniques used to adapt with the difficulties and setbacks, stress experienced while coping with environmental demands, and supporting measures taken by the individual are affected by people's beliefs in efficacy (Bandura, 1991).

Self regulated learning is defined as those specific processes in which students are metacognitively, motivationally, and behaviourally active participants in their own learning (Zimmerman, 1986). The metacognitive processes mean the students plan, set goals, organize, monitor, and self evaluate the learning process at various levels. The motivational processes mean self-efficacy, self-attribution, and intrinsic interest in the task of the learner. The behavioural process includes the activities done by the students to select, create, and structure the classroom environment to optimize their learning (Zimmerman, 1990). According to Zimmerman (1989), self regulated learning involves the regulation of three aspects of academic learning such as self regulation of behavior, self regulation of motivation and affect, and self regulation of cognition. Self regulation of behavior involves those processes in which the student actively controls the resources available to them such as time and study environment. The self regulation of motivation and affect involves controlling the self-efficacy, goal setting, and anxiety to improve their learning. Finally, the self regulation of cognition involves the

deep processing strategies of cognitive aspects which enhance the learning process.

Boekaerts (1997) considered self regulated learning as a goal directed process to achieve the goal where the learners deliberately select the strategies to achieve the goal. The self regulated learner with the help of the appropriate metacognitive, motivational, and affective strategies tries to become successful learners. Self regulated learning is a process of self-initiated action in which the individual sets the goal, regulate their own efforts to reach the goal, self-monitors their activities (metacognition), manages time, and regulates their physical and social environment (Zimmerman & Risemberg, 1997). Pintrich (2000c) defined self regulated learning as an active and constructive process in which students set goals for their learning as well as monitor, regulate, and control their cognition, motivation and behavior to attain the learning goals. Zimmerman (1990) summarized that the self regulated learning involves the use of self regulated learning strategies by the students, the responsiveness of the students to self-oriented feedback about learning process, and independent motivational processes of the students. Thus, academic self regulation is the process by which students achieve their personal goals by regulating cognition, affect, motivation, and behavior.

## Zimmerman's Cyclical Model of Self Regulation

According to Zimmerman (2002) self regulation is a directive process in which the students transform their mental abilities to academic skill. Among the various models of self regulation, the most popular one is Zimmerman's cyclical model of self regulation (Zimmerman, 2000). The cyclical model explains that the students set goals, monitor their progress, and reflect about their performance interactively. The structures of the self regulatory processes are viewed as a multidimensional cyclical process which involves a set of three recurring phases (Zimmerman, 1986). The phases involved in the cyclical process of self regulatory learning are forethought phase, performance phase, and self-reflection phase (Zimmerman, 1986). The phases involved in the Zimmerman's (1986) cyclical model of self regulatory learning are shown in Figure 4.

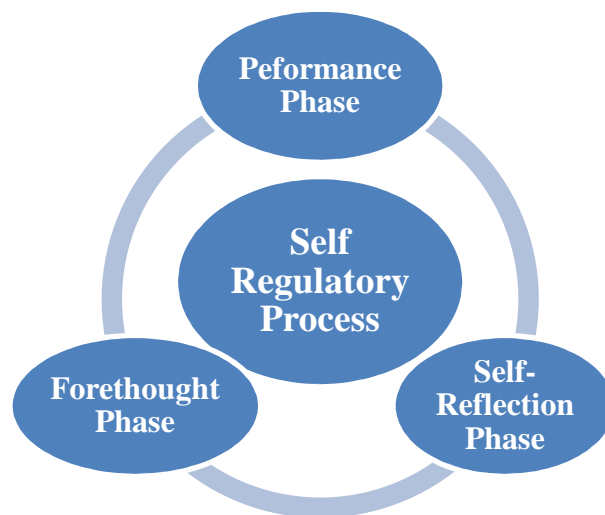


Figure 4. Zimmerman's Cyclical model of Self Regulatory Learning



The functions of each phases of the cyclical process of self regulatory learning (Zimmerman, 1986) are described below;

### **Phase 1. Forethought Phase**

The first phase is forethought phase which deals with the processes and beliefs that occur before the learning efforts. It is considered as planning beforehand which facilitates a platform for action. The forethought phase includes task analysis and self-motivation beliefs. The process of task analysis refers to those activities which involve goal setting and strategic planning. The student tries to understand the problem/ task by setting short term or long term goals of their learning experience. They also create the mental maps to find solution for the problem or to understand the task under consideration (Zimmerman, 2002). Self-motivation beliefs include self-efficacy, outcome expectations, intrinsic interest/values, and learning goal orientation. Self-efficacy beliefs refer to the personal beliefs of the student in his/her capacity to perform or learn at a designated level. The learner who engages in a task believes that they can do and have the competence to do the specific task. Here, the learners engage in those tasks which they believe they can succeed (Zimmerman, 2000). The outcome expectations means the beliefs of the learner related to the personal consequences of the learning. According to Bandura (1997), the outcome expectations of an individual in the learning process determine the action and behavior of that individual. Intrinsic interest/

value mean the capability of the student in valuing a task skill for its own merits (Zimmerman, 2002). According to Zimmerman (2000), the intrinsic interest means the students' engagement in a task for the sake of learning and mastering the task. Learning goal orientation explains the process of valuing learning process for its own merits. The students who find interest in the subject they are studying are motivated to learn in self regulated way and achieve mastery of the task (Zimmerman, 2002).

### **Phase II. Performance Phase**

According to Schunk and Zimmerman (1998) the performance phase or performance control phase refers to the strategies to control their performance to become successful in the learning process. The students engage in self-monitoring and self-control of those goals. The two processes in the performance phase are self-control and self-observation or self-monitoring. Self-control includes those processes which uses the methods and strategies selected during the forethought phase. The learner uses the self-control methods such as imagery, self-instruction, task analysis, time management, attention focusing, environmental structuring, help-seeking, interest incentives, and self-consequences (Zimmerman, 2002). The self-observation involves the use of metacognitive monitoring and self-recording or self experimentation of personal events to find out the cause of these events (Zimmerman, 2000). According to Schunk and Zimmerman (1998), self-

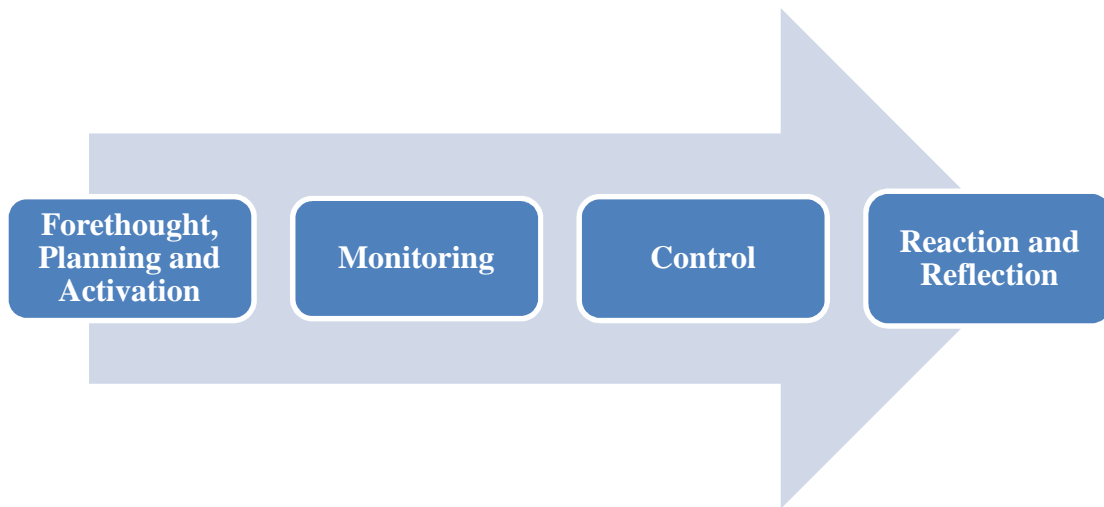
monitoring or self-observation helps the learner to update about their progress in learning tasks or the problem.

### **Phase III. Self-reflection Phase**

The third phase of self regulation is self-reflection. According to Schunk and Zimmerman (1998), students compare the outcomes to performance goals by reflecting and evaluating their reactions. The self-reflection phase includes the processes such as self-judgment and self-reaction. Self-judgment means self-evaluation and causal attribution. Students ask themselves whether they have accomplished the goals which they set in the forethought phase. They also analysis the errors occurred while attaining the goals on the basis of their beliefs (Zimmerman, 2002). In self-reaction, in order to overcome the shortcomings the leaner look for more effective methods than the ones used earlier which includes self-satisfaction and adaptive or defensive reactions. Self-satisfaction means that the students evaluate their own performance, how well the task was completed, collect feedback from peers, and compares performance with the standards. Adaptive reactions means discarding the ineffective strategy and adapting more effective methods to accomplish the standards where as defensive reactions means avoiding opportunities to learn and perform in order to protect one's own self-image (Zimmerman, 2000).

## Pintrich Model of Self Regulation

The model of self regulation based on socio-cognitive perspective proposed by Pintrich (2000c) organizes the self regulatory processes into four phases which occur in a strict linear sequence such as (a) forethought, planning and activation, (b) monitoring, (c) control, and (d) reaction and reflection. Self regulation activities in each of these phases are conceptualized to operate in all major areas of human behavior such as cognition, motivational/affective, behavioral, and contextual. The Pintrich model of self regulation is represented in Figure 5.



*Figure 5.* Pintrich Model of Self Regulation

According to Pintrich (2000c), the four steps represent a general sequence as the student carries out the task and self regulated learning process operate across cognitive, motivation/affect, behavioral and contextual areas. The phases are neither hierarchically nor linearly structured as earlier

phases must always occur before later phases (Pintrich, 2004). The details of the phases of self regulation are given below;

### **Phase I. Forethought, Planning and Activation**

According to Pintrich (2000c), the first phase of self regulation process involves planning and setting of desired goals as well as activation of prior knowledge about material, metacognitive knowledge of task (cognition), activation of motivational beliefs and task value (motivation/affect), perceptions and knowledge of the task, resources and context (context), time and effort planning, and the self-observation of behavior (behavioral).

### **Phase II. Monitoring**

The phase two is related to various monitoring processes such as metacognitive and monitoring of cognition awareness and monitoring of motivation and effect, awareness and monitoring of effort, time use, need for help, and self-observation behavior as well as awareness of different aspects of the self and task or context (Pintrich, 2004).

### **Phase III. Control**

According to Pintrich (2004), the phase three involves efforts to control and regulate different aspects of the self or task and context. It includes the selection and adaptation of cognitive strategies for learning and thinking, selection and adaptation of strategies for managing motivation and

affect, selection and adaptation of strategies which increase/decrease effort, and help-seeking behavior as well as selection and adaptation of strategies which change or renegotiate task or leave context.

#### **Phase IV. Reaction and Reflection**

Finally, the phase four represents various kinds of reactions and reflections which include cognitive judgments and attributions, affective reactions and attributions, behavior choice, and evaluation on the self and the task or context (Pintrich, 2000c).

#### **Self Regulated Learning Strategies**

Learner can improve their performance by use of learning strategies through a variety of techniques (Zimmerman, 2000; Pintrich, 2000c; Schunk & Zimmerman, 1998). According to Schunk and Zimmerman (1998), self regulated learning combines the learning strategies and mental processes in which the learners engage consciously to help them and achieve healthier gains academically. Self regulated students select and use self regulated learning strategies on the basis of feedback about the learning effectiveness in order to achieve the desired goals. Pintrich and De Groot (1990) stated that self regulated learning strategies involve the use of combination of cognitive learning strategies, metacognitive learning strategies, and resource management strategies by the student. The self regulated learning strategies combines students' metacognitive strategies for planning, monitoring, and

reflection, cognitive strategies used by the students to learn, remember, and understand the material and resource management strategies used by the students' to take control of their effort and classroom learning environment.

Self regulated learning strategies refer to the action and processes directed at acquisition of information or skills that involve agency, purpose, and instrumentality perceptions of the learner. The self regulated learners are aware of the strategic relation between regulatory process or response and learning outcomes as well the use of these strategies to achieve academic goals (Zimmerman, 1989, 1990). Self regulated learning strategies are defined as those strategies which are used by the students to regulate their cognition which involves rehearsal, elaboration, organization, critical thinking, metacognitive self regulation, time/study environmental management, effort regulation, peer learning, and seeking help strategies (Pintrich, 1999). Self regulated learning strategies help the students to plan independently, organize the learning resources, monitor and assess their learning.

A meta analysis of self regulated learning strategies conducted by Boer, Donker-Bergstra, and Kostons (2013) classified self regulated learning strategies into cognitive strategies, metacognitive strategies, management strategies, and motivational strategies. Cognitive strategies are those strategies which are lower than the metacognitive methods used by the learner to

understand and remember the learning material. Cognitive strategies involve elaboration strategies which are used to establish connection between the new learning material and the previously learned ones, rehearsal strategies which help to store information by repeating the learning material and organization strategies that are used to understand the learning material to facilitate learning. Metacognitive strategies include planning strategies and monitoring strategies to check the performance of the learner and evaluation strategies to evaluate the process or product of learning. Management strategies focus on the optimal utilization on learning environment and learning condition. It involves effort management strategies which help an individual to overcome learning difficulties, help seeking strategies which facilitates collaborative learning, and managing physical environment for acquiring information from books and by utilizing library. Motivational strategies involve those activities which focus on enhancing goal orientation task value beliefs and students' self efficacy. Thus, the self regulated learning strategies are those learning strategies which help the individual to regulate their cognition and behavior related to the academic activities. Self regulated learners take responsibility of their learning by using various cognitive, metacognitive, and resource management strategies to control and regulate their own learning.

### **Measuring Self Regulated Learning Strategies**

The tools used to measure self regulated learning strategies used by the



students identified by the investigator through review of literature are described below.

The most widely used tool for measuring self regulated learning strategies is Motivated Strategies for Learning Questionnaire (MSLQ) devised by Pintrich, Smith, Garcia, and McKeachie (1991). It is a self-reporting instrument designed to measure college students' motivational orientations and use of learning strategies in which students report themselves on a seven point Likert scale. The tool consists of two sections namely, motivation section and learning strategies section. There are 81 items in the scales representing 31 items in motivation section and 50 items in learning strategies section. The motivation section includes the sub scales such as task value, self-efficacy for learning, and test anxiety. The learning strategies section includes sub scales such as rehearsal, elaboration, organization, metacognition, time and study environment management, and effort regulation. The Cronbach's alpha coefficient calculated for the sub scale ranges between .61 and .89 for the motivational scales and for learning strategies scales between .70 and .93.

Self Regulated Learning Scale developed by Kadhiravan in 1999 to measure the self regulated learning strategies of college students consisted of 40 items in which the responses are to be marked on a five point scale. The scale is used for measuring 10 different self regulated learning strategies such

as self-evaluation, organizing and transforming, goal setting and planning, seeking information, keeping records, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, and review of records. The test-retest reliability coefficient calculated for the scale is  $r=0.79$  and the predictive validity coefficient is  $r=0.897$  (Chandran and Kadhiravan, 2012).

Self Regulatory Learning Strategy Scale (SRLSS) was developed by Usha and Seema in 1996 to measure the self regulatory learning strategies of the secondary school students. The scale consists of 56 items related to personal, behavioural, and environmental strategies to be marked on a three point Likert scale. The test-retest reliability coefficient obtained for the scale is  $r=0.77$  and construct validity coefficient is  $r=0.62$  (Seema, 2007).

To measure the self regulated learning strategies of undergraduate science students Banarjee and Kumar (2014) developed Self Regulated Learning Scale. The scale consisted of 46 items which measures the sub scales representing metacognition, behaviour, and environment strategies and 14 different self regulated learning strategies namely self-evaluation, organization, transforming, goal setting, planning, information seeking, record keeping, self-monitoring, environmental structuring, giving self-consequences, rehearsing, memorizing, seeking social assistance, and

reviewing records. The validity of the tool is ensured by using content validity and the split-half reliability coefficient obtained for the tool is .724.

Bozpolat (2016) developed the Self Regulated Learning Strategies Scale to measure the self regulated learning strategies used by university students. The scale consists of 29 items which represent eight sub scales of self regulated learning strategies such as motivation regulation, effort regulation, planning, attention focusing, using additional resources, summarizing strategy, emphasis strategy, and self direction. The reliability alpha coefficients for the sub scales of the six point scale ranges from .68 to .79.

### **Review of Related Studies**

This section deals with the review of empirical studies related to the variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies. It also deals with the empirical studies related to Accountancy subject. The investigator has gone through a large number of studies related to the variables under consideration but only relevant and recent studies are included under this section.

### Studies on Epistemological Beliefs

Ekinci (2017) examined the relationships between teaching and learning conceptions and epistemological beliefs of lower-secondary education teachers. The sample for the study comprised of 184 lower-secondary school teachers. The data were collected by using Epistemological Belief Questionnaire (EBQ) and the Teaching and Learning Conception Scale. The results of analysis of variance revealed that lower-secondary teachers' level of epistemological beliefs about the authority/expert knowledge and learning effort/process was found to be high and regarding the innate/fixed ability was found to be average and teachers' beliefs regarding the certainty of knowledge is low. The regression analysis indicated that the teachers' epistemological beliefs are significant predictor of constructivist ( $R=.63$ ,  $R^2= .40$ ,  $p< .01$ ) and traditional teaching learning conceptions ( $R=.60$ ,  $R^2= .36$ ,  $p< .01$ ).

Feinkohl, Flemming, Cress, and Kimmerle (2016) investigated the impact of epistemological beliefs and cognitive ability on recall and critical evaluation of scientific information. The findings showed that the participants who are having more sophisticated and domain specific epistemological beliefs were able to recall the scientific information and having more critical evaluation. The findings also showed that the cognitive ability is not related to critical evaluation as well as there is no interaction effect of epistemological

beliefs and cognitive ability of participants on recall or critical evaluation of scientific information.

Gu (2016) investigated the contribution of epistemological beliefs in students problem solving process and scientific inquiry. The results of the study indicated that there exist difference in students' self-reported epistemic beliefs and beliefs revealed from practices. Students who hold sophisticated epistemic beliefs of the nature of knowing engaged actively in acquiring information from multiple sources and used it to support their claims than those who hold less sophisticated beliefs. The evidences also supports that engaging in problem based learning unit helps the students to develop more sophisticated epistemic beliefs and scientific inquiry practice.

A person centered approach to understand the epistemological beliefs in science of high school students was conducted by Kampa, Neumann, Heitmann, and Kremer (2016). The profile of epistemological beliefs in science of 4995 tenth grade students were collected and analyzed for the dimensions of epistemological beliefs in science such as justification, development, source, and certainty. The results revealed that majority of the students show same epistemological beliefs in science for all dimensions. By analyzing the data with respect to gender, it showed that female students tend to belong to the sophisticated and slightly sophisticated groups and male students tend to belong to multiplistic and evidence-based/dynamic group.

The relation between epistemological beliefs and academic achievement was explored by Arslantaş (2015). Epistemological Belief Scale was used to collect data from the sample of 353 teacher candidates. The dimensions of epistemological beliefs such as belief of learning depending on effort, belief of learning depending on talent, and belief of the existence of only one truth were analyzed. The results of the study revealed that there exists no difference in the mean scores for the factors of epistemological beliefs of male and female teacher candidates. Furthermore, the results indicated that there exist significant positive relation between the factors of epistemological beliefs and academic achievement of teacher candidates.

Structural Equation Modeling was used by Sadi (2015) to examine the relation of epistemological beliefs, conceptions of learning, and self efficacy for biology learning of high school students. The sample consisted of 384 high school students who are learning biology. The results indicated that there exist direct and positive relation between the students' epistemological beliefs in biology knowledge and factors of conceptions of learning. Furthermore the results revealed that the students self efficacy for learning is directly and positively related to students' epistemological beliefs about justification and development and their conceptions of learning. But the dimension of source and certainty of knowledge is having negative relation to the students' self-efficacy.

Nayebi and Tahriri (2014) studied the impact of gender and educational level of EFL learners on the dimensions of epistemological beliefs such as structure of knowledge, stability of knowledge, source of knowledge, ability to learn, and speed of learning. Epistemological Questionnaire was used to collect data from 101 EFL students studying English literature and English translation in the Islamic Azad University, Iran. The findings indicated that there exist no significant differences in the scores of epistemological beliefs among male and female EFL learners. While considering the educational level, the results indicated that sophomore students are having more naive beliefs about dimensions of certain knowledge and quick learning than freshman students as the mean scores of sophomore students is significantly higher than that of the freshman students on certain knowledge and quick learning.

Schommer-Aikins and Duell (2013) studied the influence of domain specific and general epistemological beliefs or beliefs about knowledge and learning on mathematical problem solving among college students. A domain general and domain specific mathematical problem solving questionnaire were employed to the sample consisted of 700 college students in USA. The study revealed that the domain specific beliefs were the psychometrically strongest factors than general epistemological beliefs in predicting mathematical problem solving among college students. The results also indicated that the students with high mathematical background showed

consistency between domain specific and general epistemological beliefs, whereas, students with less mathematical background are having significant difference between domain specific and general levels of belief. The domain specific mathematical problem solving ability has direct effect and a general epistemological belief has indirect effect on mathematics performance and cognition.

The cross sectional study conducted by Sharma, Ahluwalia, and Sharma (2013) aimed to analyze the epistemological beliefs and expectations of physics among Indian students. It also made the comparison of students' epistemological beliefs at senior secondary, undergraduate, post graduate levels, and to other countries for which comparison data is available. The sample for the study consisted of 228 students of standard XII, undergraduate students of Shimla and Mandi Districts, and MS Students of Kurukshetra University of Haryana. The results indicated that UG students and standard XII students believed that the learning physics is simply receiving knowledge from authorities or textbooks and MS students agreed that learning physics means constructing one's own understanding and it should go beyond text books and rote drill. Similar results are observed among students in US, Turkey, and Thailand. The results also showed that for the aspects coherent as well as consistent structure of physics, awareness of concepts of physics, linking their learning with real life experience and that the concepts of maths and physics are related, MS students of India, US, Thailand, and Turkey



students showed more favourable opinion than that of UG students and senior secondary students. The UG and XII students of India showed more favourable attitude in the use of available information most efficiently than MS students of India, US, Turkey, and Thailand. The gender wise analysis of the results indicated that male and female students do not differ in their scores on epistemological beliefs at all levels of education.

Rebello, Siegel, Witzig, Freyermuth, and McClure (2012) conducted a case study to analyze the epistemic beliefs and conceptual understanding of the students in biotechnology. The case study approach explored in-depth epistemic views of three undergraduate non science majors students enrolled in the biotechnology and society group selected on the basis of performance in exams. The data were collected through multiple sources such as individual semi structured interviews, three course exams, and a conceptual instrument. The analysis revealed that the student having more sophisticated epistemology achieved a high level of understanding and performance in the course than a student having less sophisticated epistemology.

Ulucinar, Akar, Demir, and Demirhan (2012) investigated the level of epistemological belief of university students with respect to family education status, religiosity levels, departments, faculty type, class level, and reading habits. Schommer's Epistemological Beliefs Questionnaire was used to collect data from the participants consisted of 321 students chosen randomly

from several departments such as Mathematics, Geography, History, Turkish Language, and Literature, Primary Mathematics Teaching, Turkish Teaching, Primary Education Teaching, Social Studies Teaching, Science Teaching at Faculty of Art and Science, and Education departments at University of Usak. The findings revealed that significant differences exist in level of epistemological beliefs of university students with respect to family education status, religiosity levels, departments, faculty type, and reading habits. There exists no difference in level of epistemological beliefs with respect to class level.

Cam and Geban (2011) analyzed the effectiveness of case based learning instruction over traditionally designed chemistry instruction on epistemological beliefs and their attitudes toward chemistry of eleventh grade students'. The experimental group consisted of 28 high school students were instructed with case based learning approach and the control group consisted of 35 high school students were instructed with traditional approach by the same teacher. The results showed that there exist significant difference with respect to students' epistemological beliefs and attitudes toward chemistry between the experimental and control group subject. The study recommended that the case based learning is more effective for development of students' epistemological beliefs and attitudes toward chemistry than traditional methods

Deniz (2011) studied the importance of epistemological beliefs in science and nature of science and emphasized the effectiveness of explicit reflective approach in science literature. The study also explored the factors that mediating the development of epistemological beliefs such as thinking dispositions, metacognitive awareness, science self efficacy beliefs, and achievement goals.

Students' epistemological beliefs and attitude towards studying was analyzed by Önen (2011). Epistemological Belief Questionnaire and the Attitudes towards Studying Scale were administered to a sample consisting of 440 secondary students studying in tenth, eleventh, and twelfth grades. The results revealed that there exists significant difference in epistemological beliefs of male and female students. The female students are having more sophisticated epistemological beliefs than the male students. Furthermore, the grade level comparison revealed that epistemological beliefs score of 12<sup>th</sup> grade students is higher than that of 10<sup>th</sup> and 11<sup>th</sup> grade students. The results of correlation analysis showed that there exist positive relation between epistemological beliefs and attitude towards studying among the secondary students.

The study of Ozkal, Tekkaya, Sungur, Cakiroglu, and Cakiroglu (2010) explored the relationship between scientific epistemological beliefs with the socio-economic status and gender of elementary school students.

Scientific Epistemological Beliefs Instrument was used to collect data from 1,152 eighth grade Turkish students. The results of canonical correlation indicated significant relationship between epistemological beliefs and socio-economic status of the students. The variables of socio-economic status such as mother work status, father and mother educational level, number of books at home, and availability of a study room were positively correlated with tentative views while work status of father and having daily newspaper has no significant relationship with epistemological beliefs. The student from high socio-economic status family is having more sophisticated epistemological beliefs compared to the students from low socio-economic status family. The results of multivariate analysis of variance showed that significant difference exist between boys and girls concerning the epistemological beliefs. The boys are having more sophisticated beliefs than the girls' students.

Yilmaz-Tuzun and Topcu (2010) investigated the relationship between epistemological beliefs, meta-cognition, and constructivist science learning environment among elementary school students. The sample for the study consisted of 626 students of sixth, seventh, and eighth grades of nine elementary public schools located in Ankara, Turkey. The factor analysis identified four factors of epistemological beliefs such as innate ability, quick learning, omniscient authority, and certain knowledge. The results of the study revealed that for elementary school students, epistemological beliefs of the students vary with levels of metacognition. Results of regression analyses

showed that metacognition and omniscient authority were predictors of constructivist learning environment for science.

Österholm (2009) analyzed the theories of epistemological beliefs and communication in order to create an in-depth theoretical foundation of relations between the two constructs. The author suggested a type of unification in building on the theories of epistemological resources and discursive psychology even though some contradictions between theories are found. The study emphasized that to understand the aspects of epistemological beliefs and communication the relevance of mental representations and processes should be considered and adopt a constructive view of language. Epistemological beliefs are being constructed in a specific situation and can be seen as different ways of thinking, where the processes of utilizing prior experiences and of participating in a discursive practice are of fundamental importance.

The impact of gender, grade level, and fields of study on epistemological beliefs was analyzed by Kurt (2009) of Turkish sixth, eighth, and tenth grade students ( $N=1557$ ). The findings of the study indicated that the level of epistemological beliefs vary with regard to gender, grade level, and fields of study of the students. It was found that the girls possess more sophisticated beliefs than the boys for the dimension justification of knowledge and tenth grade students possessed more sophisticated beliefs than

the sixth and eighth grade students for the dimensions source of knowledge, certainty of knowledge, and development of knowledge. Furthermore, the results also indicated that the students belongs to mathematics and science fields of study possessed more sophisticated beliefs for the dimension justification of knowledge than the students belonging to literature and social science fields of study.

Walker, Brownlee, Lennox, Exley, Howells and Cocker (2009) studied the personal epistemology and learning of first year university students. The results of longitudinal study revealed that the level of epistemological beliefs differ significantly with respect to the course of study, previous post school education experience, family experience, gender, and age.

The study conducted by Felbrich, Muller and Blomeke (2008) examined the epistemological beliefs concerning the nature of mathematics among teacher educators and teacher education students in mathematics. The analysis revealed that epistemological beliefs of teacher education students is characterized by high level of agreement to the static aspect of mathematics and less confident in meaningful application of mathematics for the students in beginning and end of their education. The group of future teachers who are in the beginning and end of education differ significantly with respect to structure of beliefs. While considering the sample of teacher educators, all groups of educators agreed upon the application and process related

statements regarding the nature of mathematics. With respect to structure of beliefs, differences in mean scores exist between the groups of teacher educators in various disciplines of mathematics.

Sachdev (2008) explored the nature of epistemological beliefs as well as investigated the relation between the epistemological beliefs and academic performance of undergraduate arts and design students. The sample for the study consisted of 81 students of foundation programme of art and design course Bangalore. Schommer's Epistemological Beliefs Questionnaire was used to collect data from students. The results of the study showed that the epistemological beliefs and differences in beliefs among the people are influenced largely by the cultural contexts. Furthermore, the results also indicated that those who had naïve epistemological beliefs possessed less academic skills in art and design course when compared to those who had sophisticated epistemological beliefs.

Yadav, Mukarabukumba, and Nsanzineza (2008) conducted a study to investigate the students' epistemological beliefs about knowledge and learning in physics. The study was conducted on a sample of 796 senior secondary school students of Rwandan. The findings of the study revealed that several common unfavourable epistemological beliefs about knowledge and learning in physics exist among senior secondary school students. The study also compared the epistemological beliefs in physics among the

students and the experts. The results indicated that there exist a large gap between the epistemological beliefs of the students and experts related to the physics subject.

Zhu, Valcke, and Schellens (2008) explored the relationship between epistemological beliefs, learning concepts and approaches to study in a cross cultural setting where the sample consist of first-year university students in Beijing, China, and Flanders. Schommer's Epistemological Beliefs Questionnaire (EBQ), Conceptions of Learning Inventory, and Approaches and Study Skills Inventory for Students were used to collect the data. The results of the study validated that epistemological beliefs predict students' conceptions of learning, which in turn are related to specific approaches to study in a cross-cultural perspective. The mean difference analysis revealed that there exist significant difference in the mean scores of epistemological beliefs, learning concepts, and approaches to study among Chinese and Flemish groups.

Rodríguez and Cano (2006) examined the relationship between epistemological beliefs, learning approaches, and study orchestrations of 388 university students. The results revealed that there exists significant relation between epistemological beliefs and learning approaches as well as epistemological beliefs and study orchestrations. The students who follow more superficial and reproduction oriented learning approaches possessed



more simplistic and naïve epistemological beliefs whereas the students who follow deeper and meaning oriented approaches possessed more mature and sophisticated epistemological beliefs. Those students who used deep study orchestration were having sophisticated epistemological beliefs than those who used surface study orchestration. Regression analysis indicated that learning approaches, study orchestration, and epistemological beliefs predict the academic performance of university students.

Schommer-Aikins, Duell, and Hutter (2005) examined the structure of general epistemological beliefs and domain-specific mathematical problem solving beliefs of middle school students' on predicting students' academic performance. The findings confirmed that both general epistemological beliefs and mathematical beliefs have direct and indirect influence on mathematical performance and overall academic performance. The results of regression analyses revealed that the beliefs in quick/fixed learning and studying aimlessly are significantly related to beliefs about effortful math, useful math, understand math concepts, and math confidence. The path analysis indicated that both general and domain specific epistemological beliefs predicted academic performance as measured by solving mathematic problems and overall grade point average.

Palmer and Marra (2004) examined that the epistemological beliefs of college students differs across the disciplinary areas of the sciences and the

humanities. The findings of the study indicated that there exists difference in epistemological beliefs across the disciplinary areas. In addition to that the authors proposed a grounded theory that describes how students' epistemological beliefs vary across the disciplines. The grounded theory described that the students move from simple to complex epistemologies more naturally in humanities and social science than the science subjects.

Schommer-Aikins, Duell, and Barker (2003) analyzed the students' beliefs about the nature of knowledge and learning, epistemological beliefs, across domains that vary according to Biglan's classification of academic disciplines (hard vs. soft disciplines and pure vs. applied disciplines). The results indicated that epistemological beliefs of college undergraduates are moderately domain general and students' epistemological beliefs are similar for mathematics and social sciences, as well as for mathematics and business. The findings showed a stronger correlation between mathematics and business for epistemological beliefs when compared with correlations between mathematics and the social sciences. The correlations for students who had high exposure to both domains of interests and low academic experience in both domains supported moderately strong domain generality.

Youn, Yang, and Choi (2001) investigated the nature of epistemological beliefs about learning and analyzed the effect of developmental factors such as age, educational level, academic achievement,

gender, and the two aspects of the self-construal, the independent self-construal and the interdependent self-construal in contributing to the development of epistemological beliefs of South Korean high school students. The results showed that the educational level, gender, age, and the interdependent self-construal are negatively related to learning beliefs. The students' academic achievement and independent self-construal are positively related to the epistemological beliefs of the students.

Manson (2000) examined the influence of anomalous data and of students' beliefs in the certainty/uncertainty of knowledge on conceptual change about two controversial topics such as the dinosaur extinction and the construction of the Giza Pyramids in Egypt. Schommer's Epistemological Questionnaire was administered to 343 students of eighth grade in the first phase and 126 students attending last year in public schools. The results of correlation analysis indicated that the acceptance of anomalous data significantly contributed the most to theory change whereas the epistemological belief contributed less significantly and less strongly for the topic Giza Pyramids. The results of the study also revealed that the relationship is significant between the acceptance of data conflicting with the participants' held theory and the epistemological belief factor that knowledge is certain and handed down by authority.

A meta analysis of studies related to Epistemological Beliefs is presented in the Table 2.

Table 2

*Meta Analysis of Studies Related to Epistemological Beliefs*

Year	Author	Findings
2017	Ekinci	The secondary education teachers' level of epistemological beliefs about the authority/expert knowledge and learning effort/process was found to be high, regarding the innate/fixed ability was found to be average, and teachers' beliefs regarding the certainty of knowledge is low. Results also indicated that the teachers' epistemological beliefs are significant predictor of constructivist and traditional teaching learning conceptions.
2016	Feinkohl, Flemming, Cress, and Kimmerle	The participants who are having more sophisticated domain specific epistemological beliefs were able to recall the scientific information and having more critical evaluation.
2016	Gu	Students who hold sophisticated epistemic beliefs of the nature of knowing engaged actively in acquiring information from multiple sources and used it to support their claims than those who hold less sophisticated beliefs.
2016	Kampa, Neumann, Heitmann, and Kremer	The female students tend to belong to the sophisticated and slightly sophisticated groups and male students tend to belong to multiplistic and evidence-based/dynamic group
2015	Arslantaş	There exist significant positive relation between the factors of epistemological beliefs and academic achievement of teacher candidates
2015	Sadi	There exist direct and positive relation between the students' epistemological beliefs in biology knowledge and factors of conceptions of learning

Year	Author	Findings
2014	Nayebi and Tahriri	There exist no significant differences in the scores of epistemological beliefs among male and female EFL learners and the sophomore students had more naive beliefs than the freshman students on certain knowledge and quick learning
2013	Schommer-Aikins, and Duell	The domain specific beliefs were the psychometrically strongest factors than general epistemological beliefs in predicting mathematical problem solving among college students
2013	Sharma, Ahluwalia, and Sharma	There exist difference in epistemological beliefs in physics at almost all levels of education in India, U S, Turkey and Thailand and no gender difference in epistemological beliefs among students all levels of education.
2012	Rebello, Siegel, Witzig, Freyermuth, and McClure	The student having more sophisticated epistemology achieved a high level of understanding and performance in the course than a student having less sophisticated epistemology
2012	Ulucinar, Akar, Demir, and Demirhan	There exist significant differences in level of epistemological beliefs of university students with respect to family education status, religiosity levels, departments, faculty type, and reading habits. There exists no difference in level of epistemological beliefs with respect to class level
2011	Cam and Geban	The study recommended that the case based learning is more effective for development of students' epistemological beliefs and attitudes toward chemistry than traditional methods
2011	Deniz	Explored the mediating factors in the development of epistemological beliefs such as thinking dispositions, meta-cognitive awareness, science self-efficacy beliefs and achievement goals.
2011	Önen	The results of correlation analysis showed that there exist positive relation between epistemological beliefs and attitude towards

Year	Author	Findings
		studying among the secondary students.
2010	Ozkal, Tekkaya, Sungur, Cakiroglu, and Cakiroglu	There exist significant relationship between epistemological beliefs and socio-economic status of the students and showed that significant difference exist between boys and girls concerning the epistemological beliefs
2010	Yilmaz-Tuzun and Topcu	The meta-cognition and omniscient authority are predictors of constructivist learning environment for science
2009	Österholm	Epistemological beliefs are being constructed in a specific situation and can be seen as different ways of thinking, where the processes of utilizing prior experiences and of participating in a discursive practice are of fundamental importance.
2009	Kurt	The level of epistemological beliefs vary with regard to gender, grade level, and fields of study of the students
2009	Walker, Brownlee, Lennox, Exley, Howells , and Cocker	The level of epistemological beliefs differ significantly with respect to the course of study, previous post school education experience, family experience, gender, and age.
2008	Felbrich, Muller, and Blomeke	The majority of teacher education students agreed with the static aspect of mathematics and less confident in meaningful application of mathematics in beginning and end of their education.
2008	Sachdev	Those who possessed naïve epistemological beliefs possessed less academic skills in art and design course when compared to those who possessed sophisticated epistemological beliefs.
2008	Yadav, Mukarabukumba and Nsanzineza	Several common unfavourable epistemological beliefs about knowledge and learning in physics exist among senior secondary school students and there exist a large gap between the

Year	Author	Findings
		epistemological beliefs of the students and experts related to the physics subject.
2008	Zhu, Valcke and Schellens	The epistemological beliefs predict students' conceptions of learning and there exist significant difference in the mean scores of epistemological beliefs among Chinese and Flemish groups.
2006	Rodríguez and Cano	The students who follow more superficial and reproduction oriented learning approaches possessed more simplistic and naïve epistemological beliefs whereas the students who follow deeper and meaning oriented approaches possessed more mature and sophisticated epistemological beliefs. The epistemological beliefs predict the academic performance of university students.
2005	Schommer-Aikins, Duell, and Hutter	Both general and domain specific epistemological beliefs predicted academic performance as measured by solving mathematic problems and overall grade point average.
2004	Palmer and Marra	There exists difference in epistemological beliefs across the disciplinary areas.
2003	Schommer-Aikins, Duell, and Barker	A strong correlation exists between mathematics and business with epistemological beliefs when compared with correlations between mathematics and the social sciences with epistemological beliefs.
2001	Youn, Yang, and Choi	The educational level, gender, age, and the interdependent self-construal are negatively related to learning beliefs. The students' academic achievement and independent self-construal are positively related to the epistemological beliefs of the students
2000	Manson	The relationship is significant between the acceptance of data conflicting with the participants' held theory and the epistemological belief factor that knowledge is certain and handed down by authority

### **Studies on Achievement Goals**

Acharya (2017) studied the relationship of task involvement goal orientations and ego involvement goal orientations with psychological coping skills among university athletes. The participants for the study consisted of 85 athletes from Utkal University, Bhubaneswar. The results of the study showed that both the goal orientations have moderate positive relation with psychological coping skills and ego involvement goal orientation has stronger relationship than task involvement goal orientation. The study also indicated that there exists no difference in goal orientations among male and female athletes.

Sherin (2017) examined the relation between learning strategies and goal orientation of prospective teachers. The study was conducted on a sample of 500 prospective teachers at secondary level under University of Calicut region. The results indicated that there exist a substantial or marked relationship between ( $r=0.56$ ) learning strategies and goal orientation. Mean difference analysis revealed that there exist no significant difference in the means scores of goal orientation of prospective teachers with respect to gender, locale, and type of management. For the means scores of learning strategies of prospective teachers there exists significant difference with respect to type of management and no difference with respect to gender and locale.



Structural equation modeling conducted by Madigan, Stoeber, and Passfield (2016) studied the relation between perfectionism and achievement goals on 3 X 2 achievement goal frame work among 136 junior athletes. The results indicated that perfectionistic strivings are positively associated with task-approach and self-approach goals and associated negatively with task-avoidance and self-avoidance goals. In the case of perfectionistic concerns, the task-avoidance and self-avoidance goals are positively associated and task-approach and self-approach goals are negatively associated.

Musa, Dauda, and Umar (2016) analyzed the gender differences in achievement goals and performances in English language and Mathematics of senior secondary schools. The data was collected from a sample of 827 senior secondary students by using Hierarchical Model of Approach and Avoidance Achievement Goals Motivation Scale. The results indicated that there exist no difference in mathematics performance with respect to gender but male students secured high scores in english language and overall academic performance. Furthermore, the male students are more oriented towards learning goal than the female students while there is no influence of gender on performance-approach goal and performance- avoidance goal orientations

The study conducted by Rameli and Kosnin (2016) examined the relationship between achievement goal orientation and mathematics anxiety of Malaysian school students. The participants consisted of 976 secondary

school students selected through cluster random sampling. Achievement Goal Questionnaire and Mathematics Anxiety Scale were used to collect data from the respondents. The correlation analysis revealed that the mastery goal orientation and performance avoidance goal orientation correlated significantly with the scores of mathematics anxiety of secondary school students. The regression analysis indicated that among the type of achievement goals, performance avoidance goal orientation contributes largest to the changes in mathematical anxiety.

Ramnarain and Ramaila (2016) investigated the achievement goals orientation of South African University Physics students. The participants for the study constituted 291 students. The results indicated that the students hold stronger mastery goal orientation than performance approach goals and performance avoidance goals orientations. The results of multiple regression analysis showed that students' perceptions of teacher and peer goal factors made largest unique contribution to their mastery goal orientation.

Sharma and Nasa (2016) explored the relation between goal orientation, academic self-efficacy, academic help-seeking behaviour, and achievement by using structural equation modeling. The participants for the study comprised of 600 secondary school students of class X from Faridabad district. The findings of the study indicated that mastery goal orientation and performance goal orientation are positively correlated with academic self

efficacy. Mastery goal orientation is positively correlated with academic help-seeking behavior but performance goal orientation is negatively correlated. The students who give more importance to performance approach goals secured higher grades and had beliefs about their abilities.

Bahrami and Bahrami (2015) examined the relation between achievement goals and self esteem of Iranian students. The data was collected from 54 eighth grade students by using self-esteem questionnaire and achievement goal questionnaire. Descriptive analysis of data revealed that the mean score of approach goal orientations are higher than that of avoidance goal orientations. The results of correlation analysis reported that mastery approach goal orientation and performance approach goal orientation are positively correlated whereas mastery avoidance goal and performance avoidance goal orientations are negatively correlated to self-esteem

Gafoor and Kurukkan (2015) conducted a study to develop and standardize an academic goal orientation inventory for senior secondary school students of Kerala. The sample for the study consisted of 832 adolescent students of Kerala state. The investigators validated an Academic Goal Orientation Inventory with 15 items in final test representing performance-approach, performance-avoidance, mastery-approach, and mastery-avoidance goal orientations. The results indicated that students' goal orientation is context specific and they do not stick on one goal orientation.

The study also identified that all aspects of academics are not identical in their value related to goal orientations. For both mastery and performance avoidance goal orientations are best reflected in students' reports of their input intensions, performance approach reflected in their efforts and mastery approach best reflected yardsticks for evaluating aspects of academics. Students who pursue mastery goal orientation retain the motivation till the end of learning act than the other three goals and performance avoiders apply minimal enthusiasm at initial phases of learning acts.

The study conducted by Hall, Hanna, Hanna, and Hall (2015) investigated the associations between achievement goal orientations and academic performance among students at a UK pharmacy school. The sample for the study consisted of 319 postgraduate pharmacy students. In the case of achievement goal orientation, the goals such as mastery-approach, performance-approach, mastery-avoidance, performance-avoidance, and work-avoidance goals were taken into account by the investigators. On the basis of academic performance the students were classified into higher performer group and low performer group. The mastery goal orientations obtained highest mean score and work-avoidance orientation got lowest mean score on academic performance. The results indicated that there exist significant difference in achievement goal orientations among the students with respect to gender, year of study, and academic performance. The female students secured high scores on mastery-approach and performed higher than

the male students. The mean score in work-avoidance is higher for male students than female students and for low performers than high performance. The mastery-approach and performance-approach scores are lower for final year students than first year pharmacy students. The regression analysis revealed that work avoidance and mastery-avoidance are found significant in predicting the academic performance of the students.

Junasiyamol (2015) conducted a study to compare the achievement goal orientation of orphan students and non-orphan students in secondary schools. The sample for the study consisted of 704 orphan and non-orphan secondary school students. The results indicated that orphan students pursue mastery goal orientation while the non-orphan students pursue performance goal orientation. Furthermore, the results indicated that there exist no significant difference in achievement goals orientation for male sample but there exist difference in performance goal orientation among the two groups. There exists significant difference both in mastery goal and performance goal orientations of orphan and non-orphan secondary school students for female sample and rural sample. While considering the urban sample, there exist no difference in mastery goal orientation and performance goal orientation for orphan and non-orphan students.

Kandemirdoi (2014) conducted a study which explained the relation between achievement goals and variables such as personality traits, self

esteem, and academic self efficacy beliefs. The sample consisted of 513 students belonging to faculty of education in Gazi University. The results supported that the students' personality traits, self esteem, and academic self efficacy beliefs contributes directly and indirectly on approach and avoidance achievement goals. The responsibility as personality trait contributes positively to learning and performance approach achievement goals. Students with neurotic personality are related positively with avoidance achievement goal and negatively with approach achievement goal. Self respect is positively predicted approach achievement goals whereas academic self efficacy positively predicted both the achievement goals. But academic self efficacy more strongly predicted approach achievement goal.

Barkur, Govindan, and Kamath (2013) studied the relation between achievement goal orientation and academic performance of undergraduate medical students. The mastery, performance-approach, performance-avoidance, and work-avoidance goal orientations of 244 medical students of Manipal medical college were assessed by the investigators. The results indicated that comparing with high performer group, the low performance for the low performer group was due to the effect of work-avoidance goal. The students who pursue mastery goal and performance-approach goal secured high scores in academic achievement than who pursue performance-avoidance and work-avoidance goal orientations. Among the four goal orientations, there exist significant difference only in the mean scores of

work-avoidance goal orientation among the low performer and high performer groups. The results of factor analysis showed that the four types of achievement goal orientation contributed to 40.8 percent of total variance in goal orientation. Among the four factors, performance-approach goal orientation (16.70 percent) contributed higher variance. The mastery goal orientation contributed 10.80 percent, performance-avoidance goal orientation contributed 7.70 percent and work avoidance-goal orientation contributed 5.70 percent. The work-avoidance goal oriented contributed to the least variation.

In a study, Kadhiravan (2012) examined the goal orientation and cognitive styles of higher secondary school students. The sample for the study consisted of 410 higher secondary school students. The results indicated that there exists significant difference in goal orientation with respect to gender, year of study, subject specialization, and type of school. The girls' students, students studying in plus two class, science subject and government schools were more oriented towards learning goals than performance-approach and performance-avoidance goals. The results also revealed that type of goal orientation had significant effect on cognitive styles.

Madjar, Bachner, and Kushnir (2012) investigated the relation of perceived psychosocial abilities and frustration tolerance with the achievement goals of first year medical students. The results revealed that

medical students are oriented more towards mastery goals than performance goals. Moreover, the age and gender of medical students does not have any significant association with the type of achievement goal orientation. The results also indicated that the mastery goal orientation is positively associated with perceived psychosocial abilities and negatively associated with low frustration tolerance of medical students. While considering the performance goal orientations they are positively associated with low frustration tolerance.

A case study was conducted by Asif (2011) to investigate the relation by considering achievement goal as predictor variable and intrinsic motivation for learning as outcome variable among the students of International Islamic University of Malaysia. The results of correlation analysis indicated that achievement goals are correlated significantly with intrinsic motivation of students. Along the trichotomous classification of goal, mastery goals showed high correlation with intrinsic motivation and performance-avoidance goal showed low correlation with intrinsic motivation. The students with mastery goal orientations are intrinsically highly motivated whereas students with performance-avoidance goal orientations are intrinsically not highly motivated. The regression analysis revealed that mastery goal orientation is the strongest predictor and performance-avoidance goal orientation is the weakest predictor of intrinsic motivation.



Huang (2011) conducted a meta analysis to study the relation between achievement goals and achievement emotions. The author analyzed 77 studies to establish the relation between achievement goals and achievement emotions. The meta analysis supported that mastery goals are strongly related to positive emotions where as performance avoidance goals are strongly associated with negative emotions. The implications suggested that for improving the psychological well being of students, the teachers and parents should encourage students to adopt mastery goals and to avoid performance avoidance goals.

Diseth and Kobbeltvedt (2010) analyzed the meditational effect of achievement motives, achievement goals, learning strategies, and achievement. The sample for the study consisted of 229 undergraduate students of psychology and economics at the University of Bergen, Norway. The results of correlation analysis indicated that performance-approach goal, mastery goal, and strategic learning strategies are positively correlated with achievement whereas performance-avoidance goal and surface learning strategies are negatively correlated with achievement. The path analysis showed that strategic learning strategies mediated between achievement goals and academic achievement as well as achievement goals mediated between achievement motives and learning strategies.

Hadsell (2010) carried out a study to understand the relation between achievement goals, locus of control, and academic success in economics. The results indicated that performance-approach goals showed strong positive association with examination scores and mastery goals showed negative relation with examination scores. Those students who pursue mastery goals indicated high interest in economics subject than those who follow performance goals while locus of control is negatively associated with the interest of students in economics.

The study conducted by Fouladchang, Marzooghi, and Shemshiri (2009) investigated the effect of gender and grade level differences on achievement goal orientations of Iranian undergraduate students. Achievement goal questionnaire was used to collect data from 302 undergraduate students. The results of multivariate analysis of variance showed that there is no significant interaction effect of gender and grade level on Achievement. There exist significant gender difference and grade level difference on goal orientation. The male students are oriented to performance-approach goal orientation than female students and the last grade students are more oriented towards mastery goal than first grade students.

Shelly (2009) explored the gender difference in goal orientation and learning strategies in relation to academic achievement among elementary school students. Sample for the study consisted of 200 students of 8<sup>th</sup> grade

elementary school students of Punjab. The results showed that there exist significant relation between high achievers and low achievers of elementary school students in relation to mastery goal performance-approach goal, use of deep strategies, deep motive, and surface strategy for goal orientation as well learning strategies dimensions. It also indicated that in relation to performance-avoidance goal orientation there exists no significant difference between high achievers and low achievers of elementary school students. Mean difference analysis with reference to gender reveal that there exist significant difference in mastery goal orientation, deep strategy, and surface strategy among high achiever boys and girls of elementary schools. Whereas, no significant difference between high achiever boys and girls of elementary schools in performance-approach goal orientation and performance-avoidance goal orientation.

Coutinho and Neuman (2008) used structural equation modelling to study the integration between achievement goal orientation, learning style, self efficacy, and metacognition among 629 undergraduate students. The results showed that self-efficacy is the strongest predictor of metacognition, followed by deep processing, surface processing, and mastery avoidance where as metacognition is the weak predictor of performance. Furthermore, the performance-approach and mastery-approach goals are positive predictors and mastery-avoidance and performance-avoidance goals are negative predictors of self efficacy. Both the deep processing and surface processing

learning styles are adopted by the students who pursue mastery goal orientation to attain mastery of the subject matter.

Structural equation modeling used by Vrugt and Oort (2008) explored the impact of achievement goals (mastery, performance-approach, and -avoidance goals) on metacognition and on study strategies and the impact of metacognition (metacognitive knowledge, regulation, and experience) on study strategies (metacognitive, deep cognitive, surface cognitive, and resource management strategies), and academic achievement of psychology students. The results indicated that metacognition is positively related to mastery goals and four study strategies. While considering the performance-approach goals, metacognition is negatively correlated and positively affected by the use of surface cognitive and resource management strategies. Furthermore, the pathways revealed that there exists positive relation between the use of metacognitive and resource management strategies and exam scores whereas negative effect for the use of surface cognitive strategies.

The study conducted by Roebken (2007) analyzed the relation between student goal orientation, student satisfaction, academic engagement, and achievement. The participants consisted of 2309 college students from the University of California. The analysis of demographical variables showed that there exist no significant gender difference in pursuing achievement goals but there exist difference with respect to class level, parental education, and

discipline of study. The results also indicated that both the mastery and performance goals are associated with academic satisfaction, academic engagement, and achievement. The students who pursue both the mastery and performance goals has more academic satisfaction, higher degree of academic engagement, and achieve better grade than those students who pursue mastery goal orientation or performance orientation alone.

A longitudinal study conducted by Barron, Evans, Baranik, Serpel, and Buvinge (2006) investigated the achievement goal orientations of students with ADHD. The investigator conducted the goal assessment both at the beginning and end of the sixth grade and represented former as Time 1 and later as Time 2. The level of goal orientation of students differs significant over time frame as depicted in the findings. For both the time frames, mastery goal orientations are most likely adopted and performance approach goal orientations are least likely adopted. The relation of achievement goals with adaptive and maladaptive behaviours was also analyzed. The result of correlation analysis revealed that for both the time frames mastery goal orientations is positively related to academic efficiency and negatively correlated with avoiding novelty, skepticism about the relevance of school, disruptive behavior and work avoidance. For Time 1, the performance-approach goal orientations are not strongly correlated with academic efficiency and negatively with disruptive behavior. For Time 2, performance-approach goal orientation is negatively correlated with academic efficiency.

For both the time frames, performance-avoidance goal orientation is positively correlated with avoiding novelty and with academic efficiency whereas negatively correlated with skepticism about the relevance of school.

Shih (2005) examined the relation of achievement goals and use of cognitive strategies and motivational processes based on the trichotomous framework of achievement goal. The sample for the study consisted of 198 sixth grade Taiwanese students. The results showed that both mastery and performance-approach goals predicted low levels of text anxiety whereas performance-avoidance goals predicted positively for text anxiety scores. While considering achievement goals as predictors of intrinsic value the results indicated that mastery goals and performance-approach goals predicted high levels of intrinsic value whereas performance-avoidance goals predicted low levels of intrinsic value. In the case of use of metacognitive strategies, both mastery goal and performance-approach goal are positive predictors of metacognitive strategies while performance-avoidance goal is negative predictor.

Mattern (2005) analyzed the goal orientations of college students and relation with achievement. The data was collected from 143 undergraduate students by using Motivated Strategies for Learning Questionnaire. The results revealed that students with mastery goal orientations performed better followed by students with both mastery and performance approach goal

orientations. The students who follow performance-approach goal orientations showed worst performance. The results also indicated that mastery goal group achieved better course grades than performance -approach goal group.

Bråten and Strømsø (2004) analyzed the impact of epistemological beliefs and implicit theories of intelligence on pursuing mastery, performance-approach, and performance-avoidance goals. The sample for the study consisted of 80 Norwegian student teachers. The results indicated that than implicit theories of intelligence, the epistemological beliefs are found to play more important roles in goal adoption. Students who believed that learning occurs quickly are more likely to adopt performance-approach and performance-avoidance goals than mastery goal and students who believed that knowledge is stable and given are less likely to adopt mastery goals.

The study conducted by Al-Emadi (2001) to understand the relations between goal orientation, study strategies, and achievement. The results revealed that mastery and performance goals are positively related to academic achievement whereas negatively related to avoidance goals. The students who pursue mastery goals predicted the use of deep processing while who pursue performance goals predicted the use of both surface and deep processing strategies. Both the mastery and performance goals are negative predictors of disorganization. In contrast the students who pursue performance-avoidance goal is predicted negatively to the use of deep

processing and surface processing strategies and positive predictor of disorganization.

A meta analysis of studies related to Achievement Goals is presented in the Table 3.

Table 3

*Meta Analysis of Studies Related to Achievement Goals*

Year	Author	Findings
2017	Acharya	Task involvement goal orientation and ego involvement goal orientation have moderate positive relation with psychological coping skills and ego involvement goal orientation has stronger relationship than task involvement goal orientation. There exists no difference in goal orientations among male and female athletes.
2017	Sherin	There exist a substantial or marked relationship between learning strategies and goal orientation. There exist no significant difference in the means scores of goal orientation of prospective teachers with respect to gender, locale, and type of management.
2016	Madigan, Stoeber, and Passfield	The perfectionistic strivings are positively associated with task-approach and self-approach goals and associated negatively with task-avoidance and self-avoidance goals
2016	Musa, Dauda, and Umar	The male students are more oriented towards learning goal than the female students while there is no influence of gender on performance-approach goal and performance-avoidance goal orientations
2016	Rameli and Kosnin	The performance-avoidance goal orientation contributes largest to the changes in mathematical anxiety
2016	Ramnarain and Ramaila	The students hold stronger mastery goal orientation than performance-approach goals and performance-avoidance goals orientations



Year	Author	Findings
2016	Sharma and Nasa	The students who give more importance to performance approach goals secured higher grades and beliefs about their abilities
2015	Bahrami and Bahrami	The mastery-approach goal orientation and performance-approach goal orientation are positively correlated whereas mastery-avoidance goal and performance-avoidance goal orientations are negatively correlated to self-esteem
2015	Gafoor and Kurukkan	Academic Goal Orientation Inventory was validated. The students' goal orientation is context specific and they do not stick on one goal orientation. The study also identified that all aspects of academics are not identical in their value related to goal orientations.
2015	Hall, Hanna, Hanna, and Hall	There exist significant difference in achievement goal orientations among the students with respect to gender, year of study, and academic performance. The regression analysis revealed that work avoidance and mastery-avoidance are found significant in predicting the academic performance of the students
2015	Junasiyamol	The orphan students pursue mastery goal orientation while the non-orphan students pursue performance goal orientation
2014	Kandemirdoi	The personality trait and academic self efficacy contributed positively to learning and performance-approach achievement goals. Students with neurotic personality are related positively with avoidance achievement goal and negatively with approach achievement goal. Academic self efficacy positively predicted both the achievement goals.
2013	Barkur, Govindan, and Kamath	The students who pursue mastery goal and performance approach goal secured high scores in academic achievement than who pursue performance avoidance and work avoidance goal orientations

Year	Author	Findings
2012	Kadhiravan	The girls' students studying in plus two classes, science subject and government schools are more oriented towards learning goals than performance-approach and performance-avoidance goals. The results also revealed that the type of goal orientation has significant effect on cognitive styles
2012	Madjar, Bachner, and Kushnir	The mastery goal orientation is positively associated with perceived psychosocial abilities and negatively associated with low frustration tolerance. Students with performance goal orientations are positively associated with low frustration tolerance
2011	Asif	The mastery goal orientation is the strongest predictor and performance-avoidance goal orientation is the weakest predictor of intrinsic motivation
2011	Huang	The mastery goals are strongly related to positive emotions where as performance-avoidance goals are strongly associated with negative emotions.
2010	Diseth and Kobbeltvedt	The performance-approach goal, mastery goal, strategic learning strategies are positively correlated with achievement whereas performance-avoidance goal and surface learning strategies are negatively correlated with achievement
2010	Hadsell	The performance approach goals has strong positive association with examination scores and mastery goals showed negative relation with examination scores
2009	Fouladchang, Marzooghi, and Shemshiri	There exist significant gender difference and grade level difference on goal orientation. The male students shows greater performance-approach goal orientation than female students and the last grade students are more oriented towards mastery goal than first grade students
2009	Shelly	There exist significant relation between high achievers and low achievers of elementary school

Year	Author	Findings
		students in relation to mastery goal performance-approach goal, use of deep strategies, deep motive, and surface strategy for goal orientation as well learning strategies dimensions. It also indicated that in relation to performance-avoidance goal orientation there exist no significant difference between high achievers and low achievers of elementary school students.
2008	Coutinho and Neuman	The performance-approach and mastery-approach goals are positive predictors and mastery-avoidance and performance –avoidance goals are negative predictors of self-efficacy
2008	Vrugt and Oort	The results indicated that metacognition is positively related to mastery goals and negatively correlated to performance-approach goals
2007	Roebken	There exist no significant gender difference in pursuing achievement goals but there exist difference with respect to class level, parental education and discipline of study. The mastery and performance goals are associated with academic satisfaction, academic engagement and achievement.
2006	Barron, Evans, Baranik, Serpel, and Buvinge	The level of goal orientation of students differs significant over time frame. The beginning and the end of the course mastery goal orientations are most likely adopted by the students and performance-approach goal orientations are least likely adopted.
2005	Shih	Both mastery goal and performance-approach goal are positive predictors of meta cognitive strategies while performance approach goal is a negative predictor
2005	Mattern	The mastery goal group achieved better course grades than performance approach goal group
2004	Bråten and Strømsø	Students who believed that learning occurs quickly are more likely to adopt performance-approach and performance-avoidance goals than mastery

Year	Author	Findings
		goal and students who believed that knowledge is stable and given are less likely to adopt mastery goals.
2001	Al-Emadi	The students who pursue mastery goals predicted the use of deep processing while who pursue performance goals predicted the use of both surface and deep processing strategies. Both the mastery and performance goals are negative predictors of disorganization.

### **Studies on Self Regulated Learning Strategies**

Cleary and Kitsantas (2017) with the help of structural equation modeling examined the influence of motivation and self regulated learning on mathematics achievement. The data were collected from 331 middle school students by using self report questionnaires and teacher ratings. The results of structural equation modeling analyses revealed that both cognitive and self regulated learning behavior factors caused to 51 percent of the variance in mathematics performance. Results also indicated that after controlling prior achievement both cognitive and behavioral factors served as key mediators in the model for predicting mathematics performance. The motivation beliefs such as self efficacy, task interest, and school connectedness play an important role in explaining self regulated behaviors

Relational Screening Model was used by Bozpolat (2016) to investigate the self regulated learning strategies of university students. The sample for the study consisted of 826 third year students from 11 departments

of the Education faculty of Cumhuriyet University. The results of logistic regression analysis revealed that gender, general academic average, and academic self efficacy are significant predictors of self regulated learning strategies. The analysis based on gender indicated that the female students use the self regulated learning strategies more than the male students. Academic self efficacy and general academic average are positively correlated with the self regulated learning strategies of the students.

Das (2016) examined the relationship between self regulated learning strategies and cognitive styles of higher secondary school students. The results of correlation analysis showed that all the components of cognitive style such as planning, analysis, control, left mode, vision, insight, right mode, and sharing are having significant positive correlation with the total self regulated learning strategies.

The study conducted by Yıdızlı, Saban and Ewing (2016) examined the effect of self regulated learning strategies on mathematics achievement and motivational beliefs of sixth grade Turkish students. The experimental study used the cyclical model of self regulated learning by Zimmerman for the experimental group and general curriculum activities for the control group. The results indicated that there exist significant difference in mathematics achievement and motivational beliefs of experimental group and control group. The difference in the post-test scores is higher for experimental group

than the control group. Self regulated learning strategies applied to experimental group are more effective when compared to current curriculum activities applied to the control group. The experimental group who exposed to self regulated learning model started to view math as fun, important for everyday life, develop self confidence, stated goals, and monitor their own activities than the control group.

Kumari and Chamundeswari (2015) examined the relationship between parental involvement, self regulated learning, and academic achievement of higher secondary school students ( $N=300$ ). The results of the study indicated that there exist a significant correlation between parental involvement ( $r=0.94$ ), self regulated learning ( $r=0.16$ ), and academic achievement of higher secondary students. Further the results also indicated that there exists significant difference in parental involvement, self regulated learning, and academic achievement of students at state, matriculation, and central board categories. The analysis of mean scores obtained for various categories of schools showed that central board students ( $M=90.83$ ) are using better self regulated learning strategies than the state board ( $M=70.83$ ) and matriculation ( $M=88.60$ ) students at higher secondary level. The comparison of means of boys and girls revealed that for all the variables, parental involvement, self regulated learning, and academic achievement, girls are better than boys in state board schools, matriculation schools, and central board schools at higher secondary level. The mean scores of students in first course differ

significantly with third course students but no significant difference with second course students. The mean difference between second course students and third course students are also not significant.

Razi, Vahidian, and Hashemi (2015) studied the relation between self regulation and academic motivation of high school students. The results revealed that there exists significant positive relation between self regulation and academic motivation ( $r=0.521$ ) of high school students. The independent t-test stated that there exist significant differences between the boys and girls in self regulation. The girls are using more self regulated learning strategies than the boys among high school students. The univariate analysis of self regulation indicated that there exists significant difference in the use of self regulation among students of different courses.

Banarjee and Kumar (2014) studied the gender differences in relationship between self regulated learning and academic achievement among under graduate science students. The results revealed that there exists significant positive correlation between self regulated learning and academic achievement ( $N=300$ ). In the use of self regulated learning strategies in total, the male and female students differ significantly and the mean scores of self regulated learning strategies for female ( $M=84.03$ ) students is higher than the male students ( $M=76.66$ ). While considering the individual components of self regulated learning strategies there exists no significant difference in self

motivation, cognitive, and behavioral strategies but for environment strategies there exist significant difference between male and female students.

Aregu (2013) studied the role of self regulated learning strategies in predicting critical reading performance of second year distance education students (N=140). The results indicated that variables were positively correlated and 52 percent of variance in critical reading accounted for the group effects of self-regulated learning strategies among the distance education students. The close examination of independent variables of self regulated learning strategies showed that behavioral self regulated learning strategies ( $\beta=.34$ ) are best predictors followed by personal self regulated learning strategies ( $\beta=.27$ ) and environmental self-regulated learning strategies ( $\beta =.23$ ) of critical reading performance.

The study conducted by Azizi and Yeshodhara (2013) examined the relationship between self regulated learning strategies and level of internet competency of science degree students. The Motivational Strategies for Learning Questionnaire (MSLQ) was used to collect data from a sample of 254 Bachelor of Science students to measure the self regulated learning strategies. The correlation analysis revealed that there exists significant positive relationship between self regulated learning strategies such as metacognitive, critical thinking, rehearsal, elaboration strategy, help seeking, and peer learning strategies individually as well as in total and all the



components of internet competency (except communication and collaboration), Information search, computer general ability, computer general knowledge, information management, general webpage using, and total internet competency of students. Moreover, the results of regression analysis depicted that among the various self regulated learning strategies, the peer learning, and critical thinking are the strongest predictor of level of internet competency of the students.

Sadi and Uyar (2013) found out the relationship between cognitive self regulated learning strategies and biology achievement with the help of a path model. Data were collected from a sample of 300 Turkish ninth grade high school students with the help of Motivated Strategies for Learning Questionnaire (MSLQ). The results showed that the cognitive self regulated learning strategies such as rehearsal, elaboration, and organization are significant predictors of ninth grade students' biology achievement. Structural equation modeling used to explain the relationships among rehearsal, elaboration, organization, critical thinking, and achievement of high school students in biology revealed that all cognitive self regulated learning variables contributed directly to critical thinking which in turn enhanced the biology achievement of students'.

Tran and Duong (2013) investigated the relation between students' attitudes towards English language learning and use of self regulated learning

strategies among college non english majors. The results showed that the participants who posses positive attitude towards english language are not actively engaged in self regulated learning strategies. Among the self regulated learning strategies, the participants used organizational strategies more and peer learning strategies are least utilized. In addition, the results also depicted that there exists no gender difference in use of self regulated learning strategies. Both male and female students utilized organizational strategies more and peer learning strategies are less utilized.

The study conducted by Chandran and Kadhiravan (2012) analyzed the impact of cognitive styles on self regulated learning of adolescents. The sample consisted of 312 college students of Madurai. The results indicated that all dimensions of self regulated learning and aspects of cognitive styles such as planning, analysis, control, left mode, vision, insight, sharing, and right mode are moderately related ( $r$  ranging from .36 to .44). The close observation of impact of parental education on self regulated learning strategies revealed positive association with both self regulated learning and cognitive styles.

Cazan (2012) investigated the role of self regulated learning strategies in predicting the academic adjustment of first year university students. Self regulated learning strategies of students' were measured by using Motivated Strategies for Learning Questionnaire (MSLQ). The results indicated that

overall self regulation is strongly related with academic adjustment of students' of psychology and education sciences. Among the self regulated learning strategies, the strongest predictor of academic adjustment of students' is metacognitive strategies.

Johnson and Ramganes (2012) analyzed the effectiveness of self regulatory strategies in science problem solving among high school students. The results of the experimental study revealed that self regulatory strategies with multimedia learning materials are effective in enhancing self regulatory awareness of students related to problem solving competence. The pre-test and post-test scores showed significant difference in all dimensions of self regulatory awareness such as declarative knowledge, conditional knowledge, procedural knowledge, planning, information management strategies, comprehension, monitoring, debugging strategies, and evaluation at .01 level of significance. The results also indicated that the female and male students do not differ significantly in pre-test scores of self-regulatory awareness. But in the case of post-test scores of self regulatory awareness, the female students are more self regulative in their problem solving action than male students.

The study conducted by Nandagopal and Ericsson (2012) examined the individual differences in using self regulated learning strategies among upper level college bioscience students. The results indicated that there exists

significant difference in using self regulated strategies by high achieving and low achieving groups of upper level college students. It was found that students who are using a larger number of different strategies and engage in strategies such as organizing and transforming, seeking information, and reviewing strategies scored higher scores for semester exam.

Alharbi, Paul, Henskens, and Hannaford (2011) investigated the learning styles and self regulated learning strategies of computer science students. The results indicated that students preferred learning styles have a significant impact on academic performance of the students. The analysis of self regulated learning strategies revealed that the metacognitive strategies are less used by the students when compared to cognitive and resource management strategies.

Fettahlioglu (2011) analysed the impact of gender on using self regulated strategies among science teacher candidates. Learning Strategies Scale was used to collect data from 222 teacher candidates of Gazi University. The analysis of the results revealed that among the self regulated strategies, the teacher candidates are highly using regulation and explication learning strategies. The peer collaboration, critical thinking, effort management, and time and study environment learning are used by the teacher candidates only at a low level. The results also showed that there exists significant gender difference in the use for all components of self regulated learning strategies.

The mean scores obtained for male teacher candidates are higher than female teacher candidates in the regulation, explication, metacognitive, effort management, and time and study environment learning strategies. In case of repetition, critical thinking, and peer collaboration learning strategies, the mean scores of female teacher candidates are higher than their counterparts.

Thronsen (2011) examined the relation between basic mathematical skills and the use of math strategies, metacognitive competence, and motivational beliefs of young primary school children. The study also analyzed the difference in basic mathematics skills with respect to different self regulation components. The results revealed that the students who possess high self regulated learning strategies performed high in achievement scores in mathematics. The basic mathematics skills of young primary school students differ with respect to overt strategies, covert strategies and retrieval strategies of self regulation. The results indicated that the performance in mathematics skills were not only related to the children's use of self regulated learning strategies but also related with their metacognitive competence and motivational beliefs.

Yusuf (2011) investigated the impact of self efficacy, achievement motivation, and self regulated learning strategies on academic achievement of undergraduate students. The results of structural equation modelling revealed that there exists direct relation between self efficacy and academic

achievement. Results also indicated that there exists only an indirect relation of achievement motivation and self regulated learning strategies with academic achievement. The strongest predictor of academic achievement of respondents' is self efficacy than achievement motivation and self regulated learning strategies.

In a study, Al-Khatib (2010) examined the association between metacognitive self regulated learning and motivational beliefs as predictors of academic performance of college students' of United Arab Emirates. The study was conducted on a sample of 404 college students enrolled in general education courses and self regulated learning strategies were measured by using Motivated Strategies for Learning Questionnaire (MSLQ). The factor analysis showed that intrinsic goal orientation, self efficacy, test anxiety, and metacognitive self regulated learning strategies are significant predictors of academic performance of the students. Self efficacy is the strongest contributor with  $\beta = .285$ ,  $p < .01$  and second strongest contributor is metacognitive self regulated learning with  $\beta = .232$ ,  $p < .01$  in explaining academic performance of college students.

Kitsantas, Steen, and Huie (2009) examined the role of self regulated learning strategies and goal orientation in predicting achievement of elementary school children. The study was conducted on a sample of 81 fifth grade students. The results indicated that use of self regulated strategies has

significant impact on students' academic achievement and goal orientation is not a significant predictor of students' academic achievement. The self regulated learning strategies ( $r=0.29$ ) and mastery goal orientation ( $r=0.43$ ) are moderately related with the academic performance of the students. The analysis on the basis of gender revealed that there exists no significant difference in the use of self regulated learning strategies and goal orientation among the elementary school students.

Structural equation modeling was conducted by Vrugt and Oort (2008) on a group of effective self regulators and a group of less effective self regulators with respect to the variables sex, age, and intellectual ability. The results revealed that students with high effort investment represented as effective self regulated learners and students with low effort investment represented less effective self regulators. The gender basis analysis revealed that women are characterized as more effective self regulated learners than men. The analysis on the basis of age revealed that younger students are more self regulated learners and scored higher exam scores than older students. It also indicated a positive relation of mastery goals with metacognition whereas a negative relation of performance-avoidance goals with metacognition.

Seema (2007) conducted a study to understand the interaction effect of self regulatory learning strategies and classroom learning environment on achievement in physics of secondary school students. The findings of the

study indicated that there exist no significant difference in self regulatory learning strategies with respect to gender but there exist significant difference with respect to locale and type of management of school. Urban secondary school students and government secondary school students are using high self regulatory learning strategies than the rural secondary school students and private aided secondary school students. The main effect and interaction effect of the variables, self regulatory learning strategies and classroom learning environment are found to be significant for the total sample and subsamples with respect to gender, locale, and type of management of schools.

The study conducted by Man-Chih (2006) investigated the effect of using self regulated learning strategies in promoting learning and satisfaction in Physical Education of college students'. The results of the quasi experimental study revealed that the experimental group who had undergone self regulated learning process demonstrated significantly higher satisfaction in learning than the control group. By using the self regulated learning strategies the students of experimental group showed more interest, confidence, and higher performance in physical education class than the control group.

Lynn et al. (2003) assessed the impact of self regulated learning strategies on enhancing mathematical problem solving of third grade



students'. The experimental study incorporated the goal setting and self evaluation aspects of self regulated learning strategies. The experimental group was instructed with problem solving transfer plus self regulated learning strategies and the control group was instructed with problem solving transfer alone to teacher designed instruction. The results of the study showed that incorporating self regulated learning strategies significantly contributed to the mathematical problem solving of third grade students'.

Chen (2002) analyzed the effectiveness of self regulated learning strategies on achievement in information systems course. The effect of self regulated learning strategies such as metacognition, physical, and social environment management, time management and effort regulation strategies on achievement was analyzed by the investigator. Motivated Strategies for Learning Questionnaire (MSLQ) was used to measure the self regulated learning strategies of 197 students in business information system course. The regression analysis showed that effort regulation strategies are the strongest predictor of achievement and social environment strategies showed a negative correlation with achievement of students in information system course.

A meta analysis of studies related to Self Regulated Learning Strategies is presented in the Table 4.

Table 4

*Meta Analysis of Studies Related to Self Regulated Learning Strategies*

	Author	Findings
2017	Cleary and Kitsantas	Both cognitive and self regulated learning behavior factors to the variance in mathematics performance. The motivation beliefs such as self efficacy, task interest, and school connectedness play an important role in explaining self regulated behaviors
2016	Bozpolat	The female students use the self regulated learning strategies more than the male students. Academic self-efficacy and general academic average are positively correlated with the self regulated learning strategies of the students
2016	Das	The components of cognitive style such as planning, analysis, control, left mode, vision, insight, right mode, and sharing were having significant positive correlation with the total self regulated learning strategies
2016	Yıdırlı, Saban, and Ewing	The experimental group who exposed to self regulated learning model started to view math as fun, important for everyday life, develop self-confidence, stated goals and monitor their own activities
2015	Kumari and Chamundeswari	There exists significant difference in parental involvement, self regulated learning, and academic achievement of students at state, matriculation and central board categories and also with respect to gender as well as course level.
2015	Razi, Vahidian, and Hashemi	There exists significant positive relation between self regulation and academic motivation of high school students. There exists significant difference in the use of self regulation among students of different courses and gender.
2014	Banarjee and Kumar	There exists significant positive correlation between self regulated learning and academic achievement. The male and female students differ significantly and the mean scores of self regulated learning strategies for female students is higher than the male students

	Author	Findings
2013	Aregu	The behavioral self regulated learning strategies are best predictors followed by personal self regulated learning strategies and environmental self regulated learning strategies of critical reading performance of the students
2013	Azizi and Yeshodhara	Significant positive relationship exist between self regulated learning strategies such as metacognitive, critical thinking, rehearsal, elaboration strategy, help seeking and peer learning strategies individually as well as in total and all the components of internet competency
2013	Sadi and Uyar	Cognitive self regulated learning variables contributed directly to critical thinking which in turn enhanced the biology achievement of students'
2013	Tran and Duong	The participants who has positive attitude towards English language are not actively engaged in self regulated learning strategies
2012	Chandran and Kadhiravan	All dimensions of self regulated learning and the aspects of cognitive styles are moderately related.
2012	Cazan	The self regulation is strongly related with academic adjustment of students' of Psychology and Education sciences
2012	Johnson and Ramganes	The female and male students do not differ significantly in pre-test scores of self regulatory awareness. But in the case of post-test scores of self regulatory awareness, the female students are more self regulative in their problem solving action than male students
2012	Nandagopal and Ericsson	Students who are using a larger number of different strategies and engage in strategies such as organizing and transforming, seeking information, and reviewing strategies secured higher scores for semester exam.
2011	Alharbi, Paul, Henskens , and Hannaford	The metacognitive strategies are less used by the students when compared to cognitive and resource management strategies

	Author	Findings
2011	Fettahlioglu	There exists significant gender difference in the use of all components of self regulated learning strategies
2011	Throndsen	Students who possess high self regulated learning strategies performed high in achievement scores in mathematics
2011	Yusuf	There exists direct relation between self efficacy and academic achievement. Results also indicated that there exists only an indirect relation of achievement motivation and self regulated learning strategies with academic achievement. The strongest predictor of academic achievement of respondents' is self efficacy than achievement motivation and self regulated learning strategies.
2010	Al-Khatib	The intrinsic goal orientation, self efficacy, text anxiety and metacognitive self regulated learning strategies were significant predictors of academic performance of the students
2009	Kitsantas, Steen, and Huie	Self regulated learning strategies have significant impact on academic performance and goal orientation is not a significant predictor. There exist no significant difference in the use of self regulated learning strategies and goal orientation among the elementary school students
2008	Vrugt and Oort	The students with high effort investment represented effective self regulated learners and students with low effort investment represented less effective self regulators. The women were characterized as more effective self regulated learners than men and younger students are more self regulated learners as well scored higher exam scores than older students
2007	Seema	The main effect and interaction effect of self regulatory learning strategies and classroom learning environment are found to be significant for the total sample and subsamples with respect to gender, locale, and type of management of schools
2006	Man-Chih	By using the self regulated learning strategies the students of experimental group showed more

Author	Findings
2003 Lynn et al.	interest, confidence, and higher performance in physical education class than the control group Incorporating self regulated learning strategies significantly contributed to the mathematical problem solving of third grade students'
2002 Chan	The effort regulation strategies is the strongest predictor of achievement and social environment strategies showed a negative correlation with achievement of students in information system course

### Studies on the Subject Accountancy

Chawla, Jain, and Mahajan (2013) examined the attitude of senior secondary school students towards accountancy subject, subject teachers', and teaching methodologies of subject teachers. Data was collected from 300 students of public and private senior secondary schools in Mordabad city. The results revealed that the students are having positive attitude towards accountancy teacher and methodology of teaching. But their thinking towards the subject is negative subject due to the numerical as well as confusing nature of the subject. Both the boys and girls do not differ in their attitude towards the subject, subject teachers, and teaching methodologies of subject teacher.

Durgut, Gerekan, and Pehlivan (2013) examined the impact of emotional intelligence on achievement in accounting subject. The study was carried out on a sample of 177 students attending accounting lessons in two

different universities in Turkey. The results showed that strong positive relation exist between achievement in accounting subject and all components of emotional intelligence such as self awareness, interpersonal relationship, adaptability, stress management, and general mood. The regression analysis indicated that the sub components of emotional intelligence such as independence, self actualization, social responsibility, flexibility, and problem solving influence the achievement in accounting subject of university students.

Kohli (2013) found out the effect of computer assisted instruction on achievement in accountancy in relation to problem solving ability and learning styles. Sample consisted of 500 senior secondary students of Amritsar city and 250 students were divided each into the experimental group and control group. The experimental group was taught through computer assisted instruction package in accountancy developed by the investigator and the control group was taught by conventional method. The results indicated that there exists significant difference in achievement scores for high problem solving ability group and low problem solving ability group as well as for different learning styles. The interaction effect of instructional strategies and problem solving ability on achievement in accountancy is found to be significant. But, the interaction effect of instructional strategies and learning style on achievement in accountancy is not significant.

Sreesan (2013) studied the effectiveness of reflective learning strategy on problem solving ability in accountancy of higher secondary commerce students. The results showed that scores for problem solving ability of students of experimental group who taught through reflective learning method is higher than that of those students who taught through constructivist method of teaching.

Singh (2012) explored the capability of gifted pupils in high schools to use self regulated learning to master an advance curriculum in accounting. The findings of the study revealed that self regulated processes used by the gifted learners are useful in enhancing their mastery of content in accounting curriculum. The results of the experimental study indicated that the gifted pupil in South African high schools are able to master subject matter of an advanced level accounting curriculum by using self regulated strategies. Thus, the empirical study recommended the use of self regulated processes such as metacognition, motivation and creativity contributes in the discourse on giftedness.

The effectiveness of advance organizer model on problem solving ability in accountancy was studied by Thaskiya (2012). The sample for the study consisted of 100 higher secondary students from two classes who were divided into control and experimental group consisting of 50 students in each group. The students in experimental and control group were equated on their

intelligence, classroom environment, and previous knowledge. The results revealed that advance organizer model is more effective than constructivist method in developing problem solving ability in accountancy at higher secondary level.

Garkaz, Banimahd, and Esmaeili (2011) analyzed the factors affecting performance of accounting students. A total sample of 450 students in Islamic Azad University was selected for the study. It was found that gender, type of diploma, interest, and employment status are significantly related to the academic performance and student's marital status and family role have no significant relationship with academic performance. The mean scores of male students ( $M=16.64$ ) on performance in accounting are higher than that of female students ( $M=15.50$ ). The mean scores of performance in accounting are higher for employed students than unemployed students. Students from mathematics ( $M=15.58$ ) background performed high in accounting than the students from non-mathematics ( $M=15.03$ ) background. The students who are interested in accounting performed high in accounting than those who are not interested in accounting subject.

Mangad (2011) analyzed the perception on learning difficulties in accountancy among higher secondary school students. The sample consisted of 514 higher secondary school students of Calicut and Malappuram districts. The learning difficulty in accountancy was assessed by using a Scale on



Learning Difficulties in Accountancy which consists of 62 items under the dimensions academic factors, parental factors, personal factors, and environmental factors affecting learning difficulty in accountancy. Majority of the students (65.95%) showed average level of perception on learning difficulty in accountancy. Among the four factors, high perception on learning difficulty in accountancy falls under personal factor (65.49%) followed by environmental factor (62.17%), academic factor (62.17%), and parental factor (60.66%). Furthermore, the study indicated that there exists difference in perception on learning difficulty in accountancy on the basis of gender on academic and parental factors. But, there exist no gender difference in personal and environmental factor of learning difficulty. The male students ( $M=121.86$ ) perceive high learning difficulty in accountancy than the female students ( $M=110.61$ ) in higher secondary schools.

Niranjana and Satheesh (2011) investigated the extent of learning difficulty in accountancy among higher secondary school students ( $N=240$ ). Majority of the students (60.42 %) are having learning difficulty in accountancy at higher secondary level. The gender wise comparison revealed that the boys ( $M=10.93$ ,  $SD=4.63$ ) at higher secondary schools are facing more difficulty in learning accountancy than the girls ( $M=7.81$ ,  $SD=4.96$ ).

Rajeesh (2011) studied the relationship between attitude towards accountancy and achievement in accountancy of higher secondary school

students ( $N=500$ ). The results of the study revealed that there exists significant positive relationship between attitude towards accountancy and achievement in accountancy ( $r=8.47$ ) among higher secondary school students. Moreover, the study also indicated that there exist significant difference in the mean scores of achievement in accountancy among boys and girls, government school students and unaided school students, aided and unaided school students and rural and urban school students. Whereas, no difference in the mean scores of achievement in accountancy among government and aided school students. The girls students ( $M=17.33$ ) secured higher scores in accountancy than the male students ( $M=17.33$ ). Likewise, the students studying in government schools secured high scores in achievement test in accountancy than the students studying in unaided school.

Sree and Krishnamurthy (2011) studied the relation between emotional intelligence and achievement in commerce of higher secondary commerce students. The sample consisted of 300 higher secondary school students of commerce group in Cuddalore district of Tamil Nadu state. The results indicated that there exist significant differences in mean scores of achievement in commerce and emotional intelligence with respect to gender and locality. The analysis of type of school showed that there exists difference in the mean scores of achievement in commerce for rural and urban school students but no difference in emotional intelligence. The study also showed that there exist no difference in mean scores of achievement in commerce and

emotional intelligence with respect to religion, family size, and family income. The mean scores of achievement in accountancy and emotional intelligence for girls are higher than the boys and for urban school students are higher than rural school students. The mean scores in achievement in accountancy of private school students are higher than government school students. The correlation analysis indicated that there exist positive moderate correlation between emotional intelligence and achievement in commerce among higher secondary school students for total sample ( $r=0.474$ ) and sub sample.

Arumugarajan (2008) conducted a study to find out the level of abstract reasoning ability of commerce students studying in plus one and plus two classes. The sample for the study consisted of 238 higher secondary students. The results indicated that the higher secondary commerce students possess only a moderate level of abstract reasoning ability. The results of the study also reported that female students have more abstract reasoning skills when compared to the male higher secondary students of commerce.

Babu and Kaliamoorthy (2007) examined the level of achievement in accountancy and educational adjustment of higher secondary school students ( $N=700$ ). The results indicated that level of students' achievement in accountancy is average and educational adjustment is high for higher secondary school students. There exist significant difference in the mean

scores of achievement in accountancy with respect to gender, locality of school, and mothers' education. The female students, rural higher secondary school students, and students having educated mothers secured higher scores in achievement test in accountancy than the male students, urban higher secondary school students and students with uneducated mothers' respectively. Students of literate and illiterate fathers' do not differ significantly in achievement scores in accountancy. In case of educational adjustment, female students of higher secondary schools showed better educational adjustment than their male counterparts. The emotional adjustment scores do not differ significantly with respect to locality of school, mothers' education, and fathers' education of higher secondary school students.

Experimental study was conducted by Baby (2003) to understand the effectiveness of co-operative learning strategy in learning accountancy among higher secondary pupil. It was found that the experiment group of students who were taught through cooperative learning strategy has significant higher achievement scores in accountancy than those who are were taught through existing teaching strategy or traditional method.

The critical-analytical study of accountancy text book conducted by Niranjana (2003) analyzed the accountancy text book prescribed for higher secondary schools in Kerala state and examined the opinion of practicing

teachers ( $N=120$ ) about the accountancy text book. The document analysis indicated that the content included in the accountancy text book is capable of attaining only some objectives mentioned in the curriculum and improvements are needed to meet the practical aspects of accountancy. The higher secondary school teachers opined that methods adopted for transacting the accountancy content and evaluation system are not appropriate.

The study conducted by Santhosh (2002) aimed to identify the competencies to be developed among higher secondary commerce students in accountancy and business studies. The investigator identified 52 competencies and 228 sub competencies in accounting and 23 competencies and 115 sub competencies in business studies. The analysis of responses of higher secondary school commerce teachers revealed that the competencies identified for business studies and accountancy possess the attributes such as functionality, achievability, evaluability, learning continuum, communicability, and coverage.

The exploratory study conducted by Sharma (1997) analyzed the reasons for lack of accounting student quality desired by accounting educators and employees. The results reported that majority of the students prefer very certain and stable learning context as well lecture by teachers to convey knowledge clearly as well as in a structured way. Furthermore, the results also indicated that the students lack analytical and critical conceptual skills related

to accounting learning. Majority of the students were highly syllabus bound and experience fear of failure in accounting subjects. The results also revealed that accounting and finance students lack abstract reasoning skills.

A meta analysis of studies related to Accountancy subject is presented in the Table 5.

Table 5

*Meta Analysis of Studies Related to the Subject Accountancy*

Year	Author	Findings
2013	Chawla, Jain, and Mahajan	The senior secondary students are having positive attitude towards accountancy subject teacher and methodologies of teaching where as they are having negative attitude towards the subject.
2013	Durgut, Gerekan, and Pehlivan	There exist a strong positive relation between achievement in accounting subject and all components of emotional intelligence. The regression analysis indicated that the sub components of emotional intelligence such as independence, self actualization, social responsibility, flexibility, and problem solving influence the achievement in accounting subject.
2013	Kohli	The interaction effect of instructional strategies and problem solving ability on achievement in accountancy is found to be significant and the interaction effect of instructional strategies and learning style on achievement in accountancy is not significant among senior secondary school students.
2013	Sreesan	The use of reflective learning strategy is effective for developing problem solving ability among higher secondary school commerce students
2012	Singh	Self regulated processes used by the gifted learners are useful in enhancing their mastery of content in accounting curriculum. The study recommended

Year	Author	Findings
		the use of self regulated processes such as meta cognition, motivation and creativity contributes in the discourse on giftedness.
2012	Thaskiya	The advance organizer model is effective in developing problem solving ability in accountancy at higher secondary level.
2011	Garkaz, Banimahd, and Esmaeili	The gender, type of diploma, interest and employment status are significantly related to the academic performance and student's marital status and family role have no significant relationship with academic performance of university students.
2011	Mangad	Majority of the students showed average level of perception on learning difficulty in accountancy. Male students perceive high learning difficulty in accountancy than the female students of higher secondary schools.
2011	Niranjana and Satheesh	Majority of the students are facing learning difficulty in accountancy at higher secondary level and the boys' students are having more difficulty in learning accountancy than the girls' students.
2011	Rajeesh	There exists significant positive relationship between attitude towards accountancy and achievement in accountancy among higher secondary school students. Difference exists in the mean scores of achievement in accountancy among boys and girls, government school students and unaided school students and rural and urban school students.
2011	Sree and Krishnamurthy	Emotional intelligence and achievement in commerce are having moderate positive relation. There exist difference in the scores of achievement in accountancy with respect to gender, locality, and type of school. Significant differences exist in the mean scores of emotional intelligence with respect to gender and locality.
2008	Arumugarajan	The higher secondary commerce students possess only a moderate level of abstract reasoning ability and female students have more abstract reasoning

Year	Author	Findings
		skills when compared to the male higher secondary students of commerce.
2007	Babu and Kaliamoorthy	The level of students' achievement in accountancy is average and educational adjustment is high for higher secondary school students. There exists significant difference in the mean scores of achievement in accountancy with respect to gender, locality of school and mothers' education but no difference for students of literate and illiterate fathers'. The emotional adjustment scores do not differ significantly with respect to locality of school, mothers' education and fathers' education of higher secondary school students but there exist difference with respect to gender.
2003	Baby	Co-operative learning strategy is found to enhance the achievement in accountancy of higher secondary school students.
2003	Niranjana	The content included in the accountancy text book is capable of attaining only some objectives mentioned in the curriculum and improvements are needed to meet the practical aspects of accountancy.
2002	Santhosh	52 competencies and 228 sub competencies in accounting and 23 competencies and 115 sub competencies in business studies were identified to be developed among higher secondary commerce students.
1997	Sharma	The accounting and finance students lack abstract reasoning skills, analytical and critical reasoning skills. Majority of the students prefer very certain and stable learning context as well lecture by teachers to convey knowledge clearly as well as in a structured way



## **Conclusion**

An extensive review of literature has been made for analyzing the studies on Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies and Accountancy subject. Those studies which are seemed to be relevant for the present study are mentioned in this chapter. The review of literature related to the independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies showed considerable evidence for the impact of these variables on enhancing academic performance of students at various levels. From the review it is evident that majority of the studies related to the independent variables were carried out in foreign countries. In the case of Epistemological Beliefs only a few studies are conducted in Indian context. The analysis of research studies reported in students' epistemological beliefs indicates that epistemological beliefs play a significant role in academic performance and learning process. Most of the studies analyzed are done in the conceptual understanding of science subjects and it is hard to find any studies related to accountancy subject. Majority of the studies in Achievement Goals are traced back to the context of foreign countries but a few studies are reported in Indian context. Most of the studies are related to self efficacy, anxiety, frustration, tolerance, and not with achievement in accountancy. The analysis of studies related to Self Regulated Learning Strategies revealed that a number of Indian scholars examined the studies in this area. But it was hard to found studies related to

the use of self regulated learning strategies in accountancy. The review of studies related to accountancy subject revealed that the students are having negative attitude towards accounting subject and they face difficulty in learning accounting subject. Even though a couple of studies are there to enhance learning of accountancy subject, the investigator noticed a dearth of research examining the individual and combined influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. Thus, it would be worthwhile to understand the individual influence of Epistemological Beliefs, Achievement Goals, and Self regulated learning Strategies and their combined effect on Achievement in Accountancy of higher secondary school students.

## *Chapter 3*

# **Methodology**

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- *Variables*
- *Objectives of the Study*
- *Hypotheses*
- *Methods Used*
- *Tools Used for Data Collection*
- *Sample Selected for the Study*
- *Data Collection Procedure*
- *Statistical Techniques Used*

The present study entitled **INFLUENCE OF EPISTEMOLOGICAL BELIEFS, ACHIEVEMENT GOALS AND SELF REGULATED LEARNING STRATEGIES ON ACHIEVEMENT IN ACCOUNTANCY OF HIGHER SECONDARY SCHOOL STUDENTS** attempts to study the influence of three independent variables on the dependent variable, Achievement in Accountancy, of higher secondary school students. The study intends to find out the individual and combined influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. The study also aims to identify the independent and joint contributions of the independent variables on the dependent variable, Achievement in Accountancy.

The methodology adopted by the investigator for the present study is described under the following headings.

- Variables
- Objectives of the Study
- Hypotheses
- Method Used
- Tools Used for Data Collection
- Sample Selected for the Study
- Data Collection Procedure
- Statistical Techniques Used

## Variables

The independent variables and dependent variable selected for the study are the following:

### Independent Variables

The independent variables selected for the study are;

- Epistemological Beliefs
- Achievement Goals
- Self Regulated Learning Strategies

### Dependent Variable

The dependent variable selected is Achievement in Accountancy.

The variables selected for the study are summarized in the Figure 6.

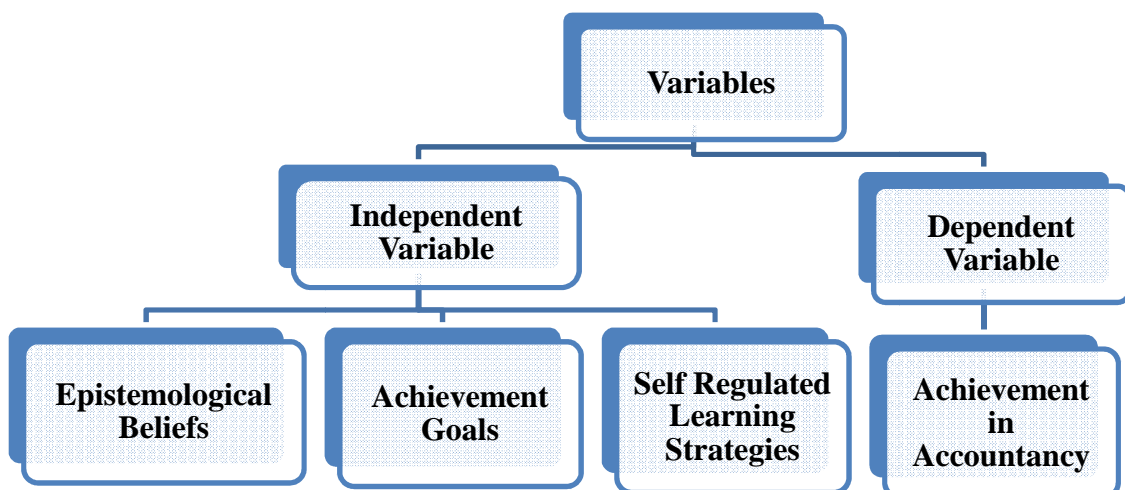


Figure 6. Variables Selected for the Study

## **Rationale for Selecting Variables**

While selecting the independent variables, several factors were considered. Through the analysis of research findings in accounting education, the investigator apprehend that there are several philosophical, psychological, personal, and behavioural variables that influence achievement in accountancy of higher secondary school students. *Epistemological Beliefs* is a philosophical variable which describes about the nature of knowledge and knowing process of the individuals. Epistemological beliefs related to accountancy subject describe the discipline specific beliefs about the nature of knowledge. The studies show that discipline specific epistemological beliefs have relevance in the teaching-learning process and academic achievement of the particular subject. Domain specific epistemological beliefs influence the study strategies and problems solving in history, mathematics, and hypermedia learning (Buehl & Alexander, 2001; Schommer-Aikins, Duell & Hutter, 2005; Schommer-Aikins & Duell, 2013). Palmer and Marra (2004) in their grounded theory describes that the students move from simple to complex epistemologies more naturally in humanities and social science than the science subjects. Students' epistemologies may not be consistent across knowledge domains and they may vary with respect to the context of studying the subjects. Ryan (1984) indicated that the students' understanding of complex topics from text reading is affected by the beliefs about knowledge. The dualist students are more likely to use low level comprehension strategies

than the relativist students. Those students using high level comprehension strategies such as applying new information to different contexts tend to reach better course grades than those using low-level comprehension strategies such as recalling factual information. King and Magun-Jackson (2009) emphasized that the understanding of students' internal influences related to knowledge is important, because they might work in conjunction with the external influences such as peers, teachers, curriculum, and classroom environment to facilitate learning and the acquisition of knowledge. Constructivism believes that cultural specifications and contexts exert influence on individual's life and the way of acquiring knowledge as well the learning process. Brinkmann (2015) identified the reason for domination of rote learning in Indian classroom as beliefs about knowledge and way of acquiring knowledge are indeed against to learner centered pedagogy. The author also emphasized the need for engaging students in development of high epistemological beliefs to promote learner centered approaches. The evidences of studies in epistemological beliefs indicates that students epistemological beliefs about learning have influence on their various learning processes, problem solving behaviors, developing conceptions, comprehension, and meta comprehension (Schommer, 1990; Schommer, 1994; Brownlee, 2001; Schommer-Aikins & Hutter, 2002; Hofer 2002). Therefore, the investigator selected *Epistemological Beliefs* as one independent variable for the study.

*Achievement Goal* is a cognitive variable which is a prominent perspective in contemporary research on student motivation and academic achievement. According to Nicholls (1989), the goals adopted by the individual reflect their purpose of achievement strivings. The goals students set for themselves reflects the reason why they approach and engage in academic and learning tasks. Achievement goal orientations describe the students' general orientation for performance in achievement context and the reasons of individual's attempts to accomplish achievement outcomes (Elliot, 1997; Pintrich, 2000a). Ames (1992) noted that the achievement pursuits of students who focusing on mastery goal perspective are better off than students who focus on performance goals in their achievement pursuits. Barron and Harackiewicz (2001) indicated that pursuing performance-avoidance goals result in adopting maladaptive learning patterns and active learning behaviors associated with performance-approach goals. The analysis of achievement goal theory describes various goals depending upon the basic models of mastery and performance goals. Mastery and performance goals reflect the way of approaching or engaging in the achievement context. The research studies in the area of achievement goal revealed that both the mastery goal and performance goal orientations are beneficial for academic achievement, learning strategies, emotions, and meta cognition of the students at various levels (Dweck, 1986; Eppler & Harju, 1997; Ames & Archer, 1988; Wolters, 2004; Vrugt & Oort, 2008). Studies also indicated that the avoidance



perspective of mastery goal and performance goal orientation negatively correlate to self esteem, intrinsic motivation, and mathematical anxiety (Asif, 2011; Bahrami & Bahrami, 2015; Rameli & Kosnin, 2016). Setting goals are found to be predictors of achievement. Thus, the investigator selected *Achievement Goals* as another independent variable.

*Self Regulated Learning Strategies* is a behavioural variable which describes about the cognitive, metacognitive, and resource management strategies adopted by the students to complete the academic tasks. The constructivist perspective to education emphasizes that the learning occurs only when learners engage their cognitive processes as well as through interaction with peers, teacher, and the real world. Thus, knowledge acquisition is both a cognitive and social process which includes the process of reflecting on and sharing their own as well as others ideas and optimum utilization of available resources. Learners are no longer viewed as passive listeners being filled with information and knowledge; instead they are viewed as active participants in learning by involving in reorganizing and reconstructing their existing knowledge (Perkins, 1992). According to Zimmerman (2008) self regulated learning is proactive processes used by the students to acquire academic skills such as setting goals, selecting and applying strategies, and self monitoring their own efforts. The self regulated learning strategies are self directed processes of the students to regulate their thoughts, emotions, and actions in a systematic manner to attain the goals.

Recent researches show that self regulated learning strategies act as an important predictor of student academic achievement and learning outcomes. (Pintrich & De Groot, 1990; Zimmerman, 1994; Schunk; 1994; Chandran & Kadiravan, 2012; Chen 2002; Yusuf, 2011; Sadi & Uyar, 2013; Kumari & Chamundeswari, 2015; Yıdızlı, Saban, & Ewing, 2016). Hence, the investigator selected *Self Regulated Learning Strategies* as third independent variable.

Accounting is introduced as a separate discipline to the students only at higher secondary level. Among the subjects included in the curriculum of commerce stream at higher secondary level, Accountancy is a distinguished subject as it is more practical orientated than other subjects. Minimum level of learning of accounting procedures and techniques are essential for a businessman to run his business as well to communicate the activities of business to the interested parties. Accounting is rightly remarked as the language of business. Besides the business world, the concepts of accounting can be applied to all jobs and is essential in day to day lives of each and every individual. As far as the higher secondary students are concerned, Accountancy seems to be a difficult subject. While comparing with other subjects of higher secondary commerce curriculum, Accountancy is a skill based subject and has much practical value. By analyzing the opinion of researchers and experienced teachers it is clear that as accounting requires the use of numerical skills to solve the problems, majority of the students

approach Accountancy subject with much fear. Mangad (2015) identified that the level of perception of difficulty in accountancy is average among higher secondary school students. The study conducted by Niranjana and Satheesh (2011) revealed that majority of the students felt learning difficulty in accountancy at higher secondary schools. So, adequate care should be given to improve the pedagogical aspects of the subject Accountancy. By understanding the epistemological beliefs of students related to Accountancy subject, the type of achievement goal pursued by the students, and self regulated learning strategies used by the students, it is believed that the teaching-learning process of Accountancy can be improved. Hence, the investigator selected *Achievement in Accountancy* of higher secondary school students as the dependent variable.

### **Objectives of the Study**

The objectives of the study are:

1. To find out whether there exist any gender, type of management, and locale differences for the selected independent variables namely, Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and the dependent variable, Achievement in Accountancy among higher secondary school students.
2. To study the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in

Accountancy for the total sample and subgroups based on gender, type of management, and locale of schools.

3. To find out the individual and combined contributions of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.
4. To work out the equation to the regression lines for predicting Achievement in Accountancy based on the variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies.

### **Hypotheses**

The study is carried out to test the following hypotheses:

1. There is significant gender difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students.
2. There is significant difference in the mean scores of Epistemological Beliefs Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students based on the type of management of schools.
3. There is significant locale difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning

Strategies, and Achievement in Accountancy of higher secondary school students.

4. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for total sample.
5. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for girls of higher secondary schools.
6. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for boys of higher secondary schools.
7. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for government higher secondary school students.

8. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for aided higher secondary school students.
9. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for rural higher secondary school students.
10. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for urban higher secondary school students.
11. There is significant individual and combined contribution of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.

### **Method Used**

The purpose of the present study is to investigate the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning

Strategies on Achievement in Accountancy of higher secondary school students. Survey method was used by the investigator in order to collect necessary information.

### **Tools Used for Data Collection**

The data required for the study was collected by using four tools. The tools used for data collection are constructed and standardized by the investigator with the help of the supervising teacher. The tools used for the present study are the following:

1. Scale on Epistemological Beliefs in Accountancy (Usha & Niranjana, 2015)
2. Achievement Goal Inventory (Usha & Niranjana, 2015)
3. Scale of Self Regulated Learning Strategies (Usha & Niranjana, 2015)
4. Achievement Test in Accountancy (Usha & Niranjana, 2015)

### **Scale on Epistemological Beliefs in Accountancy (Usha & Niranjana, 2015)**

For measuring the Epistemological Beliefs of higher secondary school students, a Scale on Epistemological Beliefs in Accountancy was constructed and standardized by the investigator with the help of the supervising teacher. Research evidences supports the notion that the epistemological beliefs about a subject plays an important role in students learning process. Epistemological beliefs explain the students' beliefs about knowledge and their beliefs about

how they acquire knowledge. The epistemological beliefs in accountancy are those beliefs possessed by the learner about the Accountancy subject and while involving in the process of acquiring information related to the subject.

### **Planning of the Scale**

The concept of epistemological beliefs or studying the ways of knowing is primarily based on the works of Perry (1968). Later in 1990, Schommer worked on Perry's work and reconceptualized personal epistemological as a belief system composed of multiple dimensions of belief about knowledge and knowing (Schommer, 1990). The tool was constructed based on the dimensions of beliefs about knowledge and knowing proposed by Schommer (1990). The various dimensions of epistemological beliefs identified are:

- Source of Knowledge
- Certainty of Knowledge
- Organization of Knowledge
- Control of Knowledge and
- Speed of Knowledge Acquisition.

The details of the dimensions are given below:

#### ***Source of Knowledge***

The person's belief about knowledge may vary from knowledge is handed down by authority rather than from reason. Here, the belief of



knowledge ranges from that knowledge is handed down by authority to knowledge which is constructed through reasoning.

e.g.: I believe that the success and failure in accountancy depends on the ability of the teacher.

I am able to learn accountancy well as I practice exercise problems other than those said by the teacher.

### ***Certainty of Knowledge***

The belief of the individual may vary from that the knowledge is certain rather than tentative. The beliefs about knowledge ranges from knowledge is absolute to knowledge is constantly evolving. In other words, the stability of knowledge ranges from unchanging knowledge to tentative knowledge.

e.g.: Accountancy subject is nothing but finding solutions to problems based on laws.

I prefer teachers who adopt different methods to solve problems in accountancy.

### ***Organization of Knowledge***

The belief that ranges from knowledge is compartmentalized to knowledge is highly integrated and interwoven. In other words, the beliefs

about structure of knowledge changes from isolated bits and pieces to integrated concepts.

e.g.: Accountancy is a subject which uses only matters learnt by memorizing.

Accountancy is understood better when learnt in connection with other subjects.

### ***Control of Knowledge***

The belief of an individual about the way of acquiring knowledge ranges from knowledge is fixed at birth to ability to learn can be changed. In other words the ability to learn ranges from fixed at birth to improvable.

e.g.: I believe that inborn talents are needed to solve accountancy problems.

I believe that through accurate learning activities, the ability to do accountancy problems can be developed.

### ***Speed of Knowledge Acquisition***

It is the belief that the knowledge is acquired quickly rather than knowledge is acquired gradually. In other words, the belief about speed of knowledge acquisition ranges from knowledge is acquired in simple manner to knowledge can be acquired in a systematic way.

e.g.: Learning accountancy is easy if the concepts of accountancy are known precisely.

Accountancy is a subject that needs systematic study.

### **Preparation of the Scale**

To measure the Epistemological Beliefs related to Accountancy subject of higher secondary school students, it was decided to use a scale. The draft Scale on Epistemological Beliefs in Accountancy was constructed, which consisted of 60 statements including items related to naïve and sophisticated epistemological beliefs related to Accountancy. Three responses were given viz, 'Correct', 'Undecided' and 'Wrong' to mark the responses of the students. After consultation with experts, some items are omitted and the items in the draft scale were confined to 55 items. The items are developed based on the dimensions of Epistemological beliefs proposed by Schommer (1990). The items in the tool are arranged randomly in the draft scale. Items related to naïve epistemological beliefs and sophisticated beliefs are included in the scale for each dimension. The draft scale consisted of 26 items related to sophisticated epistemological beliefs and 29 items related to naïve epistemological beliefs related to accountancy subject. The dimension-wise item numbers are presented in the Table 6.

Table 6

*Dimension-wise Distribution of Items in Scale on Epistemological Beliefs in Accountancy*

Sl. No.	Dimensions of Epistemological Beliefs	Item Numbers
1	Source of Knowledge	1, 6, 11, 17, 22, 27, 28, 33, 38, 43, 47, 53
2	Certainty of Knowledge	2, 7, 12, 13, 18, 23, 29, 34, 39, 44, 48, 54
3	Organization of Knowledge	3, 8, 14, 19, 24, 30, 35, 40, 45, 49
4	Control of Knowledge	4, 9, 15, 20, 25, 31, 36, 41, 50, 52, 55
5	Speed of Knowledge acquisition	5, 10, 16, 21, 26, 32, 37, 42, 46, 51

**Scoring Procedure**

The scale consisted of items that can be answered with the responses 'Correct', 'Undecided' or 'Wrong'. The respondent has to mark their responses to each item in the appropriate columns corresponding to any three alternatives. The sophisticated belief item is scored by giving a score of '3' for a 'correct' response, '2' for 'undecided' and '1' for 'wrong' response. The reverse scoring procedure was adopted for the naïve belief item. The total score obtained for each sample is calculated to identify the score of Epistemological Beliefs in Accountancy of higher secondary school students.

### **Pilot Testing**

A sample of 390 higher secondary school students of standard XI studying in commerce stream were selected for pilot testing. Due representation was given to the sub groups of the population while selecting sample for pilot testing. The draft scale prepared was administered to the selected sample. Before administering the tool, necessary instructions were given to the students. The response sheets of 370 sample complete in all respects were selected for item analysis. The scores obtained in the pilot testing were subjected to item analysis. The draft version of Scale on Epistemological Beliefs in Accountancy is presented in Appendix I.

### **Item Analysis**

Item analysis was carried out to ensure the quality of items and for selecting items of the final scale. The selection of items for the final form of Scale on Epistemological Beliefs in Accountancy was done as per the procedure suggested by Edwards (1969). The scores obtained for 370 students after pilot testing were arranged in the descending order. The upper 27 percent and lower 27 percent of scores were identified and separated as upper group and lower group respectively. The scores obtained for each item by the upper group as well as the lower groups were calculated separately. The  $t$  value was calculated by using the formula:

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{S_H^2}{n_H} + \frac{S_L^2}{n_L}}}$$

Where,

$\bar{X}_H$  = The Mean score on a given statement for the high group

$\bar{X}_L$  = The Mean score on a given statement for the low group

$S_H^2$  = The variance of the distribution of responses of the high group to the statement

$S_L^2$  = The variance of the distribution of responses of the low group to the statement

$n_H$  = The number of subjects in the high group

$n_L$  = The number of subjects in the low group

The result of item analysis of scale on Epistemological Beliefs in Accountancy is given in the Table 7.

Table 7

*Result of Item Analysis of Items in Scale on Epistemological Beliefs in Accountancy*

Sl. No.	t-value	Status	Sl. No.	t-value	Status
1	1.375	Rejected	29	6.046	Accepted
2	0.431	Rejected	30	1.442	Rejected
3	3.392	Accepted	31	6.897	Accepted
4	6.904	Accepted	32	6.399	Accepted
5	1.101	Rejected	33	5.964	Accepted
6	2.130	Accepted	34	6.154	Accepted
7	5.080	Accepted	35	3.507	Accepted
8	3.323	Accepted	36	8.850	Accepted
9	7.148	Accepted	37	5.468	Accepted
10	1.966	Accepted	36	8.850	Accepted
11	2.537	Accepted	39	0.403	Rejected
12	4.153	Accepted	40	4.808	Accepted
13	3.819	Accepted	41	0.280	Rejected
14	10.231	Accepted	42	5.259	Accepted
15	5.826	Accepted	43	0.338	Rejected
16	6.135	Accepted	44	0.377	Rejected
17	0.637	Rejected	45	7.763	Accepted
18	1.521	Rejected	46	1.682	Rejected
19	2.793	Accepted	47	3.469	Accepted
20	11.237	Accepted	48	1.267	Rejected
21	6.352	Accepted	49	1.974	Accepted
22	0.746	Rejected	50	10.126	Accepted
23	1.697	Rejected	51	6.012	Accepted
24	3.133	Accepted	52	7.050	Accepted
25	5.975	Accepted	53	2.449	Accepted
26	5.376	Accepted	54	3.361	Accepted
27	1.223	Rejected	55	6.388	Accepted
28	6.076	Accepted			

Statements with  $t$  value greater than or equal to 1.96 were selected for the final version of Scale on Epistemological Beliefs in Accountancy. Therefore, the final version of Scale on Epistemological Beliefs in Accountancy consists of 40 items. The final version of the Scale on Epistemological Beliefs in Accountancy (Malayalam and English) and its response sheet are presented in Appendix II, III and IV respectively.

### **Validity and Reliability**

The validity of the scale is ensured through face validity and content validity by consulting with experts in the field of education and commerce education. The criterion related validity of the tool was established by correlating the scores of Scale on Epistemological Beliefs in Accountancy obtained from 50 higher secondary school students with that of the scores obtained by administering the Epistemic Beliefs Inventory (Schraw, Bendixen & Dunkle, 2002). The validity coefficient obtained for the scale is .64 ( $N=50$ ). The index shows that the scale is valid.

The reliability of tool was established with the help of test retest method. The same scale was re-administered to the same sample after three weeks time. Pearson's product moment coefficient of correlation is calculated for the two sets of scores to obtain the reliability of the scale. The reliability coefficient obtained is .74 ( $N=50$ ). The Index suggests that the scale is reliable. The reliability of the tool is also established by using Cronbach's



alpha. The Cronbach alpha coefficient obtained is .82 which ensured the reliability of Scale on Epistemological Beliefs in Accountancy.

### **Achievement Goal Inventory (Usha & Niranjana, 2015)**

Achievement Goal Inventory prepared and developed by the investigator with the help of supervising teacher was used to measure achievement goals of higher secondary school students. The tool is intended to measure the type of achievement goal possessed by the higher secondary school students. The achievement goal adopted by the individual provides proper direction and purpose to engage in an academic activity for the students as well it plays an important role in students' motivation (Pintrich & Schunk,1996).

#### **Planning of the Inventory**

For identifying the components of Achievement Goal Inventory, the investigator made extensive study of related literature and collected the opinion of experts in the field of education. The achievement goals are classified into mastery goal and performance goal orientation in the original models. Later, developed classification of achievement goals based on the original models by bifurcating the original models into approach and avoidance aspects. The various achievement goals identified are mastery-approach goals, mastery-avoidance goals, and performance - approach goals

and performance-avoidance goals (Nicholls, 1984; Ames & Archer, 1988; Dweck & Legett, 1988; Elliott & Dweck, 1988; Elliot & Harackiewicz, 1996; Pintrich, 2000a; Elliot & McGregor, 2001). On the basis of discussions and theories of Achievement Goal orientation, it was decided to include items on the basis of the trichotomous classification of Achievement Goals (Elliot & Harackiewicz, 1996). The categories of achievement goals included in the inventory are Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal. The tool was constructed based on these three types of achievement goals. The details of category of achievement goals included in Achievement Goal Inventory are given below:

### ***Mastery Goal***

A person who is oriented towards mastery goal is intrinsically motivated to learn course material and choose tasks that maximize opportunities to learn the subject matter. They aim at mastering the subject matter, acquiring new skills, and collaborate with peers to enhance their learning. They give importance to the process of learning than the product of learning. The mastery goal oriented students aims at self improvement and compares their current achievement with their previous achievement. The students who pursue mastery goal are concerned with developing their ability overtime and strong desire in improving personal competence. They consider

failure and obstacles encountered in the learning process as opportunities to improve their performance.

e.g.: I like to study in depth whatever be the subject of study.

### ***Performance - Avoidance Goal***

A person who is oriented towards performance-avoidance goal use learning strategies that promote memorization to avoid unfavorable and poor performance situations as they do not want to perform worse than others. These students avoid task that make them look incompetent and interprets failure as a sign of low ability. They have the tendency to keep away from group activities and challenging task due to the fear of displaying their incompetency or inability before others.

e.g.: I try to avoid situations where teachers may think that my performance is poor.

### ***Performance - Approach Goal***

The performance-approach goal oriented students try to demonstrate high ability and to achieve higher levels than other students. They always try to outperform other students in their class. Students evaluate their performance to the performance of other students and try to do better than others in all situations. The performance approach goal oriented student chose

those tasks that maximize their opportunities to look them competent and participates in learning activities to gain recognition of others.

e.g.: My desire to perform better than my classmates often motivates me to study

### **Preparation of the Inventory**

Based on the discussions and information obtained from the experts and review studies on achievement goals, it was decided to use an inventory to measure the Achievement Goals of higher secondary school students. Initially, the draft Achievement Goal Inventory was prepared by including 60 items representing mastery goal, performance-avoidance goal, and performance-approach goal. After consulting with the experts in education, the irrelevant items in the inventory were removed. Thus, the draft of Achievement Goal Inventory consisted of 56 items representing mastery goal, performance-avoidance goal, and performance-approach goal. While constructing the inventory care was taken to include almost equal number of items in each component. The items in Achievement Goal Inventory are arranged on a random basis in the draft scale. Three responses were given viz., 'Agree', 'Undecided' and 'Disagree' to mark the responses of the students. The category-wise distribution of item numbers are presented in the Table 8.

Table 8

*Category-wise Distribution of Items in Achievement Goal Inventory*

Sl.No.	Category of Achievement Goals	Item Numbers
1	Mastery Goal	1, 4, 7, 10, 12,14,17,19, 22, 25, 27, 30, 31, 34, 36, 38, 40, 42, 44, 48, 51, 54
2	Performance - Avoidance Goal	2, 5, 8, 11, 15, 20, 23, 26, 28, 33, 35, 39, 43, 46, 49, 52, 55
3	Performance - Approach Goal	3, 6, 9, 13, 16, 18, 21, 24, 29, 32, 37, 41, 45, 47, 50, 53, 56

**Scoring Procedure**

Each statement of the Achievement Goal Inventory can be answered with three responses i.e. 'Agree', 'Undecided' and 'Disagree'. The respondent has to mark their responses to each of the items by choosing the most appropriate option from the three alternatives. A score of '3' is given to the response 'Agree', '2' to the response 'Undecided' and '1' to the response 'Disagree'. The total score obtained for the items in Mastery Goal, Performance-Avoidance Goal and Performance-Approach Goal were calculated separately. Student's score on each type of goal is calculated and compared. If a student's score is higher than other two categories, it is considered that he/she is oriented towards that particular type of goal.

### **Pilot Testing**

For the purpose of pilot testing of the developed inventory, a sample of 390 higher secondary school students of standard XI studying in commerce stream were selected. While selecting the sample for pilot testing, due representation was given to the subgroups of population i.e. gender, type of the management of school, and locale of the school. The achievement goal inventory prepared was administered to the selected sample. Before administering the tool necessary instructions were given to the students regarding how to mark the responses and its purpose. Out of 390 sample, 370 response sheets were selected for item analysis which are complete in all respects. The scores obtained in the pilot testing were subjected to item analysis. The draft version of Achievement Goal Inventory is presented in Appendix V.

### **Item Analysis**

Item analysis was carried out to ensure the quality of items and for selecting items in the final inventory. The selection of items for the final form of Achievement Goal Inventory was done as per the procedure suggested by Edwards (1969). The scores obtained for 370 students after pilot testing were arranged in the descending order. The upper 27 percent and lower 27 percent of total scores were identified. The 27 percent of the subjects with highest total score is considered as upper group. The 27 percent of the subjects with

lowest total scores is considered as lower group. For each individual statement, the scores obtained for the upper group as well as the lower group were calculated separately. The responses of the high and low groups to the individual statements are compared and the  $t$  values of each statement were calculated using the formula;

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{S_H^2}{n_H} + \frac{S_L^2}{n_L}}}$$

Where,

$\bar{X}_H$  = The mean score on a given statement for the high group

$\bar{X}_L$  = The mean score on the same statement for the low group

$S_H^2$  = The variance of the distribution of responses of the high group to the statement

$S_L^2$  = The variance of the distribution of responses of the low group to the statement

$n_H$  = The number of subjects in the high group

$n_L$  = The number of subjects in the low group

The result of the item analysis of Achievement Goal Inventory is given in the Table 9.

Table 9

*Result of Item Analysis of Items in Achievement Goal Inventory*

Sl. No.	t-value	Status	Sl. No.	t-value	Status
1	5.673	Accepted	29	4.792	Accepted
2	5.973	Accepted	30	8.424	Accepted
3	6.188	Accepted	31	2.313	Rejected
4	5.977	Accepted	32	8.816	Accepted
5	4.467	Accepted	33	6.957	Accepted
6	8.669	Accepted	34	1.326	Rejected
7	6.412	Accepted	35	9.540	Accepted
8	8.398	Accepted	36	0.766	Rejected
9	1.224	Rejected	37	8.347	Accepted
10	0.741	Rejected	38	8.319	Accepted
11	3.745	Accepted	39	5.252	Accepted
12	6.439	Accepted	40	6.454	Accepted
13	8.505	Accepted	41	6.255	Accepted
14	6.241	Accepted	42	0.967	Rejected
15	1.322	Rejected	43	5.610	Accepted
16	1.707	Rejected	44	5.891	Accepted
17	1.254	Rejected	45	9.954	Accepted
18	9.559	Accepted	46	7.562	Accepted
19	5.719	Accepted	47	7.638	Accepted
20	4.583	Accepted	48	5.968	Accepted
21	7.764	Accepted	49	1.002	Rejected
22	7.148	Accepted	50	8.625	Accepted
23	2.840	Accepted	51	7.855	Accepted
24	7.126	Accepted	52	7.873	Accepted
25	6.875	Accepted	53	8.769	Accepted
26	2.581	Accepted	54	7.646	Accepted
27	2.891	Rejected	55	2.788	Accepted
28	4.611	Accepted	56	9.927	Accepted



The items having  $t$  value above or equal to 2.58 were considered to be included in the final inventory. In order to equalize the items in each component some items were randomly rejected by the investigator. Thus, the final tool of Achievement Goal Inventory consists of 45 items representing 15 items from mastery goal, 15 items from performance-avoidance goal, and 15 items from performance-approach goal. The final version of the Achievement Goal Inventory (Malayalam and English) and its response sheet are presented in Appendix VI, VII and VIII respectively.

### **Validity and Reliability**

The validity of the inventory is ensured through face validity and content validity by consulting with experts in the field of education. The criterion validity of the tool was established by correlating the scores obtained by 50 higher secondary school students in Achievement Goal Inventory with that of the scores in Achievement Goal Questionnaire (Elliot & Church, 1997). The coefficient obtained for the tool was .67 ( $N=50$ ). The index shows that the scale is valid.

The reliability of the tool was established by using test retest method. The same tool is re-administered to the same sample after three weeks time. To check the reliability of the inventory Pearson's product moment coefficient of correlation was calculated. The reliability coefficient is .85 ( $N=50$ ). The index suggests that the tool is reliable. The reliability of the tool was also

established by using Cronbach's alpha. The Cronbach alpha coefficient obtained is .86 which ensured the reliability of Achievement Goal Inventory.

### **Scale on Self Regulated Learning Strategies (Usha & Niranjana, 2015)**

To understand the self regulated learning strategies adopted by higher secondary school students, the investigator developed and standardized a Scale on Self Regulated Learning Strategies. Review of related literature emphasizes the importance of self regulated learning strategies as a predictor of student's academic achievement and problem solving. Self regulated learning strategies are those learning strategies and mental processes which helps the learner to organize their information and to take responsibility of their learning. Self regulated learning strategies are student centered learning strategies which helps students to be autonomous in learning and to control their learning environment. The use of self regulated learning strategies helps the learner to guide and organize their learning experiences by managing their thought, behavior, and emotions. The self regulated learning strategies help the individual to acquire the information and required skills in order to achieve the goal set by them.

#### **Planning of the Scale**

The investigator developed and standardized a Scale on Self Regulated Learning Strategies with the help of the supervising teacher to measure the self regulated learning strategies adopted by higher secondary school students.

In order to identify the components of self regulated learning strategies, the investigator made an extensive study of available literature on self regulated learning strategies. The analysis of literature revealed the use of various self directive strategies by the learner to manage their efforts and resources to attain the academic goals. The various strategies identified are cognitive strategies, metacognitive strategies, resource management strategies, and motivational strategies (Zimmerman, 1989; 1990; Pintrich and De Groot, 1990; Schunk and Zimmerman, 1998; Pintrich, 1999). By analyzing various strategies the investigator decided to include those strategies recommended by Pintrich & De Groot (1990) in the Scale on Self Regulated Learning Strategies. Pintrich and De Groot (1990) stated that self regulated learning strategies involve the use of combination of cognitive learning strategies, metacognitive learning strategies, and resource management strategies by the student. The self regulated learning strategies combines students' metacognitive strategies for planning, monitoring, and regulation, cognitive strategies used by the students to learn, remember, and understand the material, and resource management strategies used by the students' to take control of their effort and classroom learning environment. Therefore, the items included in the Scale of Self Regulated Learning Strategies are based on the components such as cognitive strategies, metacognitive strategies, and resource management strategies. The detailed description of the components are:

### ***Cognitive Strategies***

Cognitive strategies are those methods used by the learner to learn more successfully by dealing with the actual learning material. Students organize the information received by outlining, summarizing, highlighting text, rearranging material, and creating mental map. The learner uses elaboration, rehearsal, and organization strategies to understand the information received.

e.g.: Concepts obtained in the class are related to the concepts formed by self.

### ***Metacognitive Strategies***

Metacognitive strategies are those strategies which are used for deep processing of the information received. They are the methods used by the learner to understand about learning and thinking. Metacognitive strategies include planning strategies, monitoring strategies, and reflection strategies used by the learners to understand the learning material. The strategies used by the learner to plan the academic activities systematically, manage time effectively, preparing questions to check knowledge, strategies to identify their weakness and strengthen in order to make their performance better are included in metacognitive strategies.

e.g. : Reflective questions are asked to know whether the lessons are well understood.

### ***Resource Management Strategies***

Resource management strategies are those strategies used by the learner to ensure optimum utilization of the available resources to become successful in their learning process. Here, the learner organizes the resource such as environment, peers and others to master the subject matter. It includes management of our own efforts, management of environment, and management of peers/teachers. The learner structure the learning environment, seeks the help of others, use library resources/internet resources and manage their own efforts to process the information.

e.g.: Discussing lessons with friends helps to remove ambiguity.

### **Preparation of the Scale**

The draft scale consisting of 69 items based on the components of self regulated learning strategies was prepared initially by the investigator. On the basis of suggestions made by the experts in the field of education some items were omitted and some were modified. After editing, the draft scale on Self Regulated Learning Strategies consisted of 63 items on cognitive, metacognitive, and resource management strategies. Among the 63 items in the draft scale, 19 items represents cognitive strategies, 23 items represents metacognitive strategies and 21 items represents resource management strategies. The items in the draft scale on Self Regulated Learning Strategies were arranged randomly. The draft scale on Self Regulated Learning

Strategies included 34 positive items and 29 negative items. The component-wise distribution of items is given in the Table 10.

Table 10

*Component-wise Distribution of Items in Scale on Self Regulated Learning Strategies*

Sl. No.	Components	Item numbers
1	Cognitive Strategies	1, 4, 7, 10, 13, 15, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 52, 55
2	Metacognitive Strategies	2, 5, 8, 11, 16, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 50, 53, 56, 58, 60, 62, 63
3	Resource Management Strategies	3, 6, 9, 12, 14, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 49, 51, 54, 57, 59, 61

### Scoring Procedure

The scale on Self Regulated Learning Strategies consists of items in which the respondents can express their responses on a three point scale. The three alternatives are 'Always', 'Sometimes' and 'Never'. The respondent has to mark their responses against each item appropriately. For the positive statement, a score of '3' is given for response 'Always', '2' is given for response 'Sometimes' and a score of '1' is given for the response 'Never'. In the case of negative statements, reverse scoring procedure was adopted i.e. '1' for 'Always', '2' for 'Sometimes' and '3' for 'Never'. The total score obtained

for each sample is calculated to identify the score of Self Regulated Learning Strategies of higher secondary school students.

### **Pilot Testing**

A sample of 390 higher secondary school students of plus one commerce stream were selected for pilot testing. Due representation was given to the sub groups of the population i.e. gender, type of management of schools and locale of schools, while selecting sample for pilot testing. The draft scale prepared was administered to the selected sample. Before administering the tool, necessary instructions were given to the students for filling the responses. The incomplete response sheets were omitted and those response sheets of 370 sample complete in all aspects was selected for item analysis. The scores obtained in the pilot testing were subjected to item analysis. The draft version of scale on Self Regulated Learning Strategies is presented in Appendix IX.

### **Item Analysis**

Item analysis was carried out to ensure the quality of item and for selecting items for the final scale. The selection of items in the final scale of Self Regulated Learning Strategies was done as per the procedure suggested by Edwards (1969). The scores obtained for 370 students after pilot test were arranged in the descending order. The upper 27 percent and lower 27 percent of total scores were identified. The 27 percent of the respondents with highest

total score is considered as upper group. The 27 percent of the respondents with lowest total score is considered as lower group. For each individual statement, the scores obtained for the upper group as well as the lower group were calculated separately. The responses of the high and low groups to the individual statements are evaluated by calculating the  $t$  value as follows.

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{S_H^2}{n_H} + \frac{S_L^2}{n_L}}}$$

Where,

$\bar{X}_H$  = The mean score on a given statement for the high group

$\bar{X}_L$  = The mean score on the some statement for the low group

$S_H^2$  = The variance of the distribution of responses of the high group to the statement

$S_L^2$  = The variance of the distribution of responses of the low group to the statement

$n_H$  = The number of subjects in the high group

$n_L$  = The number of subjects in the low group

The result of item analysis of scale of Self Regulated Learning Strategies is given in the Table 11.



Table 11

*Result of Item Analysis of Items in Scale on Self Regulated Learning Strategies*

Sl. No.	t-value	Status	Sl. No.	t-value	Status
1	4.097	Accepted	33	6.693	Accepted
2	8.833	Accepted	34	7.296	Accepted
3	6.614	Accepted	35	2.849	Accepted
4	5.796	Accepted	36	4.661	Accepted
5	9.129	Accepted	37	6.106	Accepted
6	8.844	Accepted	38	3.494	Accepted
7	1.597	Rejected	39	0.322	Rejected
8	8.018	Accepted	40	6.718	Accepted
9	10.812	Accepted	41	3.611	Accepted
10	3.387	Accepted	42	7.916	Accepted
11	4.768	Accepted	43	6.486	Accepted
12	5.824	Accepted	44	9.478	Accepted
13	7.635	Accepted	45	7.896	Accepted
14	5.968	Accepted	46	9.569	Accepted
15	3.080	Accepted	47	4.116	Accepted
16	6.084	Accepted	48	9.481	Accepted
17	5.070	Accepted	49	7.583	Accepted
18	5.752	Accepted	50	10.152	Accepted
19	9.185	Accepted	51	8.276	Accepted
20	9.654	Accepted	52	8.085	Accepted
21	9.974	Accepted	53	8.337	Accepted
22	7.298	Accepted	54	4.023	Accepted
23	4.759	Accepted	55	6.517	Accepted
24	8.016	Accepted	56	8.622	Accepted
25	2.392	Rejected	57	2.486	Rejected
26	9.356	Accepted	58	9.065	Accepted
27	8.20	Accepted	59	3.955	Accepted
28	9.216	Accepted	60	7.298	Accepted
29	8.940	Accepted	61	2.124	Rejected
30	7.084	Accepted	62	4.936	Accepted
31	8.855	Accepted	63	8.337	Accepted
32	6.577	Accepted			

Those items having  $t$  value 2.58 and above were selected for the final scale on Self Regulated Learning Strategies. Hence, out of 63 items in the draft scale, 58 items were selected for the final scale on Self Regulated Learning Strategies. The final version of the scale on Self Regulated learning Strategies (Malayalam and English) and its response sheet are presented in Appendix X, XI and XII respectively.

### **Validity and Reliability**

The validity of the scale is ensured through face validity and content validity by consulting with experts in the field of education. The criterion validity of the tool was established by correlating the scores obtained by 50 higher secondary school students in Self Regulated Learning Strategies with that of the scores obtained for Self Regulatory Learning Strategies Scale standardized by Usha & Seema in 2006 (Seema, 2007). The coefficient of correlation obtained for the tool is .78 ( $N=50$ ). The index shows that the scale is valid.

The reliability of the tool was established by using test retest method. The same tool was re-administered to the same sample after three weeks time. Pearson's product moment coefficient of correlation was calculated to obtain the reliability of the tool by correlation two sets of scores. The reliability coefficient was .79 ( $N = 50$ ). The index suggests that the tool is reliable. The reliability of the tool was also established by using Cronbach's Alpha. The

Cornbach alpha coefficient obtained is .88 which ensured the reliability of the Scale on Self Regulated Learning Strategies.

### **Achievement Test in Accountancy (Usha & Niranjana, 2015)**

The dependent variable selected for the study is Achievement in Accountancy. Thus, an achievement test in order to measure the achievement in Accountancy of higher secondary school students is necessary. The investigator prepared and standardized an achievement test to get valid and reliable data under the guidance of the supervising teacher. The procedure adopted at different stages of preparation and standardization of Achievement Test in Accountancy is described below:

#### **Planning of the Test**

A thorough study of the curriculum, syllabus, and text book of Accountancy for Class XI for the academic year 2014-2015, was done by the investigator while planning the test. The investigator also consulted the experienced teachers teaching Accountancy who are working in the higher secondary schools for guidelines in preparing the test.

Achievement test in Accountancy is intended to measure the achievement in Accountancy of standard XI students in selected units. The achievement test includes all most all chapters of standard XI Accountancy i.e. from basic concepts to financial statements. The items were prepared on

the basis of these chapters. The present achievement test is based on objectives of cognitive domain mentioned in the Revised Bloom's Taxonomy of Educational objectives (Anderson and Krathwohl, 2001).

### **Preparation of the Preliminary Test**

Items in the test were prepared on the basis of design of the test by giving due weightage to objectives, content, and difficulty level. It was decided to include 40 items in the final test. The duration of the test was decided as 40 minutes and maximum mark as 40.

The design of the Achievement Test in Accountancy for standard XI students is described below:

### ***Weightage to Objectives***

Items for Achievement Test in Accountancy were prepared on the basis of levels of the cognitive domain suggested by Anderson and Krathwohl (2001) in Revised Bloom's Taxonomy. The objectives under cognitive domains are remembering, understanding, applying, analyzing, evaluating, and creating. The weightage given to the objectives in Achievement Test is given in Table 12.

Table 12

*Weightage to Objectives*

Sl. No.	Objectives	No. of questions	Marks	Percentage
1	Remembering	8	8	20
2	Understanding	12	12	30
3	Applying	9	9	22.5
4	Analyzing	5	5	12.5
5	Evaluating	3	3	7.5
6	Creating	3	3	7.5
Total		40	40	100

*Weightage to Content*

To ensure the comprehensiveness of the test adequate weightage has been given to each chapter by analyzing the curriculum, syllabus, and textbook. The weightage given to the content in Achievement test is presented in the Table 13.

Table 13

*Weightage to Content*

Sl. No.	Content	No. of questions	Marks	Percentage
1	Introduction to Accounting	5	5	12.5
2	Theory base of Accounting	4	4	10
3	Recording of Transaction I	8	8	20
4	Recording of Transactions II	8	8	20
5	Trial balance and Rectification of errors	3	3	7.5
6	Depreciation, Provisions & Reserves	2	2	5
7	Financial statement I	7	7	17.5
8	Financial statements II	3	3	7.5
Total		40	40	100

***Weightage to Difficulty Level***

While constructing the test items due care was given to include items in three levels of difficulty i.e. easy, average and difficult. The weightage given to level of difficulty in Achievement Test is presented in the Table 14.

Table 14

***Weightage to Level of Difficulty***

Sl. No.	Difficulty Level	No. of questions	Marks	Percentage
1	Easy	10	10	25
2	Average	27	27	67.5
3	Difficult	3	3	7.5
	Total	40	40	100

***Blue Print***

A two dimensional blue print which helps to visualize the coverage of content and objectives of the planned achievement test was prepared by the investigator. The blue print of Achievement Test in Accountancy is presented in the Table 15.

Table 15

*Blue Print of Achievement Test in Accountancy*

Sl. No.	Content	Objectives					Total no. of questions	Total marks	
		Remembering	Understanding	Applying	Analyzing	Evaluating			Creating
1	Introduction to Accounting		(3) <sup>1</sup>			(1) <sup>1</sup>	(1) <sup>1</sup>	5	5
2	Theory base of Accounting	(1) <sup>1</sup>	(2) <sup>1</sup>	(1) <sup>1</sup>				4	4
3	Recording of Transactions I	(1) <sup>1</sup>	(3) <sup>1</sup>	(1) <sup>1</sup>	(2) <sup>1</sup>	(1) <sup>1</sup>		8	8
4	Recording of Transactions II	(2) <sup>1</sup>	(1) <sup>1</sup>	(2) <sup>1</sup>	(2) <sup>1</sup>		(1) <sup>1</sup>	8	8
5	Tribal balance and Rectification of errors	(1) <sup>1</sup>		(1) <sup>1</sup>		(1) <sup>1</sup>		3	3
6	Depreciation, Provisions & Reserves			(1) <sup>1</sup>	(1) <sup>1</sup>			2	2
7	Financial statement I	(1) <sup>1</sup>	(3) <sup>1</sup>	(2) <sup>1</sup>			(1) <sup>1</sup>	7	7
8	Financial statements II	(2) <sup>1</sup>		(1) <sup>1</sup>				3	3
	Total No. Questions	8	12	9	5	3	3	40	
	Total Marks	8	12	9	5	3	3		40

Note: Figures inside brackets indicate number of questions and those outside brackets indicate marks





**Analyzing**

4. Bought furniture from M/s.Satheesh for Rs.50,000 and a cheque was issued on the same day. This transaction result in
- A. Increases furniture and decreases cash
  - B. Increases bank and decreases furniture
  - C. Increases furniture and decreases bank
  - D. Increases purchases and decreases bank

**Evaluating**

5. Which of the following does not satisfy the accounting equation?
- A.  $\text{Assets} = \text{Liabilities} + \text{Capital}$
  - B.  $\text{Liabilities} = \text{Assets} - \text{Capital}$
  - C.  $\text{Capital} = \text{Liabilities} + \text{Assets}$
  - D.  $\text{Capital} = \text{Assets} - \text{liabilities}$

**Creating**

6. Arrange the following in the chronological order of the preparation of accounts
- A. Balance Sheet, Trading account, Trial balance, Profit and Loss account
  - B. Profit and loss account, Trading account, Balance sheet, Trial balance
  - C. Trial balance, Trading account, Profit and loss account, Balance sheet
  - D. Trading account, Trial balance, Profit and Loss account, Balance sheet

### **Scoring Procedure**

The Achievement Test in Accountancy for Standard XI students of higher secondary schools was prepared by giving proper weightage to content, educational objectives, and difficulty level. Only multiple choice test items were included in Achievement Test in Accountancy. Separate answer sheet were given to the students to mark their responses. The students have to select the correct answer from the given four alternatives. The scoring key was prepared to ensure the objectivity while scoring the response sheets. The investigator decided to give '1' score for each correct response and '0' score for each wrong response. The total score obtained for each sample is calculated to identify the score in Achievement in Accountancy of higher secondary school students.

### **Try Out**

The draft test with 60 multiple choice items was tried out on a sample of 390 higher secondary school students of plus one commerce stream by the investigator. Due representation was given to the subgroups of the population based on gender, type of management of school, and locale of school while selecting the sample for try out. Before administering the test, necessary instructions were given to the students regarding the method of marking the responses. In addition to that the purpose of the test is made clear to the students. With the help of scoring key, all response sheets were scored and

subjected to item analysis. Only 370 response sheets which are completely filled by the respondents were selected for the item analysis. The draft version of Achievement Test in Accountancy is presented in Appendix XIII.

### **Item Analysis**

Item analysis was carried out by the investigator to ensure the quality of test items and for selecting items for the final test. The procedure suggested by Ebel and Frisbie (1991) was employed for item analysis. The response sheet of 370 students complete in all respects were arranged in descending order based on total score obtained by the students in order to identify the upper and lower group separately, the upper 27 percent and lower 27 percent of total sample were identified. The 27 percent of the respondents with highest total score is considered as upper group (100 pupils with highest score). The 27 percent of the respondents with lowest total score is considered as lower group (100 pupils with lowest score) and then, counted the number of right responses for each item, both in upper and lower group. The difficulty index and discriminating power of each item was calculated for selecting the items in final achievement test.

### ***Difficulty Index***

The difficulty index of an item is represented by the percentage of students who responded to a particular item correctly. The difficulty index was found out by using the formula

$$DI = \frac{U + L}{2N}$$

Where,

U = is the number of right responses of an item in the upper group

L = is the number of right responses of an item in the lower group

N = is the size of the sample of the upper or lower group (=100)

### ***Discriminating Power***

The discriminating power of an item is the power of the item to discriminate between the upper and the lower group. The Discriminating Power (DP) was calculated by using the formula

$$DP = \frac{U - L}{N}$$

Where,

U = is the number of right responses of an item in the upper group

L = is the number of right responses of an item in the lower group

N = is the size of the sample of the upper or lower group (=100)

The difficulty index and discriminating power of each item in Achievement Test in Accountancy are given in Table 16.

Table 16

*Difficulty Index and Discriminating Power of Items in Achievement Test in Accountancy*

Sl. No.	U	L	DI	DP	Item selected	Sl. No.	U	L	DI	DP	Item selected
1	47	31	0.39	0.16	Rejected	31	87	51	0.69	0.36	Accepted
2	35	15	0.25	0.20	Rejected	32	75	46	0.61	0.29	Rejected
3	98	74	0.87	0.24	Rejected	33	88	27	0.58	0.61	Accepted
4	65	21	0.43	0.44	Accepted	34	87	35	0.61	0.52	Accepted
5	84	43	0.64	0.41	Accepted	35	96	40	0.68	0.56	Accepted
6	61	22	0.42	0.39	Accepted	36	58	33	0.46	0.25	Rejected
7	68	18	0.43	0.50	Accepted	37	68	40	0.54	0.28	Rejected
8	38	13	0.26	0.26	Rejected	38	58	25	0.42	0.33	Accepted
9	97	46	0.72	0.51	Accepted	39	90	37	0.64	0.53	Accepted
10	83	38	0.61	0.45	Accepted	40	30	13	0.22	0.17	Rejected
11	98	41	0.70	0.57	Accepted	41	40	21	0.31	0.19	Rejected
12	90	43	0.67	0.47	Accepted	42	93	48	0.71	0.45	Accepted
13	84	60	0.72	0.24	Rejected	43	71	30	0.51	0.41	Accepted
14	61	19	0.40	0.42	Accepted	44	87	28	0.58	0.59	Accepted
15	62	39	0.51	0.23	Rejected	45	74	31	0.53	0.43	Accepted
16	94	37	0.66	0.57	Accepted	46	64	13	0.39	0.51	Accepted
17	45	11	0.28	0.34	Rejected	47	85	33	0.59	0.52	Accepted
18	91	40	0.66	0.51	Accepted	48	63	21	0.42	0.42	Accepted
19	93	47	0.70	0.46	Accepted	49	75	16	0.40	0.51	Accepted
20	63	27	0.45	0.36	Accepted	50	81	30	0.56	0.51	Accepted
21	66	26	0.46	0.40	Accepted	51	30	20	0.25	0.10	Rejected
22	84	39	0.62	0.45	Accepted	52	80	41	0.61	0.39	Accepted
23	70	33	0.52	0.37	Accepted	53	40	16	0.28	0.24	Rejected
24	65	37	0.51	0.28	Rejected	54	58	29	0.44	0.29	Rejected
25	71	19	0.45	0.52	Accepted	55	64	22	0.43	0.42	Accepted
26	52	32	0.42	0.20	Rejected	56	67	42	0.55	0.25	Rejected
27	80	25	0.53	0.55	Accepted	57	72	15	0.44	0.57	Accepted
28	31	23	0.27	0.08	Rejected	58	63	17	0.40	0.46	Accepted
29	74	29	0.52	0.45	Accepted	59	71	18	0.45	0.53	Accepted
30	82	28	0.55	0.54	Accepted	60	60	39	0.50	0.21	Rejected

### **Preparation of Final Test**

On the basis of the indices of discriminating power and difficulty index of each item, the items for final Achievement Test in Accountancy were selected by the investigator. Items having discriminating power more than 0.4 and difficulty index between 0.4 and 0.6 were selected initially. In order to give representation to all objectives those items having discriminating power more the 0.3 and those items having difficulty index between 0.3 and 0.7 were also selected. The final version of Achievement Test in Accountancy consisted of 40 multiple choice test items. The time limit fixed for completing the test is 40 minutes and maximum mark is 40. The final version of Achievement Test in Accountancy, its response sheet, and scoring key are given in Appendix XIV, XV, and XVI respectively.

### **Establishing Validity and Reliability of the Test**

The content validity of the newly constructed test was established through proper analysis of the content and objectives as well as by preparing a blue print in accordance with the curricular requirements. The test items were subjected to evaluation by experts in the field of teaching Accountancy. The experts confirmed that the items in test were eligible to measure the achievement in Accountancy of higher secondary school students of standard XI studying in commerce stream. Thus, the content validity and face validity of Achievement Test in Accountancy was established by the investigator.

Criterion related validity of the Achievement Test in Accountancy was established by correlating the scores of achievement test in Accountancy with the marks obtained by the students for final examination in Accountancy for standard XI public examination. The Pearson's product moment coefficient for two set of scores were calculated. The coefficient of correlation thus found is 0.63. The coefficient value indicates that the tool is valid to measure the achievement in accountancy of higher secondary students of standard XI studying in commerce stream.

The reliability of the newly constructed achievement test was calculated by test retest method. The same test was administered twice to 50 commerce students of standard XI with an interval of three weeks. The two sets of scores thus obtained were tabulated and their correlation coefficient was calculated. The Pearson's product moment coefficient of correlation thus found is .77. The high value of correlation indicates that the Achievement Test in Accountancy is reliable.

The formula used to find the product moment correlation is:

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

Where,

$\sum X$  = Total score for first set of scores

$\sum Y$  = Total score for second set of scores

N = Number of students

### **Sample Selected for the Study**

The population considered for the study is higher secondary school students of commerce stream in Kerala state who follow Kerala state syllabus. The basal sample selected for the study consisted of 1200 higher secondary school students of standard XI of commerce stream. While selecting the sample, due weightage was given to the subgroups based on gender, type of management of school, and locale of the school. Sample was drawn from Kasargode, Kozhikode, Malappuram, Palakkad, Thrissur, Ernakulam and Trivandrum districts of Kerala state. The study followed stratified sampling technique, to get the more accurate representation of the population. While selecting the sample, a ratio of 1:1 for gender, 1:1 for type of management and 6:5 for locale were considered. The breakup of the basal sample is given in the Figure 7.



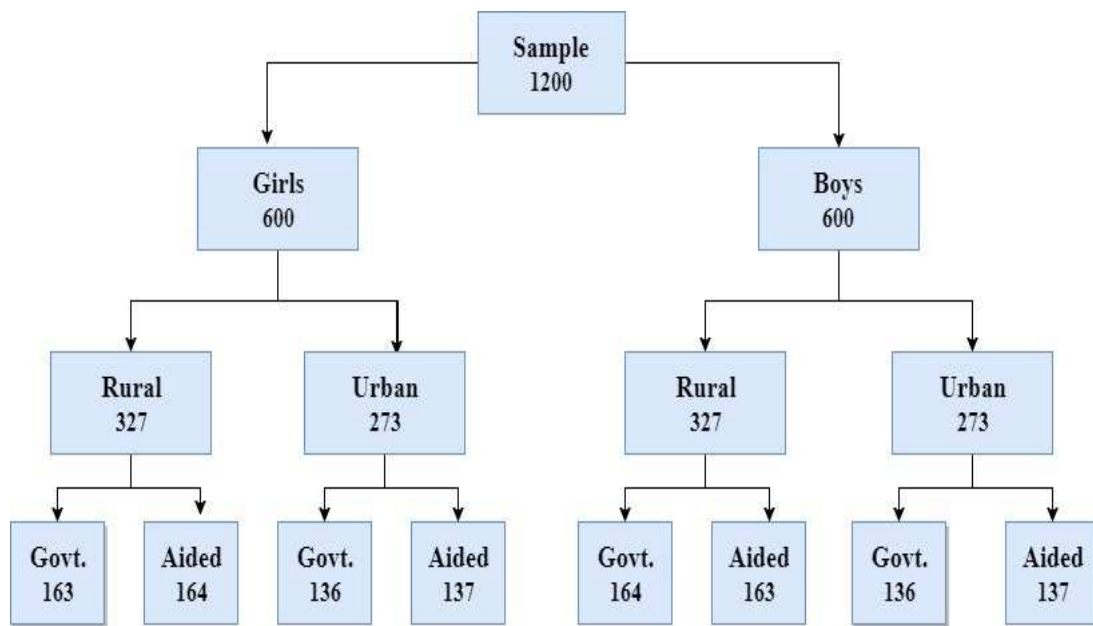


Figure 7. Breakup of the Basal Sample

After collecting the response sheet the incomplete response sheets were removed and the four response sheets of each student which are complete in all aspects were selected. Thus, the final sample was reduced to 1012 higher secondary school students. The details of the final sample included in the study are given in Table 17.

Table 17  
*Details of Final Sample used for the Study*

Sl. No.	Name of School	Gender		Locality		Type of Management		Total
		Boys	Girls	Urban	Rural	Govt.	Aided	
1.	GHSS Morgalputhur, Kasargode	26	26	–	52	52	–	52
2.	GVHSS, Feroke, Kozhikode	8	41	–	49	49	–	49
3.	GMHSS Mananchira, Kozhikode	26	20	46	–	46	–	46
4.	Farook HSS, Farook College, Kozhikode	25	25	–	50	–	50	50
5.	Imbichi Haji Memmorial HSS Chaliyam, Kozhikode	38	11	–	49	–	49	49
6.	GVHSS, Cheruvannur, Kozhikode	20	26	–	46	46	–	46
7.	AVHSS, Ponnani, Malappuram	41	3	44	–	–	44	44
8.	GBHSS, Tirur, Malappuram	14	18	32	–	32	–	32
9.	Devathar HSS Tanur, Malappuram	20	24	–	44	–	44	44
10.	GHSS Edappal, Malappuram	33	18	–	51	51	–	51
11.	DHOHSS Pookkarathara, Malappuram	28	22	–	50	–	50	50
12.	GHSS, Kadikkad, Thrissur	15	30	–	45	45	–	45
13.	GHSS, Chavakkad, Thrissur	25	25	50	–	50	–	50
15.	Sreekrishna HSS Guruvayur, Thrissur	16	36	52	–	–	52	52
16.	NHSS, Irinjalakuda, Thrissur	10	46	56	–	–	56	56

Sl. No.	Name of School	Gender		Locality		Type of Management		Total
		Boys	Girls	Urban	Rural	Govt.	Aided	
17.	GHSS Vadanamkurissi, Palakkad	32	11	–	43	43	–	43
18.	SNTHSS Shornur, Palakkad	24	14	38	–	-	38	38
19.	GHSS Shornur, Palakkad	28	14	42	–	42	–	42
20.	PHSS Pallippuram, Palakkad	15	41	–	56	–	56	56
21.	GHSS Vennala, Eranamkulam	26	26	52	–	52	–	52
20.	GHSS Pettah, Thiruvananthapuram	5	26	31	–	31	–	31
22.	RKDNSS Sasthamangalam, Thriuvanathapuram	10	24	34	–	–	34	34
Sub Total		485	527	477	535	539	473	1012
Total		1012		1012		1012		

Out of the total sample of 1012 higher secondary school students, 485 were boys and 527 were girls studying in commerce stream of standard XI and 477 higher secondary schools were selected from urban schools and 535 students were selected from rural schools. Among 1012 higher secondary school students, 539 higher secondary school students belong to government schools and 473 higher secondary students belongs to aided schools.

The final breakup of the sample is presented in Figure 8.

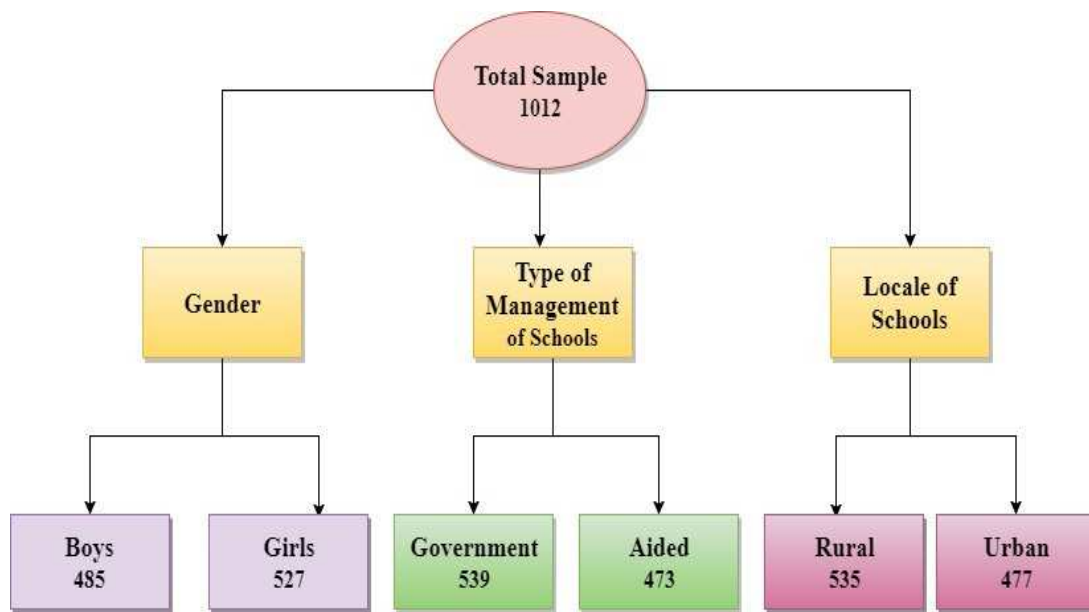


Figure 8. Final Breakup of the Sample

### Data Collection Procedure

The data required for the present study, were collected from the selected sample, i.e. 1012 higher secondary school students of commerce stream in standard XI. The investigator approached the principals of selected schools in order to seek permission to collect the data. After getting permission from the authorities, the required data were collected from students of selected schools in each district. The investigator administered all the four tools to higher secondary school students of standard XI studying in commerce stream. Before administering each tool, necessary directions were given to the students and ensured the secrecy of their responses. First of all the Achievement Test in Accountancy was administered in one period of 40

minutes. Then the remaining three tools were administered for a period of two hours. Altogether the investigator took almost three hours to administer the four tools. The duly filled response sheets were collected and considered for data analysis.

### **Statistical Techniques used for the Study**

Various statistical techniques were employed in the present study to realize the objectives of the study. The analysis procedure are classified under two major heads namely, preliminary analysis and major analysis.

#### **Preliminary Analysis**

As a first step the preliminary analysis of collected data were done by the investigator. For this, the basic descriptive statistics such as mean, median, mode, standard deviation, skewness, and kurtosis of each of the independent variables i.e. Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies, and dependent variable, Achievement in Accountancy, were calculated. The descriptive statistics were calculated for the total sample as well as separately for the subgroups based on gender, type of management of schools, and locale of higher secondary schools. The essential descriptive statistics helped the investigator to describe about the nature of distribution of independent variable and dependent variable for the selected sample. Calculation of mean and median also helped the investigator to classify the independent variables.

## **Classification Technique**

For the purpose of further analysis the three independent variables, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies, were classified into two or three levels. The classification technique followed for the independent variables viz., Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies are presented below:

### ***Classification of Epistemological Beliefs***

The score of higher secondary school students on Epistemological Beliefs was classified into two groups i.e. High Epistemological Beliefs group and Low Epistemological Beliefs group. The Scale on Epistemological beliefs in Accountancy consists of 40 items. Classification is done on the basis of median. Thus, median of scores obtained in the Scale of Epistemological Beliefs in Accountancy for the total sample was calculated. Then students whose score fall above and equal to median were considered as High Epistemological Beliefs group. Those students who score below the median were considered as Low Epistemological Beliefs group.

### ***Classification of Achievement Goal***

The data collected using Achievement Goal Inventory was classified into three categories. The scores obtained for Achievement Goal Inventory of

higher secondary school students were used to identify the students who orient towards mastery goal, performance-avoidance goal, and performance-approach goal. The Achievement Goal Inventory consists of 45 items. The items were constructed on the basis of three categories of Achievement goal i.e., Mastery Goal, Performance-Avoidance goal, and Performance-Approach goal. Each category includes 15 items. The category wise score of students in Achievement Goal Inventory was calculated. Those students whose score for a particular category is high, they are considered to be oriented towards that particular type of goal. In this manner the whole sample was classified into Mastery Goal group, Performance-Avoidance Goal group, and Performance-Approach Goal group.

### ***Classification of Self Regulated Learning Strategies***

Based on the scores of Self Regulated Learning Strategies, the total sample of higher secondary school students was divided into two groups. i.e. High Self Regulated Learning Strategy group and Low Self Regulated Learning Strategy group. The Scale on Self Regulated Learning Strategies has 58 items. The classification was done on the basis of median. Thus, the students having scores above and equal to median were treated as High Self Regulated Learning Strategy group and those students having scores below median were treated as Low Self Regulated learning Strategy group.

## Major Analysis

For major analysis the investigator used the following techniques.

1. Mean Difference Analysis
2. Three-way Analysis of Variance with 2X3X2 factorial design
3. Multiple Regression Analysis

### Mean Difference Analysis

Mean difference analysis was carried out in order to know whether there exists gender difference, difference based on type of management of schools, and locale difference for scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students. Test of significance of difference between means of large independent sample were used. The mean difference was computed by using the formula as suggested by Garrett (1979):-

$$CR = \frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

Where

$M_1$  = Mean of the first group

$M_2$  = Mean of the second group



$\sigma_1$  = Standard Deviation of the first group

$\sigma_2$  = Standard Deviation of the second group

$N_1$  = Size of first group

$N_2$  = Size of second group

### **Three-way Analysis of Variance with 2 X 3 X 2 Factorial Design**

In three way Analysis of Variance, the influence of three independent variables on a dependent variable is examined. For the present study three-way analysis of variance with 2X3X2 factorial design was used to understand the main and interaction effect of three independent variables on the dependent variable. Here, the association of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies (Independent Variables) with Achievement in Accountancy (Dependent Variable) is examined. A 2X3X2 factorial design consist of two levels of Epistemological Beliefs, three types of Achievement Goals, and two levels of Self Regulated Learning Strategies. Epistemological Beliefs were classified into High Epistemological Beliefs and Low Epistemological Beliefs groups. The Achievement Goals were classified into Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups. The Self Regulated Learning Strategies were classified into High Self Regulated Learning Strategy group and Low Self Regulated Learning Strategy group. Data were analyzed for total sample and subgroups viz., Boys and Girls,

Rural and Urban, Government and Aided higher secondary school students. When  $F$  ratios are found significant, further analysis of Scheffe's Test of post hoc comparison was performed to locate the exact group which shows the difference.

### **Multiple Regression Analysis**

Multiple regression analysis was used for the present study to predict the individual and joint contributions of predictor variables, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on criterion variable, Achievement in Accountancy. The method used for multiple regressions is Enter method. The predictor variables are entered one by one to see the extent of contribution of each variable in predicting the criterion variable, Achievement in Accountancy. In this method, the variable having high correlation is entered first. For the purpose of predicting the contribution of predictor variables, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy, a regression equation is developed by the investigator.

In the present study, the statistical analysis was done by using SPSS. 21.0 version.

A summary of statistical techniques used are given in the Figure 9.

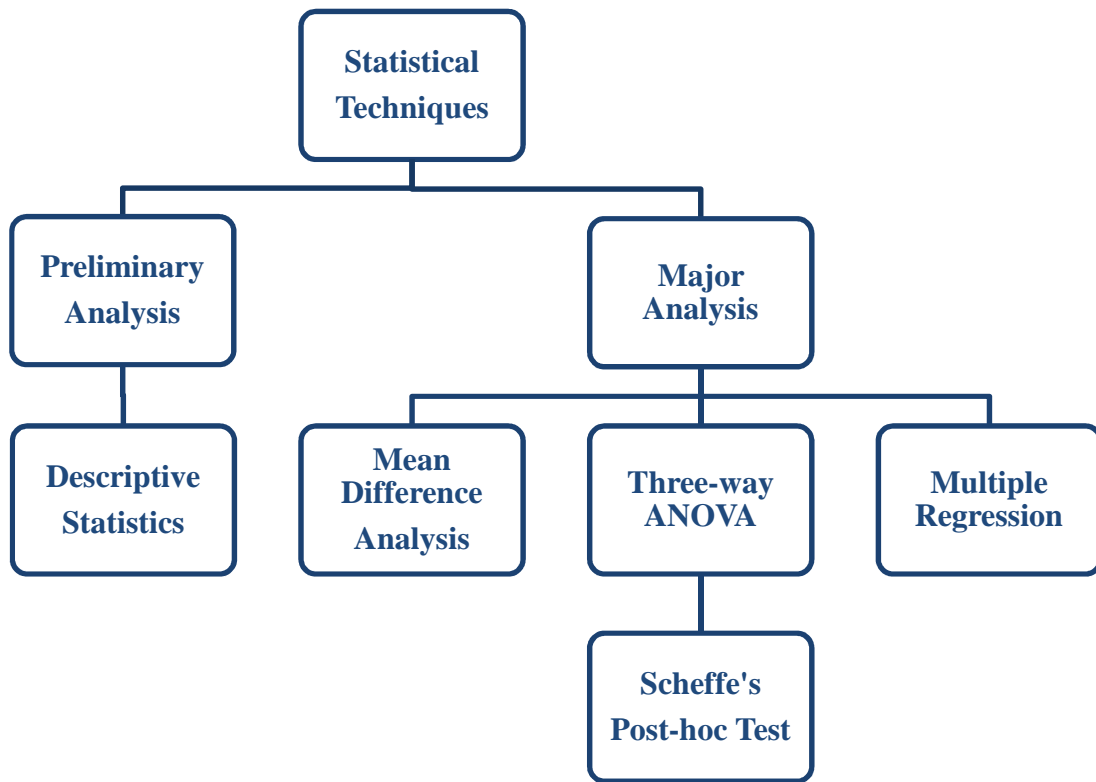


Figure 9. Summary of Statistical Analysis used for the study

The methodology used in the present study is summarized with the help of a concept map in Figure10.

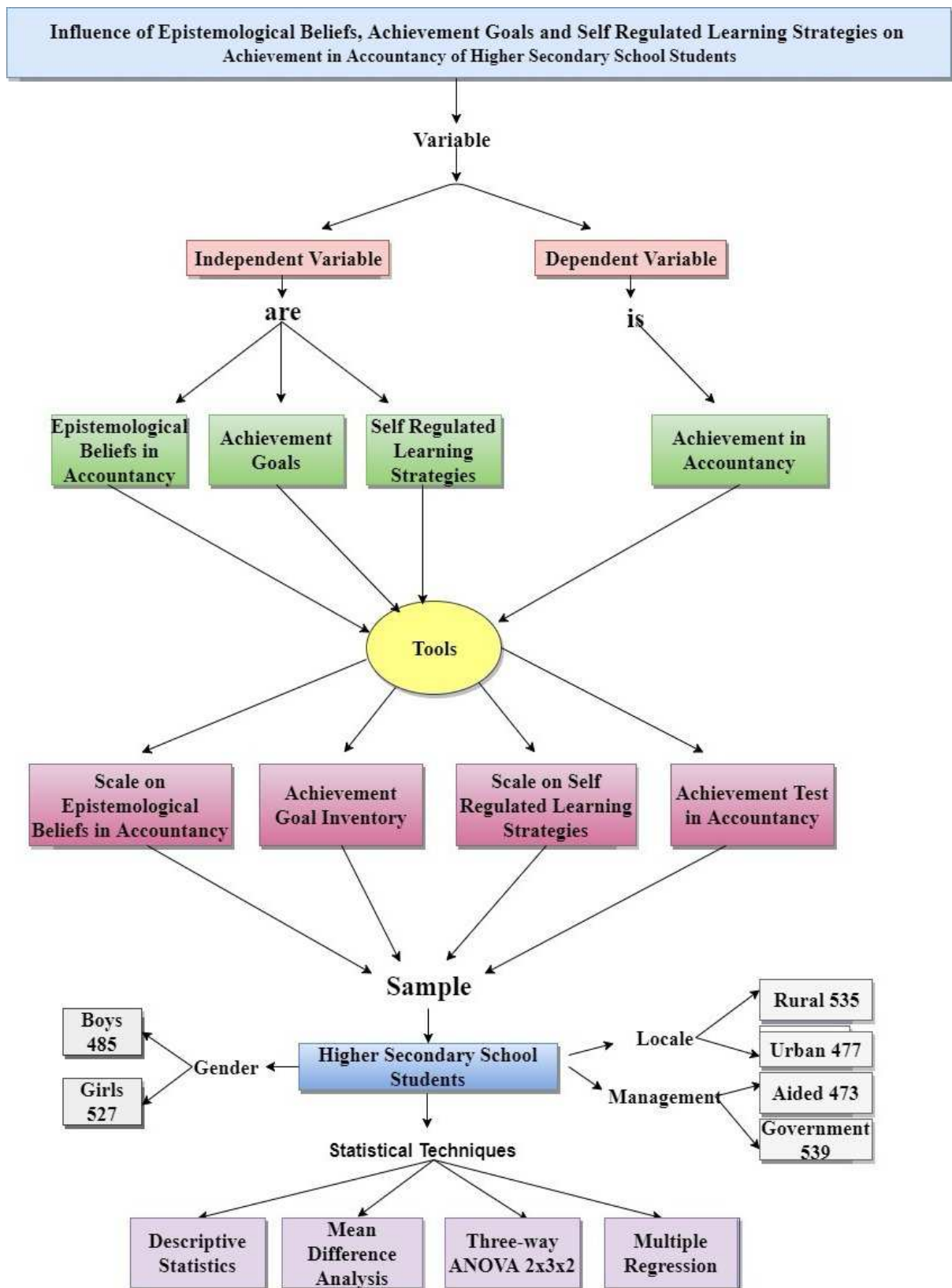


Figure 10. Concept Map of Methodology used for the Study

## *Chapter 4*

# **Analysis and Interpretation**

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- *Preliminary Analysis*
- *Mean Difference Analysis*
- *Analysis of Variance*
- *Multiple Regression Analysis*

The present study is intended to find out the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy among higher secondary school students. Basic descriptive statistics, Test of significance of difference between means of large independent samples, 2X3X2 Factorial ANOVA and Multiple Regression analysis were carried out for the purpose of analyzing collected data. The statistical analysis was carried out on the basis of the objectives set for the present study. The formulated hypotheses were tested by using the results of statistical analysis.

The details of analysis done for the present study are described under the following headings:

- Preliminary Analysis
- Mean Difference Analysis
- Analysis of Variance
- Multiple Regression Analysis

### **Preliminary Analysis**

As a first step of analysis, to know the basic properties of the variables, preliminary analysis of the scores of independent variables and dependent variable was carried out for total sample and relevant subgroups on the basis

of gender, type of management of schools, and locale of schools. Preliminary analysis helped the investigator to understand the basic properties of the distribution of scores of variables under study. It gives a concise summary of the collected data which can be used to make more valid interpretations of the results for the present study.

The distribution of scores of independent variables namely Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and the dependent variable, Achievement in Accountancy were studied to understand whether the distribution follows normality. The important statistical constants such as mean, median, mode, standard deviation, skewness, and kurtosis of the distribution of scores for Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy were determined for total sample and relevant subgroups with respect to gender, type of management of schools, and locale of schools.

The important statistical constants for the distribution of scores for Epistemological Beliefs of higher secondary school students for total sample and subgroups based on gender, type of management of schools, and locale of schools are calculated and presented in Table 18.

Table 18

*Statistical Constants for the Distribution of Scores of Epistemological Beliefs for Total Sample and Subgroups based on Gender, Type of Management of Schools, and Locale of Schools*

Sample	N	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Girls	527	87.23	87	82	7.76	- 0.230	- 0.024
Boys	485	81.16	81	80	7.32	0.153	0.003
Government	539	84.36	84	82	8.11	- 0.117	- 0.147
Aided	473	84.27	83	83	8.16	0.135	0.410
Rural	535	84.69	84	82	8.70	- 0.041	- 0.330
Urban	477	83.90	83	80	7.42	- 0.015	- 0.342
Total	1012	84.32	84	82	8.13	0.002	- 0.279

Table 18 conveys that the mean, median, and mode of the independent variable, Epistemological Beliefs, of higher secondary school students coincide approximately for total sample and subgroups with respect to gender, type of management of schools, and locale of schools. The obtained value of mean, median, and mode of Epistemological Beliefs is 84.32, 84, and 82 respectively for the total sample. The indices of skewness shows that the distribution of Epistemological Beliefs scores for total sample ( $Sk=0.002$ ) is approximately normal. The indices of kurtosis for total sample reveals that the distribution of scores of Epistemological Beliefs ( $K=-0.279$ ) is slightly leptokurtic. The distribution of the scores of Epistemological Beliefs of higher secondary school students show that the distribution is almost normal for total



sample and subgroups with respect to gender, type of management of schools, and locale of schools.

The important statistical constants for the distribution of scores for Achievement Goals of higher secondary school students for total sample and subgroups based on gender, type of management of schools, and locale of schools are calculated and presented in Table 19.

Table 19

*Statistical Constants for the Distribution of Scores of Achievement Goals for Total Sample and Subgroups based on Gender, Type of Management of Schools, and Locale of Schools*

Types of Achievement Goals	Sample	N	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Mastery Goal	Girls	527	34.62	36	39	6.93	-0.508	-0.671
	Boys	485	29.52	29	30	6.74	0.145	-0.685
	Government Aided	539	32.36	32	28	6.95	-0.173	-0.869
	Rural	473	31.97	31	39	7.67	-0.116	-1.022
	Urban	535	32.84	33	39	7.20	-0.273	-0.963
	Total	477	31.43	31	29	7.34	-0.013	-0.844
	Total	1012	32.17	32	39	7.30	-0.150	-0.937
Performance-Avoidance Goal	Girls	527	33.42	33	37	4.42	-0.117	-0.281
	Boys	485	32.24	32	30	4.94	-0.054	-0.003
	Government Aided	539	33.23	33	30	4.62	-0.087	0.033
	Rural	473	32.44	33	35	4.79	-0.141	-0.240
	Urban	535	33.03	33	30	4.68	-0.083	-0.136
	Total	477	32.66	33	37	4.74	-0.161	-0.052
	Total	1012	32.85	33	30	4.71	-0.121	-0.093
Performance-Approach Goal	Girls	527	32.75	33	35	5.78	-0.350	-0.410
	Boys	485	29.82	30	30	6.26	-0.058	-0.356
	Government Aided	539	31.59	32	30	6.12	-0.260	-0.382
	Rural	473	31.07	31	30	6.25	-0.198	-0.485
	Urban	535	31.72	32	30	5.96	-0.230	-0.450
	Total	477	30.93	31	31	6.41	-0.208	-0.459
	Total	1012	31.46	31	30	6.18	-0.232	-0.438

Table 19 reveals the important statistical constants for the distribution of scores for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal of higher secondary school students for total sample and subgroups with respect to gender, type of management of schools, and locale of schools. For the Mastery Goal, the value of mean, median, and mode are 32.17, 32, and 39 respectively for total sample. The mean, median, and mode obtained for Performance-Avoidance Goal are 32.85, 33, and 30 respectively for total sample. In the case of Performance-Approach Goal the value of mean, median and mode are 31.46, 31, and 30 respectively for the total sample. The mean, median and mode of Mastery Goal, Performance-Avoidance Goal and Performance-Approach Goal for total sample and subgroups reveal that the measures coincide approximately. The indices of skewness for total sample for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal is  $-0.150$ ,  $-0.121$ , and  $-0.232$  respectively. It shows that the distribution of types of Achievement Goals scores is slightly negatively skewed. The indices of kurtosis for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal is  $-0.937$ ,  $-0.093$ , and  $-0.438$  respectively for total sample. It shows that the distribution of scores of types of Achievement Goals is slightly leptokurtic. Therefore, it is inferred that the distribution of scores for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal for total sample and subgroups show that the distribution almost follows normality.

The important statistical constants for the distribution of scores for Self Regulated Learning Strategies of higher secondary school students for the total sample and subgroups based on gender, type of management of schools, and locale of schools are calculated and presented in Table 20.

Table 20

*Statistical Constants for the Distribution of Scores of Self Regulated Learning Strategies for Total Sample and Subgroups based on Gender, Type of management of Schools, and Locale of Schools*

Sample	N	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Girls	527	137.78	138	133	14.99	- 0.204	- 0.359
Boys	485	125.75	125	122	13.27	0.158	- 0.467
Government	539	132.44	133	122	14.95	0.004	- 0.609
Aided	473	131.53	130	133	15.91	0.135	- 0.473
Rural	535	132.15	132	122	16.17	0.010	- 0.793
Urban	477	131.86	131	133	14.52	0.143	- 0.164
Total	1012	132.01	132	133	15.41	0.065	- 0.539

Table 20 reveals that the mean, median, and mode of the Independent variable, Self Regulated Learning Strategies, of higher secondary school students coincide approximately for the total sample and subgroups with respect to gender, type of management of schools, and locale of schools. The obtained value of mean, median, and mode of Self Regulated Learning Strategies for total sample is 132.01, 132, and 133 respectively. The indices of skewness shows that the distribution of Self Regulated Learning Strategies

score for total sample ( $Sk=0.065$ ) is slightly positively skewed. The indices of kurtosis for the total sample reveals that the distribution of scores of Self Regulated Learning Strategies ( $K=-0.539$ ) is slightly leptokurtic. Therefore, it is evident that the distribution of scores of Self Regulated Learning Strategies for total sample and subgroups depict that the distribution is almost normal.

The important statistical constants for the distribution of scores for Achievement in Accountancy of higher secondary school students for total sample and subgroups based on gender, type of management of schools, and locale of schools are calculated and presented in Table 21.

Table 21

*Statistical Constants for the Distribution of Scores of Achievement in Accountancy for Total Sample and Subgroups based on Gender, Type of management of schools, and Locale of Schools*

Sample	N	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Girls	527	24.31	25	23	6.53	-0.254	-0.723
Boys	485	19.41	19	17	6.67	0.397	-0.496
Government	539	22.11	22	17	7.02	-0.001	-0.860
Aided	473	21.79	22	16	7.06	-0.072	-0.886
Rural	535	22.66	23	21	7.35	-0.153	-0.943
Urban	477	21.78	21	17	6.59	0.236	-0.660
Total	1012	21.96	22	23	7.04	0.033	-0.876

Table 21 shows that the mean, median, and mode of the dependent variable, Achievement in Accountancy, of higher secondary school students

coincide approximately for total sample and subgroups with respect to gender, type of management of schools, and locale of schools. The obtained value of mean, median, and mode of achievement in Accountancy for total sample is 21.96, 22, and 23 respectively. The index of skewness for total sample is 0.033 which shows that the distribution of Achievement in Accountancy scores is slightly positively skewed. The index of kurtosis for total sample is – 0.876 which shows that the distribution of scores of Achievement in Accountancy is slightly leptokurtic. Therefore, the distribution of the scores of Achievement in Accountancy for total sample and subgroups reveal that the distribution almost follows normality.

## **Discussion**

In preliminary analysis, the basic properties possessed by the distribution of scores of independent variables i.e., Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and the dependent variable, Achievement in Accountancy for total sample and subgroups based on gender, type of management of schools, and locale of schools were analyzed. The analysis shows that the mean, median, and mode of independent variables and dependent variable under study coincide approximately for total sample and subgroups based on gender, type of management of schools, and locale of schools. It also reveals that the distribution of the scores of the independent variables, Epistemological

Beliefs, Achievement Goals, and Self Regulated Learning Strategies and of the dependent variable, Achievement in Accountancy follows near normality in all aspects.

The distribution of the scores of the independent variables and dependent variable under study were further examined by using P-P Plot (Probability-Probability Plot). The Probability-Probability Plot indicates the cumulative probability of the variables against the cumulative probability of the normal distribution.

The Probability-Probability Plot of distribution of scores of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies, and the dependent variable, Achievement in Accountancy, of higher secondary school students for total sample are presented in Figure 11, Figure 12, Figure 13, Figure 14, Figure15, and Figure 16 respectively.

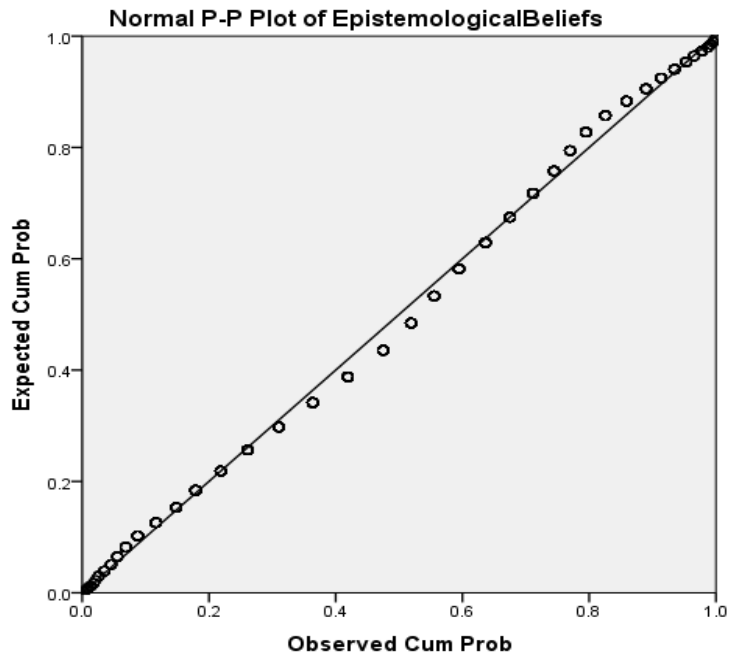


Figure 11. Normal Probability-Probability Plot of Epistemological Beliefs of Higher Secondary School Students for Total Sample

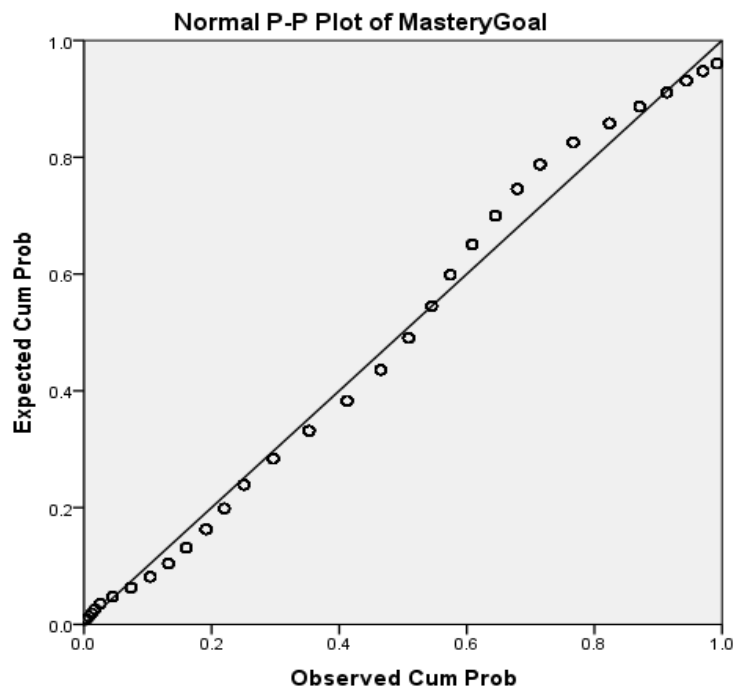


Figure 12. Normal Probability-Probability Plot of Mastery Goal of Higher Secondary School Students for Total Sample

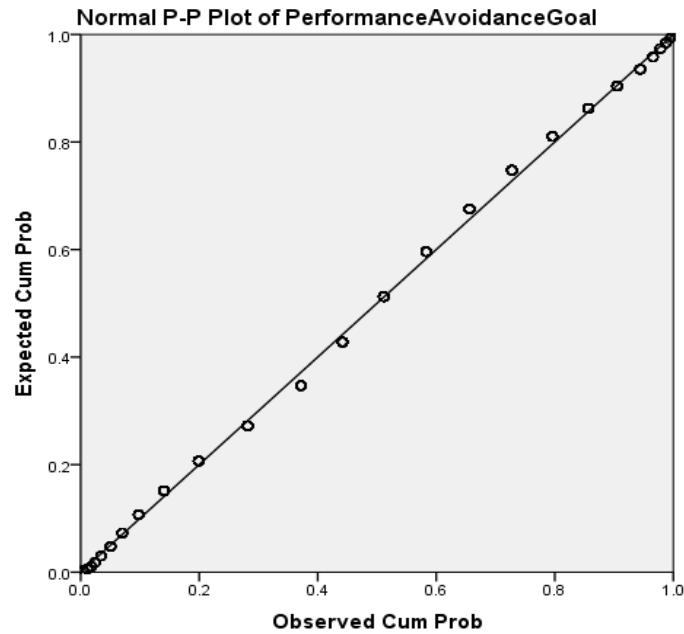


Figure 13. Normal Probability-Probability Plot of Performance-Avoidance Goal of Higher Secondary School Students for Total Sample

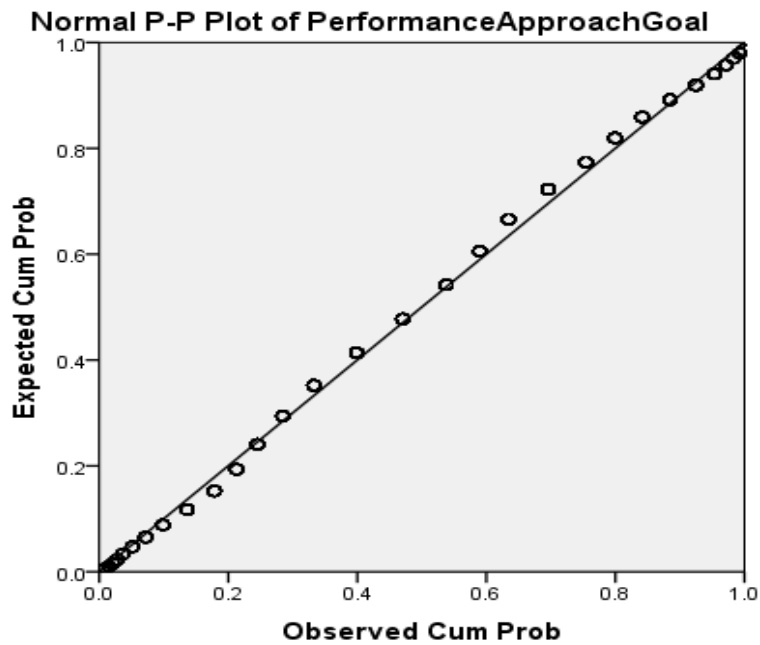


Figure 14. Normal Probability-Probability Plot of Performance-Approach Goal of Higher Secondary School Students for Total Sample



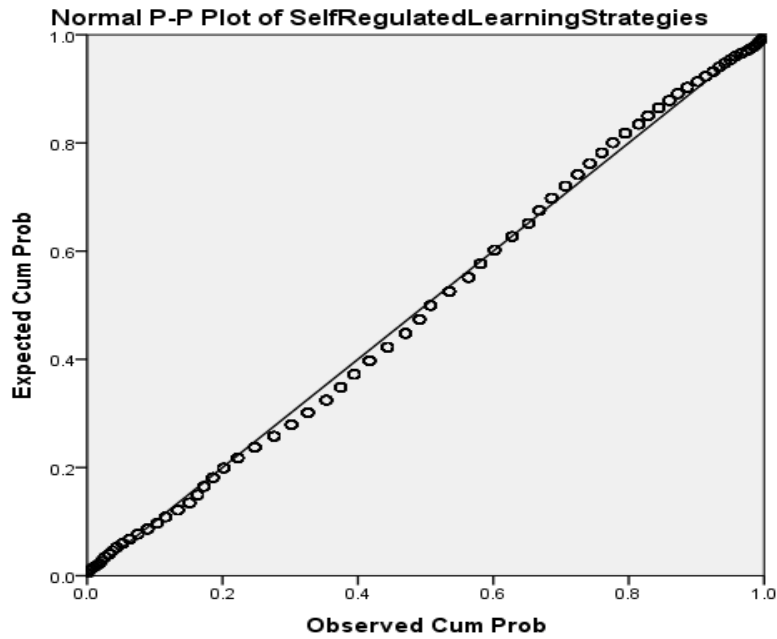


Figure 15. Normal Probability-Probability Plot of Self Regulated Learning Strategies of Higher Secondary School Students for Total Sample

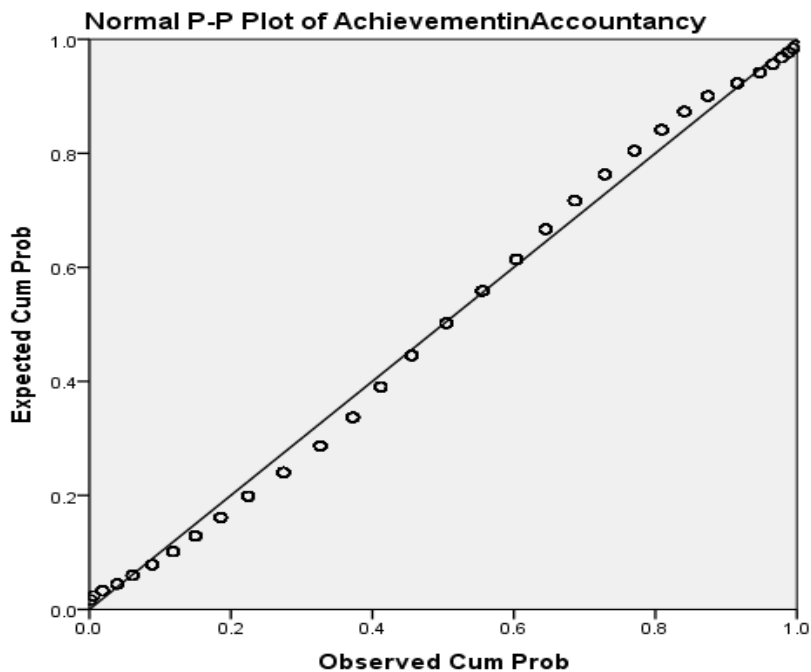


Figure 16. Normal Probability-Probability Plot of Achievement in Accountancy of Higher Secondary School Students for Total Sample

## **Discussion**

The normal Probability-Probability Plot of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students for total sample show that the scores are only slightly deviated from the observed cumulative probability from the diagonals. Thus, it is inferred that the distribution of the scores of independent variables and dependent variable follow a normal distribution approximately. As the distribution of the scores of the independent variables and the dependent variable follows near normality, it can be concluded that the sample selected for the study is a true representative of the population under study.

As it is evident from the preliminary analysis that the distribution of scores of the variables both independent and dependent follows near normality, further analysis for realizing the objectives were carried out. Mean difference analysis was carried to find out whether there exist any difference in the mean scores of independent variables and dependent variable for subgroups based on gender, type of management of schools, and locale of schools. The analysis of variance with 2X3X2 factorial design was done to understand the main effect and interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample and subgroups based on gender, type of

management of schools, and locale of schools. The multiple regression analysis was carried out to estimate the relative efficiency of the predictor variables, Epistemological Beliefs, Achievement Goals, and Self-Regulated Learning Strategies in predicting the Achievement in Accountancy of higher secondary school students.

### **Mean Difference Analysis**

Mean difference analysis was done in order to find out whether there exist any group differences in scores of independent and dependent variables with respect to gender, type of management of schools, and locale of schools. The intention was to find out whether any significant difference exists in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy for girls and boys, government and aided higher secondary school students, and rural and urban higher secondary school students.

The first objective of the study is to find out whether there exist any gender, type of management of schools, and locale differences for the selected independent variables namely, Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and dependent variable, Achievement in Accountancy among higher secondary school students. Two tailed test of significance of difference between means of large independent sample was used to compare the mean scores of independent variables and dependent

variable. The mean and standard deviation of the scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy were calculated separately for the purpose of mean difference analysis. For Achievement Goals, mean scores were compared for the distribution of scores for the three types of Achievement Goal separately viz., Mastery Goal, Performance-Avoidance Goal and Performance- Approach Goal.

### **Gender Difference**

The test of significance of difference between mean scores of boys and girls for the independent variables namely Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies, and the dependent variable, Achievement in Accountancy, were calculated. The details of results of mean difference analysis are given in Table 22.

Table 22

*Data and Results of the Test of Significance of Difference Between the Mean Scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of Girls and Boys of Higher Secondary Schools.*

Variables	Girls			Boys			Critical Ratio ( <i>t</i> -value)
	<i>N</i> <sub>1</sub>	<i>M</i> <sub>1</sub>	<i>SD</i> <sub>1</sub>	<i>N</i> <sub>2</sub>	<i>M</i> <sub>2</sub>	<i>SD</i> <sub>2</sub>	
Epistemological Beliefs	527	87.23	7.76	485	81.16	7.32	12.81**
Mastery Goal	527	34.62	6.93	485	29.52	6.74	11.87**
Performance-Avoidance Goal	527	33.42	4.42	485	32.24	4.94	4.02**
Performance-Approach Goal	527	32.75	5.78	485	29.82	6.26	7.74**
Self Regulated Learning Strategies	527	137.78	14.96	485	125.75	13.27	13.54**
Achievement in Accountancy	527	24.31	6.53	485	19.41	6.67	11.78**

\*\*  $p \leq .01$

## Discussion

Table 22 shows that the critical ratio obtained for girls and boys for the independent variable, Epistemological Beliefs, is 12.81 which is greater than the tabled value (2.58) for significance at .01 level. Thus, there exists significant difference in the level of Epistemological Beliefs of higher secondary school students with respect to gender,  $t = 12.81$ ,  $p \leq .01$ . It reveals that the mean scores of Epistemological Beliefs for girls and boys of higher secondary schools differ significantly. The mean scores of Epistemological

Beliefs for girls ( $M=87.23$ ,  $SD= 7.76$ ) is significantly higher than that of boys ( $M=81.16$ ,  $SD=7.32$ ). The high mean score associated with girls reveals that the level of Epistemological Beliefs is higher for girls than that of boys of higher secondary schools.

The critical ratio obtained for girls and boys for Mastery Goal is 11.87 which is greater than the tabled value (2.58) for significance at .01 level. It shows that in pursuing Mastery Goal, girls and boys of higher secondary schools differ significantly,  $t =11.87$ ,  $p \leq .01$ . The mean score of Mastery Goal of girls ( $M=34.62$ ,  $SD=6.93$ ) is significantly higher than that of boys ( $M=29.52$ ,  $SD=6.74$ ). The high mean score for girls show that girls are superior in pursuing Mastery Goal than boys of higher secondary schools.

The critical ratio obtained for girls and boys for Performance-Avoidance Goal is 4.02 which is significant at .01 level as it is greater than the tabled value (2.58). It reveals that girls and boys of higher secondary schools differ significantly in pursuing Performance-Avoidance Goal,  $t =4.02$ ,  $p \leq .01$ . The mean scores of Performance-Avoidance Goal for girls ( $M=33.42$ ,  $SD=4.42$ ) is slightly higher than that of boys ( $M=32.24$ ,  $SD=4.94$ ). The high mean score for girls show that girls are superior in pursuing Performance-Avoidance Goal than boys of higher secondary schools.

The critical ratio obtained for girls and boys for Performance-Approach Goal is 7.74 which is significant at .01 level as it is greater than the

tabled value (2.58). It indicates that in pursuing Performance-Approach Goal there exist significant difference among girls and boys of higher secondary schools,  $t = 7.74$ ,  $p \leq .01$ . The mean score of Performance-Approach Goal for girls ( $M = 32.75$ ,  $SD = 5.78$ ) is higher than that of boys ( $M = 29.82$ ,  $SD = 6.26$ ). The high mean score related with girls show that girls are superior in pursuing Performance-Approach Goal than boys of higher secondary schools.

The critical ratio obtained for girls and boys for Self Regulated Learning Strategies is 13.54 which is significant at .01 as it is greater than the tabled value (2.58). It indicates that in practicing Self Regulated Learning Strategies girls and boys of higher secondary schools differ significantly,  $t = 13.54$ ,  $p \leq .01$ . The mean scores of Self Regulated Learning Strategies for girls ( $M = 137.78$ ,  $SD = 14.96$ ) is significantly higher than that of boys ( $M = 125.75$ ,  $SD = 13.27$ ). The high mean score related to the girls indicate that girls are superior in practicing Self Regulated Learning Strategies than boys of higher secondary schools.

The critical ratio obtained for girls and boys in Achievement in Accountancy is 11.78 which is greater than the tabled value (2.58) for significance at .01 level. Thus, there exists significant difference in Achievement in Accountancy of higher secondary schools with respect to gender,  $t = 11.78$ ,  $p \leq .01$ . The mean scores of Achievement in Accountancy for girls ( $M = 24.31$ ,  $SD = 6.53$ ) which is significantly higher than that of boys

( $M=19.41$ ,  $SD=6.67$ ). The high mean score associated with the girls indicate that girls are superior in Achievement in Accountancy than boys of higher secondary schools.

### Difference Based on Type of Management of Schools

The test of significance of difference between mean scores of government and aided higher secondary school students was carried out for the select independent variables viz., Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies, and for the dependent variable, Achievement in Accountancy. The details of the results of mean difference analysis are given in Table 23.

Table 23

*Data and Results of the Test of Significance of Difference Between the Mean Scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of Government and Aided Higher Secondary School Students.*

Variables	Government			Aided			Critical Ratio ( <i>t</i> -value)
	$N_1$	$M_1$	$SD_1$	$N_2$	$M_2$	$SD_2$	
Epistemological Beliefs	539	84.36	8.11	473	84.27	8.16	0.16
Mastery Goal	539	32.36	6.96	473	31.97	7.67	0.85
Performance-Avoidance Goal	539	33.23	4.62	473	32.44	4.79	2.63**
Performance-Approach Goal	539	31.59	6.12	473	31.07	6.25	1.32
Self Regulated Learning Strategies	539	132.44	14.95	473	131.53	15.91	2.02*
Achievement in Accountancy	539	22.11	7.02	473	21.79	7.06	0.71

\*\*  $p \leq .01$ , \*  $p \leq .05$



## Discussion

Table 23 depicts that critical ratio obtained for Epistemological Beliefs is 0.16 for government and aided higher secondary school students, which is not significant even at .05 level as the obtained value is less than the tabled value (1.96). It reveals that there exists no significant difference in the level of Epistemological Beliefs of higher secondary school students with respect to the type of management of schools,  $t=0.16$ ,  $p>.05$ . Thus, the level of Epistemological Beliefs possessed by higher secondary school students for government and aided schools is same.

The critical ratio obtained for government and aided higher secondary school students for Mastery Goal is 0.85 which is not significant even at .05 level as the obtained value is less than the tabled value (1.96). It reveals that the difference in pursuing Mastery Goal for higher secondary school students is not significant with respect to type of management of schools,  $t=0.85$ ,  $p>.05$ . Therefore, both government and aided higher secondary school students are same in pursuing mastery goal.

The critical ratio obtained for the government and aided higher secondary school students for Performance-Avoidance Goal is 2.63 which is greater than the tabled value (2.58) for significance at .01 level. It reveals that there exists significant difference in pursuing Performance-Avoidance Goal among higher secondary school students with respect to type of management

of schools,  $t=2.63$ ,  $p \leq .01$ . The mean score of Performance-Avoidance Goal for government higher secondary school students is ( $M=33.23$ ,  $SD=4.62$ ) which is slightly higher than that of aided school students whose mean score is ( $M=32.44$ ,  $SD=4.79$ ). Therefore, government higher secondary school students are superior in pursuing Performance-Avoidance Goal than aided school students.

The critical ratio obtained for government and aided higher secondary school students for Performance-Approach Goal is 1.32 which is not significant even at .05 level as the obtained value is smaller than the tabled value (1.96). It shows that the difference in pursuing Performance-Approach Goal of higher secondary school students do not differ significantly,  $t=1.32$ ,  $p > .05$ , with respect to type of management of schools. Therefore, it is evident that government and aided higher secondary school students are same in pursuing Performance-Approach Goal.

The critical ratio obtained for government and aided higher secondary school students for Self Regulated learning Strategies is 2.02 which greater than the tabled value (1.96) required for significance at .05 level. It shows that in practicing Self Regulated Learning Strategies the higher secondary school students differ significantly,  $t=2.02$ ,  $p \leq .05$ , with respect to type of management of schools. Moreover, the mean score of Self Regulated Learning Strategies of government school students ( $M=132.44$ ,  $SD=14.95$ ) is slightly higher than that of aided higher secondary school students' mean

score ( $M=131.53$ ,  $SD=15.91$ ). Therefore, government higher secondary school students are superior in practicing Self Regulated Learning Strategies than aided school students.

The critical ratio obtained for government and aided higher secondary school students for the dependent variable, Achievement in Accountancy is 0.71 which is not significant even at 0.05 level of significance as the calculated value is less than the tabled value (1.96). It indicates that the government and aided higher secondary school students do not differ significantly,  $t=0.71$ ,  $p>.05$ , for Achievement in Accountancy. Therefore, level of Achievement in Accountancy is same for government and aided higher secondary school students.

### **Difference Based on Locale of Schools**

The test of significance of difference between the mean scores of the independent variables, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies, and the dependent variable, Achievement in Accountancy for urban and rural higher secondary school students were carried out. The data and results of mean difference analysis are presented in Table 24.

Table 24

*Data and Results of the Test of Significance of Difference Between the Mean Scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of Rural and Urban Higher Secondary School Students.*

Variables	Rural			Urban			Critical Ratio ( <i>t</i> -value)
	<i>N</i> <sub>1</sub>	<i>M</i> <sub>1</sub>	<i>SD</i> <sub>1</sub>	<i>N</i> <sub>2</sub>	<i>M</i> <sub>2</sub>	<i>SD</i> <sub>2</sub>	
Epistemological Beliefs	535	84.69	8.70	477	83.90	7.42	1.57
Mastery Goal	535	32.84	7.43	477	31.43	7.20	3.07**
Performance-Avoidance Goal	535	33.03	4.68	477	32.66	4.74	1.25
Performance-Approach Goal	535	31.72	5.96	477	30.93	6.41	2.03*
Self Regulated Learning Strategies	535	132.15	16.17	477	131.86	14.52	0.30
Achievement in Accountancy	535	22.66	7.35	477	21.78	6.59	3.37**

\*\*  $p \leq .01$ , \*  $p \leq .05$

### Discussion

Table 24 indicates that the critical ratio obtained is 1.57 for rural and urban higher secondary school students for Epistemological Beliefs which is not significant even at .05 level as the calculated value is less than the tabled value (1.96). This shows that the mean scores of Epistemological Beliefs of higher secondary school students with respect to locale of schools do not differ significantly,  $t=1.57$ ,  $p>.05$ . Therefore, the level of Epistemological Beliefs for rural and urban higher secondary school students is same.

The critical ratio obtained for rural and urban higher secondary school students for Mastery Goal is 3.07 which is greater than 2.58, the tabled value for significance at .01 level. It reveals that the mean scores of Mastery Goal of higher secondary school students differ significantly,  $t=3.07$ ,  $p \leq .01$ , with respect to locale of schools. Further, the mean score of Mastery Goal for rural higher secondary school students ( $M=32.84$ ,  $SD=7.43$ ) is greater than that of urban higher secondary school students ( $M=31.43$ ,  $SD=7.20$ ). Therefore, it indicates that rural higher secondary school students are more pursuing Mastery Goal than urban higher secondary school students.

The critical ratio of Performance-Avoidance Goal obtained for the rural and urban higher secondary school students is 1.25, which is not significant even at .05 level as the calculated value is less than the tabled value (1.96). It indicates that the in pursuing Performance-Avoidance Goal the higher secondary school students do not differ significantly,  $t=1.25$ ,  $p > .05$ , with respect to locale of schools. Therefore, it is evident that in pursuing Performance-Avoidance Goal, rural and urban higher secondary school students are same.

The critical ratio of Performance-Approach Goal obtained for rural and urban higher secondary school students is 2.03 which is greater than the tabled value (1.96) for significance at .05 level. It indicates that in pursuing Performance-Approach Goal the higher secondary school students differ significantly,  $t=2.03$ ,  $p \leq .05$ , with respect to locale of schools. Further, the

mean score of Performance-Approach Goal for rural higher secondary school students ( $M=31.72$ ,  $SD=5.96$ ) is greater than that of urban higher secondary school students ( $M=30.93$ ,  $SD=6.41$ ). Therefore, it indicates that rural higher secondary school students are superior in pursuing Performance-Approach Goal than urban higher secondary school students.

The critical ratio of Self Regulated Learning Strategies obtained for rural and urban higher secondary school students is 0.30 which is not significant even at .05 level as the calculated value is less than the tabled value (1.96). This indicates that in practicing Self Regulated Learning Strategies the higher secondary school students do not differ significantly,  $t=0.30$ ,  $p>.05$ , with respect to locale of schools. Therefore, it is evident that in using Self Regulated Learning Strategies the rural and urban higher secondary school students is same.

The critical ratio of Achievement in Accountancy obtained for the rural and urban school higher secondary students is 3.37, which is greater than the tabled value (2.58) required for significance at .01 level. It reveals that the rural and urban higher secondary school students differ significantly,  $t=3.37$ ,  $p\leq .01$ , for Achievement in Accountancy. Moreover, the mean score of Achievement in Accountancy for rural higher secondary school students ( $M=22.66$ ,  $SD=7.35$ ) is greater than that of urban higher secondary school students ( $M=21.78$ ,  $SD=6.59$ ). Therefore, higher mean score for rural higher

secondary school students shows that rural school students are superior in Achievement in Accountancy than urban higher secondary school students.

### **Analysis of Variance**

The main purpose of the study is to find out the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. The main effect and interaction effect of three independent variables on the dependent variable, Achievement in Accountancy is studied for this purpose. Three-way ANOVA with 2X3X2 Factorial design was carried out separately for the total sample and subgroups on the basis of gender, type of management of schools, and locale of schools. The 2X3X2 Factorial design of Three-way ANOVA includes two levels of Epistemological Beliefs, three types of Achievement Goals, and two levels of Self Regulated Learning Strategies. Epistemological Beliefs was classified as High Epistemological Beliefs group and Low Epistemological Beliefs group. Achievement Goals was categorized as Mastery Goal group, Performance-Avoidance Goal group, and Performance-Approach Goal group. Self Regulated Learning Strategies was categorized as High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group.

**Influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their Interaction on Achievement in Accountancy of Higher Secondary School Students for Total Sample**

Influence of the independent variables, viz., Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for total sample was calculated first and their interaction effect on dependent variable was also found out. The results of 2X3X2 Factorial design ANOVA of the main effect and interaction effects of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample are presented in Table 25.

Table 25

*Summary of 2X3X2 Factorial Design ANOVA of Achievement in Accountancy by Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of Higher Secondary School Students for Total Sample*

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F-Value
Epistemological Beliefs	2285.10	1	2285.10	141.46**
Achievement Goals	1672.46	2	836.23	51.77**
Self Regulated Learning Strategies	1572.79	1	1572.79	97.36**
Epistemological Beliefs X Achievement Goals	46.35	2	23.17	1.44
Epistemological Beliefs X Self Regulated Learning Strategies	1.88	1	1.88	0.12
Achievement Goals X Self Regulated Learning Strategies	91.36	2	45.68	2.82
Epistemological Beliefs X Achievement Goals X Self Regulated Learning Strategies	137.34	2	68.67	4.25*
Error	16153.96	1000	16.15	

\*\*  $P \leq .01$ , \*  $P \leq .05$



## **Main Effects**

### **Influence of Epistemological Beliefs on Achievement in Accountancy of Higher Secondary School Students for Total Sample**

Table 25 shows that the  $F$  value for Epistemological Beliefs on Achievement in Accountancy for total sample is 141.46 which is greater than the tabled value 6.66 for degrees of freedom (1, 1000) required for significance at .01 level. It indicates that there exists significant difference in the mean scores of Achievement in Accountancy,  $F(1,1000)=141.46$ ,  $p \leq .01$ , for High Epistemological Beliefs group and Low Epistemological Beliefs group of higher secondary school students for total sample. Therefore, there exists significant influence of Epistemological Beliefs on Achievement in Accountancy of higher secondary school students for total sample.

## ***Discussion***

As ANOVA is non directional, it is not possible to identify which level of Epistemological Beliefs is having high influence on the Achievement in Accountancy. Thus a close observation of mean scores of two groups of Epistemological Beliefs reveals that the mean score of Achievement in Accountancy of High Epistemological Beliefs group ( $M=26.99$ ,  $SD=5.12$ ) compared to that of Low Epistemological Beliefs group ( $M=16.93$ ,  $SD=4.74$ ) is significantly greater. This indicates that those higher secondary school students who are having sophisticated Epistemological Beliefs, scores high on

Achievement in Accountancy than those students who are having naïve Epistemological Beliefs for total sample.

### **Influence of Achievement Goals on Achievement in Accountancy of Higher Secondary School Students for Total Sample**

Table 25 shows that the  $F$  value obtained for Achievement Goal on Achievement in Accountancy for total sample is 51.77 which is greater than the tabled 4.62 for degrees of freedom (2, 1000) required for significance at .01 level. This indicates that the main effect due to Achievement Goals on Achievement in Accountancy of higher secondary schools students for total sample is significant,  $F(2, 1000) = 51.77, p \leq .01$ . Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of higher secondary school students for the types of Achievement Goal i.e., Mastery Goal, Performance-Avoidance Goal and Performance-Approach Goal for total sample.

The data were further analyzed with the help of Scheffe's Test of Post Hoc Comparison to know which group's mean score of Achievement in Accountancy is significantly higher. The results of Scheffe's Test of Post Hoc Comparison of mean scores of Achievement in Accountancy of higher secondary school students for total sample among three types of Achievement Goal are presented in Table 26.

Table 26

*Summary of Scheffe's Test of Post Hoc Comparison with Matrix of Ordered Means of Types of Achievement Goal on Achievement in Accountancy for Total Sample*

Type of Achievement Goals		Mastery Goal	Performance Avoidance Goal	Performance Approach Goal
	Mean Scores	27.96	16.51	21.21
Mastery Goal	27.96	0.00	11.45**	6.75**
Performance-Avoidance Goal	16.51		0.00	4.70**
Performance-Approach Goal	21.21			0.00

\*\* $p < .01$

### *Discussion*

Table 26 reveals that the difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Avoidance groups is 11.45 which is significant at .01 level,  $F=1580.06$ ,  $F^l = 9.26$ ,  $p \leq .01$ . This reveals that these two groups are not identical with regard to their Achievement in Accountancy. Those students who pursue Mastery Goal ( $M=27.96$ ) have significantly higher scores on Achievement in Accountancy when compared to those students who pursue Performance-Avoidance goal ( $M=16.51$ ) among total sample of higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Mastery Goal group and Performance-Approach Goal group is 6.75 which is significant at .01 level,  $F= 408.44$ ,  $F^l = 9.26$ ,  $p \leq .01$ . This reveals that these

two groups are not identical with regard to their Achievement in Accountancy. Those students who pursue Mastery Goal ( $M=27.96$ ) have significantly higher scores on Achievement in Accountancy than those who pursue Performance-Approach Goal ( $M=21.21$ ) for total sample of higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Performance-Avoidance Goal group and Performance-Approach Goal group is 4.70 which is significant at .01 level,  $F= 199.99$ ,  $F^l= 9.26$ ,  $p\leq .01$ . This reveals that these two groups are not identical with regard to their Achievement in Accountancy among the total sample. Those students who pursue Performance-Approach Goal ( $M=21.21$ ) have significantly higher scores on Achievement in Accountancy when compared to those who pursue Performance-Avoidance Goal ( $M=16.51$ ) for total sample of higher secondary school students.

Therefore, it evident that Mastery Goal group, Performance-Avoidance group, and Performance-Approach group differ significantly in Achievement in Accountancy for total sample of higher secondary school students. Those students who pursue Mastery Goal perform better in Achievement in Accountancy than those who pursue Performance Approach goal and Performance-Avoidance Goal.

### **Influence of Self Regulated Learning Strategies on Achievement in Accountancy of Higher Secondary School Students for Total Sample**

Table 25 reveals that the  $F$  value obtained for Self Regulated Learning Strategies on Achievement in Accountancy for total sample is 97.36 which is greater than the tabled value 6.66 for degrees of freedom (1, 1000) required for significance at .01 level. Hence, the influence of Self Regulated Learning Strategies on Achievement in Accountancy is significant,  $F(2, 1000) = 97.36$ ,  $p \leq .01$ , for total sample. It indicates that there exists significant difference in the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group of total sample of higher secondary school students.

#### ***Discussion***

In order to know which group of Self Regulated Learning Strategies is having greater influence, the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group were compared. A close observation of mean scores of two groups revealed that the mean score of Achievement in Accountancy of High Self Regulated Learning Strategies group ( $M=26.72$ ,  $SD=5.38$ ) compared to that of Low Self Regulated learning Strategies group ( $M=17.17$ ,  $SD=4.95$ ) is significantly greater. This indicates that those higher secondary students who are practicing high Self Regulated Learning

Strategies scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies among total sample.

### **Interaction Effects**

#### **Interaction Effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy of Higher Secondary School Students for Total Sample**

From Table 25 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs and Achievement Goals for total sample is 1.44 which is less than 3.00, the tabled value for degrees of freedom (2, 1000) required for significance at .05 level. It indicates that the interaction effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy is not significant,  $F(2,1000)=1.44$ ,  $p>.05$ , for the total sample even at .05 level. Therefore, the mean scores of Achievement in Accountancy at two levels of Epistemological Beliefs do not vary significantly for Mastery Goal, Performance Approach Goal, and Performance-Avoidance Goal groups of higher secondary school students for total sample.

In order to verify the trend of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for total sample, Profile Plot has been plotted and presented in Figure 17.

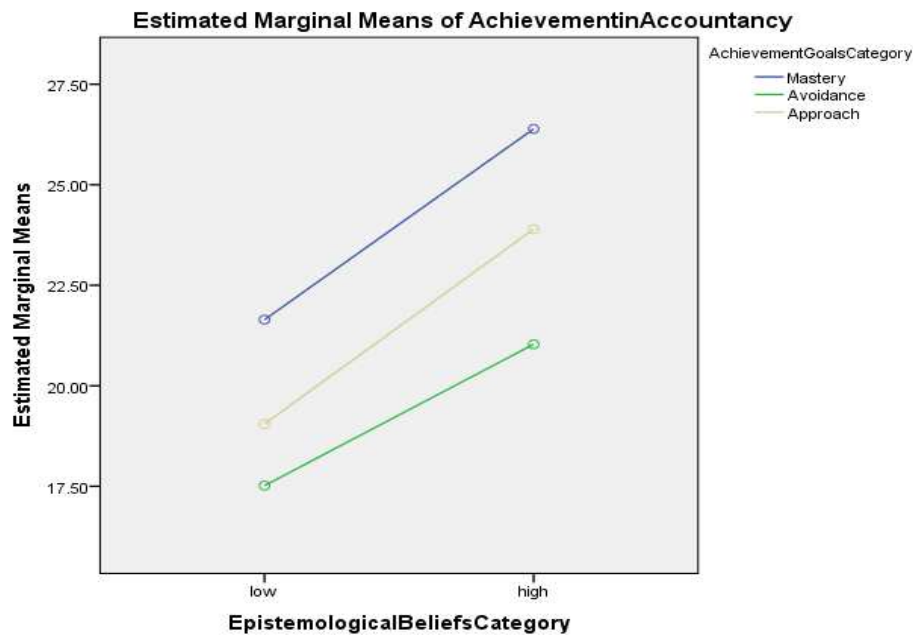


Figure 17. Profile Plot of Interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Total Sample

### Discussion

The analysis of Figure 17 also indicates that mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent. It is clear from the profile plot that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups for total Sample. It shows the independence of influence of Epistemological

Beliefs and Achievement Goals on Achievement in Accountancy for total sample of higher secondary school students.

**Interaction Effect of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy of Higher Secondary School Students for Total Sample**

From Table 25 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for total sample is 0.12 which is less than the tabled value 3.85 for degrees of freedom (1, 1000) required for significance at .05 level. The influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for total sample,  $F(1,1000)=0.12$ ,  $p>.05$ , is not significant even at .05 level. It shows that the mean scores of Achievement in Accountancy at two levels of Epistemological Beliefs do not vary significantly for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group of higher secondary school students in the total sample. Therefore, the Achievement in Accountancy is independent of interaction between Epistemological Beliefs and Self Regulated Learning Strategies of higher secondary school students for total sample.

In order to verify the trend of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in



Accountancy for total sample, Profile Plot has been plotted and presented in Figure 18.

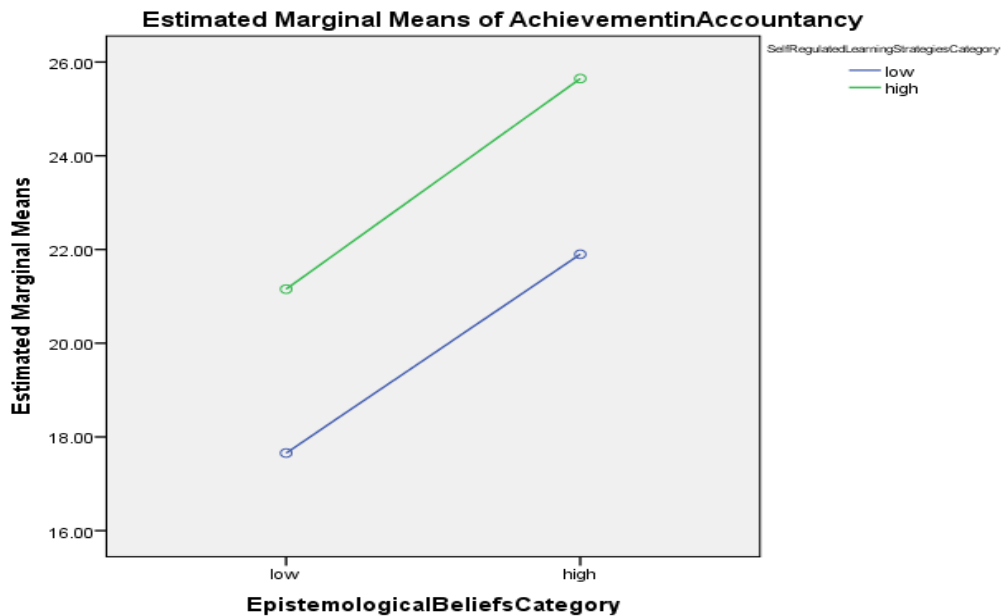


Figure 18. Profile Plot of Interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Total Sample

### *Discussion*

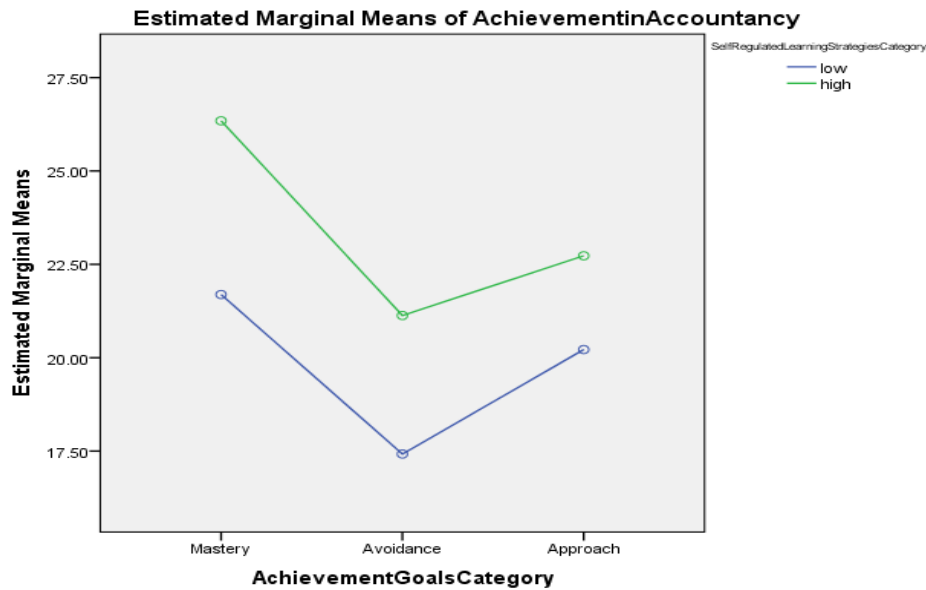
Figure 18 clearly depicts that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for total sample. From the profile plot also it is clear that for High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of High Self Regulated Learning Strategies group is higher than that of Low Self

Regulated Learning Strategies group for total Sample. It indicates the independence of influence of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.

### **Interaction Effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy of Higher Secondary School Students for Total Sample**

Table 25 shows that the  $F$  value obtained for interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for total sample is 2.82 which is less than 3.00, the tabled value for significance at .05 level for degrees of freedom (2,1000). It indicates that the mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups do not vary significantly for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies Group of higher secondary school students for total sample. There is no significant influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,1000)=2.82, p>.05$ , for total sample. Hence, the Achievement in Accountancy is independent of interaction between Achievement Goals and Self Regulated Learning Strategies of higher secondary school students for total sample.

In order to verify the trend of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for total sample, Profile Plot has been plotted and presented in Figure 19.



*Figure 19.* Profile Plot of Interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Total Sample.

### ***Discussion***

It is evident from Figure 19 that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups are independent for total sample. For the High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group the means scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups. Thus, the effect of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for total sample is not significant.

**Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of Higher Secondary School Students for Total Sample.**

Table 25 shows that the  $F$  value obtained for interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample is 4.25 which is greater than the tabled value 3.00 for degrees of freedom (2,1000) required for significance at .05 level. The interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for the total sample is significant,  $F(2,1000)=4.25, p \leq .05$ . It reveals that the mean scores of Achievement in Accountancy of High Epistemological Beliefs group and Low Epistemological Beliefs group belonging to Mastery Goal, Performance Avoidance Goal, and Performance Approach Goal and for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group of higher secondary school students for the total sample differ significantly. Thus, Achievement in Accountancy of higher secondary school students is dependent of the influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies for total sample.

In order to know the trend of influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample, Profile Plot has been plotted and presented in Figure 20.

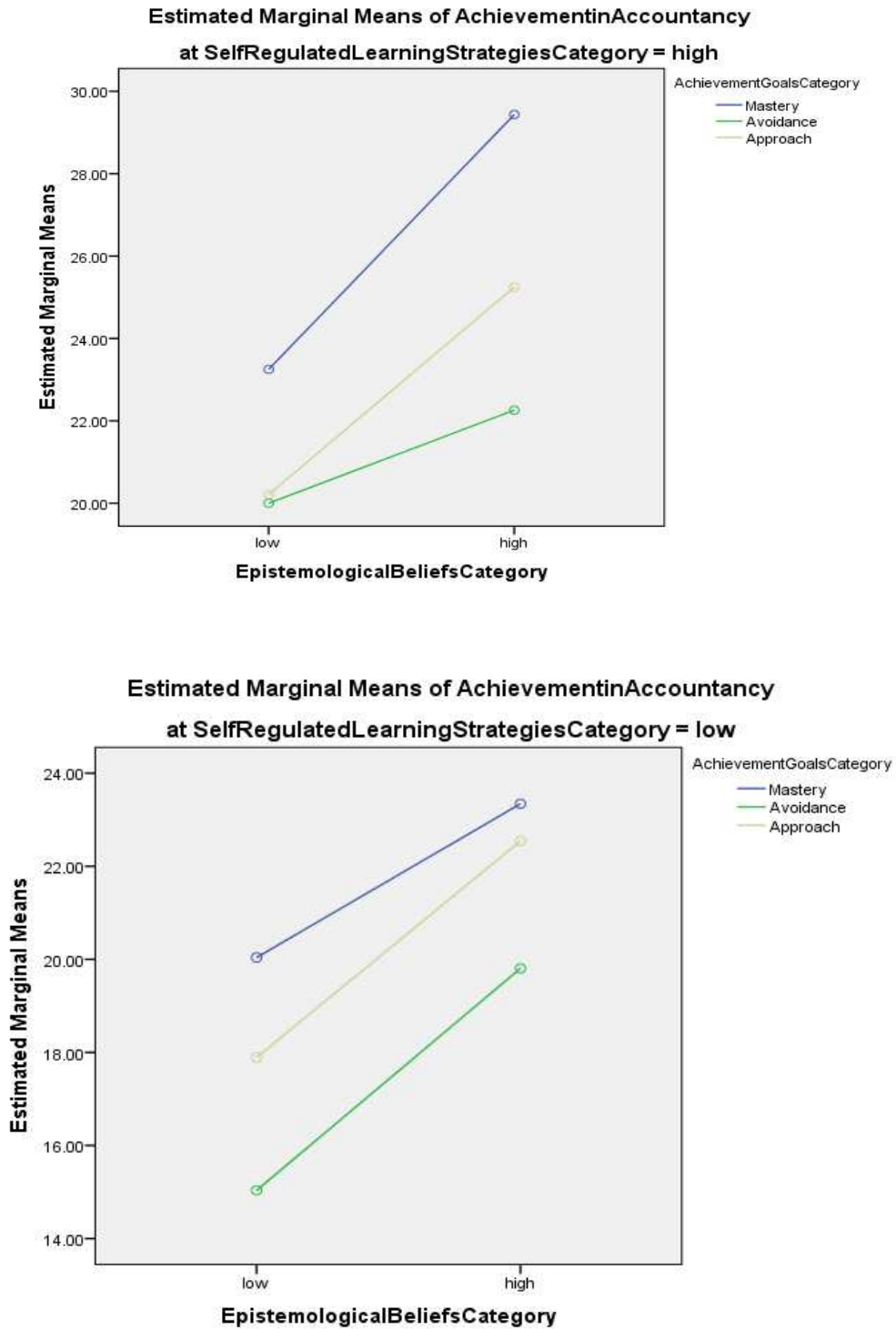


Figure 20. Profile Plot of Interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Total Sample.

### ***Discussion***

Figure 20 depicts that the higher secondary school students belonging to High Self Regulated Learning Strategies group among High Epistemological Beliefs group, Mastery Goal group scores a higher mean score for Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group for total sample. The mean scores of Achievement in Accountancy for the Performance-Approach Goal group come in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean scores of Achievement in Accountancy for Performance-Avoidance Goal and Performance-Approach Goal groups are almost same.

For Low Self Regulated Learning Strategies group, the higher secondary school students belonging to High Epistemological Beliefs group, Mastery Goal group scores a higher mean score on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The Performance-Approach Goal group comes in the second sequence for the means scores of Achievement in Accountancy. Among Low Epistemological Beliefs group also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal

groups. Therefore, the profile plots show that there is exists significant interaction effect among Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students for total sample.

**Influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their Interaction on Achievement in Accountancy for Girls of Higher Secondary Schools**

The data were analyzed by using 2X3X2 Factorial design ANOVA to understand the influence of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their interaction effect on Achievement in Accountancy for girls of higher secondary schools. The results of 2X3X2 Factorial design ANOVA are presented in Table 27.

Table 27

*Summary of 2X3X2 Factorial Design ANOVA of Achievement in Accountancy by Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of Higher Secondary School Girls*

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F- value
Epistemological Beliefs	980.36	1	980.36	68.04**
Achievement Goals	538.99	2	269.49	18.70**
Self Regulated Learning Strategies	596.10	1	596.10	41.37**
Epistemological Beliefs X Achievement Goals	1.88	2	0.94	0.07
Epistemological Beliefs X Self Regulated Learning Strategies	19.33	1	19.33	1.34
Achievement Goals X Self Regulated Learning Strategies	20.94	2	10.47	0.73
Epistemological Beliefs X Achievement Goals X Self Regulated Learning Strategies	41.72	2	20.86	1.45
Error	7420.55	515	14.41	

\*\* $p \leq .01$

### Main Effects

#### **Influence of Epistemological Beliefs on Achievement in Accountancy for Girls of Higher Secondary Schools**

Table 27 shows that the  $F$  value obtained for Epistemological Beliefs on Achievement in Accountancy for girls of higher secondary schools is 68.04 which is greater than the tabled value 6.66 for (1,515) degrees of



freedom at .01 level. The results show that influence of Epistemological Beliefs on Achievement in Accountancy is significant,  $F(1,515) = 68.04$ ,  $p \leq .01$ , for girls of higher secondary schools. It means that the mean scores of Achievement in Accountancy of girls of higher secondary schools belonging to High Epistemological Beliefs group and Low Epistemological Beliefs group differs significantly.

### ***Discussion***

The close observation of mean scores of two groups of Epistemological Beliefs was carried out to know which group is having higher influence on Achievement in Accountancy for girls of higher secondary schools. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Epistemological Beliefs group ( $M=27.79$ ,  $SD=4.62$ ) is significantly greater than that of Low Epistemological Beliefs group ( $M=17.93$ ,  $SD=4.35$ ) for girls of higher secondary schools. This indicates that those higher secondary school girls who are having sophisticated Epistemological Beliefs scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs.

### **Influence of Achievement Goals on Achievement in Accountancy for Girls of Higher Secondary Schools**

Table 27 indicates that the  $F$  value obtained for Achievement Goals on Achievement in Accountancy for girls of higher secondary schools is 18.70 is greater than the tabled value 4.62 for (2,515) degrees of freedom required for significance .01 level. This indicates that the influence of Achievement Goals on Achievement in Accountancy is significant,  $F(2,515)=18.70, p \leq .01$ , for girls of higher secondary schools. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of higher secondary school students for girls belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups.

The data were further analyzed with the help of Scheffe's Test of Post Hoc Comparison to know which group's mean score of Achievement in Accountancy is significantly higher for girls. The results of Scheffe's Test of Post Hoc Comparison of mean scores of Achievement in Accountancy for girls of higher secondary schools among three types of Achievement Goal are presented in Table 28.

Table 28

*Summary of Scheffe's Test of Post Hoc Comparison with Matrix of Ordered Means of Types of Achievement Goal on Achievement in Accountancy for Girls*

Type of Achievement Goals		Mastery Goal	Performance Avoidance Goal	Performance Approach Goal
	Mean Scores	28.47	17.54	22.07
Mastery Goal	28.47	0.00	10.93**	6.40**
Performance-Avoidance Goal	17.54		0.00	4.53**
Performance-Approach Goal	22.07			0.00

\*\* $p < .01$

### *Discussion*

Table 28 shows that the difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Avoidance groups is 10.93 which is significant at .01 level,  $F = 750.21$ ,  $F^l = 9.30$ ,  $p \leq .01$ . This reveals that these two groups are not identical with regard to their Achievement in Accountancy for girls of higher secondary schools. Those students who pursue Mastery Goal ( $M=28.47$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=17.54$ ) for girls of higher secondary schools.

The difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Approach Goal groups is 6.40 which is significant at .01 level,  $F=228.92$ ,  $F^l = 9.30$ ,  $p \leq .01$ . This indicates that these

two groups are not identical with regard to their Achievement in Accountancy for girls of higher secondary schools. Those students who pursue Mastery Goal ( $M=28.47$ ) have significantly higher mean score on Achievement in Accountancy when compared to those who pursue Performance-Approach Goal ( $M=22.07$ ) for girls of higher secondary schools.

The difference between mean scores of Achievement in Accountancy for Performance-Avoidance Goal and Performance-Approach Goal groups is 4.53 which is significant at .01 level,  $F= 87.24$ ,  $F^l = 9.30$ ,  $p \leq .01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy for girls of higher secondary schools. Those girls who pursue Performance-Approach Goal ( $M= 22.07$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=17.54$ ).

Therefore, it is evident that those students who pursue Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal differ significantly in their Achievement in Accountancy for girls of higher secondary schools. Those girls who pursue Mastery Goal scores high on Achievement in Accountancy than those who pursue Performance-Avoidance Goal and Performance-Approach Goal.

### **Influence of Self Regulated Learning Strategies on Achievement in Accountancy for Girls of Higher Secondary Schools**

From Table 27 it is evident that the  $F$  value obtained for Self Regulated Learning Strategies on Achievement in Accountancy for girls of higher secondary schools is 41.37 which is greater than the tabled value 6.66 for (1,515) degrees of freedom at .01 level. This indicates that the influence of Self Regulated Learning Strategies on Achievement in Accountancy,  $F(1,515)=41.37, p \leq .01$ , is significant for girls of higher secondary schools. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy for girls of higher secondary schools belonging to High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group.

#### ***Discussion***

A close observation of the mean scores of two groups of Self Regulated Learning Strategies was carried out to know which group is having greater influence on Achievement in Accountancy among girls of higher secondary schools. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Self Regulated Learning Strategies group ( $M=27.53, SD=4.88$ ) is significantly greater than that of the Low Self Regulated Learning Strategies group ( $M=18.30, SD=4.73$ ) for girls of higher secondary schools. This indicates that those higher secondary girls

who are practicing High Self Regulated Learning Strategies scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies.

### **Interaction Effects**

#### **Interaction Effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Girls of Higher Secondary Schools**

From Table 27 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for girls of higher secondary schools is 0.07 which is less than the tabled value 3.00 for (2,515) degrees of freedom at .05 level. It indicates that the interaction effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy is not significant even at .05 level,  $F(2,515)=0.07$ ,  $p>.05$ , for girls of higher secondary schools. Therefore, the mean scores of Achievement in Accountancy for High Epistemological Beliefs group and Low Epistemological Beliefs group do not vary significantly for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups for girls of higher secondary schools.

In order to verify the trend of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for girls of

higher secondary schools, the Profile Plot has been plotted and presented in Figure 21.

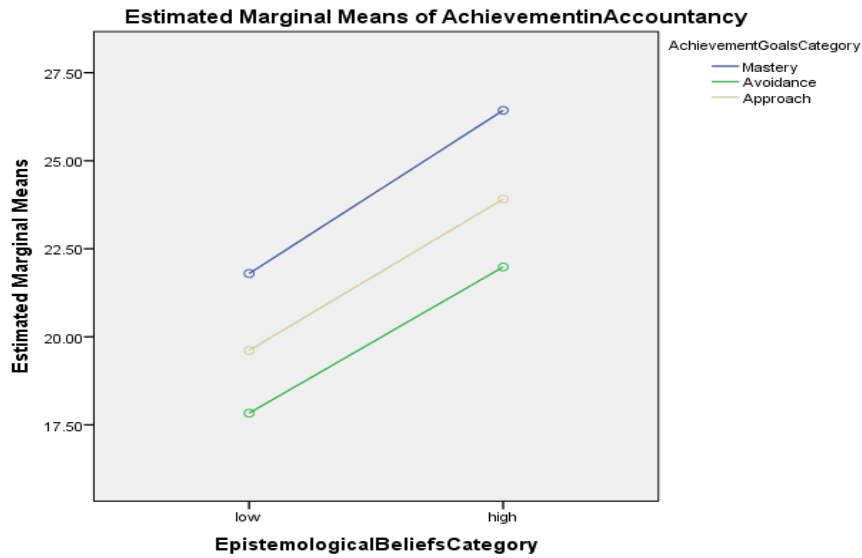


Figure 21. Profile Plot of Interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Girls of Higher Secondary Schools

**Discussion**

The analysis of Figure 21 indicates that mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for girls of higher secondary schools. It is clear from the profile plot that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups

for girls of higher secondary schools. It shows the independence of influence of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for girls of higher secondary schools.

### **Interaction Effect of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Girls of Higher Secondary Schools**

From Table 27 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for girls of higher secondary schools is 1.34 which is less than the tabled value 3.85 for (1,515) degrees of freedom required for significance at .05 level. It shows that the mean scores of Achievement in Accountancy at two levels of Epistemological Beliefs i.e. High Epistemological group and Low Epistemological group do not vary significantly for the two groups of Self Regulated Learning Strategies i.e. High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group for girls of higher secondary schools. Thus, there is no significant influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(1,515)=1.34, p>.05$ , for girls of higher secondary schools even at .05 level. Therefore, the Achievement in Accountancy was found to be independent of



interaction between Epistemological Beliefs and Self Regulated Learning Strategies for girls of higher secondary schools.

In order to verify the trend of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for girls, the Profile Plot has been plotted and presented in Figure 22.

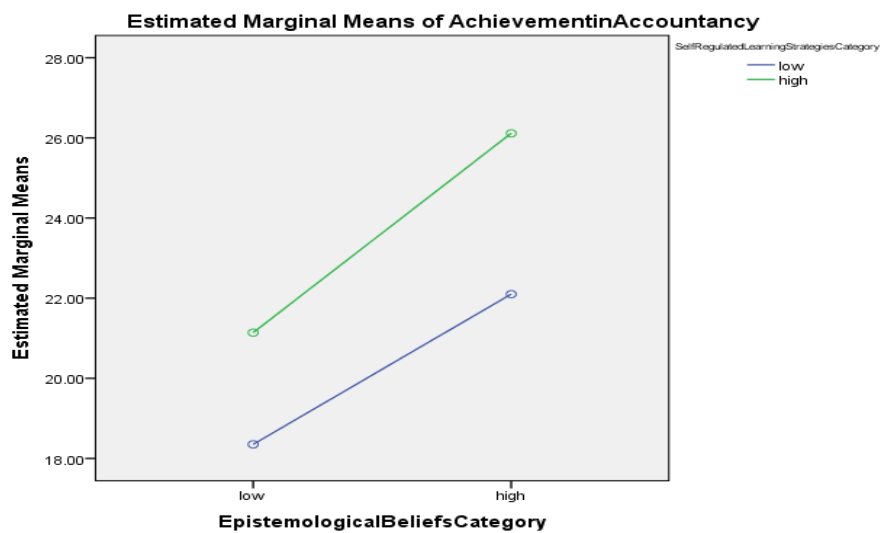


Figure 22. Profile Plot of Interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Girls

### *Discussion*

Figure 22 clearly depicts that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for girls of

higher secondary schools. It is evident from the profile plot that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group is higher than that of Low Self Regulated Learning Strategies group for girls of higher secondary schools. Thus, the influence of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy is not significant for the girls of higher secondary schools.

### **Interaction Effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Girls of Higher Secondary Schools**

Table 27 depicts that the  $F$  value obtained for influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for girls of higher secondary schools is 0.73 which is less than the tabled value 3.00 for (2,515) degrees of freedom required for significance at .05 level. It indicates that there is no significant influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,515)=0.73, p>.05$ , for girls of higher secondary schools even at .05 level. This means that the mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups do not vary

significantly with High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group for girls of higher secondary school students. Therefore, the Achievement in Accountancy is independent of interaction between Achievement Goals and Self Regulated Learning Strategies for girls of higher secondary schools.

In order to verify the trend of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for girls, Profile Plot has been plotted and presented in Figure 23.

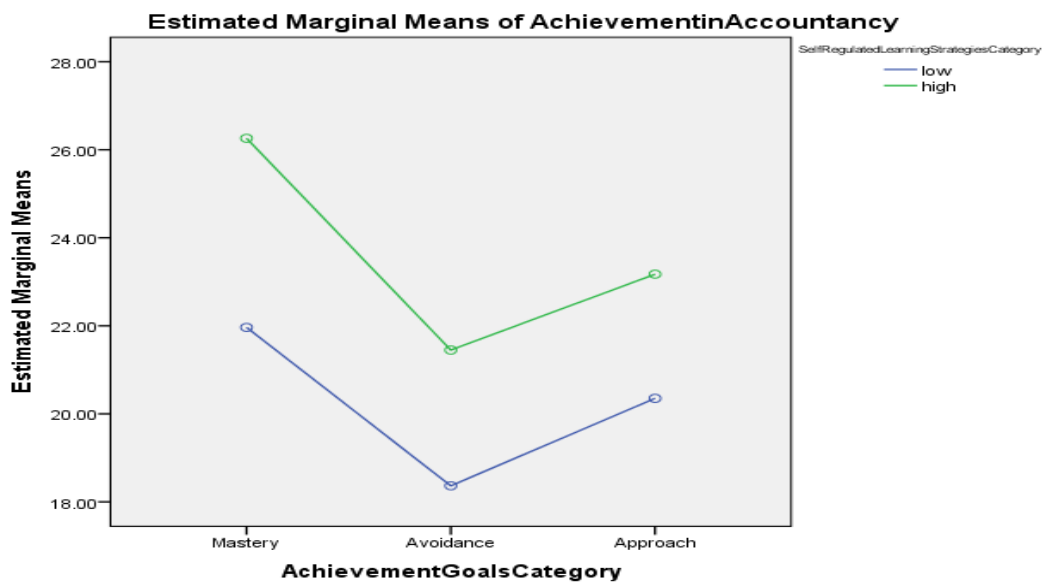


Figure 23. Profile Plot of Interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Girls

### ***Discussion***

It is evident from Figure 23 that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups are independent for girls of higher secondary schools. For the High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group the mean scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups. Thus, the effect of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for girls of higher secondary schools is not significant.

### **Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Girls of Higher Secondary Schools**

From Table 27 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for girls of higher secondary schools is 1.45 which is less than the tabled value 3.00 for (2,515) degrees of freedom required for significance at .05 level. Thus, there is no significant influence of interaction between Epistemological Beliefs,

Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,515) = 1.45, p > .05$ , of higher secondary school girls of higher secondary schools even at .05 level. It means that the mean scores of Achievement in Accountancy of High Epistemological Beliefs group and Low Epistemological Beliefs group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups and High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group do not differ significantly for girls. Therefore, the interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is independent for girls of higher secondary schools.

In order to verify the trend of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for girls, Profile Plot has been plotted and presented in Figure 24.

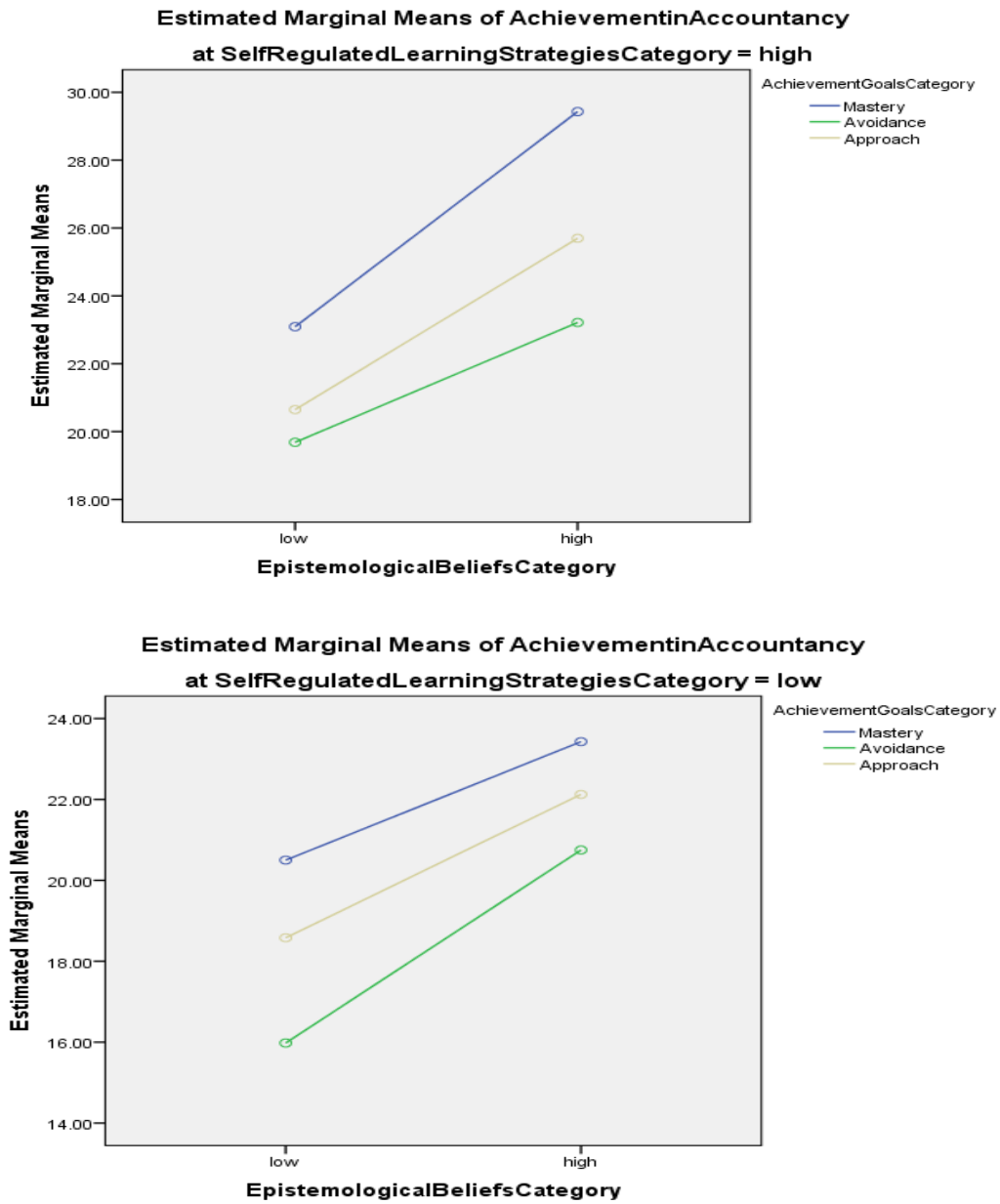


Figure 24. Profile Plot of Interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Girls

**Discussion**

Figure 24 depicts that for girls belonging to High Self Regulated Learning Strategies group among High Epistemological Beliefs group,

Mastery Goal category scores a higher mean score on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The Performance-Approach Goal group comes in the second sequence for the mean scores of Achievement in Accountancy. Among Low Epistemological Beliefs group also, the mean score of Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence.

For Low Self Regulated Learning Strategies group, the higher secondary school students belonging to High Epistemological Beliefs group, Mastery Goal group scores a higher mean score on Achievement in Accountancy for than Performance-Avoidance Goal group and Performance-Approach Goal group for girls. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance Avoidance Goal and Performance Approach Goal groups. Therefore, the profile plots indicate that the interaction among Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for girls of higher secondary schools is not significant.

**Influence of Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies and their Interaction on Achievement in Accountancy for Boys of Higher Secondary Schools**

The data were analyzed by using 2X3X2 Factorial design ANOVA to understand the influence of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their interaction effect on Achievement in Accountancy for boys of higher secondary schools. The results of 2X3X2 Factorial design ANOVA are presented in Table 29.

Table 29

*Summary of 2X3X2 Factorial Design ANOVA of Achievement in Accountancy by Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of Higher Secondary School Boys*

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F- value
Epistemological Beliefs	1121.19	1	1121.19	62.36**
Achievement Goals	1010.47	2	505.24	28.10**
Self Regulated Learning Strategies	765.51	1	765.51	42.58**
Epistemological Beliefs X Achievement Goals	65.16	2	32.58	1.81
Epistemological Beliefs X Self Regulated Learning Strategies	6.34	1	6.34	0.35
Achievement Goals X Self Regulated Learning Strategies	83.89	2	41.95	2.33
Epistemological Beliefs X Achievement Goals X Self Regulated Learning Strategies	102.997	2	51.50	2.86
Error	8504.26	473	17.98	

\*\* $p \leq .01$



## **Main Effects**

### **Influence of Epistemological Beliefs on Achievement in Accountancy for Boys of Higher Secondary Schools**

Table 29 shows that the  $F$  value obtained for Epistemological Beliefs on Achievement in Accountancy for boys of higher secondary schools is 62.36 which is greater than the tabled value 6.70 for (1,473) degrees of freedom required for significance at 0.01 level. The results reveal that influence of Epistemological Beliefs on Achievement in Accountancy,  $F(1,473)=62.36, p \leq .01$ , is significant for boys of higher secondary schools. It means that the mean scores of Achievement in Accountancy for boys of higher secondary schools belonging to High Epistemological Beliefs group and Low Epistemological Beliefs group differs significantly.

### ***Discussion***

The mean scores of Achievement in Accountancy for two groups of Epistemological Beliefs were compared to know which group is having higher influence on Achievement in Accountancy for boys of higher secondary schools. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Epistemological Beliefs group ( $M=25.33, SD=5.66$ ) is significantly greater than that of Low Epistemological Beliefs group ( $M=16.36, SD=4.86$ ) for boys of higher secondary schools. This indicates that those boys of higher secondary schools who are having

sophisticated Epistemological Beliefs scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs.

### **Influence of Achievement Goals on Achievement in Accountancy for Boys of Higher Secondary Schools**

Table 29 shows that the  $F$  value obtained for Achievement Goals on Achievement in Accountancy for boys is 28.10 which is greater than the table value 4.66 for (2,473) degrees of freedom required for significance at .01 level. This indicates that the influence of Achievement Goals on Achievement in Accountancy is significant for boys at .01 level,  $F(2,473)=28.10, p \leq .01$ . Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of higher secondary school students for boys belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups.

The data were further analyzed with the help of Scheffe's Test of Post Hoc Comparison to know which group's mean score of Achievement in Accountancy is significantly higher for boys. The results of Scheffe's Test of Post Hoc Comparison of mean scores of Achievement in Accountancy of higher secondary school students for boys among three types of Achievement Goal are presented in Table 30.

Table 30

*Summary of Scheffe's Test of Post Hoc Comparison with Matrix of Ordered Means of Types of Achievement Goal on Achievement in Accountancy for Boys*

Type of Achievement Goals		Mastery Goal	Performance Avoidance Goal	Performance Approach Goal
	Mean Scores	26.63	15.98	20.38
Mastery Goal	26.63	0.00	10.65**	6.25**
Performance-Avoidance Goal	15.98		0.00	4.40**
Performance-Approach Goal	20.38			0.00

\*\* $p < .01$

### *Discussion*

Table 30 shows that the difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Avoidance groups is 10.65 which is significant at .01 level,  $F = 482.24$ ,  $F^l = 9.30$ ,  $p \leq .01$ . This reveals that these two groups of Achievement Goals are not identical with regard to their Achievement in Accountancy. Those students who pursue Mastery Goal ( $M = 26.63$ ) have significantly higher mean score on Achievement in Accountancy when compared to those who pursue Performance-Avoidance Goal ( $M = 15.98$ ) for boys of higher secondary schools.

The difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance Approach Goal groups is 6.25 which is significant at .01 level,  $F= 121.88$ ,  $F^l= 9.30$ ,  $p\leq .01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy. Those students who pursue Mastery Goal ( $M=26.63$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Approach Goal ( $M=20.38$ ) for boys of higher secondary schools.

The difference between mean scores of Achievement in Accountancy for Performance-Avoidance Goal and Performance-Approach Goal groups is 4.40 which is significant at .01 level,  $F=86.49$  ,  $F^l= 9.30$ ,  $p\leq .01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy. Those students who pursue Performance-Approach Goal ( $M=20.38$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=15.98$ ) for boys of higher secondary schools.

Therefore, it is evident that those students who pursue Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal differ significantly in their Achievement in Accountancy for boys of higher secondary schools. The mean score of Achievement in Accountancy is considerably high for those students who pursue Mastery Goal than

Performance-Avoidance Goal and Performance-Approach Goal among higher secondary school students for boys.

### **Influence of Self Regulated Learning Strategies on Achievement in Accountancy for Boys of Higher Secondary Schools**

From Table 29 it is evident that the  $F$  value obtained for Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools is 42.58 which is greater than the tabled value 6.70 for (1,473) degrees of freedom required for significance at .01 level. This indicates that the influence of Self Regulated Learning Strategies on Achievement in Accountancy is significant,  $F(1,473)=42.58, p \leq .01$ , for boys of higher secondary schools. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of higher secondary school students for boys belonging to High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group.

### ***Discussion***

The analysis of the mean scores of Achievement in Accountancy for two groups of Self Regulated Learning Strategies was done to know which group is having greater influence on Achievement in Accountancy for boys of higher secondary schools. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Self Regulated Learning Strategies group ( $M=25.03, SD=5.95$ ) is significantly greater than that of the

Low Self Regulated Learning Strategies group ( $M=16.51$ ,  $SD=4.96$ ) for boys of higher secondary schools. This indicates that those boys of higher secondary schools who are practicing High Self Regulated Learning Strategies scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies.

### **Interaction Effects**

#### **Interaction Effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Boys of Higher Secondary Schools**

From the Table 29 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for boys is 1.81 which is less than the tabled value 3.02 for (2,473) degrees of freedom required for significance at .05 level. It indicates that the interaction effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy is not significant,  $F(2,473)=1.81$ ,  $p>.05$ , for boys of higher secondary schools even at .05 level. Therefore, the mean scores of Achievement in Accountancy for High Epistemological Beliefs group and Low Epistemological Beliefs group do not vary significantly for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups for boys of higher secondary schools.

In order to verify the trend of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for boys of higher secondary schools, the Profile Plot has been plotted and presented in Figure 25.

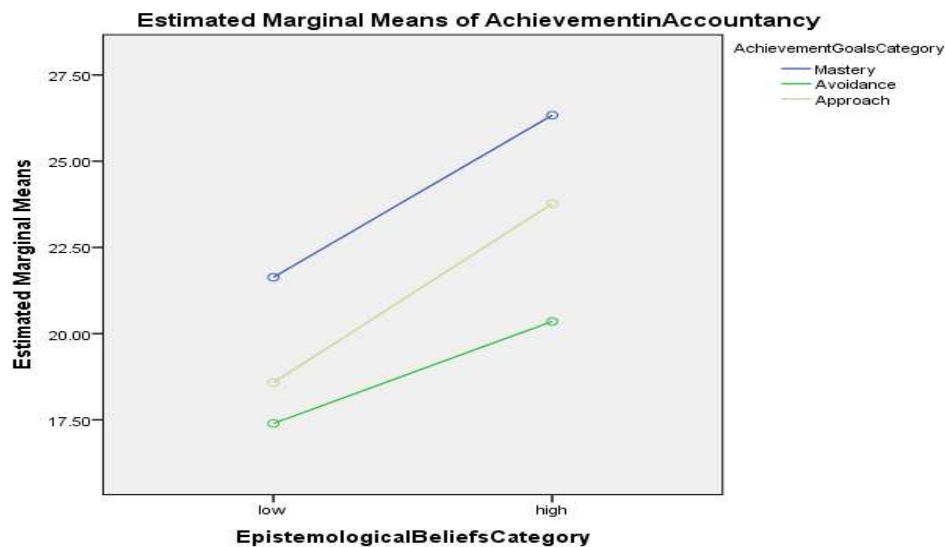


Figure 25. Profile Plot of Interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Boys of Higher Secondary Schools

### *Discussion*

The analysis of Figure 25 also indicates that mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for boys of higher secondary schools. It is clear from the profile plot that for the High Epistemological Beliefs and Low Epistemological

Beliefs groups the mean scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance- Approach Goal groups for boys of higher secondary schools. It shows the independence of influence of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for boys of higher secondary schools.

### **Interaction Effect of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Boys of Higher Secondary Schools**

From Table 29 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools is 0.35 which is less than the tabled value 3.86 for (1,473) degrees of freedom at .05 level. It shows that the mean scores of Achievement in Accountancy for High Epistemological Beliefs group and Low Epistemological Beliefs group do not vary significantly for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group for boys. Thus, there is no significant influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(1,473)=0.35$ ,  $p>.05$ , for boys of higher secondary schools even at .05 level. Therefore, the Achievement in



Accountancy is independent of interaction between Epistemological Beliefs and Self Regulated Learning Strategies for boys of higher secondary schools.

In order to verify the trend of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools, the Profile Plot has been plotted and presented in Figure 26.

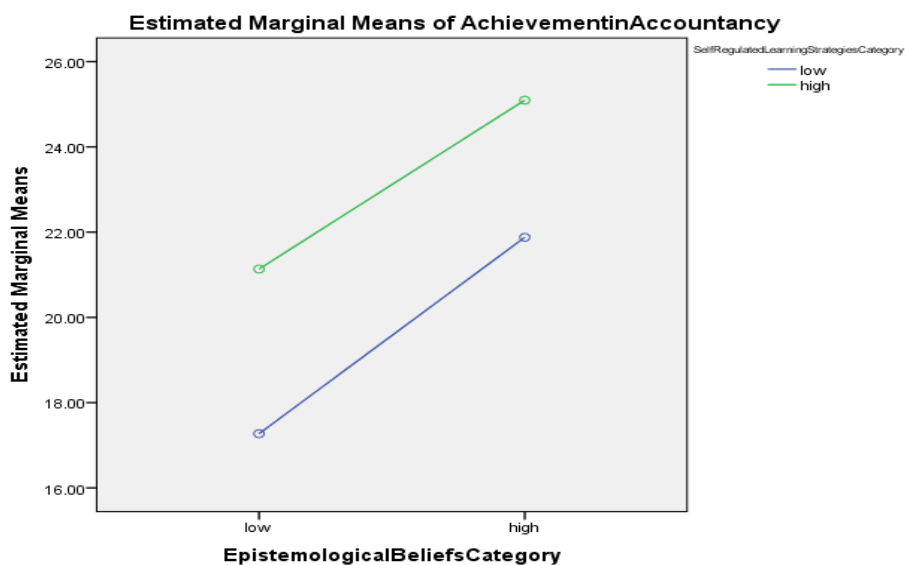


Figure 26. Profile Plot of Interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Boys

### ***Discussion***

Figure 26 clearly depicts that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for boys of

higher secondary schools. The profile plot indicates that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group is higher than that of Low Self Regulated Learning Strategies group for boys. It indicates the independence of influence of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools.

#### **Influence of Interaction Effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Boys of Higher Secondary Schools**

Table 29 shows that the  $F$  value obtained for influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools is 2.33 which is less than the tabled value 3.02 for (2,473) degrees of freedom required for significance at .05 level. It indicates that there is no significant influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,473)=2.33, p>.05$ , for boys of higher secondary schools even at .05 level. This means that the mean scores of Achievement in Accountancy for Mastery Goal, Performance Avoidance Goal, and Performance Approach Goal groups do not vary significantly with High Self Regulated Learning Strategies group and Low

Self Regulated Learning Strategies group for boys of higher secondary school students. Therefore, it is evident that Achievement in Accountancy is found to be independent of interaction between Achievement Goals and Self Regulated Learning Strategies for boys of higher secondary schools.

In order to verify the trend of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools, Profile Plot has been plotted and presented in Figure 27.

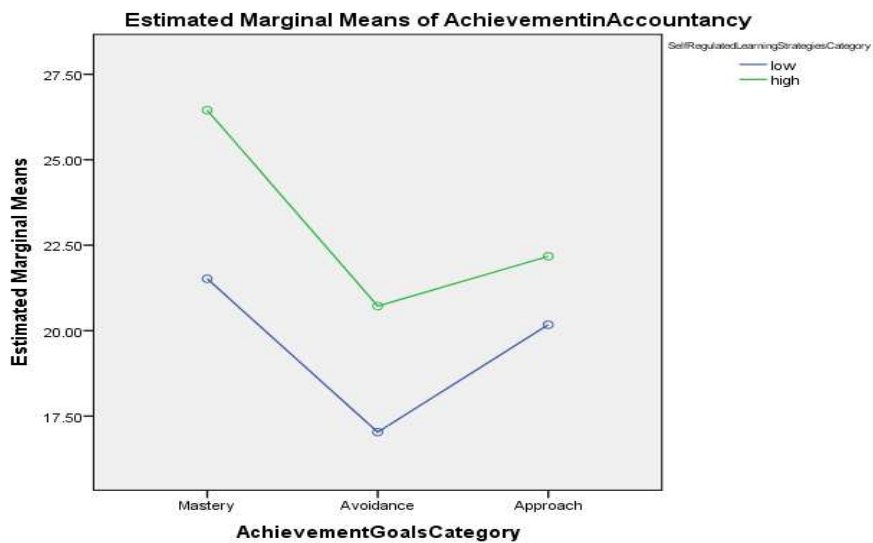


Figure 27. Profile Plot of Interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Boys

**Discussion**

It is evident from Figure 27 that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self

Regulated Learning Strategies group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups are independent for boys of higher secondary schools. For the High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group the means scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups. Thus, the effect of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools is not significant.

**Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Boys of Higher Secondary Schools**

From Table 29 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools is 2.86 which is less than the tabled value 3.02 for (2,473) degrees of freedom required for significance at .05 level. Thus, there is no significant influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,473)= 2.86, p>.05$ , for boys of higher secondary schools even at .05 level. It means that the mean scores of Achievement in

Accountancy of High Epistemological Beliefs group and Low Epistemological Beliefs group belonging to Mastery Goal, Performance Avoidance Goal, and Performance Approach Goal groups and for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group do not differ significantly for boys of higher secondary schools. Therefore, the Achievement in Accountancy is independent of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies for boys of higher secondary schools.

In order to verify the trend of interaction between Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools, Profile Plot has been plotted and presented in Figure 28.

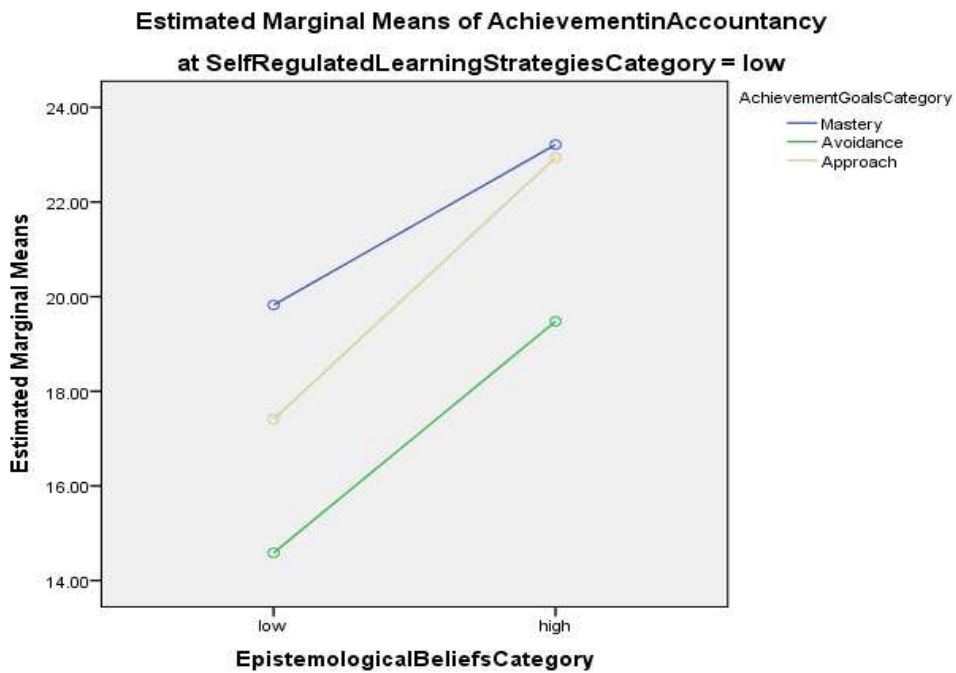
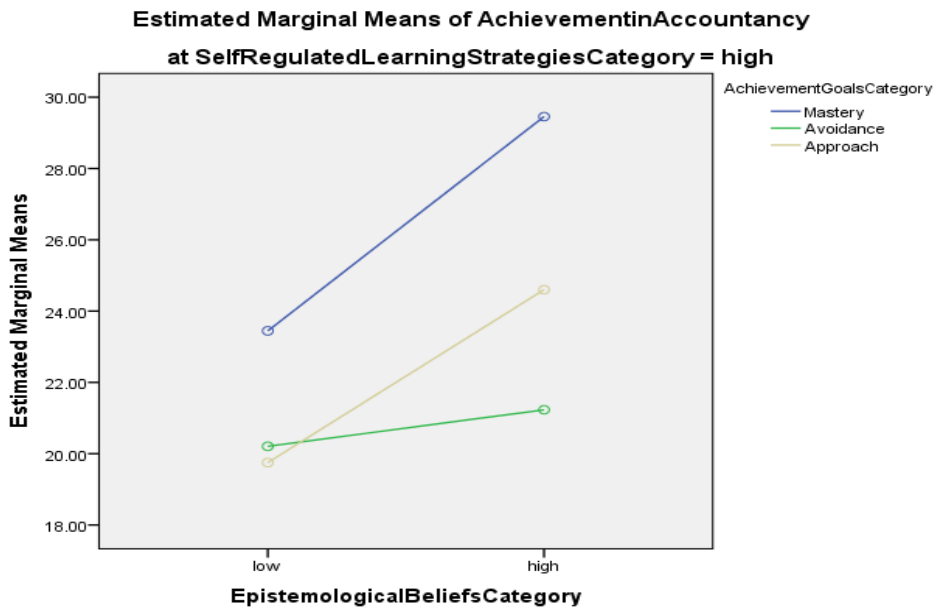


Figure 28. Profile Plot of Interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Boys

### ***Discussion***

Figure 28 depicts that for boys of higher secondary school students belonging to High Self Regulated Learning Strategies group among High Epistemological Beliefs group, Mastery Goal group scores higher mean score on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Avoidance Goal group is slightly higher than that of Performance Approach Goal group.

For Low Self Regulated Learning Strategies group, for boys of higher secondary students belonging to High Epistemological Beliefs group, Mastery Goal group and Performance-Approach Goal group scores higher mean scores in Achievement in Accountancy than Performance-Avoidance Goal group. Among Low Epistemological Beliefs group, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence. The profile plots show that there is a tendency for Epistemological Beliefs, Achievement Goals, and Self Regulated

Learning Strategies to interact on Achievement in Accountancy but the interaction is not significant for boys of higher secondary school students.

**Influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their Interaction on Achievement in Accountancy of Government Higher Secondary School Students**

The data were analyzed by using 2X3X2 Factorial design ANOVA to understand the influence of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their interaction effect on Achievement in Accountancy of government higher secondary school students. The results of 2X3X2 Factorial design ANOVA are presented in Table 31.

Table 31

*Summary of 2X3X2 Factorial Design ANOVA of Achievement in Accountancy by Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of Government Higher Secondary School Students*

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F- value
Epistemological Beliefs	1442.42	1	1442.42	95.05**
Achievement Goals	983.92	2	491.96	32.42**
Self Regulated Learning Strategies	735.96	1	735.96	48.50**
Epistemological Beliefs X Achievement Goals	13.52	2	6.76	0.45
Epistemological Beliefs X Self Regulated Learning Strategies	5.23	1	5.23	0.35
Achievement Goals X Self Regulated Learning Strategies	112.10	2	56.05	3.69*
Epistemological Beliefs X Achievement Goals X Self Regulated Learning Strategies	38.28	2	19.14	1.26
Error	7997.51	527	15.18	

\*\* $p \leq .01$ , \* $p \leq .05$



## **Main Effects**

### **Influence of Epistemological Beliefs on Achievement in Accountancy of Government Higher Secondary School Students**

Table 31 reveals that the  $F$  value obtained for Epistemological Beliefs on Achievement in Accountancy for government school students is 95.05 which is greater than the tabled value 6.66 for (1,527) degrees of freedom required for significance at .01 level. The results reveal that influence of Epistemological Beliefs on Achievement in Accountancy is significant,  $F(1,527)=95.05, p \leq .01$ , for government higher secondary school students. It means that the mean scores of Achievement in Accountancy of government higher secondary school students belonging to High Epistemological Beliefs group and Low Epistemological Beliefs group differs significantly.

## ***Discussion***

The mean scores of Achievement in Accountancy of two groups of Epistemological Beliefs were compared to know which group is having higher influence on Achievement in Accountancy for government higher secondary school students. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Epistemological Beliefs group ( $M=27.20, SD=4.84$ ) is significantly greater than that of Low Epistemological Beliefs group ( $M=16.92, SD=4.72$ ) for the government higher secondary school students. This indicates that those higher secondary

students of government schools who are having sophisticated Epistemological Beliefs scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs.

### **Influence of Achievement Goals on Achievement in Accountancy of Government Higher Secondary School Students**

Table 31 shows that the  $F$  value obtained for Achievement Goals on Achievement in Accountancy for government school students is 32.42 which is greater than the tabled value 4.62 for degrees of freedom (2,527) at .01 level. This indicates that the influence of Achievement Goals on Achievement in Accountancy,  $F(2,527)=32.42, p \leq .01$ , is significant for government school students. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of the government higher secondary school students belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups.

The data were further analyzed with the help of Scheffe's Test of Post Hoc Comparison to know which group's mean score of Achievement in Accountancy is significantly higher for government school students. The results of Scheffe's Test of Post Hoc Comparison of mean scores of Achievement in Accountancy of government higher secondary school students among three types of Achievement Goal are presented in Table 32.

Table 32

*Summary of Scheffe's Test of Post Hoc Comparison of with Matrix of Ordered Means of Types of Achievement Goal on Achievement in Accountancy for Government Higher Secondary School Students*

Type of Achievement Goals		Mastery Goal	Performance Avoidance Goal	Performance Approach Goal
	Mean Scores	28.22	16.52	21.84
Mastery Goal	28.22	0.00	11.70**	6.38**
Performance-Avoidance Goal	16.52		0.00	5.32**
Performance-Approach Goal	21.84			0.00

\*\* $p < .01$

### ***Discussion***

Table 32 shows that the difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Avoidance Goal groups is 11.70 which is significant at .01 level,  $F = 938.20$ ,  $F^l = 9.30$ ,  $p \leq .01$ . This reveals that these two groups of Achievement Goals are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M = 28.22$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M = 16.52$ ) for government higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Approach Goal groups is 6.38 which is

significant at .01 level,  $F= 203.06$ ,  $F^1= 9.30$ ,  $p \leq .01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M=28.22$ ) have significantly higher mean score on Achievement in Accountancy than those pursue Performance-Approach Goal ( $M=21.84$ ) for government higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Performance-Avoidance Goal and Performance-Approach Goal groups is 5.32 which is significant at .01 level  $F= 145.44$ ,  $F^1= 9.30$ ,  $p \leq .01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Performance-Approach Goal ( $M=21.84$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=16.52$ ) for government higher secondary school students.

Therefore, it is evident that those students who pursue Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal differ significantly in their Achievement in Accountancy for government higher secondary school students. The students who pursue Mastery Goal are having higher scores on Achievement in Accountancy than those who pursue Performance-Avoidance Goal and Performance-Approach Goal for government higher secondary school students.

### **Influence of Self Regulated Learning Strategies on Achievement in Accountancy of Government Higher Secondary School Students**

From Table 31 it is evident that the  $F$  value obtained for Self Regulated Learning Strategies on Achievement in Accountancy for government school students is 48.50 which is greater than the tabled value 6.66 for (1,527) degrees of freedom at .01 level. This indicates that the influence of Self Regulated Learning Strategies on Achievement in Accountancy is significant,  $F(1,527)=48.50, p \leq .01$ , for government higher secondary school students. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy for government higher secondary school students belonging to High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group.

#### ***Discussion***

A close observation of the mean scores of two groups of Self Regulated Learning Strategies was done to know which group is having greater influence on Achievement in Accountancy for government higher secondary school students. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Self Regulated Learning Strategies group ( $M=26.62, SD=5.44$ ) is significantly greater than that of the Low Self Regulated Learning Strategies group ( $M=17.23, SD=4.98$ ) for government higher secondary school students. This indicates that those

government higher secondary school students who are practicing high Self Regulated Learning Strategies scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies.

### **Interaction Effects**

#### **Interaction Effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy of Higher secondary school students for Government School Students**

Table 31 depicts that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for government school students is 0.45 which is less than the tabled value 3.00 for (2,527) degrees of freedom required for significance at .05 level. It indicates that the interaction effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy is not significant,  $F(2,527)=0.45, p>.05$ , for government higher secondary school students even at .05 level. Therefore, the mean scores of Achievement in Accountancy for High Epistemological Beliefs group and Low Epistemological Beliefs group do not vary significantly for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups for government higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for

government school students, the Profile Plot has been plotted and presented in Figure 29.

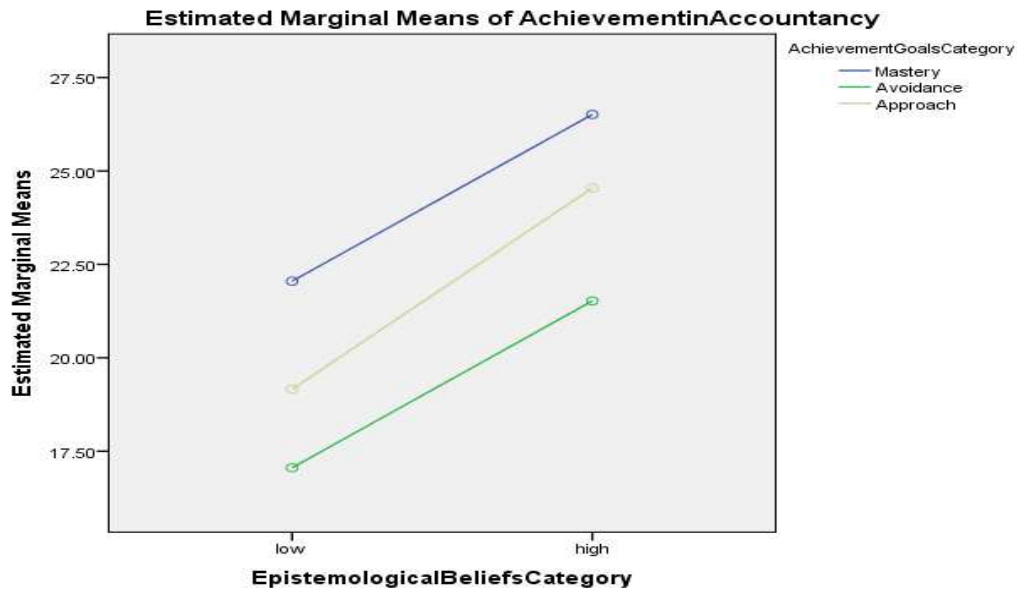


Figure 29. Profile Plot of Interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Higher Secondary Students of Government Schools

### *Discussion*

Figure 29 indicates that the mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for government school students. It is clear from the profile plot that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups

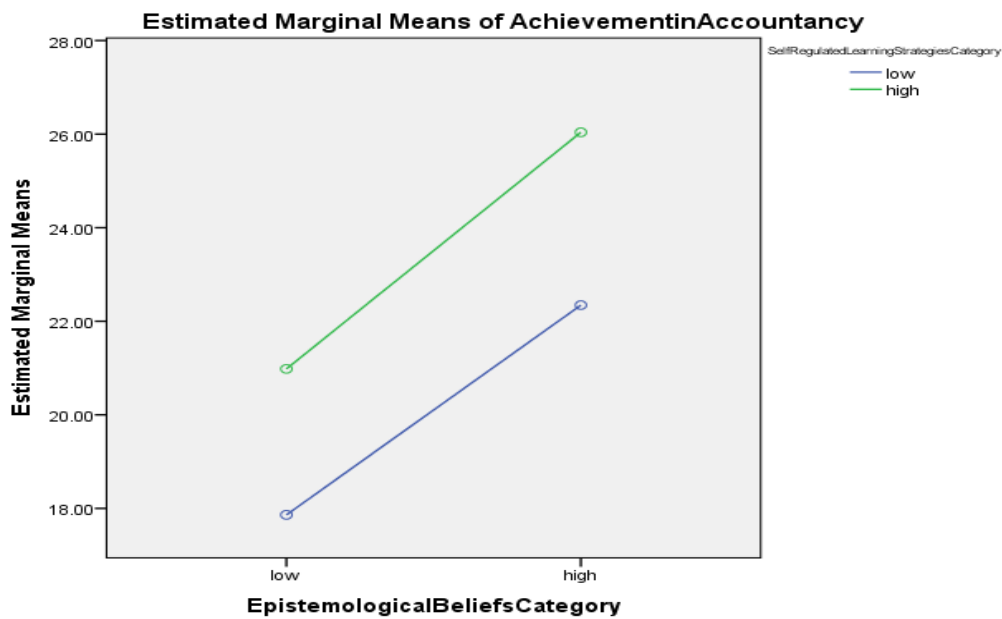
for government school students. It shows the independence of influence of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for government school students.

### **Interaction Effect of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy of Government Higher Secondary School Students**

Table 31 shows that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for government higher secondary school students is 0.35 which is less than the table value 3.85 for (1,527) degrees of freedom at .05 level. It shows that the mean scores of Achievement in Accountancy for High Epistemological group and Low Epistemological group do not vary significantly for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group for government higher secondary school students. Thus, there is no significant influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(1,527)=0.35$ ,  $p > .05$ , for government higher secondary school students. Therefore, the Achievement in Accountancy is independent of interaction between Epistemological Beliefs and Self Regulated Learning Strategies for government higher secondary school students.



In order to verify the trend of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for government school students, the Profile Plot has been plotted and presented in Figure 30.



*Figure 30.* Profile Plot of Interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Government School Students

### *Discussion*

Figure 30 clearly depicts that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent. From the profile plot it is also clear that for the High Epistemological Beliefs and Low

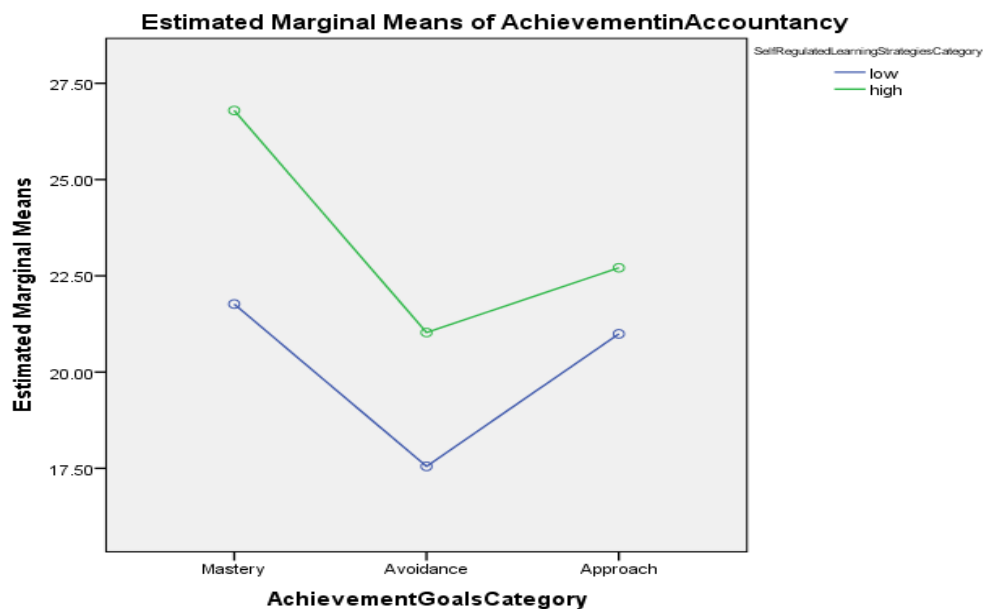
Epistemological Beliefs groups the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group is higher than that of Low Self Regulated Learning Strategies group for government school students. It indicates the independence of influence of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for government school students.

### **Interaction Effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy of Government Higher Secondary School Students**

Table 31 depicts that the  $F$  value obtained for influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for government school students is 3.69 which is greater than the tabled value 3.00 for (2,527) degrees of freedom at .05 level. It indicates that there exists significant influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,527) = 3.69, p \leq .05$ , for government higher secondary school students at .05 level. This means that the mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups vary significantly with High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group of government higher secondary school students. Therefore,

the Achievement in Accountancy is found to be dependent of interaction between Achievement Goals and Self Regulated Learning Strategies for government higher secondary school students.

In order to know the trend of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for government school students, Profile Plot has been plotted and presented in Figure 31.



*Figure 31.* Profile Plot of Interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Government School Students

### *Discussion*

It is evident from Figure 31 that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self

Regulated Learning Strategies group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups are independent for government school students. For the High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group the means scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups. Even though the effect of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for government school students is significant at .05 level, the profile plot shows that the effect of interaction is not significant.

**Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of Government Higher Secondary School Students**

Table 31 shows that the  $F$  value obtained for interaction effect of Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for government school students is 1.26 which is less than the table value 3.00 for (2,527) degrees of freedom at .05 level. Thus, there is no significant influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,527)=1.26$ ,  $p > .05$ , for government higher secondary school students. It means that the mean scores

of Achievement in Accountancy of High Epistemological Beliefs group and Low Epistemological Beliefs group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups and for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group do not differ significantly for government higher secondary school students. Therefore, the Achievement in Accountancy is independent of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies for government higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for government school students, Profile Plot has been plotted and presented in Figure 32.

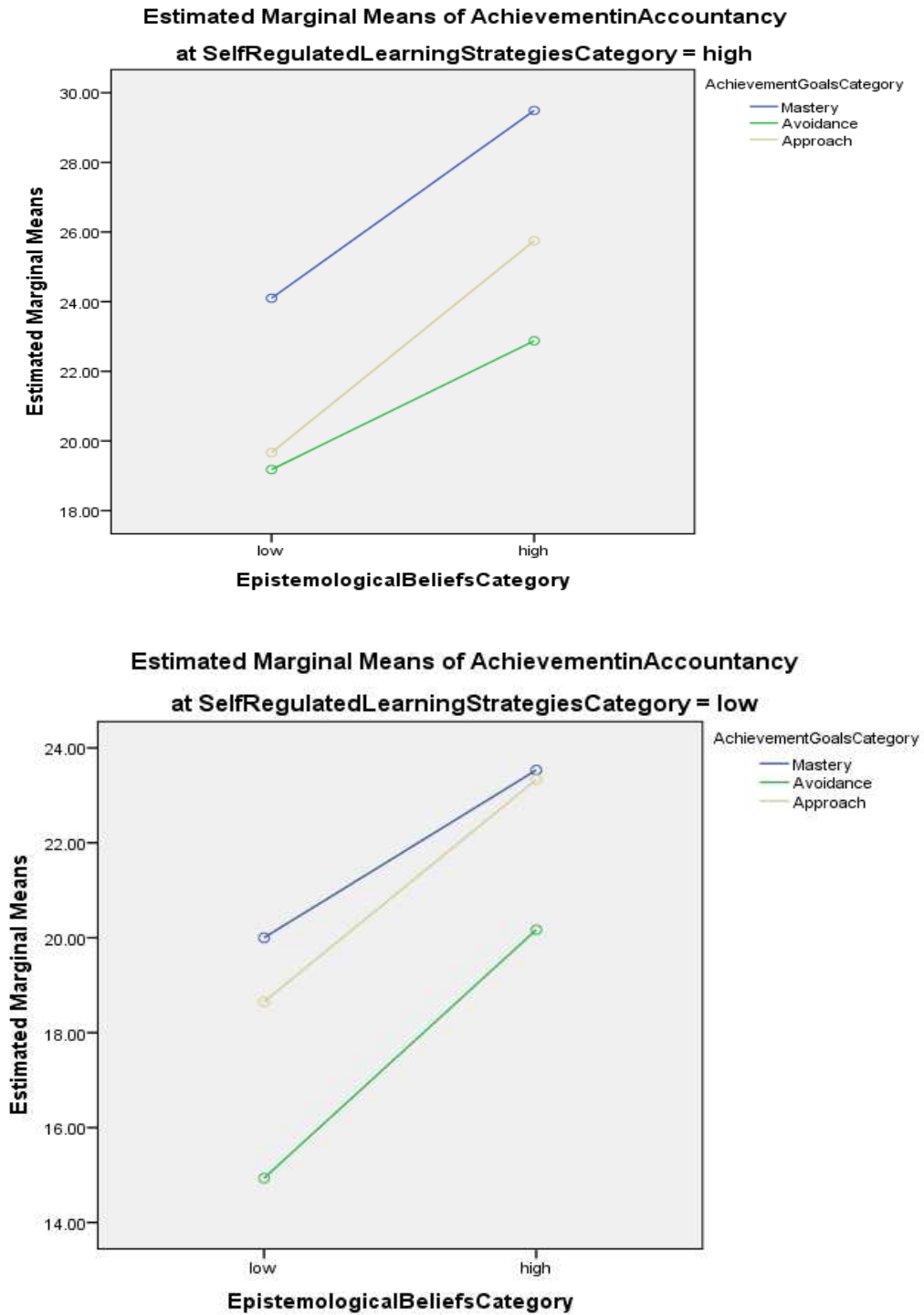


Figure 32. Profile Plot of Interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Government School Students

### ***Discussion***

Figure 32 depicts that for the government higher secondary school students belonging to High Self Regulated Learning Strategies group among High Epistemological Beliefs group, Mastery Goal group scores a higher mean score on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Approach Goal group and Performance-Avoidance Goal group are almost same.

For Low Self Regulated Learning Strategies group, the government higher secondary school students belonging to High Epistemological Beliefs group, Mastery Goal group and Performance-Approach Goal group scores higher mean scores on Achievement in Accountancy than Performance Avoidance Goal group. Among Low Epistemological Beliefs group, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for

Performance-Approach Goal group comes in the second sequence. Therefore, the profile plots show that the interaction among Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is not significant for government higher secondary school students.

**Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their Interaction on Achievement in Accountancy of Aided Higher Secondary School Students**

The data were analyzed by using 2X3X2 Factorial design ANOVA to understand the influence of the Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies and their interaction effect on Achievement in Accountancy of aided higher secondary students. The results of 2X3X2 Factorial design ANOVA are presented in Table 33.



Table 33

*Summary of 2X3X2 Factorial Design ANOVA of Achievement in Accountancy by Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies of Aided Higher Secondary School Students*

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F- value
Epistemological Beliefs	754.56	1	745.56	43.70**
Achievement Goals	716.55	2	358.28	20.75**
Self Regulated Learning Strategies	839.18	1	839.18	48.60**
Epistemological Beliefs X Achievement Goals	72.73	2	36.37	2.11
Epistemological Beliefs X Self Regulated Learning Strategies	1.52	1	1.53	0.09
Achievement Goals X Self Regulated Learning Strategies	5.73	2	2.87	0.17
Epistemological Beliefs X Achievement Goals X Self Regulated Learning Strategies	134.30	2	67.15	3.89*
Error	7960.08	461	17.27	

\*\* $p \leq .01$ , \* $p \leq .05$

### **Main Effects**

#### **Influence of Epistemological Beliefs on Achievement in Accountancy of Aided Higher Secondary School Students**

Table 33 reveals that the  $F$  value obtained for Epistemological Beliefs on Achievement in Accountancy for aided school students is 43.70 which is greater than the tabled value 6.70 for (1,461) degrees of freedom required for significance at .01 level. The results reveal that influence of Epistemological Beliefs on Achievement in Accountancy is significant, ( $F(1,461) = 43.70$ ,

$p \leq .01$ , for aided higher secondary school students. It means that the mean scores of Achievement in Accountancy of aided higher secondary school students belonging to High Epistemological Beliefs group and Low Epistemological Beliefs group differs significantly.

### ***Discussion***

The mean scores of two groups of Epistemological Beliefs were compared to know which group is having higher influence on Achievement in Accountancy for aided higher secondary school students. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Epistemological Beliefs group ( $M=26.74$ ,  $SD=5.40$ ) is significantly greater than that of Low Epistemological Beliefs group ( $M=16.95$ ,  $SD=4.76$ ) for aided higher secondary school students. This indicates that those higher secondary students of aided schools who are having sophisticated Epistemological Beliefs scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs.

### **Influence of Achievement Goals on Achievement in Accountancy of Aided Higher Secondary School Students**

Table 33 shows that the  $F$  value obtained for Achievement Goals on Achievement in Accountancy for aided school students is 20.75 which is greater than the tabled value 4.66 for degrees of freedom (2,461) at .01 level. This indicates that the influence of Achievement Goals on Achievement in

Accountancy is significant,  $F(2,461)=20.75, p \leq .01$ , for aided school students. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of aided higher secondary school students belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups.

The data were further analyzed with the help of Scheffe's Test of Post Hoc Comparison to know which group's mean score of Achievement in Accountancy is significantly higher for aided school students. The results of Scheffe's Test of Post Hoc Comparison of mean scores of Achievement in Accountancy of aided higher secondary school students among three types of Achievement Goal are presented in Table 34.

Table 34

*Summary of Scheffe's Test of Post Hoc Comparison with Matrix of Ordered Means of Types of Achievement Goal on Achievement in Accountancy for Aided Higher Secondary School Students*

Type of Achievement Goals		Mastery Goal	Performance Avoidance Goal	Performance Approach Goal
	Mean Scores	27.68	16.50	20.50
Mastery Goal	27.68	0.00	11.18**	7.18**
Performance-Avoidance Goal	16.50		0.00	4.00**
Performance-Approach Goal	20.50			0.00

\*\* $p < .01$

### ***Discussion***

Table 34 shows that the difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Avoidance Goal groups is 11.18 which is significant at .01 level,  $F=656.38$ ,  $F^l=9.30$ ,  $p\leq.01$ . This reveals that these two groups of Achievement Goals are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M=27.68$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=16.50$ ) for aided higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Approach Goal groups is 7.18 which is significant at .01 level,  $F=203.92$ ,  $F^l=9.30$ ,  $p\leq.01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M=27.68$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Approach Goal ( $M=20.50$ ) for aided higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Performance-Avoidance Goal and Performance-Approach Goal groups is 4.00 which significant at .01 level,  $F= 62.73$ ,  $F^l= 9.30$ ,  $p\leq.01$ . This indicates that these two groups are not identical with regard to their Achievement in

Accountancy. Thus, those students who pursue Performance-Approach Goal ( $M=20.50$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=16.50$ ) for aided higher secondary school students.

Therefore, it can be concluded that those students who pursue Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal differ significantly in their Achievement in Accountancy for aided higher secondary school students. The higher mean scores for Achievement in Accountancy are associated with Mastery Goal group than those who pursue Performance-Approach Goal and Performance-Avoidance Goal for aided higher secondary school students.

### **Influence of Self Regulated Learning Strategies on Achievement in Accountancy of Higher Secondary School Students for Aided School Students**

From Table 33 it is evident that the  $F$  value obtained for Self Regulated Learning Strategies on Achievement in Accountancy for aided school students is 48.60 which is greater than the tabled value 6.70 for (1,461) degrees of freedom at .01 level. This indicates that the influence of Self Regulated Learning Strategies on Achievement in Accountancy is significant,  $F(1,461)=48.60$ ,  $p \leq .01$ , for aided higher secondary school students. Therefore, there exists significant difference in the mean scores of

Achievement in Accountancy for aided higher secondary school students belonging to High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group.

### ***Discussion***

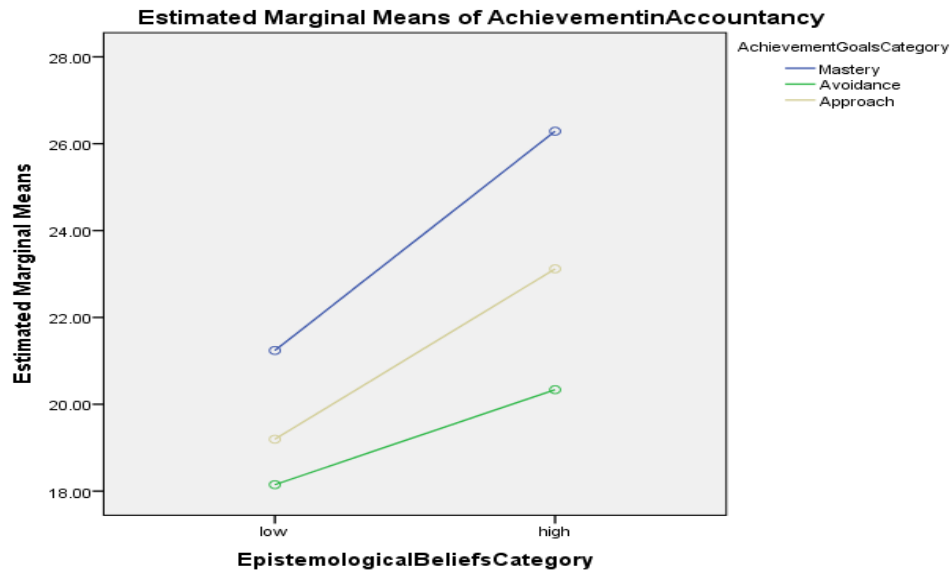
A close observation of the mean scores of two groups of Self Regulated Learning Strategies was done to know which group is having greater influence on Achievement in Accountancy for aided higher secondary school students. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Self Regulated Learning Strategies group ( $M=26.84$ ,  $SD=5.30$ ) is significantly greater than that of the Low Self Regulated Learning Strategies group ( $M=17.10$ ,  $SD=4.94$ ) for aided higher secondary school students. This indicates that those aided higher secondary school students who are practicing high Self Regulated Learning Strategies scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies.

## **Interaction Effects**

### **Interaction Effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy of Higher Secondary School Students for Aided School Students**

From Table 33 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for aided school students is 2.11 which is less than the tabled value 3.02 for (2,461) degrees of freedom at .05 level. It indicates that the interaction effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy,  $F(2,461)=2.11, p>.05$ , is not significant even at .05 level for aided higher secondary school students. Therefore, the mean scores of Achievement in Accountancy for High Epistemological Beliefs group and Low Epistemological Beliefs group do not vary significantly for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups for aided higher secondary school students.

In order to verify the trend of influence of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for aided higher secondary school students, the Profile Plot has been plotted and presented in Figure 33.



*Figure 33.* Profile Plot of Interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Aided School Students

### ***Discussion***

The analysis of Figure 33 indicates that mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for aided school students. It is clear from the profile plot that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups for aided higher secondary school students. It shows the independence of



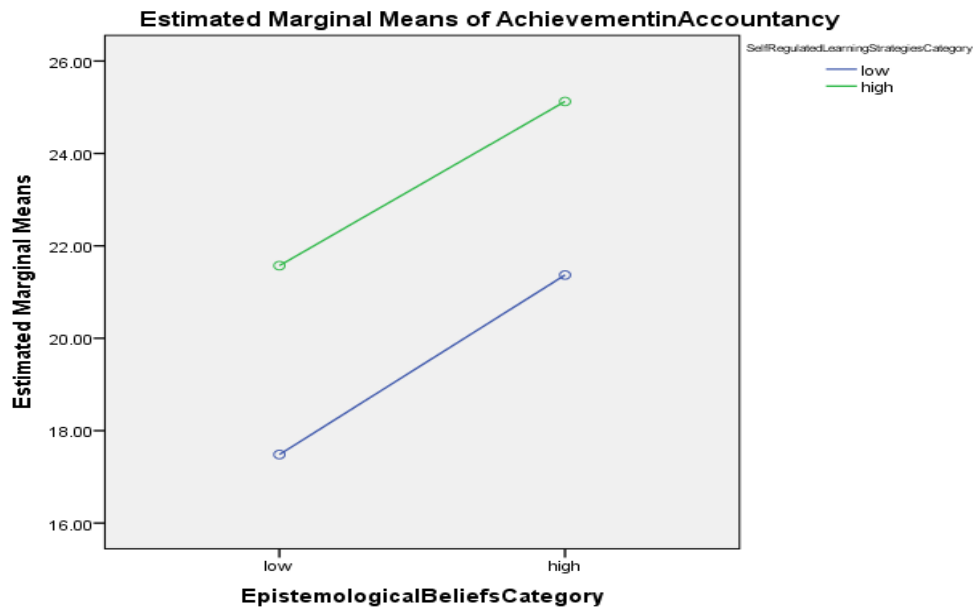
influence of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for aided school students.

### **Interaction Effect of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy of Aided Higher Secondary School Students**

From Table 33 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for aided higher secondary school students is 0.09 which is less than the tabled value 3.86 for (1,461) degrees of freedom at .05 level. It shows that the mean scores of Achievement in Accountancy for High Epistemological group and Low Epistemological group do not vary significantly for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group for aided higher secondary school students. Thus, there is no significant influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(1,461)=0.09$ ,  $p>.05$ , for aided higher secondary school students. Therefore, the Achievement in Accountancy is independent of interaction between Epistemological Beliefs and Self Regulated Learning Strategies for aided higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in

Accountancy for the aided higher secondary school students, the Profile Plot has been plotted and presented in Figure 34.



*Figure 34.* Profile Plot of Interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Aided School Students

### ***Discussion***

Figure 34 clearly depicts that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for aided school students. From the profile plot it is clear that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for High Self Regulated Learning

Strategies group is higher than that of Low Self Regulated Learning Strategies group for aided school students. It indicates the independence of influence of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for aided higher secondary school students.

### **Interaction Effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy of Aided Higher Secondary School Students**

From the Table 33 it is clear that the  $F$  value obtained for interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for aided school students is 0.17 which is less than the tabled value 3.02 for (2,461) degrees of freedom at .05 level. It indicates that there exists no significant influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,461)=0.17, p>.05$ , for aided higher secondary school students even at .05 level. This means that the mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups do not vary significantly with High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group of aided higher secondary school students. Therefore, it evident that the Achievement in Accountancy is independent of interaction

between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for aided higher secondary school students.

In order to verify the trend of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for aided school students, Profile Plot has been plotted and presented in Figure 35.

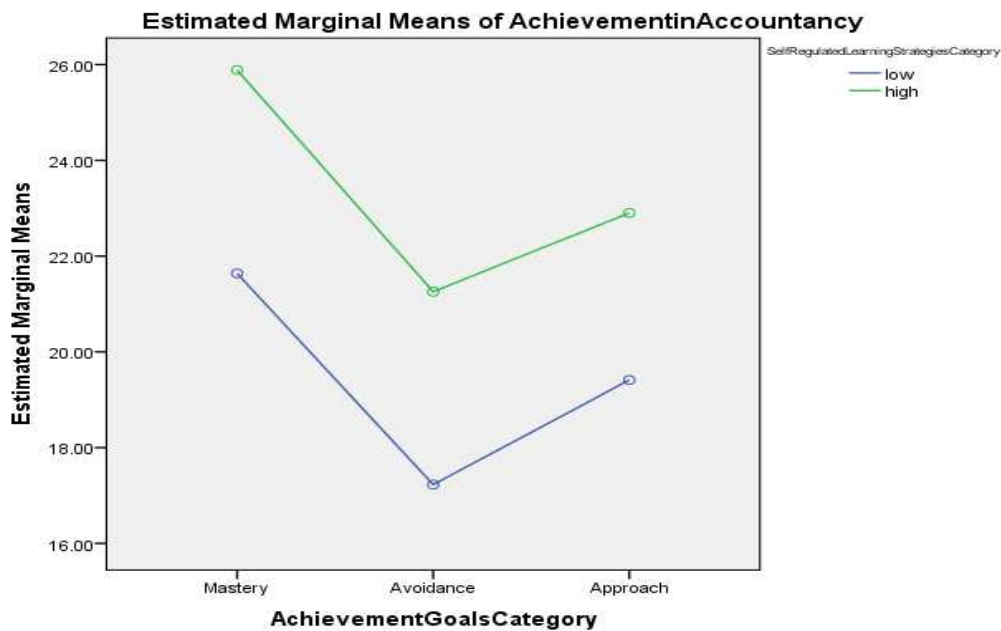


Figure 35. Profile Plot of Interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Aided School Students

### *Discussion*

It is evident from Figure 35 that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to Mastery Goal,

Performance-Avoidance Goal, and Performance-Approach Goal groups are independent for aided higher secondary school students. For the High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group the means scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups. Thus, the effect of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for aided school students is not significant.

**Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of Aided Higher Secondary School Students**

From Table 33 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies for aided school students is 3.89 which is greater than the tabled value 3.02 for (2,461) degrees of freedom at .05 level. Thus, there is significant influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,461)=3.89$ ,  $p \leq .05$ , for aided higher secondary school students. It means that the mean scores of Achievement in Accountancy of High Epistemological Beliefs group and Low Epistemological Beliefs group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-

Approach Goal groups and for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group differ significantly for aided higher secondary school students. Therefore, the Achievement in Accountancy is dependent of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies for aided higher secondary school students.

In order to know the trend of influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for aided school students, Profile Plot has been plotted and presented in Figure 36.

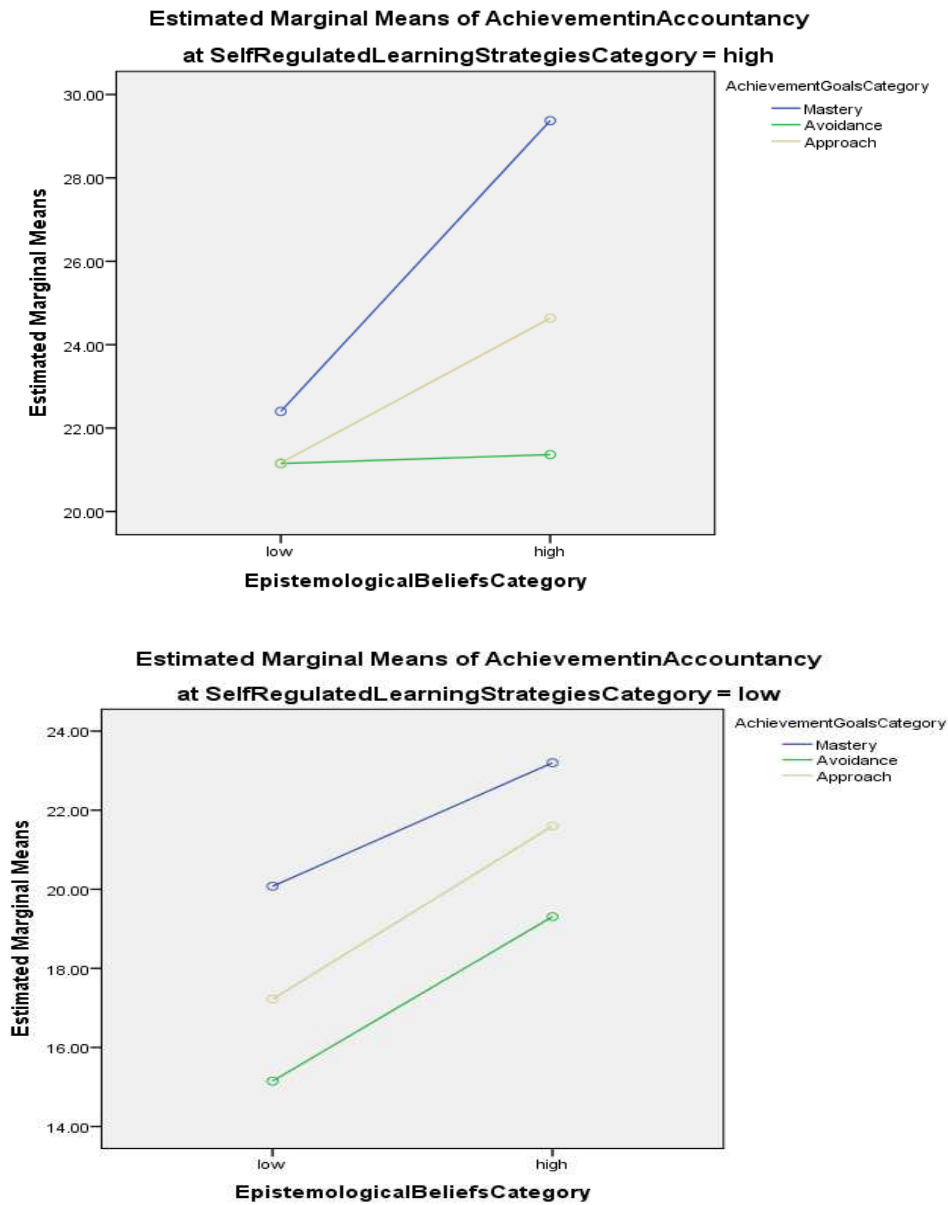


Figure 36. Profile Plot of Interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Aided School Students

**Discussion**

Figure 36 depicts that for aided higher secondary school students belonging to High Self Regulated Learning Strategies group among High Epistemological Beliefs group, Mastery Goal group scores higher mean score

on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Approach Goal group and Performance-Avoidance Goal group are same.

For Low Self Regulated Learning Strategies group aided higher secondary school students belonging to High Epistemological Beliefs group, Mastery Goal group scores a higher mean score on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence. Among Low-Epistemological Beliefs category also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal group. Therefore, the profile plots also show interaction among Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for aided higher secondary school students.



**Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their Interaction on Achievement in Accountancy of Rural Higher Secondary School Students**

The data were analyzed by using 2X3X2 Factorial design ANOVA to understand the influence of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their interaction effect on Achievement in Accountancy of rural higher secondary school students. The results of 2X3X2 Factorial design ANOVA are presented in Table 35.

Table 35

*Summary of 2X3X2 Factorial Design ANOVA of Achievement in Accountancy by Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of Rural Higher Secondary School Students*

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F- value
Epistemological Beliefs	1271.58	1	1271.58	83.08**
Achievement Goals	874.91	2	437.46	28.58**
Self Regulated Learning Strategies	864.60	1	864.60	56.49**
Epistemological Beliefs X Achievement Goals	31.73	2	15.87	1.04
Epistemological Beliefs X Self Regulated Learning Strategies	0.97	1	0.97	0.63
Achievement Goals X Self Regulated Learning Strategies	35.75	2	17.87	1.17
Epistemological Beliefs X Achievement Goals X Self Regulated Learning Strategies	118.82	2	59.41	3.88*
Error	8005.21	523	15.31	

\*\* $p \leq .01$ , \* $p \leq .05$

## **Main Effects**

### **Influence of Epistemological Beliefs on Achievement in Accountancy of Rural Higher Secondary School Students**

Table 35 reveals that the  $F$  value obtained for Epistemological Beliefs on Achievement in Accountancy for rural school students is 83.08 which is greater than the tabled value 6.66 for (1,523) degrees of freedom required for significance at .01 level. The results reveal that influence of Epistemological Beliefs on Achievement in Accountancy is significant,  $F(1,523)=83.08$ ,  $p \leq .01$ , for rural higher secondary school students. It means that the mean scores of Achievement in Accountancy of rural higher secondary school students belonging to High Epistemological Beliefs group and Low Epistemological Beliefs group differs significantly.

## ***Discussion***

The mean scores of two groups of Epistemological Beliefs were compared to know which group is having higher influence on Achievement in Accountancy for rural higher secondary school students. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Epistemological Beliefs Group ( $M=27.91$ ,  $SD=4.68$ ) is significantly greater than that of Low Epistemological Beliefs group ( $M=16.98$ ,  $SD=5.17$ ) for rural higher secondary school students. This indicates that those higher secondary students of rural schools who are having sophisticated

Epistemological Beliefs scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs.

**Influence of Achievement Goals on Achievement in Accountancy of Higher secondary school students for the Rural School Students**

Table 35 shows that the  $F$  value obtained for Achievement Goals on Achievement in Accountancy for rural school students is 28.58 which is greater than the tabled value 4.62 for (2,523) degrees of freedom at .01 level. This indicates that the influence of Achievement Goals on Achievement in Accountancy is significant,  $F(2,523)=28.58, p \leq .01$ , for rural school students. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of rural higher secondary school students belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups.

The data were further analyzed with the help of Scheffe's Test of Post Hoc Comparison to know which group's mean score of Achievement in Accountancy is significantly higher for rural school students. The results of Scheffe's Test of Post Hoc Comparison of mean scores of Achievement in Accountancy of rural higher secondary school students among three types of Achievement Goals are presented in Table 36.

Table 36

*Summary of Scheffe's Test of Post Hoc Comparison with Matrix of Ordered Means of Types of Achievement Goals on Achievement in Accountancy for Rural Higher Secondary School Students*

Type of Achievement Goals		Mastery Goal	Performance Avoidance Goal	Performance Approach Goal
	Mean Scores	28.44	16.13	22.21
Mastery Goal	28.44	0.00	12.31**	6.23**
Performance-Avoidance Goal	16.13		0.00	6.08**
Performance Approach Goal	22.21			0.00

\*\* $p < .01$

### ***Discussion***

Table 36 shows that the difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Avoidance Goal groups is 12.31 which is significant at .01 level,  $F= 1043.94$  ,  $F^l= 9.30$ ,  $p \leq .01$ . This reveals that these two groups of Achievement Goals are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M=28.44$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=16.13$ ) for rural higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Approach Goal groups is 6.23 which is significant at .01 level,  $F= 189.06$  ,  $F^l=9.30$ ,  $p \leq .01$ . This indicates that these

two groups are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M=28.44$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Approach Goal ( $M=22.21$ ) for rural higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Performance-Avoidance Goal and Performance-Approach Goal groups is 6.08 which is significant at .01 level,  $F= 171.09$ ,  $F^l= 9.30$ ,  $p\leq.01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Performance-Approach Goal ( $M=22.21$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=16.13$ ) for rural higher secondary school students.

Therefore, it can be concluded that those students who pursue Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal differ significantly in their Achievement in Accountancy for rural higher secondary school students. The achievement scores of students who pursue Mastery Goal is significantly higher than that of those students who pursue Performance-Avoidance Goal and Performance-Approach Goal for rural school students.

### **Influence of Self Regulated Learning Strategies on Achievement in Accountancy of Rural Higher Secondary School Students**

From Table 35 it is evident that the  $F$  value obtained for Self Regulated Learning Strategies on Achievement in Accountancy for rural school students is 56.49 which is greater than the tabled value 6.66 for (1,523) degrees of freedom at .01 level of significance. This indicates that the influence of Self Regulated Learning Strategies on Achievement in Accountancy is significant,  $F(1,523)=56.49, p \leq .01$ , for rural higher secondary school students. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy for rural higher secondary school students belonging to High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group.

#### ***Discussion***

The comparison of the mean scores of achievement for two groups of Self Regulated Learning Strategies was done to know which group is having greater influence on Achievement in Accountancy for rural higher secondary school students. Results of comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Self Regulated Learning Strategies group ( $M=27.77, SD=4.98$ ) is significantly greater than that of the Low Self Regulated Learning Strategies group ( $M=17.21, SD=5.27$ ) for rural higher secondary school students. This indicates that those rural higher

secondary school students who are practicing high Self Regulated Learning Strategies scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies.

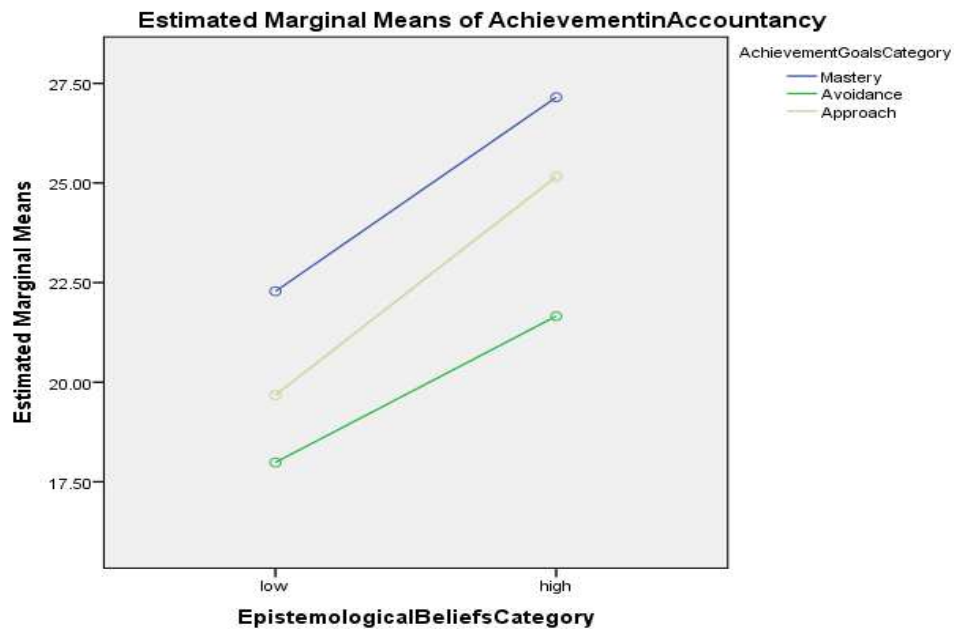
### **Interaction Effects**

#### **Interaction Effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy of Rural Higher Secondary School Students**

From Table 35 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for rural school students is 1.04 which is less than the tabled value 3.00 for (2,523) degrees of freedom at .05 level. It indicates that the interaction effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy is not significant,  $F(2,523)=1.04, p>.05$ ), for rural higher secondary school students even at .05 level. Therefore, it can be concluded that the mean scores of Achievement in Accountancy for High Epistemological Beliefs group and Low Epistemological Beliefs group do not vary significantly for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups for rural higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for rural

higher secondary school students, the Profile Plot has been plotted and presented in Figure 37.



*Figure 37.* Profile Plot of Interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Rural School Students

## Discussion

The analysis of Figure 37 also indicates that mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for rural higher secondary school student. It is clear from the profile plot that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean score of Achievement in



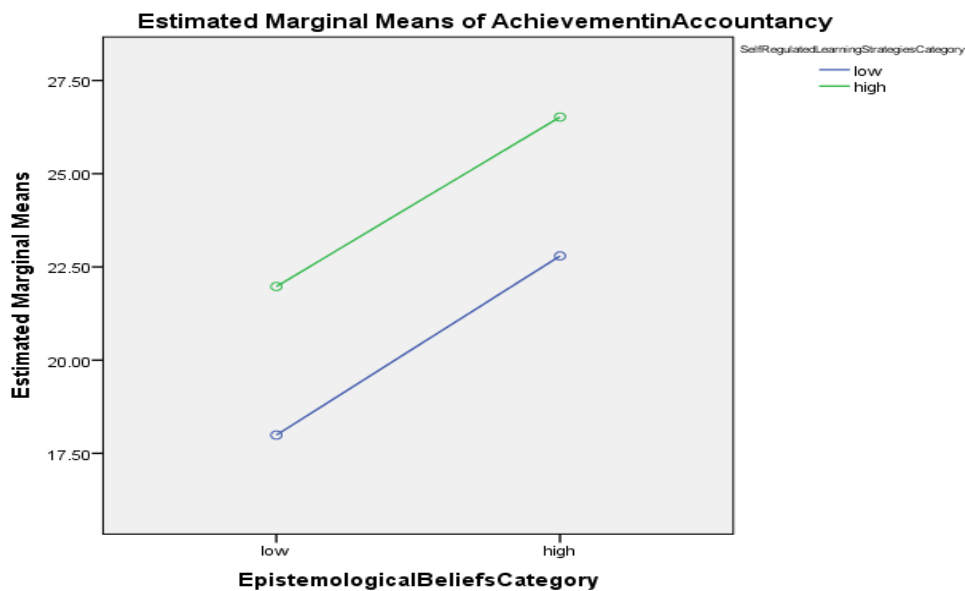
Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups for rural school students. It shows the independence of influence of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for rural higher secondary school students.

### **Interaction Effect of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy of Rural Higher Secondary School Students**

From Table 35 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for rural higher secondary school students is 0.63 which is less than the tabled value 3.85 for (1,523) degrees of freedom at .05 level. It shows that the mean scores of Achievement in Accountancy for High Epistemological group and Low Epistemological group do not vary significantly for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group for the rural higher secondary school students. Thus, there is no significant influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(1,523)=0.63$ ,  $p>.05$ , for rural higher secondary school students. Therefore, the Achievement in Accountancy is

independent of interaction between Epistemological Beliefs and Self Regulated Learning Strategies for rural higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for the rural school students, the Profile Plot has been plotted and presented in Figure 38.



*Figure 38.* Profile Plot of Interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Rural School Students

### ***Discussion***

Figure 38 shows that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to High Epistemological Beliefs and

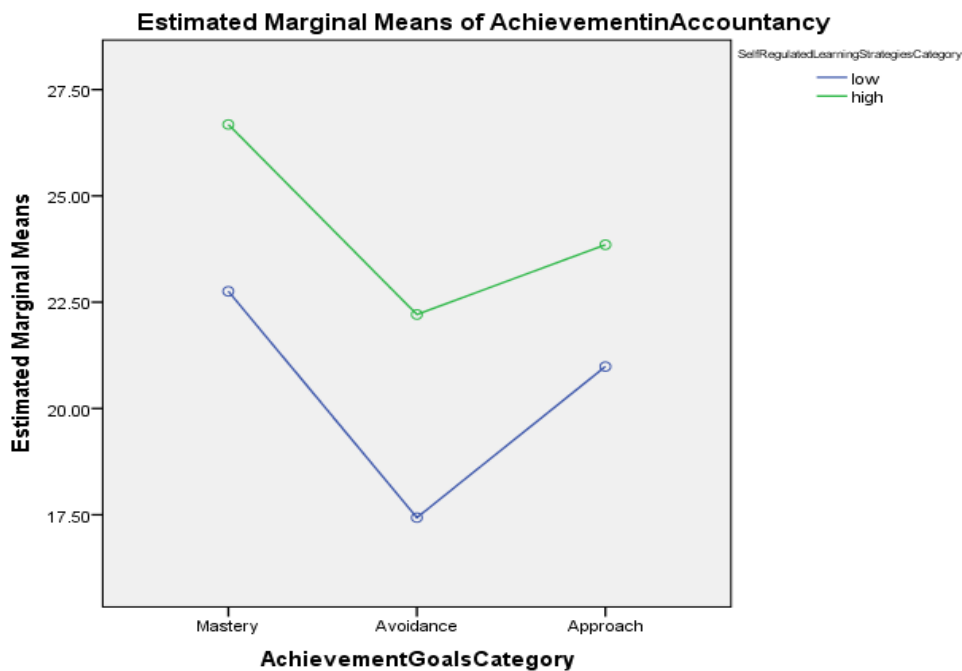
Low Epistemological Beliefs groups are independent for rural higher secondary school students. From the profile plot it is clear that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group is higher than that of Low Self Regulated Learning Strategies group for rural school students. It indicates the independence of influence of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for rural higher secondary school students.

#### **Interaction Effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy of Rural Higher Secondary School Students**

From Table 35 it is clear that the  $F$  value obtained for interaction effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for rural school students is 1.17 which is less than the tabled value 3.00 for (2,523) degrees of freedom at .05 level. It indicates that there exists no significant influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,523)=1.17, p>.05$ , for rural higher secondary school students even at .05 level. This means that the mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups do not vary significantly with High Self

Regulated Learning Strategies group and Low Self Regulated Learning Strategies group of rural higher secondary school students. Therefore, the Achievement in Accountancy is independent of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for rural higher secondary school students.

In order to verify the trend of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for rural school students, Profile Plot has been plotted and presented in Figure 39.



*Figure 39.* Profile Plot of Interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Rural School Students

### ***Discussion***

Figure 39 shows that the mean scores in Achievement in Accountancy of High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance- Approach Goal groups are independent. For the High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group the means scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups for rural higher secondary school students. The mean scores of Achievement in Accountancy for Performance-Approach group come second. Thus, the effect of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for rural school students is not significant.

### **Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of Rural Higher Secondary School Students**

From Table 35 it is evident that the  $F$  value obtained for interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for rural school students is 3.88 which is greater than the tabled value 3.00 for (2,523) degrees of freedom at .05 level. Thus, there is significant influence of interaction

between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,523)=3.88, p \leq .05$ , for rural higher secondary school students. It means that the mean scores of Achievement in Accountancy of High Epistemological Beliefs group and Low Epistemological Beliefs group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups and for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group differ significantly for rural higher secondary school students. Hence, the Achievement in Accountancy is dependent of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies for rural higher secondary school students.

In order to know the trend of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for rural school students, Profile Plot has been plotted and presented in Figure 40.

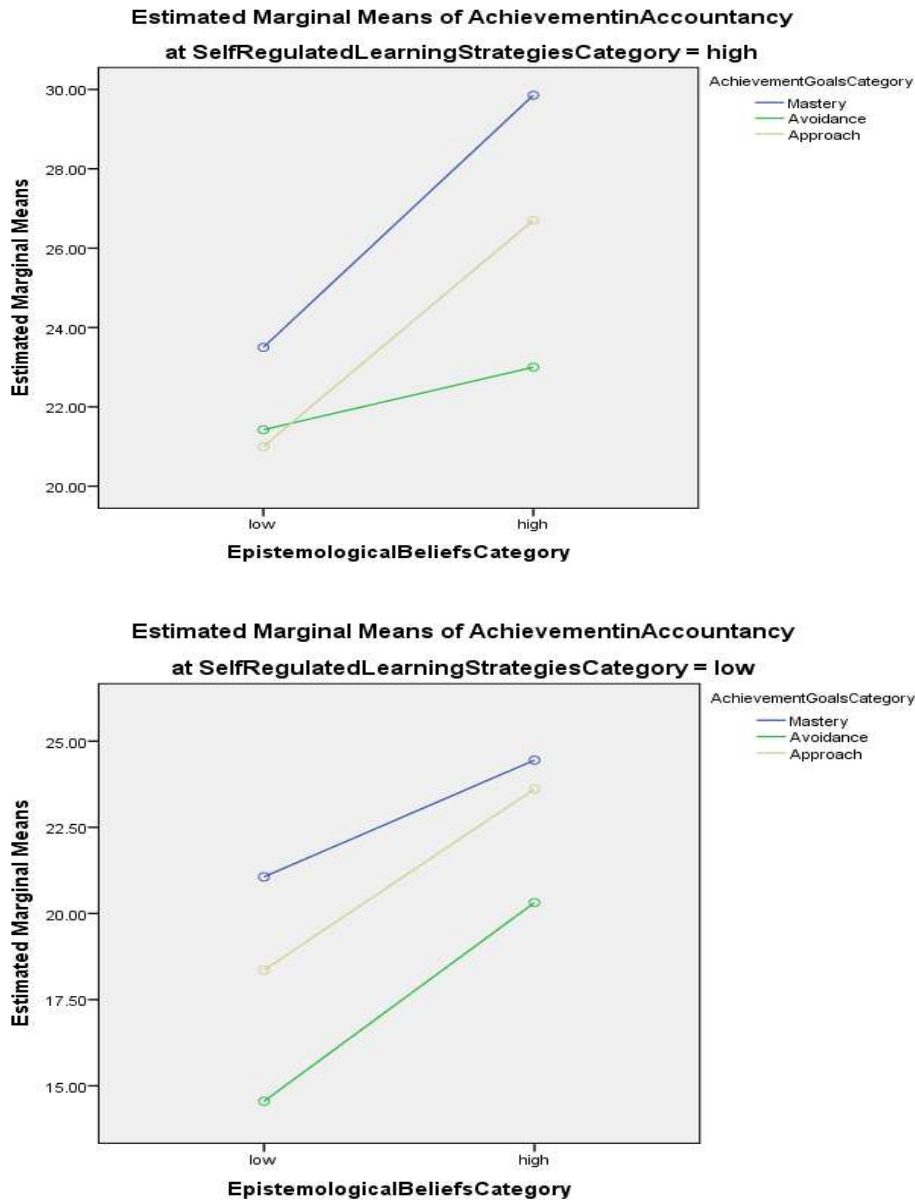


Figure 40. Profile Plot of Interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Rural School Students

**Discussion**

Figure 40 depicts that for rural higher secondary school students belonging to High Self Regulated Learning Strategies group among High Epistemological Beliefs group, Mastery Goal group scores higher mean score

on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The mean score of Achievement in Accountancy for Performance-Approach Goal group falls in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Mastery Goal group shows higher mean score on Achievement in Accountancy than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Avoidance Goal group is higher than that of Performance-Approach Goal group for rural higher secondary school students.

In case of rural higher secondary school students, for Low Self Regulated Learning Strategies group, the students belonging to High Epistemological Beliefs group, Mastery Goal group scores higher mean score on Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. Therefore, the profile plots reveal a significant interaction among Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy among rural higher secondary school students.



**Influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their Interaction on Achievement in Accountancy for Urban Higher Secondary School Students**

The data were analyzed by using 2X3X2 Factorial design ANOVA to understand the influence of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies and their interaction effect on Achievement in Accountancy of urban higher secondary school students. The results of 2X3X2 Factorial design ANOVA are presented in Table 37.

Table 37

*Summary of 2X3X2 Factorial Design ANOVA of Achievement in Accountancy by Epistemological Beliefs, Achievement Goal, and Self Regulated Learning Strategies of Urban Higher Secondary School Students*

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F- value
Epistemological Beliefs	941.71	1	941.71	57.75**
Achievement Goals	541.28	2	270.64	16.60**
Self Regulated Learning Strategies	711.15	1	711.15	43.61**
Epistemological Beliefs X Achievement Goals	29.36	2	14.69	0.90
Epistemological Beliefs X Self Regulated Learning Strategies	6.10	1	6.10	0.37
Achievement Goals X Self Regulated Learning Strategies	135.94	2	67.97	4.17*
Epistemological Beliefs X Achievement Goals X Self Regulated Learning Strategies	17.18	2	8.59	0.53
Error	7582.33	465	16.31	

\*\* $p \leq .01$ , \* $p \leq .05$

## **Main Effects**

### **Influence of Epistemological Beliefs on Achievement in Accountancy of Urban Higher Secondary School Students**

Table 37 reveals that the  $F$  value obtained for Epistemological Beliefs on Achievement in Accountancy for urban school students is 57.75 which is greater than the tabled value 6.70 for (1,465) degrees of freedom required for significance at .01 level. The results reveal that influence of Epistemological Beliefs on Achievement in Accountancy is significant,  $F(1,465)=57.75$ ,  $p \leq .01$ , for urban higher secondary school students. It means that the mean scores of Achievement in Accountancy of urban higher secondary school students belonging to High Epistemological Beliefs group and Low Epistemological Beliefs group differs significantly.

## ***Discussion***

The mean scores of two groups of Epistemological Beliefs were compared to know which group is having higher influence on Achievement in Accountancy for urban higher secondary school students. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Epistemological Beliefs group ( $M=25.87$ ,  $SD=5.38$ ) is significantly greater than that of Low Epistemological Beliefs group ( $M=16.89$ ,  $SD=4.25$ ) for urban higher secondary school students. This indicates that those higher secondary students of urban schools who are having sophisticated

Epistemological Beliefs scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs.

### **Influence of Achievement Goals on Achievement in Accountancy of Urban Higher Secondary School Students**

Table 37 shows that the  $F$  value obtained for Achievement Goals on Achievement in Accountancy for urban school students is 16.60 which is greater than the tabled value 4.66 for (2,465) degrees of freedom at .01 level. This indicates that the influence of Achievement Goals on Achievement in Accountancy is significant,  $F(2,465)=16.60, p \leq .01$ , for urban school students. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy of urban higher secondary school students belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups.

The data were further analyzed with the help of Scheffe's Test of Post Hoc Comparison to know which group's mean score of Achievement in Accountancy is significantly higher for urban school students. The results of Scheffe's Test of Post Hoc Comparison of mean scores of Achievement in Accountancy of urban higher secondary school students among three types of Achievement Goal are presented in Table 38.

Table 38

*Summary of Scheffe's Test of Post Hoc Comparison with Matrix of Ordered Means of Types of Achievement Goal on Achievement in Accountancy for Urban Higher Secondary School Students*

Type of Achievement Goals	Mean Scores	Mastery Goal	Performance Avoidance Goal	Performance Approach Goal
Mastery Goal	27.27	0.00	10.39**	6.98**
Performance-Avoidance Goal	16.88		0.00	3.41**
Performance-Approach Goal	20.29			0.00

\*\* $p < .01$

### *Discussion*

Table 38 shows that the difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Avoidance Goal groups is 10.39 which is significant at .01 level,  $F=582.79$ ,  $F^l= 9.30$ ,  $p \leq .01$ . This reveals that these two groups of Achievement Goals are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M=27.27$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=16.88$ ) for urban higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Mastery Goal and Performance-Approach Goal groups is 6.98 which is significant at .01 level,  $F= 203.06$ ,  $F^l= 9.30$ ,  $p \leq .01$ . This indicates that these

two groups are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Mastery Goal ( $M=27.27$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Approach Goal ( $M=20.29$ ) for urban higher secondary school students.

The difference between mean scores of Achievement in Accountancy for Performance-Avoidance Goal and Performance Approach Goal groups is 6.08 which is significant at .01 level,  $F=53.29$ ,  $F^l=9.30$ ,  $p\leq.01$ . This indicates that these two groups are not identical with regard to their Achievement in Accountancy. Thus, those students who pursue Performance-Approach Goal ( $M=20.29$ ) have significantly higher mean score on Achievement in Accountancy than those who pursue Performance-Avoidance Goal ( $M=16.88$ ) for urban higher secondary school students.

Therefore, it can be concluded that those students who pursue Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal differ significantly in their Achievement in Accountancy for urban higher secondary school students. Those students who pursue Mastery scores high on Achievement in Accountancy than those who pursue Performance-Avoidance Goal and Performance-Approach Goal for urban school students.

### **Influence of Self Regulated Learning Strategies on Achievement in Accountancy of Urban Higher Secondary School Students**

From Table 37 it is evident that the  $F$  value obtained for Self Regulated Learning Strategies on Achievement in Accountancy for urban school students is 43.61 which is greater than the tabled value 6.70 for (1,465) degrees of freedom at .01 level. This indicates that the influence of Self Regulated Learning Strategies on Achievement in Accountancy is significant,  $F(1,465) = 43.61, p \leq .01$ , for urban higher secondary school students. Therefore, there exists significant difference in the mean scores of Achievement in Accountancy for urban higher secondary school students belonging to High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group.

#### ***Discussion***

An analysis the mean scores of two groups of Self Regulated Learning Strategies was carried out to know which group is having greater influence on Achievement in Accountancy for urban higher school secondary students. The comparison of mean scores revealed that the mean score of Achievement in Accountancy of High Self Regulated Learning Strategies group ( $M=25.47, SD=5.57$ ) is significantly greater than that of the Low Self Regulated Learning Strategies group ( $M=17.12, SD=4.61$ ) for urban higher secondary school students. This indicates that those urban higher secondary school

students who are practicing high Self Regulated Learning Strategies scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies.

### **Interaction Effects**

#### **Interaction Effects of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy of Urban Higher Secondary School Students**

From Table 37 it is evident that the  $F$  value obtained for influence of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for urban school students is 0.90 which is less than the tabled value 3.02 for (2,465) degrees of freedom at .05 level. It indicates that the interaction effect of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy is not significant,  $F(2,465)=0.90$ ,  $p>.05$ , even at .05 level for urban higher secondary school students. Therefore, the mean scores of Achievement in Accountancy for High Epistemological Beliefs group and Low Epistemological Beliefs group do not vary significantly for Mastery Goal, Performance Avoidance Goal, and Performance Approach Goal groups for urban higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for urban

higher secondary school students, the Profile Plot has been plotted and presented in Figure 41.

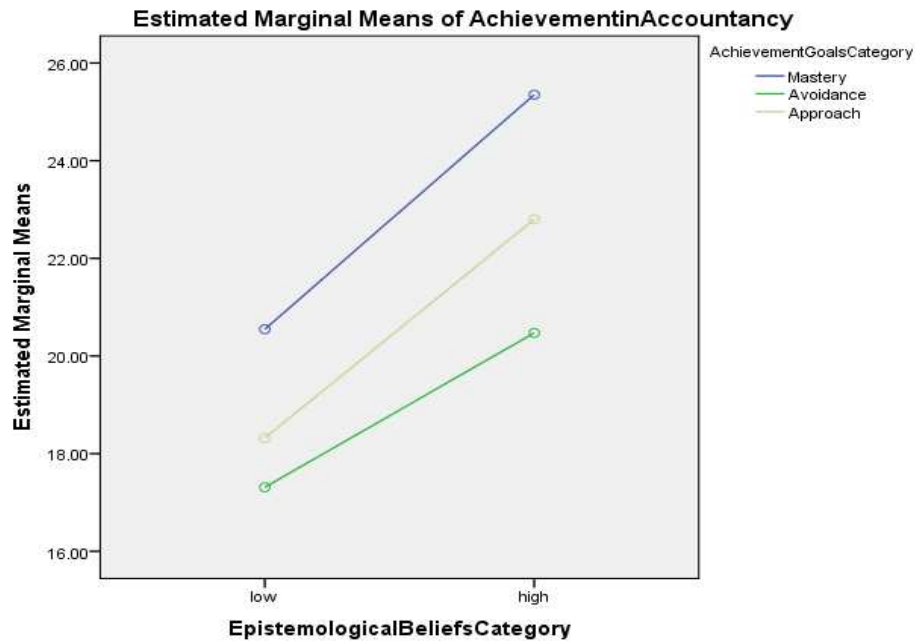


Figure 41. Profile Plot of Interaction between Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for Urban School Students

### Discussion

Figure 41 it is evident that mean scores Achievement in Accountancy of Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups belonging to High Epistemological Beliefs and Low Epistemological Beliefs groups are independent for urban higher secondary school students. It is clear from the profile plot that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for Mastery Goal group is higher than



that of Performance-Avoidance Goal and Performance- Approach Goal groups for urban school students. The Performance-Approach Goal group has the second highest mean score on Achievement in Accountancy. It shows the independence of influence of Epistemological Beliefs and Achievement Goals on Achievement in Accountancy for urban higher secondary school students.

### **Interaction Effect of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy of Urban Higher Secondary School Students**

From Table 37 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for urban higher secondary school students is 0.37 which is less than the tabled value 3.86 for (1,465) degrees of freedom at .05 level. It shows that the mean scores of Achievement in Accountancy for High Epistemological group and Low Epistemological group do not vary significantly for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group for urban higher secondary school students. Thus, there is no significant influence of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(1,465)=0.37, p>.05$ , for urban higher secondary school students. Therefore, the Achievement in Accountancy was found to be independent of interaction between Epistemological Beliefs and

Self Regulated Learning Strategies for urban higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for the urban school students, the Profile Plot has been plotted and presented in Figure 42.

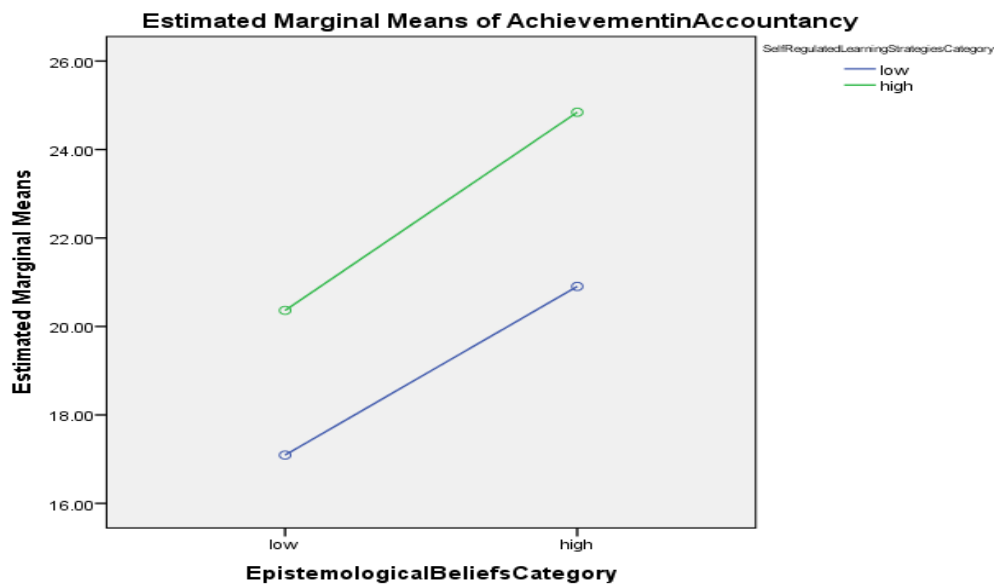


Figure 42. Profile Plot of Interaction between Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for Urban School Students

### *Discussion*

It is evident from Figure 42 that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to High Epistemological

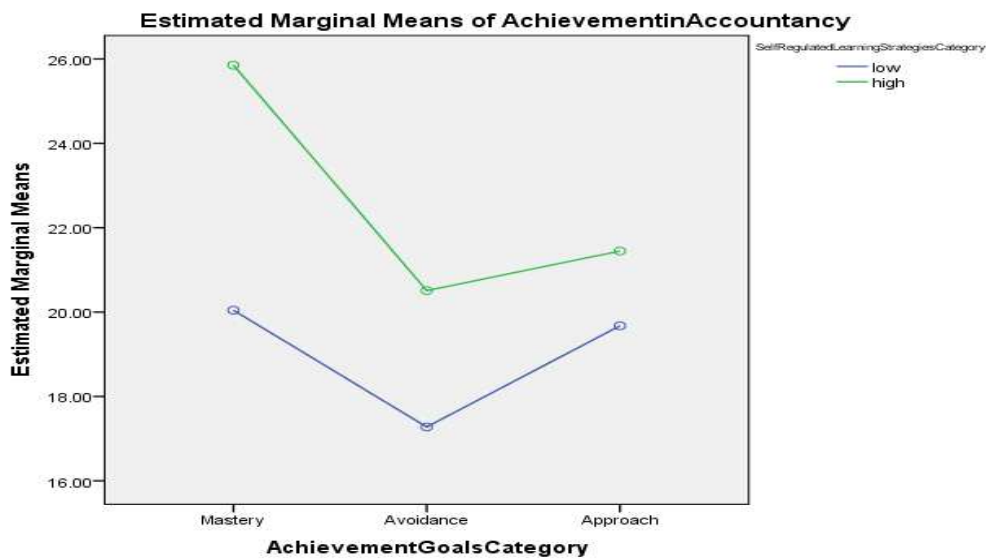
Beliefs and Low Epistemological Beliefs groups are independent for urban higher secondary school students. The profile plot clearly depicts that for the High Epistemological Beliefs and Low Epistemological Beliefs groups the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group is higher than that of Low Self Regulated Learning Strategies group for urban higher secondary school students. It indicates the independence of influence of Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for urban school students.

#### **Interaction Effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy of Higher Secondary Urban School Students**

From Table 37 it is clear that the  $F$  value obtained for interaction effect of Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for urban school students is 4.17 which is greater than the tabled value 3.02 for (2,465) degrees of freedom at .05 level. It indicates that there exists significant influence of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,465)=4.17, p \leq .05$ , for urban higher secondary school students at .05 level. This means that the mean scores of Achievement in Accountancy for Mastery Goal, Performance-Avoidance Goal, and

Performance-Approach Goal groups vary significantly with High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group of urban higher secondary school students. Therefore, the Achievement in Accountancy is dependent of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for urban higher secondary school students.

In order to know the trend of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for urban school students, Profile Plot has been plotted and presented in Figure 43.



*Figure 43.* Profile Plot of Interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for Urban School Students

### ***Discussion***

The analysis of Figure 43 indicates that the mean scores of Achievement in Accountancy for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group belonging to Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal groups are independent for urban higher secondary school students. For the High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group the means scores of Achievement in Accountancy for Mastery Goal group is higher than that of Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Approach Goal group falls the second. Even though, the results of ANOVA indicates that the effect of interaction between Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy is significant for urban higher secondary school students, the profile plot depicts that the interaction effect is negligible.

### **Interaction Effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of Urban Higher Secondary School Students**

From Table 37 it is evident that the  $F$  value obtained for interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies for the rural school students is 0.53 which is less than the

tabled value 3.02 for (2,465) degrees of freedom at 0.05 level. Thus, there is no significant influence of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,465)=0.53, p>.05$ , for urban higher secondary school students. It means that the mean scores of Achievement in Accountancy of High Epistemological Beliefs group and Low Epistemological Beliefs group belonging to Mastery Goal, Performance- Avoidance Goal, and Performance- Approach Goal groups and for High Self Regulated Learning Strategies group and Low Self Regulated Learning Strategies group do not differ significantly for urban school higher secondary students. Therefore, the Achievement in Accountancy is independent of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of urban higher secondary school students.

In order to verify the trend of interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for urban school students, Profile Plot has been plotted and presented in Figure 44.

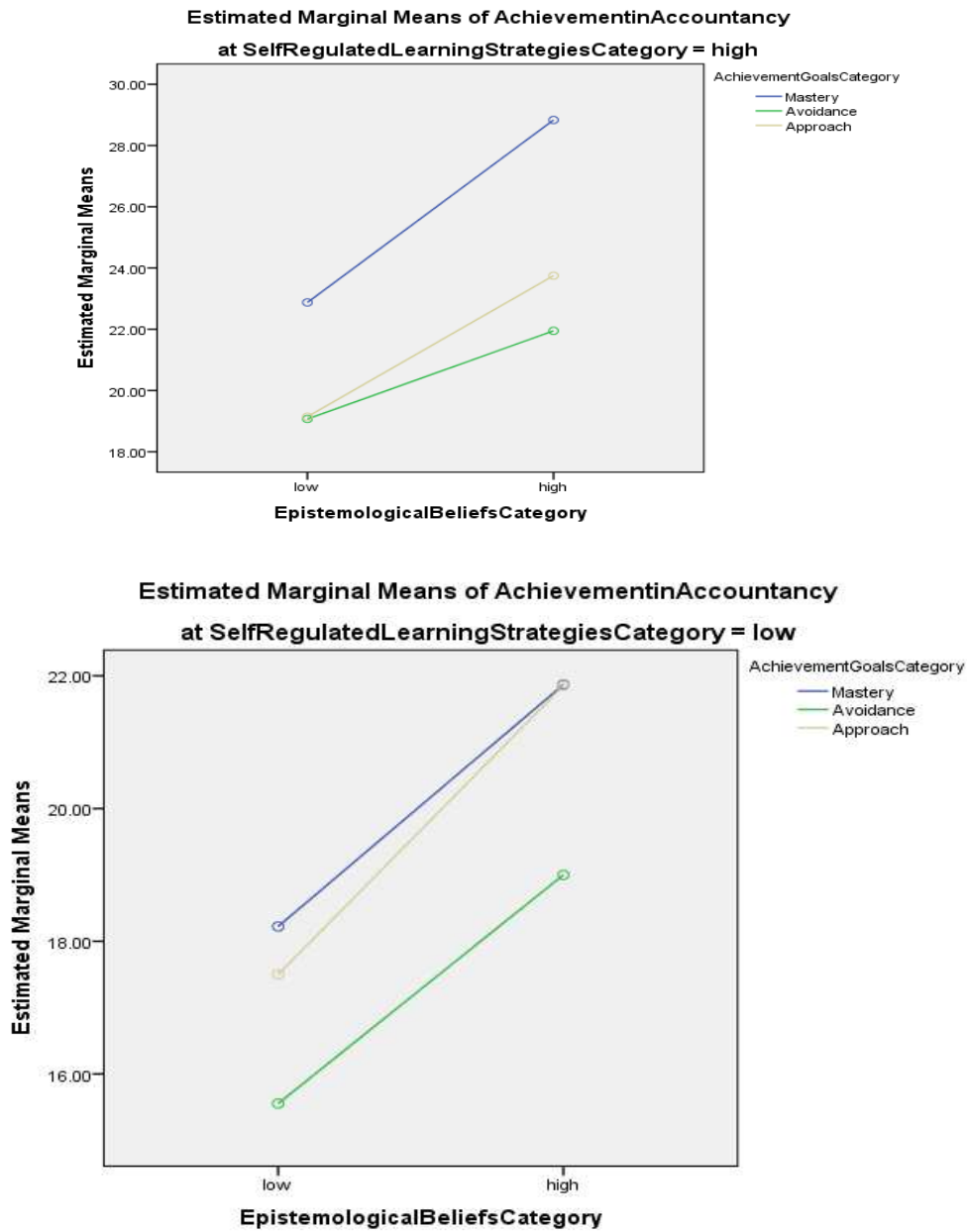


Figure 44. Profile Plot of Interaction between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for Urban School Students

**Discussion**

Figure 44 depicts that for urban higher secondary school students belonging to High Self Regulated Learning Strategies group among High

Epistemological Beliefs group, Mastery Goal group scores a higher mean score of Achievement in Accountancy than Performance-Avoidance Goal group and Performance-Approach Goal group. The mean score of Achievement in Accountancy for the Performance-Approach Goal group comes in the second sequence. Among Low Epistemological Beliefs group also, the mean score of Achievement in Accountancy for Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Performance-Approach Goal group and Performance-Avoidance Goal group are almost same.

For Low Self Regulated Learning Strategies category, urban higher secondary school students belonging to High Epistemological Beliefs group, Mastery Goal group and Performance-Approach Goal group have higher mean scores on Achievement in Accountancy than Performance-Avoidance Goal group. Among Low-Epistemological Beliefs group also, the mean score of Achievement in Accountancy of Mastery Goal group shows higher mean score than Performance-Avoidance Goal and Performance-Approach Goal groups. The mean score of Achievement in Accountancy for Performance-Approach Goal group comes in second sequence. Therefore, the profile plots show that the interaction among Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of urban higher secondary school students is not significant.



### **Multiple Regression Analysis**

The third objective of the study is to find out the individual and combined contributions of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for the total sample. Multiple regression analysis was carried out to predict the value of the dependent variable, Achievement in Accountancy based on the predictor variables such as Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies. In order to express the relationship between the variables, an equation is formed by the investigator with the help of multiple regression. Multiple correlation was carried out as a part of multiple regression to identify the predictor variables that add to predication of the criterion variable, Achievement in Accountancy. It helped the investigator to understand the individual and joint contributions of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies in predicting Achievement in Accountancy of higher secondary school students. Enter Method of regression analysis was used and it was done with the help of SPSS programme 21.0 version. Enter method is more suitable when dealing with small set of predictors and the researcher does not know which independent variable cause the best prediction equation. In Enter method, all predictor variables viz., Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies are entered into the equation at the same time. While considering the Achievement Goals, the scores of three

types of Achievement Goals such as Mastery Goal, Performance-Avoidance Goal, and Performance-Approach Goal were considered separately. Then each predictor variable is deleted one at a time if they do not contribute to the regression equation. Thus, the predictors are forced into the model simultaneously. The data of intercorrelation of criterion variable, Achievement in Accountancy with the predictor variables are given in Table 39.

Table 39

*Correlation Matrix of Variables*

Variables	Achievement in Accountancy	Epistemological Beliefs	Mastery Goals	Performance Avoidance Goals	Performance Approach Goals	Self-Regulated Learning Strategies
Achievement in Accountancy	1.00	0.80**	0.76**	0.10**	0.44**	0.81**
Epistemological Beliefs	0.80**	1.00	0.69**	0.06	0.36**	0.75**
Mastery Goal	0.76**	0.69**	1.00	0.15**	0.43**	0.74**
Performance-Avoidance Goal	0.10**	0.06	0.15**	1.00	0.21**	0.13**
Performance-Approach Goal	0.44**	0.36**	0.43**	0.21**	1.00	0.43**
Self-Regulated Learning Strategies	0.81**	0.75**	0.74**	0.13**	0.43**	1.00

\*\* $p < .01$

From Table 39, it is evident that all the predictor variables viz., Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies has positive correlation with the Achievement in Accountancy of higher secondary school students. It also reveals that among the predictor variables Self Regulated Learning Strategies,  $r=.81$ ,  $p\leq.01$ , and Epistemological Beliefs,  $r=.80$ ,  $p\leq.01$ , are significantly correlated with the criterion variable, Achievement in Accountancy. The correlation coefficient of types of Achievement Goals reveal that there exists significant positive relationship for Mastery Goal,  $r=.76$   $p\leq.01$ , Performance-Avoidance Goal,  $r=.10$ ,  $p\leq.01$ , and Performance-Approach Goal  $r=.44$ ,  $p\leq.01$ , with the criterion variable, Achievement in Accountancy.

## **Discussion**

The results of correlation analysis indicated that both the Self Regulated Learning Strategies and Epistemological Beliefs have strong positive relationship with the criterion variable, Achievement in Accountancy of higher secondary school students. Among the achievement goals, only Mastery Goal showed strong positive correlation with Achievement in Accountancy. The Performance-Approach Goal showed a positive moderate correlation and Performance-Avoidance Goal showed a positive low correlation with Achievement in Accountancy among higher secondary school students.

The model summary of multiple regression analysis of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies is presented in Table 40.

Table 40

*Model Summary of Multiple Correlation Coefficient for Achievement in Accountancy*

Predictors	R	R <sup>2</sup>	Level of Significance
Epistemological Beliefs			
Mastery Goal			
Performance-Avoidance Goal	0.878	0.77	.01
Performance-Approach Goal			
Self Regulated Learning Strategies			

From Table 40 it is evident that the multiple correlation coefficient obtained is 0.878, which is significant at .01 level, ( $R= 0.878$ ,  $R^2= .77$ ,  $p< .01$ ). Moreover, the results indicated that the predictor variables explained 77 percent of variance ( $R^2 =.77$ ,  $F (5,1006)=673.67$ ,  $p<.01$ ) of joint contribution of Epistemological Beliefs, types of Achievement Goals, and Self Regulated Learning Strategies in predicting Achievement in Accountancy of higher secondary school students.

## Discussion

It is evident that the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies jointly contribute to 77 percent variance

in predicting Achievement in Accountancy of higher secondary school students. The analysis of multiple correlation coefficient reveals that Epistemological Beliefs, types of Achievement Goal, and Self Regulated Learning Strategies jointly contribute significantly in predicting Achievement in Accountancy of higher secondary school students.

The data were further analyzed with the help of regression analysis to know the individual contribution of the predictor variables in predicting the Achievement in Accountancy of higher secondary school students. The data and results of regression analysis are presented in Table 41.

Table 41

*Variable-wise Beta Coefficients, Percentage of Contribution, and t-Values in Predicting Achievement in Accountancy*

Predictors	Beta Coefficient	Percentage of Contribution	t – Value	Level of Significance
Epistemological Beliefs	.373	29.82	15.48	.01
Mastery Goal	.239	18.15	9.91	.01
Performance-Avoidance Goal	-.009	0.10	0.58	NS
Performance-Approach Goal	.056	2.45	3.26	.01
Self Regulated Learning Strategies	.327	26.48	12.57	.01

From the Table 41 it is evident that beta coefficients for Epistemological Beliefs ( $\beta = .373, p \leq .01$ ), Mastery Goal ( $\beta = .239, p \leq .01$ ),

Performance-Approach Goal ( $\beta = .056, p \leq .01$ ), and Self Regulated Learning Strategies ( $\beta = .327, p \leq .01$ ), are significant at .01 level in predicting Achievement in Accountancy of higher secondary school students. But the beta coefficient for Performance-Avoidance Goal ( $\beta = -.009, p > .05$ ), is not significant even at .05 level in predicting Achievement in Accountancy of higher secondary school students. The individual contribution of Epistemological Beliefs is 29.82 percent, Mastery Goal is 18.15 percent, Performance-Approach Goal is 2.45 percent, and Self Regulated Learning Strategies is 26.48 percent in predicting Achievement in Accountancy of higher secondary school students which is significant at .01 level. But the contribution of Performance-Avoidance Goal (0.10 percent) is not significant even at .05 level.

## **Discussion**

It is evident that the individual contributions of Epistemological Beliefs, Mastery Goal, Performance-Approach Goal, and Self Regulated Learning Strategies in predicting Achievement in Accountancy of higher secondary school students are significant. By analyzing the individual contribution, it is inferred that the Epistemological Beliefs contributes higher contribution followed by Self Regulated Learning Strategies in predicting Achievement in Accountancy of higher secondary school students. Among the Achievement Goals, Mastery Goal contributes higher than Performance-

Approach Goal and Performance-Avoidance Goal in predicting Achievement in Accountancy of higher secondary school students. Thus, the Achievement in Accountancy can be enhanced by helping the students to develop sophisticated epistemological beliefs and use of self regulated learning strategies.

The fourth objective of the study is to work out the equation to the regression lines for predicting Achievement in Accountancy based on the independent variables. For predicting Achievement in Accountancy from three predictor variables viz., Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies of higher secondary school students the regression equation is generated on the basis of beta weights. The regression equation is as follows

$$Y^l = 0.323 X_1 + 0.231 X_2 - 0.014 X_3 + 0.064 X_4 + 0.149 X_5 - 33.990$$

Where,

$Y^l$  = Predicted value of Achievement in Accountancy

$X_1$  = Epistemological Beliefs

$X_2$  = Mastery Goal

$X_3$  = Performance-Avoidance Goal

$X_4$  = Performance -Approach Goal

$X_5$  = Self Regulated Learning Strategies

## Discussion

This equation can be used for predicting Achievement in Accountancy of higher secondary school students for the predictor variables Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies. The equation suggests that for unit increase in  $X_1$  (Epistemological Beliefs), the increase in  $Y^l$  (Achievement in Accountancy) is 0.323 units when the effects of  $X_2$ ,  $X_3$ ,  $X_4$ , and  $X_5$  is held constant. For unit increase in  $X_2$  (Mastery Goal), the Achievement in Accountancy increases by 0.231 units when the effect of variable  $X_1$ ,  $X_3$ ,  $X_4$ , and  $X_5$  is nullified. For unit increase in  $X_3$  (Performance-Avoidance Goal), the Achievement in Accountancy decreases by 0.014 units when the effect of variable  $X_1$ ,  $X_2$ ,  $X_4$ , and  $X_5$  is nullified. For unit increase in  $X_4$  (Performance-Approach Goal), the Achievement in Accountancy increases by 0.064 units when the effect of variable  $X_1$ ,  $X_2$ ,  $X_3$ , and  $X_5$  is nullified. For unit increase in  $X_5$  (Self Regulated Learning Strategies), the increase in Achievement in Accountancy is 0.149 when the effect of variables  $X_1$ ,  $X_2$ ,  $X_3$ , and  $X_4$  is nullified.

Multiple regression equation is modified by using standardized beta coefficient ( $\beta$ ) as follows:

$$Z_Y^l = 0.373 Z_{X1} + 0.239 Z_{X2} - 0.009 Z_{X3} + 0.056 Z_{X4} + 0.327 Z_{X5}$$



Where,

$Z_Y^1$  = Standardized predicted value of Achievement in Accountancy

$Z_{X1}$  = Standardized value of Epistemological Beliefs

$Z_{X2}$  = Standardized value of Mastery Goal

$Z_{X3}$  = Standardized value of Performance-Avoidance Goal

$Z_{X4}$  = Standardized value of Performance-Approach Goal

$Z_{X5}$  = Standardized value of Self-Regulated Learning Strategies

## **Discussion**

The equation can be interpreted as when there is an increase in standard deviation of Epistemological Beliefs by one unit, there is a corresponding increase in Achievement in Accountancy of higher secondary school students by 0.373 standard deviations.

In the case of Achievement Goals, when there is an increase in standard deviation of Mastery Goal by one unit, there is a corresponding increase in Achievement in Accountancy of higher secondary school students by 0.239 standard deviations. When there is an increase in standard deviation of Performance-Approach Goal, there is a corresponding increase in Achievement in Accountancy of higher secondary school students by 0.056 standard deviations. Whereas, when there is an increase in standard deviation of Performance-Avoidance Goal by one unit, there is a corresponding

decrease in Achievement in Accountancy of higher secondary school students by 0.009 standard deviations.

Similarly, when there is an increase in standard deviation of Self Regulated Learning Strategies by one unit, there is a corresponding increase in Achievement in Accountancy of higher secondary school students by 0.327 standard deviations.

## *Chapter 5*

# **Summary, Findings and Suggestions**

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- *Study in Retrospect*
- *Major Findings of the Study*
- *Tenability of Hypotheses*
- *Educational Implications*
- *Suggestions for Further Research*

This chapter provides an overview of the significant aspects of the various stages of the study, the major findings of the study and their educational implications, and suggestions for further research. The chapter is organized under the following headings:

- Study in Retrospect
- Major Findings of the Study
- Tenability of Hypotheses
- Educational Implications
- Suggestions for Further Research

### **Study in Retrospect**

This section tries to make a retrospective study of different stages of the present study such as the title, variables of the study, objectives of the study, hypotheses and methodology used for the study.

### **Restatement of the Problem**

The present study is aimed to find out the influence of three independent variables such as Epistemological Beliefs, Achievement Goals, and Self Required Learning Strategies on the dependent variable, Achievement in Accountancy of higher secondary school students.

Thus, the present study is entitled as **INFLUENCE OF EPISTEMOLOGICAL BELIEFS, ACHIEVEMENT GOALS AND SELF REGULATED LEARNING STRATEGIES ON ACHIEVEMENT IN ACCOUNTANCY OF HIGHER SECONDARY SCHOOL STUDENTS**

### **Variables Selected for the Study**

The independent variables and the dependent variable used for the study are presented below:

#### **Independent Variables**

- Epistemological Beliefs
- Achievement Goals
- Self Regulated Learning Strategies

#### **Dependent Variable**

Achievement in Accountancy

### **Objectives of the Study**

The objectives of the study are:

1. To find out whether there exist any gender, type of management, and locale differences for the selected independent variables namely, Epistemological Beliefs, Achievement Goals, Self Regulated Learning

Strategies, and the dependent variable, Achievement in Accountancy among higher secondary school students.

2. To study the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for the total sample and subgroups based on gender, type of management, and locale of schools.
3. To find out the individual and combined contributions of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.
4. To work out the equation to the regression lines for predicting Achievement in Accountancy based on the variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies.

### **Hypotheses**

The study is carried out to test the following hypotheses:

1. There is significant gender difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students.
2. There is significant difference in the mean scores of Epistemological Beliefs Achievement Goals, Self Regulated Learning Strategies, and

Achievement in Accountancy of higher secondary school students based on the type of management of schools.

3. There is significant locale difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students.
4. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for total sample.
5. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for girls of higher secondary schools.
6. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for boys of higher secondary schools.
7. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement

Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for government higher secondary school students.

8. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for aided higher secondary school students.
9. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for rural higher secondary school students.
10. There is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for urban higher secondary school students.
11. There is significant individual and combined contribution of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.



## **Methodology**

### **Method**

The study adopted survey method as it is intended to find out the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy among higher secondary school students.

### **Sample**

The population considered for the study is higher secondary school students of commerce stream in Kerala state who follow Kerala state syllabus. The present study was carried out on a representative sample of 1012 higher secondary school students studying in standard XI of commerce stream selected from Kasargode, Kozhikode, Malappuram, Palakkad, Thrissur, Eranakulam, and Thiruvananthapuram districts of Kerala State. Stratified sampling technique was used for selecting the sample by giving due representation to the subgroups on the basis of gender, type of management of the schools, and locale of the schools.

### **Tools Used for Data Collection**

To measure the independent and dependent variables, four tools were used for the present study. The tools used for the study are the following:

### **1. Scale on Epistemological Beliefs in Accountancy (Usha & Niranjana, 2015)**

To measure the epistemological beliefs of higher secondary school students with respect to Accountancy subject, the investigator developed and standardized a Scale on Epistemological Beliefs in Accountancy with the help of the supervising teacher. The scale consists of 40 items on five dimensions of Epistemological Beliefs such as certainty of knowledge, structure of knowledge, source of knowledge, control of knowledge, and speed of knowledge acquisition. The items related to naive and sophisticated beliefs of students about Accountancy and the process of learning related to Accountancy subject are included in the scale. The draft scale was prepared by including 55 items and was standardized by the investigator.

### **2. Achievement Goal Inventory (Usha & Niranjana, 2015)**

The investigator developed and standardized an Achievement Goal Inventory with the help of the supervising teacher to measure the type of achievement goal pursued by higher secondary school students. The final inventory consists of 45 items on three types of Achievement Goal pursued by the students' viz., mastery goal, performance-approach goal, and performance-avoidance goal. The draft inventory was prepared by including 56 items related to mastery goal, performance-avoidance goal, and performance-approach goal.

### **3. Scale on Self Regulated Learning Strategies (Usha & Niranjana, 2015)**

In order to understand the use of self regulated learning strategies of higher secondary school students, by using summated rating technique the investigator developed and standardized the Scale on Self Regulated Learning Strategies. The final scale consists of 58 items related to the three components of Self Regulated Learning Strategies viz., cognitive strategies, metacognitive strategies, and resource management strategies. The draft scale was constructed by including 63 items related to various components of Self Regulated Learning Strategies.

### **4. Achievement Test in Accountancy (Usha & Niranjana, 2015)**

Achievement Test in Accountancy based on the chapters from basic concepts to final accounts was used to measure the Achievement in Accountancy of higher secondary school students studying in standard XI of commerce stream. The achievement test was constructed on the basis of Revised Bloom's Taxonomy of Educational Objectives. The standardized achievement test consists of 40 multiple choice test items from Accountancy subject of standard XI. The draft test consisted of 60 multiple choice test items and was standardized by the investigator with the help of achievement test standardization procedure.

## **Statistical Techniques Used for the Study**

The present study made use of both descriptive and inferential statistics for the analysis of collected data. The major statistical techniques used for the present study are:

### **Descriptive Statistics**

Mean, median, mode, standard deviation, skewness, and kurtosis of each of the independent variable, Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies and the dependent variable, Achievement in Accountancy were calculated. The descriptive statistics were calculated for the total sample as well as separately for the subgroups based on gender, type of management of schools, and locale of schools of higher secondary students.

### **Mean Difference Analysis**

Mean difference analysis was carried out in order to know whether there exists gender difference, difference based on type of management of schools, and locale of schools for Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students. Test of significance of difference between means of large independent sample (t-test) was used.

### **Analysis of Variance with 2X3X2 Factorial Design**

The three way Analysis of Variance with 2X3X2 factorial design was used to understand the main and interaction effect of three independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy. Epistemological Beliefs in Accountancy were classified into High Epistemological Beliefs group and Low Epistemological Beliefs group. The Achievement Goals were classified into Mastery Goal group, Performance-Avoidance Goal group, and Performance-Approach Goal group. The Self Regulated Learning Strategies were classified into High Self Regulatory Learning Strategy group and Low Self Regulated Learning Strategies group. Data were analyzed for total sample and subgroups based on gender, type of management of schools, and locale of schools. When 'F' ratios are found significant, further analysis of Scheffe's Test of Post Hoc Comparison was performed to locate the exact group which differ in mean scores.

### **Multiple Regression Analysis**

Multiple regression analysis was used for the present study to predict the individual and joint contributions of predictor variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy. The

method used for multiple regression is Enter method. Regression equation was also developed to predict the scores of Achievement in Accountancy for the predictor variables.

### **Major Findings of the Study**

The findings of mean difference analysis of the independent variables namely, Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and the dependent variable, Achievement in Accountancy on the basis of gender, type of management of schools, and locale of schools are summarized under the heading mean difference analysis. The main effect and the interaction effect of three independent variables on the dependent variable Achievement in Accountancy is summarized under the headings main effect of independent variable and interaction effect of independent variables. The individual and joint contributions of independent variables are summarized under the heading regression analysis.

#### **Mean Difference Analysis**

Mean difference analysis was carried out to know whether there exists gender difference, difference based on type of management and locale difference for the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students.

## Gender Difference

The mean difference analysis on the basis of gender of higher secondary school students was carried out for the mean scores of Epistemological Beliefs, Mastery Goal, Performance-Avoidance Goal, Performance-Approach Goal, Self Regulated Learning Strategies, and Achievement in Accountancy and findings are summarized as follows:

1. There exists significant difference in the level of Epistemological Beliefs,  $t=12.81$ ,  $p \leq .01$ , among higher secondary school students with respect to gender. The high mean score associated with the girls reveals that the level of Epistemological Beliefs is higher for girls ( $M=87.23$ ,  $SD= 7.76$ ) than that of boys ( $M=81.16$ ,  $SD=7.32$ ) of higher secondary schools.
2. There exist significant difference in pursuing Mastery Goal,  $t=11.87$ ,  $p \leq .01$ , among higher secondary school students with respect to gender. The girls ( $M=34.62$ ,  $SD=6.93$ ) are superior in pursuing Mastery Goal than boys ( $M=29.52$ ,  $SD=6.74$ ) of higher secondary schools.
3. There exist significant difference in pursuing Performance-Avoidance Goal,  $t=4.02$ ,  $p \leq .01$ , with respect to gender among higher secondary school students. The girls are superior ( $M=33.42$ ,  $SD=4.42$ ) in pursuing Performance-Avoidance Goal than boys ( $M=32.24$ ,  $SD=4.94$ ) of higher secondary schools.

4. In pursuing Performance-Approach Goal there exist significant difference among girls and boys,  $t=7.74$ ,  $p \leq .01$ , of higher secondary school students. The girls ( $M=32.75$ ,  $SD=5.78$ ) are superior in pursuing Performance-Approach Goal than boys ( $M=29.82$ ,  $SD=6.26$ ) of higher secondary schools.
5. The girls and boys of higher secondary schools differ significantly,  $t=13.54$ ,  $p \leq .01$ , in practicing Self Regulated Learning Strategies. The girls ( $M=137.78$ ,  $SD=14.96$ ) are superior in practicing Self Regulated Learning Strategies than the boys ( $M=125.75$ ,  $SD=13.27$ ) of higher secondary schools.
6. There exists significant difference in the scores of Achievement in Accountancy,  $t=11.78$ ,  $p \leq .01$ , among higher secondary school students with respect to gender. The mean score of Achievement in Accountancy is higher for girls ( $M=24.31$ ,  $SD=6.53$ ) than that of boys ( $M=19.41$ ,  $SD=6.67$ ) of higher secondary schools.

### **Difference Based on Type of Management of Schools**

The mean difference analysis on the basis of type of management of higher secondary school students was carried out for the mean scores of Epistemological Beliefs, Mastery Goal, Performance-Avoidance Goal, Performance-Approach Goal, Self Regulated Learning Strategies, and Achievement in Accountancy and findings are summarized as follows:



7. There exists no significant difference in the level of Epistemological Beliefs,  $t=0.16$ ,  $p>.05$ , among higher secondary school students with respect to type of management of schools. Thus, the government and aided higher secondary school students possess same level of Epistemological Beliefs.
8. The difference in pursuing Mastery Goal,  $t=0.85$ ,  $p>.05$ , is not significant for higher secondary school students with respect to type of management of schools. Both the government and aided higher secondary school students are same in pursuing mastery goal.
9. There exists significant difference in pursuing Performance-Avoidance Goal,  $t=2.63$ ,  $p\leq .01$ , among higher secondary school students with respect to type of management of schools. The government higher secondary school students ( $M=33.23$ ,  $SD=4.62$ ) are superior in pursuing Performance-Avoidance Goal than aided higher secondary school students ( $M=32.44$ ,  $SD=4.79$ ).
10. There exist no difference in pursuing Performance-Approach Goal,  $t=1.32$ ,  $p>.05$ , with respect to type of management of schools among higher secondary school students. Both the government and aided higher secondary school students are same in pursuing Performance-Approach Goal.

11. There exist significant difference in practicing Self Regulated Learning Strategies,  $t=2.02$ ,  $p\leq.05$ , among higher secondary school students with respect to type of management of schools. The government higher secondary school students ( $M=132.44$ ,  $SD=14.95$ ) are superior in practicing Self Regulated Learning Strategies than aided school students ( $M=131.53$ ,  $SD=15.91$ ).
12. The government and aided higher secondary school students do not differ significantly,  $t=0.71$ ,  $p>.05$ , for Achievement in Accountancy. Therefore, mean score of Achievement in Accountancy is same for government and aided higher secondary school students.

### **Difference Based on Locale of Schools**

The mean difference analysis on the basis of locale of higher secondary schools was carried out for the mean scores of Epistemological Beliefs, Mastery Goal, Performance Avoidance Goal, Performance Approach Goal, Self Regulated Learning Strategies, and Achievement in Accountancy and findings are summarized as follows:

13. The level of Epistemological Beliefs of higher secondary school students do not differ significantly,  $t=1.57$ ,  $p>.05$ , with respect to locale of schools. Therefore, the rural and urban higher secondary school students possess same level of Epistemological Beliefs.

14. There exist significant difference in pursuing Mastery Goal,  $t=3.07$ ,  $p\leq .01$ , among higher secondary school students with respect to locale of schools. The rural higher secondary school students ( $M=32.84$ ,  $SD=7.43$ ) are high in pursuing Mastery Goal than urban higher secondary school students ( $M=31.43$ ,  $SD=7.20$ ).
15. The higher secondary school students do not differ significantly in pursuing Performance-Avoidance Goal,  $t=1.25$ ,  $p>.05$ , with respect to locale of schools. The rural and urban higher secondary school students are same in pursuing Performance-Avoidance Goal.
16. The higher secondary school students differ significantly in pursuing Performance-Approach Goal,  $t=2.03$ ,  $p\leq .05$ , with respect to locale of schools. The rural higher secondary school students ( $M=31.72$ ,  $SD=5.96$ ) are superior in pursuing Performance-Approach Goal than urban higher secondary school students ( $M=30.93$ ,  $SD=6.41$ ).
17. The higher secondary school students do not differ significantly in Self Regulated Learning Strategies,  $t=0.30$ ,  $p>.05$ , with respect to locale of schools. The rural and urban higher secondary school students are same in using Self Regulated Learning Strategies.
18. The rural and urban higher secondary school students differ significantly for Achievement in Accountancy,  $t=3.37$ ,  $p\leq .01$ . The mean score of Achievement in Accountancy is higher for rural school

students ( $M=22.66$ ,  $SD=7.35$ ) than urban higher secondary school students ( $M=21.78$ ,  $SD=6.59$ ).

### **Main Effect of Select Independent Variables on Achievement in Accountancy**

Main effect of three independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy of higher secondary school students was calculated and the summary of findings is presented below:

#### **Main Effect of Select Independent Variables on Achievement in Accountancy for Total Sample**

The main effect of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy of higher secondary school students for the total sample are presented below:

19. The  $F$  value obtained indicates that the influence of Epistemological Beliefs ( $F(1,1000)=141.46$ ,  $p\leq.01$ ), Achievement Goals ( $F(2, 1000)=51.77$ ,  $p\leq.01$ ), and Self Regulated Learning Strategies ( $F(2,1000)=97.36$ ,  $p\leq.01$ ) on Achievement in Accountancy is significant for total sample. There exists significant difference in the mean scores of Achievement in Accountancy for Epistemological

Beliefs groups, Achievement Goals groups, and Self Regulated Learning Strategies groups of higher secondary school students for total sample.

20. The comparison of mean scores of Epistemological Beliefs groups indicated that those higher secondary school students who are having sophisticated Epistemological Beliefs ( $M=26.99$ ,  $SD=5.12$ ) scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs ( $M=16.93$ ,  $SD=4.74$ ) for total sample.
21. The Scheffe's Post Hoc analysis revealed that Mastery Goal group, Performance-Avoidance Goal group and Performance-Approach Goal group differ significantly in Achievement in Accountancy for total sample of higher secondary school students. Those higher secondary students who are pursuing Mastery Goal ( $M=27.96$ ) scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal ( $M=16.51$ ) and Performance-Approach Goal ( $M=21.21$ ) for total sample. Those higher secondary students who are pursuing Performance-Approach Goal scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal for total sample.

22. The comparison of mean scores of Self Regulated Learning Strategies groups revealed that those higher secondary school students who are practicing high Self Regulated Learning Strategies ( $M=26.72$ ,  $SD=5.38$ ) scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies ( $M=17.17$ ,  $SD=4.95$ ) for total sample.

### **Main Effect of Select Independent Variables on Achievement in Accountancy for Girls of Higher Secondary Schools**

The main effect of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for girls of higher secondary school are presented below:

23. The  $F$  value obtained indicates that the influence of Epistemological Beliefs,  $F(1,515)=68.04$ ,  $p \leq .01$ , Achievement Goals,  $F(2,515)=18.70$ ,  $p \leq .01$ , and Self Regulated Learning Strategies,  $F(1,515)=41.37$ ,  $p \leq .01$ , on Achievement in Accountancy is significant for girls of higher secondary schools. There exists significant difference in the mean scores of Achievement in Accountancy for Epistemological Beliefs groups, Achievement Goals groups, and Self Regulated Learning Strategies groups among girls of higher secondary schools.

24. The comparison of mean scores of Epistemological Beliefs groups indicated that those higher secondary school students who are having sophisticated Epistemological Beliefs ( $M=27.79$ ,  $SD=4.62$ ) scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs ( $M=17.93$ ,  $SD=4.35$ ) among girls.
25. The Scheffe's Post Hoc analysis revealed that Mastery Goal group, Performance-Avoidance Goal group and Performance-Approach Goal group differ significantly in Achievement in Accountancy for girls of higher secondary schools. Those girls who are pursuing Mastery Goal ( $M=28.47$ ) scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal ( $M=17.54$ ) and Performance-Approach Goal ( $M=22.07$ ). Those higher secondary students who are pursuing Performance-Approach Goal scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal among girls of higher secondary schools.
26. The comparison of mean scores of Self Regulated Learning Strategies groups revealed that those higher secondary school students who are practicing high Self Regulated Learning Strategies ( $M=27.53$ ,  $SD=4.88$ ) scores high on Achievement in Accountancy than those who

are practicing low Self Regulated Learning Strategies ( $M=18.30$ ,  $SD=4.73$ ) among girls.

### **Main Effect of Select Independent Variables on Achievement in Accountancy for Boys of Higher Secondary Schools**

The main effect of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for boys of higher secondary are presented below:

27. The  $F$  value obtained indicates that the influence of Epistemological Beliefs  $F(1,473)=62.36$ ,  $p \leq .01$ , Achievement Goals,  $F(2,473)=28.10$ ,  $p \leq .01$ , and Self Regulated Learning Strategies,  $F(1,473)=42.58$ ,  $p \leq .01$ , on Achievement in Accountancy is significant for boys of higher secondary schools. There exists significant difference in the mean scores of Achievement in Accountancy for Epistemological Beliefs groups, Achievement Goals groups, and Self Regulated Learning Strategies groups among boys of higher secondary schools.
28. The comparison of mean scores of Epistemological Beliefs groups indicated that those higher secondary school students who are having sophisticated Epistemological Beliefs ( $M=25.33$ ,  $SD=5.66$ ) scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs ( $M=16.36$ ,  $SD=4.86$ ) among boys.



29. The Scheffe's Post Hoc analysis indicated that Mastery Goal Group, Performance-Avoidance Goal group, and Performance-Approach group differ significantly in Achievement in Accountancy for boys of higher secondary school students. Those higher secondary school students who are pursuing Mastery Goal ( $M= 26.63$ ) scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal ( $M=15.98$ ) and Performance-Approach Goal ( $M=20.38$ ) for boys. Those higher secondary students who are pursuing Performance-Approach Goal scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal for boys of higher secondary schools
30. The comparison of mean scores of Self Regulated Learning Strategies groups revealed that those higher secondary school students who are practicing high Self Regulated Learning Strategies ( $M=25.03$ ,  $SD=5.95$ ) scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies ( $M=16.51$ ,  $SD=4.96$ ) among boys.

### **Main Effect of Independent Variables on Achievement in Accountancy for Government School Students**

The main effect of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the

dependent variable, Achievement in Accountancy of government higher secondary school students are presented below:

31. The  $F$  value obtained indicates that the influence of Epistemological Beliefs,  $F(1,527)=95.05$ ,  $p\leq.01$ , Achievement Goals,  $F(2,527)=32.42$ ,  $p\leq.01$ , and Self Regulated Learning Strategies ( $F(1,527)=48.50$ ,  $p\leq.01$ , on Achievement in Accountancy is significant for government school students. There exists significant difference in the mean scores of Achievement in Accountancy for Epistemological Beliefs groups, Achievement Goals groups and Self Regulated Learning Strategies groups of higher secondary school students for government schools.
32. The comparison of mean scores of Epistemological Beliefs groups indicated that those higher secondary school students who are having sophisticated Epistemological Beliefs ( $M=27.20$ ,  $SD=4.84$ ) scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs ( $M=16.92$ ,  $SD=4.72$ ) in government schools.
33. The Scheffe's Post Hoc analysis indicated that Mastery Goal Group, Performance-Avoidance Goal group, and Performance-Approach Goal group differ significantly in Achievement in Accountancy for government higher secondary school students. Higher scores in Achievement in Accountancy are associated with those higher

secondary students who are pursuing Mastery Goal ( $M=28.22$ ) than Performance-Avoidance Goal ( $M=16.52$ ) and Performance-Approach Goal ( $M=21.84$ ) for government school students. Those higher secondary students who are pursuing Performance-Approach Goal scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal for government schools.

34. The comparison of mean scores of Self Regulated Learning Strategies groups revealed that those higher secondary school students who are practicing high Self Regulated Learning Strategies ( $M=26.62$ ,  $SD=5.44$ ) scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies ( $M=17.23$ ,  $SD=4.98$ ) for government schools.

### **Main Effect of Independent Variables on Achievement in Accountancy for Aided School Students**

The main effect of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy of aided higher secondary school students are presented below:

35. The  $F$  value obtained indicates that the influence of Epistemological Beliefs,  $F(1,461)= 43.70$ ,  $p\leq.01$ , Achievement Goals,  $F(2,461)=20.75$ ,  $p\leq.01$ , and Self Regulated Learning Strategies,  $F(1,461)=48.60$ ,  $p\leq.01$ ,

on Achievement in Accountancy is significant for aided school students. There exists significant difference in the mean scores of Achievement in Accountancy for the Epistemological Beliefs groups, Achievement Goals groups, and Self Regulated Learning Strategies groups of aided higher secondary school students.

36. The comparison of mean scores of Epistemological Beliefs groups indicated that high scores on Achievement in Accountancy are associated with those higher secondary school students who are having sophisticated Epistemological Beliefs ( $M=26.74$ ,  $SD=5.40$ ) than those students who are having naïve Epistemological Beliefs ( $M=16.95$ ,  $SD=4.76$ ) for aided schools.
37. The Scheffe's Post Hoc analysis revealed that Mastery Goal, Performance-Avoidance Goal group, and Performance-Approach Goal group differ significantly in Achievement in Accountancy for the aided higher secondary school students. Those higher secondary school students who are pursuing Mastery Goal ( $M=27.68$ ) scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal ( $M=16.50$ ) and Performance-Approach Goal ( $M=20.50$ ) for aided school sample. Those higher secondary students who are pursuing Performance-Approach Goal scores high on

Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal for aided schools.

38. The comparison of mean scores of Self Regulated Learning Strategies groups revealed that those higher secondary school students who are practicing high Self Regulated Learning Strategies ( $M=26.84$ ,  $SD=5.30$ ) scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies ( $M=17.10$ ,  $SD=4.94$ ) in case of aided schools.

### **Main Effect of Select Independent Variables on Achievement in Accountancy for Rural School Students**

The main effects of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy of rural higher secondary school students are presented below:

39. The  $F$  value obtained for Epistemological Beliefs,  $F(1,523)=83.08$ ,  $p\leq.01$ , Achievement Goals,  $F(2,523)=28.58$ ,  $p\leq.01$ , and Self Regulated Learning Strategies,  $F(1,523)=56.49$ ,  $p\leq.01$ , on Achievement in Accountancy is significant for rural school students. There exists significant difference in the mean scores of Achievement in Accountancy for Epistemological Beliefs groups, Achievement Goals

groups, and Self Regulated Learning Strategies groups of rural higher secondary school students.

40. The comparison of mean scores of Epistemological Beliefs groups indicated that those higher secondary school students who are having sophisticated Epistemological Beliefs ( $M=27.91$ ,  $SD=4.68$ ) scores high on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs ( $M=16.98$ ,  $SD=5.17$ ) in rural schools.
41. The Scheffe's Post Hoc analysis showed that Mastery Goal group, Performance-Avoidance Goal group, and Performance-Approach Goal group differ significantly in Achievement in Accountancy for rural higher secondary school students. Higher mean scores in Achievement in Accountancy are associated with those higher secondary students who are pursuing Mastery Goal ( $M=28.44$ ) than Performance-Avoidance Goal ( $M=16.13$ ) and Performance-Approach Goal ( $M=22.21$ ) in rural schools. Those higher secondary students who are pursuing Performance-Approach Goal scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal in the case of rural schools.
42. The comparison of mean scores of Self Regulated Learning Strategies groups revealed that those higher secondary school students who are practicing high Self Regulated Learning Strategies ( $M=27.77$ ,

$SD=4.98$ ) scores high on Achievement in Accountancy than those who are practicing low Self Regulated Learning Strategies ( $M=17.21$ ,  $SD=5.27$ ) in rural schools.

### **Main Effect of Select Independent Variables on Achievement in Accountancy for Urban School Students**

The main effect of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy of urban higher secondary school students are presented below:

43. The  $F$  value obtained indicates that the influence of Epistemological Beliefs,  $F(1,465)=57.75$ ,  $p\leq.01$ , Achievement Goals,  $F(2,465)=16.60$ ,  $p\leq.01$ , and Self Regulated Learning Strategies,  $F(1,465)=43.61$ ,  $p\leq.01$ , on Achievement in Accountancy is significant for urban school students. There exists significant difference in the mean scores of Achievement in Accountancy for the Epistemological Beliefs groups, Achievement Goals groups, and Self Regulated Learning Strategies groups of higher secondary school students in urban schools.
44. The comparison of mean scores of Epistemological Beliefs groups indicated that those higher secondary school students who are having sophisticated Epistemological Beliefs ( $M=25.87$ ,  $SD=5.38$ ) scores high

on Achievement in Accountancy than those students who are having naïve Epistemological Beliefs ( $M=16.89$ ,  $SD=4.25$ ) for urban schools.

45. The Scheffe's Post Hoc analysis revealed that Mastery Goal group, Performance-Avoidance Goal group and Performance-Approach Goal group differ significantly in Achievement in Accountancy among urban higher secondary school students. Those higher secondary school students who are pursuing Mastery Goal ( $M=27.27$ ) scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal ( $M=16.88$ ) and Performance-Approach Goal ( $M=20.29$ ) in urban schools. Those urban school higher secondary students who are pursuing Performance-Approach Goal scores high on Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal.
46. The comparison of mean scores of Self Regulated Learning Strategies groups showed that the higher scores on Achievement in Accountancy are associated with those higher secondary school students who are practicing high Self Regulated Learning Strategies ( $M=25.47$ ,  $SD=5.57$ ) than those who are practicing low Self Regulated Learning Strategies ( $M=17.12$ ,  $SD=4.61$ ) in the case of urban schools.



## **Interaction Effect of Select Independent Variables on Achievement in Accountancy**

Interaction effect of independent variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable Achievement in Accountancy was calculated for total sample and subgroups with respect to gender, type of management of schools, and locale of schools for higher secondary school students. The summary of interaction effects of independent variables is presented below:

### **Interaction Effect of Select Independent Variables on Achievement in Accountancy for Total Sample**

Interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students were calculated for total sample and are presented below:

47. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs and Achievement Goals,  $F(2,1000)=1.44$ ,  $p>.05$ , Epistemological Beliefs and Self Regulated Learning Strategies,  $F(1,1000)=0.12$ ,  $p>.05$ , and Achievement Goals and Self Regulated Learning Strategies,  $F(2,1000)=2.82$ ,  $p>.05$ , on Achievement in Accountancy of higher secondary school students is not significant for total sample.

48. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,1000)=4.25$ ,  $p \leq .05$ , of higher secondary school students for total sample is significant.

**Interaction Effect of Select Independent Variables on Achievement in Accountancy for Girls**

Interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students were calculated for girls and are presented below:

49. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs and Achievement Goals,  $F(2,515)=0.07$ ,  $p > .05$ , Epistemological Beliefs and Self Regulated Learning Strategies,  $F(1,515)=1.34$ ,  $p > .05$ , and Achievement Goals and Self Regulated Learning Strategies.  $F(2,515)=0.73$ ,  $p > .05$ , on Achievement in Accountancy of higher secondary school students is not significant for girls.
50. The  $F$  value for the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,515)= 1.45$ ,  $p > .05$ , of higher secondary school students for girls is also not significant.

### **Interaction Effect of Select Independent Variables on Achievement in Accountancy for Boys**

Interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students were calculated for boys and are presented below:

51. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs and Achievement Goals,  $F(2,473)=1.81$ ,  $p>.05$ , Epistemological Beliefs and Self Regulated Learning Strategies,  $F(1,473)=0.35$ ,  $p>.05$ , and Achievement Goals and Self Regulated Learning Strategies,  $F(2,473)=2.33$ ,  $p>.05$ , on Achievement in Accountancy of higher secondary school students is not significant for boys.
52. The  $F$  value for the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy,  $F(2,473)= 2.86$ ,  $p>.05$ , of higher secondary school students for boys is also not significant.

### **Interaction Effect of Select Independent Variables on Achievement in Accountancy for Government School Students**

Interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of

government higher secondary school students were calculated and are presented below:

53. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs and Achievement Goals,  $F(2,527)=0.45$ ,  $p>.05$ , and Epistemological Beliefs and Self Regulated Learning Strategies,  $F(1,527)=0.35$ ,  $p >.05$ , on Achievement in Accountancy of higher secondary school students is not significant for government higher secondary school students. The interaction effect of Achievement Goals and Self Regulated Learning Strategies,  $F(2,527)=3.69$ ,  $p\leq.05$ , on Achievement in Accountancy of government higher secondary school students is significant.
54. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies,  $F(2,527)=1.26$ ,  $p>.05$ , on Achievement in Accountancy of government higher secondary school students is not significant.

**Interaction Effect of Select Independent Variables on Achievement in Accountancy for Aided School Students**

Interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in accountancy of aided higher secondary school students were calculated and are presented below:

55. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs and Achievement Goals,  $F(2,461)=2.11$ ,  $p>.05$ , Epistemological Beliefs and Self Regulated Learning Strategies,  $F(1,461)=0.09$ ,  $p>.05$ , and Achievement Goals and Self Regulated Learning Strategies,  $F(2,461)=0.17$ ,  $p>.05$ , on Achievement in Accountancy of aided higher secondary school students are not significant.
56. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of aided higher secondary school students is significant,  $F(2,461)=3.89$ ,  $p\leq.05$ .

**Interaction Effect of Select Independent Variables on Achievement in Accountancy for Rural School Students**

Interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of rural higher secondary school students and are presented below:

57. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs and Achievement Goals,  $F(2,523)=1.04$ ,  $p>.05$ , Epistemological Beliefs and Self Regulated Learning Strategies,  $F(1,523)=0.63$ ,  $p>.05$ , and Achievement Goals and Self Regulated Learning Strategies,  $F(2,523)=1.17$ ,  $p>.05$ , on Achievement

in Accountancy of rural higher secondary school students is not significant.

58. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of rural higher secondary school students is significant,  $F(2,523)=3.88, p \leq .05$ .

**Interaction Effect of Select Independent Variables on Achievement in Accountancy for Urban School Students**

Interaction effect of Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies on achievement in accountancy of urban higher secondary school students were calculated and presented below:

59. The  $F$  value obtained for the interaction effect of Epistemological Beliefs and Achievement Goals,  $F(2,465)=0.90, p > .05$ , and Epistemological Beliefs and Self Regulated Learning Strategies,  $F(1,465)=0.37, p > .05$ , on Achievement in Accountancy of urban higher secondary school students are not significant. The interaction effect of Achievement Goals and Self Regulated Learning Strategies,  $F(2,465)=4.17, p \leq .05$ , on Achievement in Accountancy of urban higher secondary school students is significant.

60. The  $F$  value obtained indicates that the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies ( $F(2,465)=0.53, p>.05$ ) on Achievement in Accountancy of urban higher secondary school students is not significant.

### **Regression Analysis**

The individual and joint contributions of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies in predicting Achievement in Accountancy of higher secondary school students were estimated with the help multiple correlation and multiple regression analysis using enter method. The results are summarized below:

61. The multiple correlation coefficient was found to be 0.878 which is significant at .01 level. It means that Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies jointly contribute in predicting Achievement in Accountancy of higher secondary school students. The percentage of joint contribution of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies is 77 percent in predicting Achievement in Accountancy of higher secondary school students.
62. The individual contributions of Epistemological Beliefs, Mastery Goal, Performance-Avoidance Goal, Performance-Approach Goal, and Self

Regulated Learning Strategies in predicting Achievement in Accountancy is 29.82 percent, 18.15 percent, 0.10 percent, 2.45 percent and 26.48 percent respectively.

63. For predicting Achievement in Accountancy from the predictor variables namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of higher secondary school students, the regression equation is formed. The regression equation is

$$Y^I = 0.323 X_1 + 0.231 X_2 - 0.014 X_3 + 0.064 X_4 + 0.149 X_5 - 33.990$$

Where,

$Y^I$  = Predicted value of Achievement in Accountancy

$X_1$  = Epistemological Beliefs

$X_2$  = Mastery Goal

$X_3$  = Performance-Avoidance Goal

$X_4$  = Performance -Approach Goal

$X_5$  = Self Regulated Learning Strategies

Multiple regression equation modified by using standardized beta coefficient ( $\beta$ ) is as follows:

$$Z_Y^I = 0.373 Z_{X1} + 0.239 Z_{X2} - 0.009 Z_{X3} + 0.056 Z_{X4} + 0.327 Z_{X5}$$

Where,

$Z_Y^I$  = Standardized predicted value of Achievement in Accountancy



$Z_{X1}$  = Standardized value of Epistemological Beliefs

$Z_{X2}$  = Standardized value of Mastery Goal

$Z_{X3}$  = Standardized value of Performance-Avoidance Goal

$Z_{X4}$  = Standardized value of Performance-Approach Goal

$Z_{X5}$  = Standardized value of Self-Regulated Learning Strategies

### **Tenability of Hypotheses**

The first hypothesis states that *there is significant gender difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students*. The findings of the study reveal that there exists significant difference between girls and boys of higher secondary schools in their mean scores for Epistemological Beliefs, Mastery Goal, Performance-Avoidance Goal, Performance-Approach Goal, Self Regulated Learning Strategies, and Achievement in Accountancy. Thus, the first hypothesis is completely accepted.

The second hypothesis states that *there is significant difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students based on the type of management of schools*. The findings of the study reveal that there exists no significant difference between government and aided higher secondary school students for the mean scores

of Epistemological Beliefs, Mastery Goal, Performance Approach Goal, and Achievement in Accountancy. It also indicated that there exists significant difference in mean scores of Performance-Avoidance Goal and Self Regulated Learning Strategies of higher secondary school students with respect to type of management of schools. Thus, the hypothesis is partially accepted.

The third hypothesis states that *there is significant locale difference in the mean scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students*. The findings of the study reveal that there exists no significant difference between rural and urban higher secondary school students for the mean scores of Epistemological Beliefs, Performance-Avoidance Goal, and Self Regulated Learning Strategies. There exists significant difference in the mean scores of Mastery Goal, Performance-Approach Goal, and Achievement in Accountancy of higher secondary school students with respect to locale of schools. Thus, the hypothesis is partially accepted.

The fourth hypothesis states that *there is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for the total sample*. The results of the study reveal that the main effect of Epistemological Beliefs,

Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for total sample of higher secondary school students. In the case of interaction effects, the interaction effect of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students are not significant for total sample. The combined interaction effect between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for total sample of higher secondary school students. Thus, the hypothesis is partially accepted.

The fifth hypothesis states that *there is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for girls of higher secondary schools.* The results of the study reveal that the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for girls of higher secondary schools. In the case of interaction effects, the interaction effect of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for girls of

higher secondary schools are not significant. The combined interaction effect between the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is also not significant for girls of higher secondary schools. Thus, the hypothesis is partially accepted.

The sixth hypothesis states that *there is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for boys of higher secondary schools.* The results of the study reveal that the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for the boys of higher secondary schools. In the case of interaction effects, the interaction effect of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy among boys of higher secondary schools are not significant. The combined interaction effect between Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is also not significant for boys of higher secondary schools. Thus, the hypothesis is partially accepted.

The seventh hypothesis states *that there is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for government higher secondary school students.* The results of the study reveal that the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for government higher secondary school students. In the case of interaction effects, the interaction between Achievement Goals, and Self Regulated Learning Strategies is significant. But the interaction effect of Epistemological Beliefs and Achievement Goals and Epistemological Beliefs and Self Regulated Learning Strategies is not significant. Also the combined effect of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is not significant for government higher secondary school students. Thus, the hypothesis is partially accepted.

The eighth hypothesis states that *there is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for aided higher secondary school students.* The results of the study reveal that the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for aided higher

secondary school students. In the case of interaction effects, interaction effect of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies is not significant. But the combined effect of the Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy is significant for aided higher secondary school students. Thus, the hypothesis is partially accepted.

The ninth hypothesis states that *there is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for rural higher secondary school students.* The results of the study reveal that the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for rural higher secondary school students. In the case of interaction effects, interaction effect of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies is not significant. But the combined effect of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is significant for rural higher secondary school students. Thus, the hypothesis is partially accepted.

The tenth hypothesis states that *there is significant main effect and interaction effect of each of the independent variable namely, Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on the dependent variable, Achievement in Accountancy for urban higher secondary school students.* The results of the study reveal that the main effect of Epistemological Beliefs, Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy is significant for urban higher secondary school students. In the case of interaction effects, the interaction effect of Achievement Goals and Self Regulated Learning Strategies is significant. But the interaction between Epistemological Beliefs and Achievement Goals and Epistemological Beliefs and Self Regulated Learning Strategies are not significant. The combined effect of the Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy is also not significant for urban higher secondary school students. Thus, the hypothesis is partially accepted.

The eleventh hypothesis states that *there is significant individual and combined contribution of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy for total sample.* The results of the study reveal that there is significant individual and joint contribution of Epistemological Beliefs, Mastery Goals, Performance-Approach Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. But the individual

contribution of Performance-Avoidance Goal is not significant in predicting Achievement in Accountancy of higher secondary school students. Thus, the hypothesis is partially accepted.

### **Conclusions**

The scores of Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students vary with respect to gender. So, gender of the students can be considered as a factor influencing the development of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies. The findings of the study also confirm that the gender of sample has considerable influence on Achievement in Accountancy. Girls of higher secondary schools are superior to the boys in Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy. The studies conducted by Kampa, Neumann, Heitmann, and Kremer (2016), Önen (2011) and Kurt (2009) also supported that the female students have more advanced epistemological beliefs than male students. At the same time the studies conducted by Arslantaş (2015), Nayebi and Tahriri (2014) and Sharma, Ahluwalia, and Sharma (2013) indicated that there exists no difference in epistemological beliefs with respect to gender. The difference in achievement goals with respect to gender are supported by the studies conducted by Hall, Hanna, Hanna, and Hall (2015) and Kadhiravan (2012).



Shelly (2009) indicated that there exist difference in mastery goal but no difference in pursuing performance goals with respect to gender. The notion that girls students are superior in practicing self regulated learning strategies than boys students is supported by the studies conducted by Bozpolat (2016), Kumari and Chamundeswari (2015), Razi, Vahidian and Hashemi (2015), Banarjee and Kumar (2014), Johnson and Ramganesh (2012), Fettahlioglu (2011) and Vrugt and Oort (2008). In case of achievement in accountancy, the studies conducted by Rajeesh (2011) and Sree and Krishnamurthy (2011) supported that female students scores high in accountancy than that of male students. Hence, it is concluded that gender has considerable influence on Epistemological Beliefs, Achievement Goals, Self Regulated Learning Strategies, and Achievement in Accountancy of higher secondary school students.

Mean difference analysis on the basis of type of management of the schools reveals that there is significant difference in pursuing Performance-Avoidance Goal and practicing Self Regulated Learning Strategies among government and aided higher secondary school students. The government higher secondary school students are superior in pursuing Performance-Avoidance Goal and practicing Self Regulated Learning Strategies. The findings of the study also show that there is no significant difference in the mean scores of Epistemological Beliefs, Mastery Goal, Performance-Approach Goal, and Achievement in Accountancy. Seema (2007) supported

that the government school students are superior in using high self learning strategies than aided school students. The independence of influence of type of management of schools on achievement in accountancy is supported by Rajeesh (2011). But the study conducted by Sree and Krishnamurthy (2011) indicated that there exist significant difference in mean scores of achievement in accountancy with respect to type of management of schools. Thus, it is evident from the study that the type of management of schools has influence on Performance-Avoidance Goal and Self Regulated Learning Strategies. Whereas, Epistemological Beliefs, Mastery Goal, Performance-Approach Goal, and Achievement in Accountancy are independent of the influence of type of management of schools

The findings of the study reveal that there is significant difference in the scores of Mastery Goal, Performance-Approach Goal, and Achievement in Accountancy of Rural and Urban higher secondary school students. Rural higher secondary school students are superior in Mastery Goal, Performance-Approach Goal, and Achievement in Accountancy than urban school students. There is no significant difference in the scores of Epistemological Beliefs, Performance-Avoidance Goal, and Self Regulated Learning Strategies of higher secondary school students with respect to locale of schools. The study conducted by Sree and Krishnamurthy (2011) supports the notion that locality of schools influence the achievement in accountancy but Rajeesh (2011) found that no difference exist in achievement in accountancy with respect to

locality of schools. Therefore, it is concluded that Mastery Goal, Performance-Approach Goal, and Achievement in Accountancy of higher secondary students are influenced by the locale of schools and Epistemological Beliefs, Performance-Avoidance Goal, and Self Regulated Learning Strategies of higher secondary students are independent of influence of locale of schools. The contrast results are indicated by Seema (2007) that locality of schools influence the use of self regulated learning strategies among the students.

The main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy of higher secondary school students for total sample reveal that Achievement in Accountancy of higher secondary school students is influenced by the changes in levels of Epistemological Beliefs, types of Achievement Goals and levels of Self Regulated Learning Strategies for the total sample. The studies conducted by Rebello, Siegel, Witzig, Freyermuth, and McClure (2012), Sachdev (2008), Schommer-Aikins, Duell and Hutter (2005) Hofer (2002) and Windschitl (1997) also supports the influence of epistemological beliefs on academic performance. The influence of achievement goals on academic performance is supported by the studies Roebken (2007), Barkur, Govindan, and Kamath (2013), Shelly (2009), Mattern (2005), Al-Emadi (2001), Eppler and Harju (1997), Dweck (1986). Similarly the influence of self regulated learning strategies on academic performance is supported in the studies

Banarjee and Kumar (2014), Cazan (2012), Nandagopal and Ericsson (2012), Throndsen (2011), Seema (2007) and Zimmerman (1989;1990). The interaction effects of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students are not significant for total sample. The combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy of higher secondary school students is significant for total sample. Therefore, it is concluded that the levels of Epistemological Beliefs, type of Achievement Goals and levels of Self Regulated Learning Strategies influence Achievement in Accountancy and their combined interaction also influence Achievement in Accountancy of higher secondary school students total sample.

In the case of girls of higher secondary schools, the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy revealed that Achievement in Accountancy is influenced by the changes in levels of Epistemological Beliefs, types of Achievement Goals, and levels of Self Regulated Learning Strategies. Similar results are found for epistemological beliefs in the studies of Rebello, Siegel, Witzig, Freyermuth, and McClure (2012), Sachdev (2008), Schommer-Aikins, Duell, and Hutter (2005), Hofer (2002) and Windschitl

(1997). The influence of achievement goals on academic performance is supported by the studies Roebken (2007), Barkur, Govindan, and Kamath (2013), Shelly (2009), Mattern (2005), Al-Emadi (2001), Eppler and Harju (1997), Dweck (1986). The studies conducted by Banarjee and Kumar (2014), Cazan (2012), Nandagopal and Ericsson (2012), Throndsen (2011), Seema (2007) and Zimmerman (1989,1990) supported the influence of self regulated learning strategies on academic performance. The interaction effects of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for girls of higher secondary schools are not significant. The combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy for girls of higher secondary schools is also not significant. Therefore, it is concluded that the levels of Epistemological Beliefs, type of Achievement Goals, and levels of Self Regulated learning Strategies influence Achievement in Accountancy but their interaction does not influence Achievement in Accountancy of girls of higher secondary schools.

For boys of higher secondary schools, the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy revealed that Achievement in Accountancy is influenced by the changes in levels of Epistemological

Beliefs, types of Achievement Goals, and levels of Self Regulated Learning Strategies. The studies conducted by Rebello, Siegel, Witzig, Freyermuth, and McClure (2012), Sachdev (2008), Schommer-Aikins, Duell, and Hutter (2005), Hofer (2002) and Windschitl (1997) also supports the influence of epistemological beliefs on academic performance. The influence of achievement goals on academic performance is supported by the studies Roebken (2007), Barkur, Govindan, and Kamath (2013), Shelly (2009), Mattern (2005), Al-Emadi (2001), Eppler and Harju (1997), Dweck (1986). Similarly the influence of self regulated learning strategies on academic performance is supported in the studies Banarjee and Kumar (2014), Cazan (2012), Nandagopal and Ericsson (2012), Throndsen (2011), Seema (2007) and Zimmerman (1989, 1990). The interaction effects of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for boys of higher secondary schools is not significant. The combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy for boys of higher secondary schools is also not significant. Therefore, it is concluded that the levels of Epistemological Beliefs, type of Achievement Goals, and levels of Self Regulated learning Strategies influence Achievement in Accountancy but their interaction does not influence Achievement in Accountancy of boys of higher secondary schools.

In the case of government higher secondary school students, the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy revealed that Achievement in Accountancy is influenced by the changes in levels of Epistemological Beliefs, types of Achievement Goals, and levels of Self Regulated Learning Strategies. Similar results are found for epistemological beliefs in the studies of Rebello, Siegel, Witzig, Freyermuth, and McClure (2012), Sachdev (2008), Schommer-Aikins, Duell, and Hutter (2005), Hofer (2002) and Windschitl (1997). The influence of achievement goals on academic performance is supported by the studies Roebken (2007), Barkur, Govindan, and Kamath (2013), Shelly (2009), Mattern (2005), Al-Emadi (2001), Eppler and Harju (1997), Dweck (1986). The studies conducted by Banarjee and Kumar (2014), Cazan (2012), Nandagopal and Ericsson (2012), Throndsen (2011), Seema (2007) and Zimmerman (1989,1990) supported the influence of self regulated learning strategies on academic performance. The interaction effect of Achievement Goals and Self Regulated Learning Strategies is significant but interaction effects of Epistemological Beliefs and Achievement Goals and Epistemological Beliefs and Self Regulated Learning Strategies on Achievement in Accountancy for government higher secondary school students are not significant. The combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy for government higher secondary school

students is also not significant. Therefore, it is concluded that the levels of Epistemological Beliefs, type of Achievement Goals, and levels of Self Regulated learning Strategies influence Achievement in Accountancy but their interaction does not influence Achievement in Accountancy of government higher secondary school students.

For the aided higher secondary school students, the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy revealed that Achievement in Accountancy is influenced by the changes in levels of Epistemological Beliefs, types of Achievement Goals and levels of Self Regulated Learning Strategies. The studies conducted by Rebello, Siegel, Witzig, Freyermuth, and McClure (2012), Sachdev (2008), Schommer-Aikins, Duell, and Hutter (2005), Hofer (2002) and Windschitl (1997) also supports the influence of epistemological beliefs on academic performance. The influence of achievement goals on academic performance is supported by the studies Roebken (2007), Barkur, Govindan, and Kamath (2013), Shelly (2009), Mattern (2005), Al-Emadi (2001), Eppler and Harju (1997), Dweck (1986). Similarly the influence of self regulated learning strategies on academic performance is supported in the studies Banarjee and Kumar (2014), Cazan (2012), Nandagopal and Ericsson (2012), Throndsen (2011), Seema (2007) and Zimmerman (1989,1990). The interaction effects of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated



Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for aided higher secondary school students are not significant. The combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy for aided higher secondary school students is significant. Therefore, it is concluded that the levels of Epistemological Beliefs, type of Achievement Goals, and levels of Self Regulated learning Strategies influence Achievement in Accountancy and their interaction also influence Achievement in Accountancy of aided higher secondary school students.

The main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy for rural higher secondary school students reveal that Achievement in Accountancy is influenced by the changes in levels of Epistemological Beliefs, types of Achievement Goals, and levels of Self Regulated Learning Strategies. Similar results are found for epistemological beliefs in the studies of Rebello, Siegel, Witzig, Freyermuth, and McClure (2012), Sachdev (2008), Schommer-Aikins, Duell, and Hutter (2005), Hofer (2002) and Windschitl (1997). The influence of achievement goals on academic performance is supported by the studies Roebken (2007), Barkur, Govindan, and Kamath (2013), Shelly (2009), Mattern (2005), Al-Emadi (2001), Eppler and Harju (1997), Dweck (1986). The studies conducted by Banarjee and Kumar (2014), Cazan (2012), Nandagopal and Ericsson (2012), Throndsen (2011), Seema (2007) and

Zimmerman (1989,1990) supported the influence of self regulated learning strategies on academic performance. The interaction effects of Epistemological Beliefs and Achievement Goals, Epistemological Beliefs and Self Regulated Learning Strategies, and Achievement Goals and Self Regulated Learning Strategies on Achievement in Accountancy for rural higher secondary school students are not significant. The combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy for rural higher secondary school students is significant. Therefore, it is concluded that the levels of Epistemological Beliefs, type of Achievement Goals, and levels of Self Regulated learning Strategies influence Achievement in Accountancy and their interaction also influence Achievement in Accountancy of rural higher secondary school students.

In the case of urban higher secondary school students, the main effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy revealed that Achievement in Accountancy is influenced by the changes in levels of Epistemological Beliefs, types of Achievement Goals, and levels of Self Regulated Learning Strategies. The studies conducted by Rebello, Siegel, Witzig, Freyermuth, and McClure (2012), Sachdev (2008), Schommer-Aikins, Duell, and Hutter (2005), Hofer (2002) and Windschitl (1997) also supports the influence of epistemological beliefs on academic performance. The influence of

achievement goals on academic performance is supported by the studies Roebken (2007), Barkur, Govindan, and Kamath (2013), Shelly (2009), Mattern (2005), Al-Emadi (2001), Eppler and Harju (1997), Dweck (1986). Similarly the influence of self regulated learning strategies on academic performance is supported in the studies Banarjee and Kumar (2014), Cazan (2012), Nandagopal and Ericsson (2012), Throndsen (2011), Seema (2007) and Zimmerman (1989,1990). The interaction effect of Achievement Goals and Self Regulated Learning Strategies is significant but the interaction effects of Epistemological Beliefs and Achievement Goals and Epistemological Beliefs and Self Regulated Learning on Achievement in Accountancy for Urban Higher Secondary School Students are not significant. The combined effect of Epistemological Beliefs, Achievement Goals, and Self Regulated learning Strategies on Achievement in Accountancy for urban higher secondary school students is also not significant. Therefore, it is concluded that the levels of Epistemological Beliefs, type of Achievement Goals, and levels of Self Regulated learning Strategies influence Achievement in Accountancy and their interaction has no influence on Achievement in Accountancy of urban higher secondary school students.

Multiple regression analysis reveal that Epistemological Beliefs, Achievement Goals, and Self Regulated learning strategies individually as well as jointly contribute significantly in predicting Achievement in Accountancy of higher secondary school students. Kitsantas, Steen, and Huie

(2009) identified that goal orientation is not a significant predictor of achievement while self regulated learning strategies is a significant predictor of student achievement. Epistemological beliefs, achievement goals, and self regulated learning strategies are significant predictor of achievement is found by Schommer-Aikins, Duell, and Hutter (2005), Shih (2005) and Al-Khatib (2010) respectively. Therefore, it is concluded that the Achievement in Accountancy can be predicted from Epistemological Beliefs, Mastery Goal, Performance-Approach Goal, and Self Regulated Learning Strategies of higher secondary school students. But the individual contribution of Performance-Avoidance Goal is not significant in predicting Achievement in Accountancy of higher secondary school students.

### **Educational Implications of the Study**

The findings of the study indicate that the Epistemological Beliefs of higher secondary school students vary by gender. It also reveals that the Epistemological Beliefs of the students are independent of type of management of schools and locale of schools. The girls hold more sophisticated epistemological beliefs than the boys of higher secondary schools. The understanding of students' epistemological beliefs in accountancy helps the instructors to gain insight into students' learning difficulties in accountancy. Activities which help to reduce the gap between the theory and practice such as project or internship practices can be

incorporated in accountancy subject to develop more sophisticated beliefs among the students. Constructivist learning approach believes that the students develop knowledge based on their experience and processing information through experimentation and reasoning. It is suggested that in order to facilitate the constructivist learning approaches educators should give more attention to the development of more sophisticated epistemological beliefs among the students. The sophisticated epistemological beliefs in accountancy should be fostered among the higher secondary school students by providing opportunities to engage in discussion of controversial issues, inquiry learning, and to analyze problems related to accounting practices in real life situations.

The results of the study show that for all types of Achievement Goal pursued by the higher secondary school students vary with respect to gender. Significant difference in Performance-Avoidance Goal among students is evident with respect to type of management of schools. In pursuing, Mastery Goal and Performance-Approach goal, higher secondary school students vary with respect to locale of schools. No significant difference exists in pursuing Mastery Goal and Performance-Approach Goal with respect to type of management of schools among higher secondary school students. There is no significant difference in pursuing Performance-Avoidance Goal with respect to locale of schools of higher secondary school students. The girls and rural higher secondary school students pursue Mastery Goal than boys and urban

higher secondary school students. The government higher secondary school students have more tendencies to pursue Performance-Avoidance Goal than aided higher secondary school students. The investigator suggests that the higher secondary school students should be encouraged to pursue mastery goals. While engaging in academic related activities each and every student should have a definite aim in order to become successful in educational as well personal life. Understanding the achievement goal pursued by the students help the instructors to provide guidance for focusing the students' attention on mastery goals. The opportunities should be given to the students to master the content by collecting information from various sources and guidance should be given to the students to construct knowledge with the help of the peers as well to consider mistakes as opportunities to gain knowledge. Instead of depending upon teacher centered methods more importance should be given to learner centered approaches to develop mastery goals among the students. Mastery goal orientation enables the individual to orient towards developing new skills and competencies related to accountancy subject. The teacher and researchers should encourage students to have faith in their abilities and increase their abilities to pursue mastery goals and utmost care should be taken to ensure that the students are not pursuing performance – avoidance goals.

From the study it is evident that there exist significant differences in gender and type of management of schools in the use of Self Regulated

Learning Strategies of higher secondary school students. It also indicates that the use of Self Regulated Learning Strategies of students do not vary with respect to locale of schools. Girls and government higher secondary school students are superior in practicing Self Regulated Learning Strategies than the boys and aided higher secondary school students. The basic assumption of constructivism is that the students are self directed learners and they organize their efforts to construct knowledge. The use of self regulated learning strategies such as cognitive strategies, metacognitive strategies, and resource management strategies helps the students to organize their learning activities most effectively in order to attain the academic goals. Understanding the way of using self regulated learning strategies by the students, helps the teachers to provide clear guidance and support for effective learning among higher secondary students. The investigator suggests that the teachers should encourage higher secondary school students to use self regulated learning strategies for mastering accounting concepts.

The mean difference analysis of scores of Achievement in Accountancy indicates that there is significant difference in Achievement in Accountancy based on gender and locale of schools. Achievement in Accountancy of higher secondary school students vary with respect to type of management of schools. The girls and rural higher secondary school students score high on Achievement in Accountancy than boys and urban higher secondary school students. The investigator suggests that teacher and

researchers should adopt strategies to enhance the learning process of accountancy of boys as well as urban higher secondary school students.

The results of the study reveal that the Achievement in Accountancy is influenced by the Epistemological beliefs hold by the higher secondary school students for total sample and subgroups based on gender, type of management of schools, and locale of schools. The high scores in accountancy are associated with those students who hold sophisticated beliefs in accountancy than those who hold naïve epistemological beliefs. As far as accountancy subject is concerned in the first year more importance is given to the fundamentals of accounting and while progressing in learning more importance is given to the application aspects. The instructional strategies should aim at developing more concrete understanding in the initial years and then help them to develop knowledge on the basis of reasoning and observation which in turn will help in developing more sophisticated epistemological beliefs among the students. The use of problem solving strategies helps to develop high sophisticated beliefs among the higher secondary school students. Understanding the epistemological beliefs of the students in accountancy can help the educators to organize learning experiences according to the beliefs of the students related to knowledge and learning. It also enables the teachers to provide instruction according to the needs of the students and to guide lower achieving students to perform better in the learning process. By fostering the epistemological beliefs of the



students the reasoning ability, scientific thinking, and critical thinking among the students can be developed which are essential for the better understanding of accountancy subject. Encouraging students to develop more sophisticated beliefs in accountancy enable the students to become responsible manufactures and consumers of knowledge. To improve the capabilities of learning the teachers should help the students to take their difficulties in learning as a challenge. Supervisory methods of teaching and contract learning can be used to enhance the epistemological beliefs of the students.

Achievement goal pursued by the students influence the academic achievement of the students. The results of the study show that type of Achievement Goals pursued by the higher secondary students have significant influence on Achievement in Accountancy for total sample and subgroups with respect to gender, type of management of schools, and locale of schools. Those students who pursue Mastery Goal perform better in Achievement in Accountancy than those who are pursuing Performance-Avoidance Goal and Performance-Approach Goal for total sample and subgroups. The results of the present study and earlier studies supports that those who are pursuing mastery goal results in higher academic performance than those who are pursuing performance-avoidance goal and performance-approach goal. Studies also indicated that performance-approach goal also contributes to higher academic performance (Bahrami & Bahrami, 2015; Barkur, Govindan & Kamath, 2013). Negative effects of pursuing performance-avoidance goals

are indicated in the studies conducted by Rameli and Kosnin (2016) and Huang (2011). Teachers and parents should encourage the students to pursue mastery goal than performance-approach goal and performance-avoidance goal. The learning activities that help the student to go deep into the matters learned in the class should be provided by the teachers. The teachers and parents should help the students to focus on self-improvement by using self-referred standards instead of comparing their performance with that of peers. While encountering with a problematic situation in learning tasks the students should be encouraged to use alternative problem-solving strategies to master the material. Guidance should be provided to the students to understand their errors in the examination which resulted in poor performance of the students. The goals of education and their own goals should be explicitly known to the students and the students should be encouraged to use more intrinsic motivation strategies to attain the goals. Teachers can encourage the students to pursue mastery goal by involving students more in the learning process, arranging debates and discussions, assign leadership roles to students, participate in decision making, and evaluate conflicting points of view. Teachers and researchers must prepare the students to become lifelong learners and encourage students to follow process-oriented learning style than product-oriented learning style. Teachers should try to reduce the competition mentality among the students and help them to refine their skills in learning by creating an environment which promotes mastery of learning. Teachers

and parents should encourage students to adopt mastery goals through the strategies such as inquiry based learning, motivating them to master the content, compare performance with self developed standards, deep understanding of the subject matter, encourage students to maximum utilize resources, focus on effort, make choices that are challenging and engaging, and develop a positive orientation toward learning.

Employing self regulated learning strategies plays an important role in the academic achievement of the students. The findings of the study provide a basis for understanding the self regulated learning strategies of higher secondary students and their impact on achievement in accountancy. The results indicate that the use of Self Regulated Learning Strategies influence on Achievement in Accountancy of higher secondary school students for the total sample and subgroups with respect to gender, type of management of schools, and locale of schools.. The parents, teachers, and administrators should be made aware of the importance of using self regulated learning strategies. The parents should be trained to help their children to develop effective self regulation strategies. The teachers should promote self regulated learning strategies among the higher secondary students by helping the students to focus on goal development and attainment. Teachers should provide opportunities and help students to manage their strategies and regulate their own learning. In this era of technological advancement, to escape from the everyday conflicts due to the distractions caused by social media and others,

the students should develop skills to utilize their time effectively and purposefully to enhance their performance. The instructors should provide opportunities by creating an effective environment to regulate their learning and by assigning tasks to develop the self-regulatory learning skills of students. The teachers and parents should encourage the students to use cognitive strategies such as outlining, elaboration, and concept mapping. The training in use of metacognitive strategies such as task analysis, systematic planning, self motivation, self monitoring, and constructive use of feedback to enhance learning should be given to the students. Guidance should be given to the students for the effective utilization of resources by seeking the help of peers and teacher to understand the subject matter and provide opportunities to collect information from various sources by giving challenging assignments. The use of self regulated learning strategies helps the students to make their learning process systematic.

Over the past few decades constructivist approaches to learning and teaching have become influential concepts and attention has been increasingly focused on how we learn as well as what we learn. Even though, commerce education in India was started with a view to prepare the manpower required to industrial world, it failed to keep pace with the dynamism of business world. In this technologically advanced era, commerce education is struggling to meet the demands of business by continuing itself with a strong bias towards conceptual learning without much importance to skill and

competency development. The vision of commerce education and accountancy subject needs to be clearly defined by creating strong epistemological beliefs about the nature of subject. Effective learning demands active engagement of the learner in the learning process for creating meaningful learning contexts. The sophisticated epistemological beliefs, pursuing mastery goal and use of self regulated learning strategies demand the active engagement of learner in the learning process. Therefore, the investigator suggests that the curriculum planners and teachers should take necessary steps to foster epistemological beliefs of the students, pursue mastery goals, and encourage self regulatory competencies among the students to enhance the teaching learning process of accountancy at higher secondary stage.

### **Suggestions for Further Research**

The present study was carried out to understand the influence of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on Achievement in Accountancy of higher secondary school students. By considering the scope and limitations of the study the investigator suggests some areas of research related to this study in which future researchers can concentrate.

1. The influence of the independent variables Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on

Achievement in Accountancy can be conducted in a cross cultural setting.

2. The same study can be extended to identify the influence of independent variables on achievement in business studies among higher secondary school students.
3. Similar studies can be conducted to understand the interplay of the independent and dependent variables on achievement in science and humanities subjects at higher secondary stage.
4. A comparison of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies of commerce students at various levels of education can be carried out.
5. Studies to investigate the interaction effects of independent variables on academic performance of the students at undergraduate and post graduate levels can be carried out.
6. Studies to evaluate the interaction effect of Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies on other cognitive and affective variables can be carried out.
7. Influence of home environment and socio-economic-status on Epistemological Beliefs, Achievement Goals, and Self Regulated Learning Strategies can be studied.

8. Studies to compare the epistemological beliefs of teachers' and students' with respect to accountancy subject and other subjects can be carried out.
9. Development and validation of programmes to enhance epistemological beliefs among students can be carried out.
10. Experimental studies to understand the effectiveness of various instructional methods and approaches in fostering epistemological beliefs can be carried out.
11. Studies can be conducted to examine the relation between epistemological beliefs and the teaching strategies used by the teachers of various subjects.
12. The impact of Achievement Goals of students on various affective behaviors at higher secondary stage can be conducted
13. Relationship between personality factors and achievement goals among secondary or higher secondary or undergraduate or post graduate students can be carried out.
14. Studies to understand the relation between contextual factors in classroom and adoption of different goal among the students at various levels of education can be carried out.
15. Experimental studies to understand the effectiveness of various self regulated learning strategies on academic performance of the students can be carried out.

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# **Appendices**

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**APPENDIX I**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**SCALE ON EPISTEMOLOGICAL BELIEFS IN ACCOUNTANCY**  
**(Draft)**

**Prof. (Dr.) P. Usha**  
**Professor**

**Mrs. Niranjana.K.P.**  
**Research Scholar**

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**നിർദ്ദേശങ്ങൾ**

താഴെ കൊടുത്തിരിക്കുന്നു പ്രസ്ഥാവനകൾ ശ്രദ്ധാപൂർവ്വം വായിക്കുക. ഓരോ പ്രസ്ഥാവനയും നിങ്ങളെ സംബന്ധിച്ചിടത്തോളം എത്രമാത്രം ശരിയാണെന്ന് തീരുമാനിക്കുക. നിങ്ങളുടെ തീരുമാനം മൂന്നുതരത്തിലാകാം.

(1) ശരിയാണ് (2) തീരുമാനമില്ല (3) ശരിയല്ല.

പ്രതികരണം രേഖപ്പെടുത്താൻ പ്രത്യേകം തന്നിട്ടുള്ള കടലാസിൽ നിങ്ങൾ ഏതിനോടാണ് യോജിക്കുന്നത് അതിനുനേരെ (✓) അടയാളമിടുക. എല്ലാ പ്രസ്താവനകളും പ്രതികരണം രേഖപ്പെടുത്താൻ പ്രത്യേകം ശ്രദ്ധിക്കുക.

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1. അക്കൗണ്ടൻസി പഠനം അധ്യാപകന്റെ വൈദഗ്ദ്ധ്യത്തെ ആശ്രയിച്ചിരിക്കുന്നു.
2. അക്കൗണ്ടൻസി വിഷയത്തിലെ ഭൂരിഭാഗം വസ്തുക്കളും പരിചിതമായതാണ് .
3. യഥാർത്ഥ ജീവിതവുമായി ബന്ധപ്പെടുത്തി പഠിക്കുമ്പോഴാണ് എനിക്ക് അക്കൗണ്ടൻസി കൂടുതൽ മനസ്സിലാവുന്നത്.
4. ആത്മാർത്ഥമായി പരിശ്രമിക്കുകയാണെങ്കിൽ അക്കൗണ്ടൻസി പഠിക്കുന്നതിലെ ബുദ്ധി മുട്ടുകൾ പരിഹരിക്കാമെന്ന വിശ്വാസം എനിക്കുണ്ട് .
5. വളരെ എളുപ്പം പഠിക്കാൻ പറ്റുന്ന ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
6. എനിക്ക് അക്കൗണ്ടൻസി നന്നായി പഠിക്കാൻ സാധിക്കുന്നത് അധ്യാപകൻ ഉദാഹരണങ്ങൾ ചെയ്തുകാണിക്കുന്നതുകൊണ്ടാണ്.
7. നിയമങ്ങൾക്കനുസരിച്ച് പ്രശ്നങ്ങൾക്ക് (problems) ഉത്തരം കണ്ടെത്തുന്നത് മാത്രമാണ് അക്കൗണ്ടൻസി വിഷയം.
8. ഓരോ അക്കൗണ്ടൻസി പ്രശ്നം (problem) ചെയ്യുമ്പോഴും അനുയോജ്യമായ രീതി ഉപയോഗിച്ച് ചെയ്താൽ കൃത്യമായി ചെയ്യാൻ കഴിയും.

9. ഉചിതമായ പഠനപ്രക്രിയകളിലൂടെ അക്കൗണ്ടൻസി ക്ലാസ്സിലെ ബുദ്ധിമുട്ടുകൾ തരണം ചെയ്യാൻ എനിക്ക് സാധിക്കാറുണ്ട്.
10. അക്കൗണ്ടൻസി പഠിക്കാൻ വളരെയധികം സമയം ആവശ്യമാണ്.
11. അധ്യാപകൻ പറഞ്ഞുതരുന്നതിനേക്കാൾ പരിശീലന പ്രശ്നങ്ങൾ കൂടുതൽ ചെയ്യുന്നതുകൊണ്ടാണ് എനിക്ക് അക്കൗണ്ടൻസി നന്നായി പഠിക്കാൻ കഴിയുന്നത്.
12. അക്കൗണ്ടൻസി പ്രശ്നങ്ങൾ (problem) ചെയ്യാൻ വ്യത്യസ്തമായ മാർഗ്ഗം സ്വീകരിക്കുന്ന അധ്യാപകരെയാണ് എനിക്കിഷ്ടം.
13. വസ്തുക്കൾക്ക് മാറ്റമില്ലാത്ത ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
14. കാണാപാഠം പഠിച്ച കാര്യങ്ങൾ മാത്രം ഉപയോഗിക്കുന്ന ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
15. കൃത്യമായ പഠനപ്രവർത്തനങ്ങളിലൂടെ അക്കൗണ്ടൻസി പ്രശ്നങ്ങൾ ചെയ്യാനുള്ള കഴിവ് വികസിപ്പിക്കാമെന്ന് ഞാൻ വിശ്വസിക്കുന്നു.
16. അക്കൗണ്ടൻസിയിലെ ഒരു പ്രശ്നം (problem) ചെയ്യാൻ സാധിക്കാതെ വന്നാൽ ഞാൻ നിരാശനാവുകയും പരാജയം സമ്മതിക്കുകയും ചെയ്യാറുണ്ട്.
17. നല്ല ഉദാഹരണ പ്രശ്നങ്ങൾ ഉപയോഗിച്ചുകൊണ്ട് അധ്യാപകൻ ക്ലാസ് എടുക്കുകയാണെങ്കിൽ എനിക്ക് അക്കൗണ്ടൻസി പഠിക്കാൻ അധികം പ്രയത്നിക്കേണ്ടതായിവരില്ല.
18. അക്കങ്ങളും, നിയമങ്ങളും, തത്വങ്ങളും ശരിയായ രീതിയിൽ ഉപയോഗിക്കുന്ന ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
19. നിയമങ്ങളും , തത്വങ്ങളും മനസ്സിലാക്കി പഠിക്കുകയാണെങ്കിൽ അക്കൗണ്ടൻസി വിഷയം കൂടുതൽ എളുപ്പത്തിൽ പഠിക്കാം.
20. എത്ര കഠിനമായി പ്രവർത്തിച്ചാലും എനിക്ക് പഠിക്കാൻ സാധിക്കാത്ത വിഷയമാണ് അക്കൗണ്ടൻസി.
21. ബുദ്ധിമുട്ടുള്ള ഒരു അക്കൗണ്ടൻസി പ്രശ്നം (Problem) ലഭിച്ചാൽ അതിന്റെ ഉത്തരം കിട്ടുന്നതുവരെ ഞാൻ അതിൽ മുഴുകിയിരിക്കാറുണ്ട്.
22. അക്കൗണ്ടൻസി പഠനം എളുപ്പമാകുന്നത് എന്റെ പ്രയത്നത്തെ ആശ്രയിച്ചിരിക്കും.
23. ഏത് അക്കൗണ്ടൻസി പ്രശ്നം (problem) ചെയ്യുന്നതിനും ഏറ്റവും അനുയോജ്യമായ രീതിയുണ്ടായിരിക്കും.
24. അക്കൗണ്ടൻസിയിലെ പ്രശ്നങ്ങൾ (problems) ചെയ്യുമ്പോൾ സമ്പൂർണ്ണമായ ആശയങ്ങൾ തന്നതിനു ശേഷം സൂക്ഷ്മമായ വസ്തുതകളിലേക്ക് പോകുമ്പോഴാണ് കൂടുതൽ മനസ്സിലാകുന്നത്.
25. എത്ര വിഷമമുള്ള അക്കൗണ്ടൻസി പ്രശ്നങ്ങളും (problems) എന്നെക്കൊണ്ട് ചെയ്തുതീർക്കാമെന്ന വിശ്വാസം എനിക്കുണ്ട്.

26. സമയമെടുത്ത് പഠിച്ചാൽ മാത്രമേ അക്കൗണ്ടൻസി വിഷയത്തിലെ ആശയങ്ങൾ തമ്മിലുള്ള ബന്ധം മനസ്സിലാക്കാൻ സാധിക്കുകയുള്ളൂ.
27. അധ്യാപകന്റെ സഹായം ഇല്ലാതെതന്നെ എനിക്ക് പഠിക്കാവുന്ന ഒരുവിഷയമാണ് അക്കൗണ്ടൻസി.
28. ചില സന്ദർഭങ്ങളിൽ അക്കൗണ്ടൻസിയിലെ ഉത്തരങ്ങൾ മനസ്സിലായില്ലെങ്കിലും അധ്യാപകൻ പറഞ്ഞതുകൊണ്ട് സ്വീകരിക്കാറുണ്ട്.
29. സർഗ്ഗാത്മകതക്ക് ഒരു സ്ഥാനവും ഇല്ലാത്ത ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
30. വ്യത്യസ്തമായ മാർഗ്ഗങ്ങൾ ഉപയോഗിച്ചാണ് ഞാൻ അക്കൗണ്ടൻസി ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്തുന്നത് .
31. അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്താൻ കഠിനമായി പ്രവർത്തിക്കേണ്ടി വരുമ്പോൾ എനിക്ക് നിരാശ തോന്നാറുണ്ട്.
32. സമയമെടുത്ത് പഠിക്കുകയാണെങ്കിൽ അക്കൗണ്ടൻസിയിലെ ബുദ്ധിമുട്ടുള്ള ഭാഗങ്ങൾ പോലും ആർക്കും പഠിച്ചെടുക്കാൻ സാധിക്കും.
33. എനിക്കൊരിക്കലും തനിയെ പഠിക്കാൻ സാധിക്കാത്ത വിഷയമാണ് അക്കൗണ്ടൻസി.
34. എല്ലാ അക്കൗണ്ടൻസി അധ്യാപകരും ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്താൻ സ്വീകരിക്കുന്ന മാർഗ്ഗങ്ങൾ ഒരു പോലെയാണ്.
35. അധ്യാപകൻ വ്യത്യസ്തമായ മാർഗ്ഗങ്ങൾ ഉപയോഗിച്ച് അക്കൗണ്ടൻസിയിലെ പ്രശ്നങ്ങൾ (problems) ചെയ്യുമ്പോൾ എനിക്ക് ആശയക്കുഴപ്പം ഉണ്ടാവാറുണ്ട്.
36. അക്കൗണ്ടൻസിയിലെ കഴിവുകൾ (skills) വളർത്തിയെടുക്കാമെന്ന വിശ്വാസം എനിക്കില്ല.
37. അക്കൗണ്ടൻസിയിലെ ആശയങ്ങൾ കൃത്യമായി അറിയാമെങ്കിൽ അക്കൗണ്ടൻസി പഠനം എളുപ്പമാണ്.
38. എനിക്ക് പരീക്ഷകളിൽ വിജയിക്കാൻ സാധിക്കാത്തത് അക്കൗണ്ടൻസി അധ്യാപകന്റെ കഴിവുകേടുകൊണ്ടാണ്.
39. വസ്തുനിഷ്ഠാപരമായ ഒരു വിഷയമല്ല അക്കൗണ്ടൻസി.
40. എന്റെ തെറ്റുകളിൽ നിന്നാണ് ഞാൻ പലപ്പോഴും അക്കൗണ്ടൻസിയിൽനിന്നുള്ള വസ്തുതകൾ/ നിയമങ്ങൾ മനസ്സിലാക്കാറുള്ളത്.
41. അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്കുള്ള ഉത്തരങ്ങൾ എനിക്കൊരിക്കലും കണ്ടെത്താൻ സാധിക്കാറില്ല.
42. ചിട്ടയോടുകൂടി പഠിക്കേണ്ട ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
43. അധ്യാപകൻ പറഞ്ഞുതരുന്നതിനേക്കാൾ എന്റെ യുക്തിക്കനുസരിച്ചാണ് ഞാൻ അക്കൗണ്ടൻസി പഠിക്കുന്നത്.

44. അധ്യാപകന്റെ വിവരശേഖരണത്തിനനുസരിച്ച് അക്കൗണ്ടൻസി ചോദ്യങ്ങൾക്കുള്ള ഉത്തരങ്ങൾക്ക് മാറ്റം വരാറുണ്ട്.
45. പരസ്പര ബന്ധമുള്ള ആശയങ്ങൾ അല്ലാത്തതിനാൽ അക്കൗണ്ടൻസി ഞാൻ പലപ്പോഴും മനപ്പാഠം പഠിക്കുകയാണ് പതിവ്.
46. ആശയങ്ങളും വസ്തുതകളും വ്യക്തമല്ലെങ്കിൽ പോലും എളുപ്പം പഠിക്കാവുന്ന ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
47. അധ്യാപകന്റെ കഴിവിനെ ആശ്രയിച്ചാണ് അക്കൗണ്ടൻസി വിഷയത്തിലെ വിജയപരാജയങ്ങൾ എന്ന് ഞാൻ വിശ്വസിക്കുന്നു.
48. വ്യത്യസ്തമായ മാർഗ്ഗങ്ങൾ ഉപയോഗിച്ചു അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്തിയാലും ഒരേ ഉത്തരം തന്നെയാണ് ലഭിക്കുന്നത്.
49. ഇതരവിഷയങ്ങളുമായി ബന്ധപ്പെടുത്തി പഠിക്കുമ്പോൾ അക്കൗണ്ടൻസി നന്നായി മനസ്സിലാകാറുണ്ട്.
50. കണക്കു ചെയ്യാനുള്ള കഴിവില്ലാത്തതിനാൽ എനിക്ക് അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്കുള്ള ഉത്തരങ്ങൾ കണ്ടെത്താൻ സാധിക്കാറില്ല.
51. അക്കൗണ്ടൻസിയിലെ പ്രശ്നങ്ങൾ (problems) ആവർത്തിച്ചു ചെയ്താൽ അക്കൗണ്ടൻസി പഠനം വളരെ എളുപ്പമാവും.
52. അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്തുന്നതിന് ജന്മനാ ലഭിക്കുന്ന കഴിവ് വേണമെന്ന് ഞാൻ വിശ്വസിക്കുന്നു.
53. അധ്യാപകൻ വ്യക്തമാക്കിയാൽ മാത്രം മനസ്സിലാവുന്നതാണ് അക്കൗണ്ടൻസിയിലെ നിയമങ്ങളും തത്വങ്ങളും.
54. കൃത്യമായ നടപടി ക്രമങ്ങൾ അറിയുകയാണെങ്കിൽ അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്താൻ എളുപ്പമാണ്.
55. അന്തർലീനമായ കഴിവുകൾ ഇല്ലെങ്കിലും ബുദ്ധിമുട്ടുള്ള അക്കൗണ്ടൻസി ചോദ്യങ്ങൾ എനിക്ക് ചെയ്തു തീർക്കാൻ സാധിക്കും.



**APPENDIX II**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**SCALE ON EPISTEMOLOGICAL BELIEFS IN ACCOUNTANCY**  
**(Final)**

**Prof. (Dr.) P. Usha**  
**Professor**

**Mrs. Niranjana.K.P.**  
**Research Scholar**

**നിർദ്ദേശങ്ങൾ**

താഴെ കൊടുത്തിരിക്കുന്നു പ്രസ്ഥാവനകൾ ശ്രദ്ധാപൂർവ്വം വായിക്കുക. ഓരോ പ്രസ്ഥാവനയും നിങ്ങളെ സംബന്ധിച്ചിടത്തോളം എത്രമാത്രം ശരിയാണെന്ന് തീരുമാനിക്കുക. നിങ്ങളുടെ തീരുമാനം മൂന്നുതരത്തിലാകാം.

(1) ശരിയാണ് (2) തീരുമാനമില്ല (3) ശരിയല്ല.

പ്രതികരണം രേഖപ്പെടുത്താൻ പ്രത്യേകം തന്നിട്ടുള്ള കടലാസിൽ നിങ്ങൾ ഏതിനോടാണ് യോജിക്കുന്നത് അതിനുനേരെ (✓) അടയാളമിടുക. എല്ലാ പ്രസ്താവനക്കും പ്രതികരണം രേഖപ്പെടുത്താൻ പ്രത്യേകം ശ്രദ്ധിക്കുക.

1. യഥാർത്ഥ ജീവിതവുമായി ബന്ധപ്പെടുത്തി പഠിക്കുമ്പോഴാണ് എനിക്ക് അക്കൗണ്ടൻസി കൂടുതൽ മനസ്സിലാവുന്നത്.
2. ആത്മാർത്ഥമായി പരിശ്രമിക്കുകയാണെങ്കിൽ അക്കൗണ്ടൻസി പഠിക്കുന്നതിലെ ബുദ്ധിമുട്ടുകൾ പരിഹരിക്കാമെന്ന വിശ്വാസം എനിക്കുണ്ട് .
3. എനിക്ക് അക്കൗണ്ടൻസി നന്നായി പഠിക്കാൻ സാധിക്കുന്നത് അദ്ധ്യാപകൻ ഉദാഹരണങ്ങൾ ചെയ്തുകാണിക്കുന്നതുകൊണ്ടാണ്.
4. നിയമങ്ങൾക്കനുസരിച്ച് പ്രശ്നങ്ങൾക്ക് (problems) ഉത്തരം കണ്ടെത്തുന്നത് മാത്രമാണ് അക്കൗണ്ടൻസി വിഷയം.
5. ഓരോ അക്കൗണ്ടൻസി പ്രശ്നം (problem) ചെയ്യുമ്പോഴും അനുയോജ്യമായ രീതി ഉപയോഗിച്ച് ചെയ്താൽ കൃത്യമായി ചെയ്യാൻ കഴിയും.
6. ഉചിതമായ പഠനപ്രക്രിയകളിലൂടെ അക്കൗണ്ടൻസി ക്ലാസ്സിലെ ബുദ്ധിമുട്ടുകൾ തരണം ചെയ്യാൻ എനിക്ക് സാധിക്കാറുണ്ട്.
7. അക്കൗണ്ടൻസി പഠിക്കാൻ വളരെയധികം സമയം ആവശ്യമാണ്.

8. അധ്യാപകൻ പറഞ്ഞുതരുന്നതിനേക്കാൾ പരിശീലന പ്രശ്നങ്ങൾ കൂടുതൽ ചെയ്യുന്നതുകൊണ്ടാണ് എനിക്ക് അക്കൗണ്ടൻസി നന്നായി പഠിക്കാൻ കഴിയുന്നത്.
9. അക്കൗണ്ടൻസി പ്രശ്നങ്ങൾ (problems) ചെയ്യാൻ വ്യത്യസ്തമായ മാർഗ്ഗം സ്വീകരിക്കുന്ന അധ്യാപകരെയാണ് എനിക്കിഷ്ടം.
10. വസ്തുക്കൾക്ക് മാറ്റമില്ലാത്ത ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
11. കാണാപാഠം പഠിച്ച കാര്യങ്ങൾ മാത്രം ഉപയോഗിക്കുന്ന ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
12. കൃത്യമായ പഠനപ്രവർത്തനങ്ങളിലൂടെ അക്കൗണ്ടൻസി പ്രശ്നങ്ങൾ ചെയ്യാനുള്ള കഴിവ് വികസിപ്പിക്കാമെന്ന് ഞാൻ വിശ്വസിക്കുന്നു.
13. അക്കൗണ്ടൻസിയിലെ ഒരു പ്രശ്നം (problem) ചെയ്യാൻ സാധിക്കാതെ വന്നാൽ ഞാൻ നിരാശനാവുകയും പരാജയം സമ്മതിക്കുകയും ചെയ്യാറുണ്ട്.
14. നിയമങ്ങളും , തത്വങ്ങളും മനസ്സിലാക്കി പഠിക്കുകയാണെങ്കിൽ അക്കൗണ്ടൻസി വിഷയം കൂടുതൽ എളുപ്പത്തിൽ പഠിക്കാം.
15. എത്ര കഠിനമായി പ്രവർത്തിച്ചാലും എനിക്ക് പഠിക്കാൻ സാധിക്കാത്ത വിഷയമാണ് അക്കൗണ്ടൻസി.
16. ബുദ്ധിമുട്ടുള്ള ഒരു അക്കൗണ്ടൻസി പ്രശ്നം (problem) ലഭിച്ചാൽ അതിന്റെ ഉത്തരം കിട്ടുന്നതുവരെ ഞാൻ അതിൽ മുഴുകിയിരിക്കാറുണ്ട്.
17. അക്കൗണ്ടൻസിയിലെ പ്രശ്നങ്ങൾ (problems) ചെയ്യുമ്പോൾ സമ്പൂർണ്ണമായ ആശയങ്ങൾ തന്നതിനു ശേഷം സൂക്ഷ്മമായ വസ്തുതകളിലേക്ക് പോകുമ്പോഴാണ് കൂടുതൽ മനസ്സിലാകുന്നത്.
18. എത്ര വിഷമമുള്ള അക്കൗണ്ടൻസി പ്രശ്നങ്ങളും (problems) എന്നെക്കൊണ്ട് ചെയ്തുതീർക്കാമെന്ന വിശ്വാസം എനിക്കുണ്ട്.
19. സമയമെടുത്ത് പഠിച്ചാൽ മാത്രമേ അക്കൗണ്ടൻസി വിഷയത്തിലെ ആശയങ്ങൾ തമ്മിലുള്ള ബന്ധം മനസ്സിലാക്കാൻ സാധിക്കുകയുള്ളൂ.
20. ചില സന്ദർഭങ്ങളിൽ അക്കൗണ്ടൻസിയിലെ ഉത്തരങ്ങൾ മനസ്സിലായില്ലെങ്കിലും അധ്യാപകൻ പറഞ്ഞതുകൊണ്ട് സ്വീകരിക്കാറുണ്ട്.
21. സർഗ്ഗാത്മകതക്ക് ഒരു സ്ഥാനവും ഇല്ലാത്ത ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
22. അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്താൻ കഠിനമായി പ്രവർത്തിക്കേണ്ടി വരുമ്പോൾ എനിക്ക് നിരാശ തോന്നാറുണ്ട്.
23. സമയമെടുത്ത് പഠിക്കുകയാണെങ്കിൽ അക്കൗണ്ടൻസിയിലെ ബുദ്ധിമുട്ടുള്ള ഭാഗങ്ങൾ പോലും ആർക്കും പഠിച്ചെടുക്കാൻ സാധിക്കും.
24. എനിക്കൊരിക്കലും തനിയെ പഠിക്കാൻ സാധിക്കാത്ത വിഷയമാണ് അക്കൗണ്ടൻസി.

25. എല്ലാ അക്കൗണ്ടൻസി അധ്യാപകരും ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്താൻ സ്വീകരിക്കുന്ന മാർഗ്ഗങ്ങൾ ഒരു പോലെയാണ്.
26. അധ്യാപകൻ വ്യത്യസ്തമായ മാർഗ്ഗങ്ങൾ ഉപയോഗിച്ച് അക്കൗണ്ടൻസിയിലെ പ്രശ്നങ്ങൾ (problems) ചെയ്യുമ്പോൾ എനിക്ക് ആശയക്കുഴപ്പം ഉണ്ടാവാറുണ്ട്.
27. അക്കൗണ്ടൻസിയിലെ കഴിവുകൾ (skills) വളർത്തിയെടുക്കാമെന്ന വിശ്വാസം എനിക്കില്ല.
28. അക്കൗണ്ടൻസിയിലെ ആശയങ്ങൾ കൃത്യമായി അറിയാമെങ്കിൽ അക്കൗണ്ടൻസി പഠനം എളുപ്പമാണ്.
29. എനിക്ക് പരീക്ഷകളിൽ വിജയിക്കാൻ സാധിക്കാത്തത് അക്കൗണ്ടൻസി അധ്യാപകന്റെ കഴിവുകേടുകൊണ്ടാണ്.
30. എന്റെ തെറ്റുകളിൽ നിന്നാണ് ഞാൻ പലപ്പോഴും അക്കൗണ്ടൻസിയിൽനിന്നുള്ള വസ്തുതകൾ/ നിയമങ്ങൾ മനസ്സിലാക്കാറുള്ളത്.
31. ചിട്ടയോടുകൂടി പഠിക്കേണ്ട ഒരു വിഷയമാണ് അക്കൗണ്ടൻസി.
32. പരസ്പര ബന്ധമുള്ള ആശയങ്ങൾ അല്ലാത്തതിനാൽ അക്കൗണ്ടൻസി ഞാൻ പലപ്പോഴും മനപ്പാഠം പഠിക്കുകയാണ് പതിവ്.
33. അധ്യാപകന്റെ കഴിവിനെ ആശ്രയിച്ചാണ് അക്കൗണ്ടൻസി വിഷയത്തിലെ വിജയപരാജയങ്ങൾ എന്ന് ഞാൻ വിശ്വസിക്കുന്നു.
34. ഇതരവിഷയങ്ങളുമായി ബന്ധപ്പെടുത്തി പഠിക്കുമ്പോൾ അക്കൗണ്ടൻസി നന്നായി മനസ്സിലാക്കാറുണ്ട്.
35. കണക്കു ചെയ്യാനുള്ള കഴിവില്ലാത്തതിനാൽ എനിക്ക് അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്കുള്ള ഉത്തരങ്ങൾ കണ്ടെത്താൻ സാധിക്കാറില്ല.
36. അക്കൗണ്ടൻസിയിലെ പ്രശ്നങ്ങൾ (problems) ആവർത്തിച്ചു ചെയ്താൽ അക്കൗണ്ടൻസി പഠനം വളരെ എളുപ്പമാവും.
37. അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്തുന്നതിന് ജന്മനാ ലഭിക്കുന്ന കഴിവ് വേണമെന്ന് ഞാൻ വിശ്വസിക്കുന്നു.
38. അധ്യാപകൻ വ്യക്തമാക്കിയാൽ മാത്രം മനസ്സിലാവുന്നതാണ് അക്കൗണ്ടൻസിയിലെ നിയമങ്ങളും തത്വങ്ങളും.
39. കൃത്യമായ നടപടി ക്രമങ്ങൾ അറിയുകയാണെങ്കിൽ അക്കൗണ്ടൻസിയിലെ ചോദ്യങ്ങൾക്ക് ഉത്തരം കണ്ടെത്താൻ എളുപ്പമാണ്.
40. അന്തർലീനമായ കഴിവുകൾ ഇല്ലെങ്കിലും ബുദ്ധിമുട്ടുള്ള അക്കൗണ്ടൻസി ചോദ്യങ്ങൾ എനിക്ക് ചെയ്തു തീർക്കാൻ സാധിക്കും.

**APPENDIX III**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**SCALE ON EPISTEMOLOGICAL BELIEFS IN ACCOUNTANCY**  
**(Final)**

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**Professor**

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**Instruction:**

Read the statements given below carefully. Decide to what extent each of the statements is true as far as you are concerned. Your decisions may take one of the three forms (1) Correct (2) Undecided (3) Wrong. Kindly mark your responses by putting tick (✓) mark only in the response sheet provided against each statement. Make sure to mark your responses for all the statements.

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- 1 I understand accountancy more when it is studied by relating to real life.
- 2 I believe that with sincere efforts the difficulties in studying accountancy can be rectified.
- 3 I am able to learn accountancy well because of the examples cited by the teacher.
- 4 Accountancy subject is nothing but finding solutions to problems based on laws.
- 5 With a suitable method any accountancy problem can be solved perfectly.
- 6 I am able to overcome the difficulties in accountancy class by adopting effective learning process.
- 7 I believe that much time is needed to study accountancy.
- 8 I am able to learn accountancy well as I practice exercise problems other than those said by the teacher.
- 9 I prefer teachers who adopt different methods to solve problems in accountancy.
- 10 Accountancy is a subject in which facts do not undergo any change.

- 11 Accountancy is a subject which uses only matters learnt by memorizing.
- 12 I believe that through accurate learning activities, the ability to do accountancy problems can be developed.
- 13 I feel disappointed and admit failure, if I am not able to solve a problem in accountancy.
- 14 I believe that learning accountancy is easy, if its principles and rules are understood properly.
- 15 Accountancy is a subject which I cannot learn in spite of my hard work.
- 16 If a complicated question in accountancy is obtained, I totally get involved in it till the solution is found.
- 17 Moving from comprehensive idea to particular details will help to understand more while doing problems in accountancy.
- 18 I believe that any tough problem in accountancy can be solved.
- 19 To understand the relation between the concepts, one needs to study accountancy with ample time
- 20 Even though I do not comprehend I accept the solutions in accountancy in some instances as it is told by the teacher.
- 21 Accountancy is a subject where creativity has no scope.
- 22 I feel despair at working hard to find solutions to accountancy questions.
- 23 Anybody can study even the difficult portions of accountancy if learnt by taking enough time.
- 24 Accountancy is a subject which I cannot study myself.
- 25 All accountancy teachers follow similar method to solve the problems in accountancy.
- 26 I experience difficulty when the teacher solves accountancy problems using different methods.
- 27 I have no hope that skills in accountancy can be developed.
- 28 Learning accountancy is easy, if the concepts of accountancy are known precisely.
- 29 Due to the inability of the teacher I am not able to succeed in accountancy.
- 30 I often learn the facts/rules of accountancy from my mistakes.
- 31 Accountancy is a subject that needs systematic study.
- 32 I often learn accountancy by memorization since the concepts are not related.

- 33 I believe that the success and failure in accountancy depends on the ability of the teacher.
- 34 Accountancy is understood better when learnt in connection with other subjects
- 35 Since I am weak in mathematics I cannot find solutions to accountancy problems.
- 36 Accountancy learning can be made easy by practicing problems regularly.
- 37 I believe that inborn talents are needed to solve accountancy problems.
- 38 The rules and theorems in accountancy can be understood only if clarified by the teacher.
- 39 If the steps are known perfectly, it is easy to find solutions to the questions in accountancy.
- 40 Even without possessing inborn abilities, I can complete the tough questions in accountancy.

**APPENDIX IV**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**SCALE ON EPISTEMOLOGICAL BELIEFS IN ACCOUNTANCY**  
**RESPONSE SHEET**

Name of Student: ..... Standard: .....

Name of School: ..... Urban / Rural: .....

Girl / Boy: ..... Govt./Aided: .....

Sl. No.	Correct	Undecided	Wrong
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Sl. No.	Correct	Undecided	Wrong
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**APPENDIX V**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**ACHIEVEMENT GOAL INVENTORY**  
**(Draft)**

**Prof. (Dr.) P. Usha**  
**Professor**

**Mrs. Niranjana.K.P.**  
**Research Scholar**

**നിർദ്ദേശങ്ങൾ**

നിങ്ങളുടെ പഠനവുമായി ബന്ധപ്പെട്ട പ്രസ്താവനകളാണ് താഴെ കൊടുത്തിരിക്കുന്നത്. ഓരോ പ്രസ്താവനയും മൂന്ന് വീതം പ്രതികരണങ്ങൾ കൊടുത്തിട്ടുണ്ട്.

- 1) യോജിക്കുന്നു 2) തീരുമാനമില്ല 3) വിയോജിക്കുന്നു

ഓരോ പ്രസ്താവനയും ശ്രദ്ധാപൂർവ്വം വായിച്ച്, അതിൽ പറയുന്ന കാര്യങ്ങൾ നിങ്ങളെ സംബന്ധിച്ചിടത്തോളം എത്രമാത്രം ശരിയാണെന്ന് തീരുമാനിക്കുക. തന്നിരിക്കുന്ന ഉത്തരകടലാസ്സിൽ അതാത് പ്രസ്താവനകളുടെ നമ്പറിന് എതിരെ നിങ്ങളുടെ പ്രതികരണം (✓) ചിഹ്നം ഉപയോഗിച്ച് രേഖപ്പെടുത്തുക. എല്ലാ പ്രസ്താവനകൾക്കും പ്രതികരണം രേഖപ്പെടുത്താൻ ശ്രദ്ധിക്കണം.

1. ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കുന്നതിനു വേണ്ടി ഞാൻ അധ്യാപകരുടെ ക്ലാസ്സുകൾ വളരെയധികം ശ്രദ്ധിക്കാറുണ്ട്.
2. ക്ലാസ്സിൽ മോശമായ പ്രകടനമാണോ ഞാൻ കാഴ്ച വെക്കുന്നതെന്ന് വിലയിരുത്താറുണ്ട്.
3. മികച്ച പ്രകടനം കാഴ്ചവയ്ക്കാനായി പലപ്പോഴും ഞാൻ കാണാപാഠം പഠിക്കാറുണ്ട്.
4. കഠിനപ്രയത്നം ചെയ്താൽ പാഠഭാഗങ്ങളിലുള്ള എന്റെ നൈപുണി വളർത്താമെന്നവിശ്വാസം എനിക്കുണ്ട്.
5. പാഠ്യേതരപ്രവർത്തനങ്ങളിലും സഹപാഠികളേക്കാൾ മോശക്കാരനാകാൻ ഞാൻ അഗ്രഹിക്കുന്നില്ല.
6. സഹപാഠികളേക്കാൾ മികച്ച പ്രകടനം കാഴ്ചവെക്കുക എന്നതാണ് എന്റെ ലക്ഷ്യം.
7. ക്ലാസ്സിൽ എടുക്കുന്ന പാഠഭാഗങ്ങൾ വളരെ ചിട്ടയോടുകൂടി അതതു ദിവസം തന്നെ ഞാൻ പഠിച്ചു തീർക്കാറുണ്ട്.
8. സഹപാഠികളേക്കാൾ മോശക്കാരനാകും എന്ന ഭയമുള്ളതുകൊണ്ട് ഞാൻ നന്നായി പഠിക്കാറുണ്ട്.
9. സഹപാഠികളേക്കാൾ മികച്ചവനാണെന്ന് കാണിക്കുന്നതിനായി ഞാൻ പലപ്പോഴും ഗ്രൂപ്പ് പ്രവർത്തനങ്ങൾ മുൻകൈയെടുത്ത് ചെയ്യാറുണ്ട്.



10. ഓരോ ആശയങ്ങളും വ്യക്തമായി മനസ്സിലാക്കിയാണ് ഞാൻ പഠിക്കുന്നത്.
11. എന്റെ പരാജയങ്ങൾ എന്റെ കഴിവുകേടായിട്ടാണ് ഞാൻ കണക്കാക്കുന്നത്.
12. പഠിക്കുന്നത് ഏതു വിഷയമായാലും വളരെ ആഴത്തിൽ മനസ്സിലാക്കി പഠിക്കുന്നതാണ് എനിക്കിഷ്ടം.
13. അധ്യാപകരുടെ മുൻപിൽ ഞാൻ മികച്ചതാണെന്ന് കാണിക്കാൻ കിട്ടുന്ന ഒരു അവസരവും പാഴാക്കിയില്ല.
14. ക്ലാസ്സിൽ പഠിപ്പിച്ച ഒരു ആശയത്തിന്റെ വിശദാംശങ്ങൾ അറിയുന്നതിനായി ഞാൻ കിട്ടാവുന്നത്ര പുസ്തകങ്ങൾ റഫർ ചെയ്യാറുണ്ട്.
15. സഹപാഠികളേക്കാൾ മികച്ചപ്രകടനം കാഴ്ചവെയ്ക്കാൻ സാധിക്കാത്ത പ്രവർത്തനങ്ങളിൽ ഞാൻ ഏർപ്പെടാറില്ല.
16. അധ്യാപകർ എന്നെ പുകഴ്ത്തി പറയുന്നത് എനിക്കിഷ്ടമാണ്.
17. എത്ര ബുദ്ധിമുട്ടുള്ള പാഠഭാഗങ്ങളും ഞാൻ ഒരു വെല്ലുവിളിയായി സ്വീകരിച്ച് പഠിച്ചെടുക്കാൻ ശ്രമിക്കാറുണ്ട്.
18. ഞാൻ കേമനാണെന്ന് സഹപാഠികൾ അംഗീകരിക്കണമെന്ന് ഞാൻ അഗ്രഹിക്കുന്നു.
19. പഠിക്കുന്ന വിഷയവുമായി ബന്ധപ്പെട്ട അറിവ് വർദ്ധിപ്പിക്കാൻ അധ്യാപകരുടെ സഹായം ഞാൻ തേടാറുണ്ട്.
20. പരീക്ഷക്ക് പരാജയപ്പെടുമ്പോൾ എന്റെ കഴിവില്ലായ്മയെ കുറിച്ച് കുറ്റബോധം തോന്നാറുണ്ട്.
21. എന്റെ പ്രവർത്തനങ്ങൾ മികച്ചതാണെന്ന് മറ്റുള്ളവർ പറയുന്നത് എനിക്കിഷ്ടമാണ്.
22. എന്നിൽ അന്തർലീനമായ കഴിവുകൾ പുറത്തെടുക്കുക എന്നതാണ് എന്റെ അന്തിമമായ ലക്ഷ്യം.
23. പരാജയഭീതി ഉള്ളതിനാൽ ഞാൻ പലപ്പോഴും പാഠ്യേതരപ്രവർത്തനങ്ങളിൽ നിന്നു വിട്ടുനിൽക്കാറുണ്ട്.
24. സുഹൃത്തുക്കൾ അഭിനന്ദിക്കുമ്പോൾ ഞാൻ ആഹ്ലാദം കണ്ടെത്താറുണ്ട്.
25. ക്ലാസ്സിൽ അധ്യാപകൻ അവതരിപ്പിച്ച വിഷയങ്ങളിൽ അഗ്രഗണ്യനാവുക എന്നതാണ് എന്റെ ലക്ഷ്യം.
26. വിജയിക്കുമെന്ന് ഉറപ്പുള്ള പ്രവർത്തനങ്ങളിൽ മാത്രമേ ഞാൻ ഏർപ്പെടാറുള്ളൂ.
27. പരിചയ സമ്പന്നരായ അധ്യാപകർ എന്റെ കഴിവുകൾ പൂർണ്ണമായി കണ്ടെത്താൻ സഹായിക്കാറുണ്ട്.
28. ക്ലാസ്സിൽ ഞാൻ മോശമായ പ്രകടനം കാഴ്ചവെക്കുമ്പോൾ അതോർത്ത് പശ്ചാത്തപിക്കാറുണ്ട്.
29. വിഷയത്തിലെ ആഴത്തിലുള്ള അറിവിനേക്കാൾ എനിക്ക് പ്രധാനം സഹപാഠികളേക്കാൾ മികച്ചതാണെന്ന് പ്രദർശിപ്പിക്കുന്നതാണ്.
30. ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കുന്നതിനായി കിട്ടുന്ന എല്ലാ അവസരങ്ങളും ഞാൻ പ്രോയജനപ്പെടുത്താറുണ്ട്.
31. പരമാവധി അറിവുകൾ ശേഖരിച്ച് പുതിയതായി പഠിച്ച ആശയത്തിലെ അവ്യക്തതകൾ മാറ്റാറുണ്ട്.

32. അധ്യാപകരുടെ പ്രസംഗ കിട്ടുന്നതിനായി ഞാൻ പരീക്ഷയിൽ ഉന്നതവിജയം കൈവരിക്കാൻ ശ്രമിക്കാറുണ്ട്.
33. ക്ലാസ്സിൽ എനിക്ക് മോശം ഗ്രെയ്ഡ് കിട്ടുമോ എന്ന് ഞാൻ വ്യാകുലപ്പെടാറുണ്ട്.
34. എളുപ്പമുള്ള പാഠഭാഗങ്ങൾ പഠിക്കുമ്പോൾ എനിക്ക് വിരസത തോന്നാറുണ്ട്.
35. ക്ലാസ്സിൽ ഞാൻ സഹപാഠികളേക്കാൾ പിന്നോട്ടുപോകുമോ എന്ന ഭയമാണ് പലപ്പോഴും എനിക്ക് പഠിക്കാനുള്ള പ്രചോദനമാക്കുന്നത്.
36. ബുദ്ധിമുട്ടുള്ള പാഠഭാഗങ്ങൾ ഞാൻ വളരെ ഉത്സാഹത്തോടെയാണ് പഠിക്കുന്നത്.
37. എന്റെ പ്രകടനത്തെ ഞാൻ സഹപാഠികളുടേതുമായി പലപ്പോഴും താരതമ്യം ചെയ്യാറുണ്ട്.
38. എന്റെ കഴിവുകൾ വർദ്ധിപ്പിക്കാൻ ഞാൻ അധ്യാപകരിൽനിന്ന് അഭിപ്രായങ്ങൾ സ്വീകരിക്കാറുണ്ട്.
39. ക്ലാസ്സിൽ മോശമായ പ്രകടനം കാഴ്ചവെക്കേണ്ടി വരുന്ന അവസരങ്ങൾ ഞാൻ പരമാവധി ഒഴിവാക്കാറുണ്ട്.
40. സഹപാഠികളുമൊന്നിച്ച് പാഠഭാഗങ്ങൾ പഠിക്കുന്നതും സംശയനിവാരണം നടത്തുന്നതും എന്റെ അറിവ് വർദ്ധിപ്പിക്കാൻ സഹായിക്കുമെന്ന വിശ്വാസം എനിക്കുണ്ട്.
41. കുടുംബാംഗങ്ങളെ തൃപ്തിപ്പെടുത്തുന്ന പ്രകടനത്തിനു ഞാൻ ശ്രമിക്കാറുണ്ട്.
42. പഠനത്തിലുണ്ടാകുന്ന തെറ്റുകൾ അറിവ് വർദ്ധിപ്പിക്കുന്നതിനുള്ള മാർഗ്ഗമായാണ് ഞാൻ കാണുന്നത്.
43. എന്റെ അധ്യാപകൻ ഞാൻ മികച്ചവനാണെന്ന് കരുതുന്നില്ലല്ലോ എന്ന ചിന്ത എന്നെ പലപ്പോഴും അലട്ടാറുണ്ട്.
44. പഠിക്കുന്ന ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കി പുരോഗമിക്കുമ്പോൾ സംതൃപ്തി തോന്നാറുണ്ട്.
45. എന്റെ അസൈൻമെന്റുകൾ സഹപാഠികളുടേതിനേക്കാൾ മികച്ചതാക്കാൻ ഞാൻ ശ്രമിക്കാറുണ്ട്.
46. സഹപാഠികളേക്കാൾ മികച്ച രീതിയിൽ പ്രവർത്തനങ്ങൾ ചെയ്യാൻ ഞാൻ ശ്രമിക്കാറുണ്ട്.
47. എന്റെ മികവുകൾ മറ്റുള്ളവരെ കാണിക്കാൻ ഞാൻ അത്യുൽസാഹം കാണിക്കാറുണ്ട്.
48. ക്ലാസ്സിൽ അധ്യാപകൻ പഠിപ്പിച്ചത് മുഴുവൻ പഠിക്കണം എന്നത് എനിക്ക് നിർബന്ധമാണ്.
49. സഹപാഠികൾക്ക് കൂടുതൽ മാർക്കുകൾ കിട്ടിയാൽ അവരുടെ ഉത്തരപ്പേപ്പർ വാങ്ങി താരതമ്യം ചെയ്യാറുണ്ട്.
50. സഹപാഠികളേക്കാൾ മികച്ച പ്രകടനം കാഴ്ച വെക്കണമെന്ന എന്റെ ആഗ്രഹമാണ് പലപ്പോഴും എനിക്ക് പഠിക്കാൻ പ്രചോദനമാകുന്നത്.
51. മനസ്സിലാക്കാത്ത പാഠഭാഗങ്ങൾ മനസ്സിലാക്കുന്നതിന് ഞാൻ കഠിനപ്രയത്നം ചെയ്യാറുണ്ട്.

52. ഞാൻ മോശക്കാരനാണെന്ന് അധ്യാപകർ ചിന്തിക്കുന്ന സാഹചര്യം ഒഴിവാക്കുന്നുണ്ട്.
53. അധ്യാപകൻ ഏൽപ്പിക്കുന്ന അസൈൻമെന്റ് സഹപാഠികളേക്കാൾ മുൻപ് ചെയ്തു തീർക്കാൻ ശ്രമിക്കുന്നുണ്ട്.
54. പാഠ്യേതര വിഷയങ്ങളിൽ പങ്കെടുക്കുന്നത് എനിക്ക് സന്തോഷമുള്ള കാര്യമാണ്.
55. അധ്യാപകർ തെറ്റുകൾ ചൂണ്ടിക്കാണിക്കുമ്പോൾ മറ്റുള്ളവരുടെ മുൻപിൽ ഞാൻ മോശക്കാരനായതു പോലെ തോന്നുന്നുണ്ട്.
56. എന്റെ ഗ്രേഡ് മറ്റുള്ളവരേക്കാൾ മികച്ചതാക്കാൻ ഞാൻ ശ്രമിക്കുന്നുണ്ട്.

APPENDIX VI  
DEPARTMENT OF EDUCATION  
UNIVERSITY OF CALICUT  
ACHIEVEMENT GOAL INVENTORY  
(Final)

Prof. (Dr.) P. Usha  
Professor

Mrs. Niranjana.K.P.  
Research Scholar

നിർദ്ദേശങ്ങൾ

നിങ്ങളുടെ പഠനവുമായി ബന്ധപ്പെട്ട പ്രസ്താവനകളാണ് താഴെ കൊടുത്തിരിക്കുന്നത്. ഓരോ പ്രസ്താവനക്കും മൂന്ന് വീതം പ്രതികരണങ്ങൾ കൊടുത്തിട്ടുണ്ട്.

- 1) യോജിക്കുന്നു 2) തീരുമാനമില്ല 3) വിരോധിക്കുന്നു

ഓരോ പ്രസ്താവനയും ശ്രദ്ധാപൂർവ്വം വായിച്ച്, അതിൽ പറയുന്ന കാര്യങ്ങൾ നിങ്ങളെ സംബന്ധിച്ചിടത്തോളം എത്രമാത്രം ശരിയാണെന്ന് തീരുമാനിക്കുക. തന്നിരിക്കുന്ന ഉത്തരകടലാസ്സിൽ അതാത് പ്രസ്താവനകളുടെ നമ്പറിന് എതിരെ നിങ്ങളുടെ പ്രതികരണം (✓) ചിഹ്നം ഉപയോഗിച്ച് രേഖപ്പെടുത്തുക. എല്ലാ പ്രസ്താവനകൾക്കും പ്രതികരണം രേഖപ്പെടുത്താൻ ശ്രദ്ധിക്കണം.

- 1. ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കുന്നതിനു വേണ്ടി ഞാൻ അധ്യാപകരുടെ ക്ലാസ്സുകൾ വളരെയധികം ശ്രദ്ധിക്കാറുണ്ട്.
- 2. ക്ലാസ്സിൽ മോശമായ പ്രകടനമാണോ ഞാൻ കാഴ്ച വെക്കുന്നതെന്ന് വിലയിരുത്താറുണ്ട്.
- 3. മികച്ച പ്രകടനം കാഴ്ചവയ്ക്കാനായി പലപ്പോഴും ഞാൻ കാണാപാഠം പഠിക്കാറുണ്ട്.
- 4. കഠിനപ്രയത്നം ചെയ്താൽ പാഠഭാഗങ്ങളിലുള്ള എന്റെ നൈപുണി വളർത്താമെന്നവിശ്വാസം എനിക്കുണ്ട്.
- 5. പാഠ്യേതരപ്രവർത്തനങ്ങളിലും സഹപാഠികളേക്കാൾ മോശക്കാരനാകാൻ ഞാൻ അഗ്രഹിക്കുന്നില്ല.
- 6. സഹപാഠികളേക്കാൾ മികച്ച പ്രകടനം കാഴ്ചവെക്കുക എന്നതാണ് എന്റെ ലക്ഷ്യം.
- 7. ക്ലാസ്സിൽ എടുക്കുന്ന പാഠഭാഗങ്ങൾ വളരെ ചിട്ടയോടുകൂടി അതതു ദിവസം തന്നെ ഞാൻ പഠിച്ചു തീർക്കാറുണ്ട്.
- 8. സഹപാഠികളേക്കാൾ മോശക്കാഴ്ചനാകും എന്ന ഭയമുള്ളതുകൊണ്ട് ഞാൻ നന്നായി പഠിക്കാറുണ്ട്.
- 9. എന്റെ പരാജയങ്ങൾ എന്റെ കഴിവുകേടായിട്ടാണ് ഞാൻ കണക്കാക്കുന്നത്.
- 10. പഠിക്കുന്നത് ഏതു വിഷയമായാലും വളരെ ആഴത്തിൽ മനസ്സിലാക്കി പഠിക്കുന്നതാണ് എനിക്കിഷ്ടം.

11. അധ്യാപകരുടെ മുൻപിൽ ഞാൻ മികച്ചതാണെന്ന് കാണിക്കാൻ കിട്ടുന്ന ഒരു അവസരവും പാഴാക്കറില്ല.
12. ക്ലാസ്സിൽ പഠിപ്പിച്ച ഒരു ആശയത്തിന്റെ വിശദാംശങ്ങൾ അറിയുന്നതിനായി ഞാൻ കിട്ടാവുന്നത്ര പുസ്തകങ്ങൾ റഫർ ചെയ്യാറുണ്ട്.
13. ഞാൻ കേമനാണെന്ന് സഹപാഠികൾ അംഗീകരിക്കണമെന്ന് ഞാൻ അഗ്രഹിക്കുന്നു.
14. പഠിക്കുന്ന വിഷയവുമായി ബന്ധപ്പെട്ട അറിവ് വർദ്ധിപ്പിക്കാൻ അധ്യാപകരുടെ സഹായം ഞാൻ തേടാറുണ്ട്.
15. പരീക്ഷക്ക് പരാജയപ്പെടുമ്പോൾ എന്റെ കഴിവില്ലായ്മയെ കുറിച്ച് കുറ്റബോധം തോന്നാറുണ്ട്.
16. എന്റെ പ്രവർത്തനങ്ങൾ മികച്ചതാണെന്ന് മറ്റുള്ളവർ പറയുന്നത് എനിക്കിഷ്ടമാണ്.
17. എന്നിൽ അന്തർലീനമായ കഴിവുകൾ പുറത്തെടുക്കുക എന്നതാണ് എന്റെ അന്തിമമായ ലക്ഷ്യം.
18. പരാജയഭീതി ഉള്ളതിനാൽ ഞാൻ പലപ്പോഴും പാഠ്യേതരപ്രവർത്തനങ്ങളിൽ നിന്നു വിട്ടുനിൽക്കാറുണ്ട്.
19. സുഹൃത്തുക്കൾ അഭിനന്ദിക്കുമ്പോൾ ഞാൻ ആഹ്ലാദം കണ്ടെത്താറുണ്ട്.
20. ക്ലാസ്സിൽ അധ്യാപകൻ അവതരിപ്പിച്ച വിഷയങ്ങളിൽ അഗ്രഗണ്യനാവുക എന്നതാണ് എന്റെ ലക്ഷ്യം.
21. വിജയിക്കുമെന്ന് ഉറപ്പുള്ള പ്രവർത്തനങ്ങളിൽ മാത്രമേ ഞാൻ ഏർപ്പെടാറുള്ളൂ.
22. ക്ലാസ്സിൽ ഞാൻ മോശമായ പ്രകടനം കാഴ്ചവെക്കുമ്പോൾ അതോർത്ത് പശ്ചാത്തപിക്കാറുണ്ട്.
23. വിഷയത്തിലെ ആഴത്തിലുള്ള അറിവിനേക്കാൾ എനിക്ക് പ്രധാനം സഹപാഠികളേക്കാൾ മികച്ചതാണെന്ന് പ്രദർശിപ്പിക്കുന്നതാണ്.
24. ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കുന്നതിനായി കിട്ടുന്ന എല്ലാ അവസരങ്ങളും ഞാൻ പ്രോയജനപ്പെടുത്താറുണ്ട്.
25. അധ്യാപകരുടെ പ്രസംഗം കിട്ടുന്നതിനായി ഞാൻ പരീക്ഷയിൽ ഉന്നതവിജയം കൈവരിക്കാൻ ശ്രമിക്കാറുണ്ട്.
26. ക്ലാസ്സിൽ എനിക്ക് മോശം ഗ്രേഡ് കിട്ടുമോ എന്ന് ഞാൻ വ്യാകുലപ്പെടാറുണ്ട്.
27. ക്ലാസ്സിൽ ഞാൻ സഹപാഠികളേക്കാൾ പിന്നോട്ടുപോകുമോ എന്ന ഭയമാണ് പലപ്പോഴും എനിക്ക് പഠിക്കാനുള്ള പ്രചോദനമാക്കുന്നത്.
28. എന്റെ പ്രകടനത്തെ ഞാൻ സഹപാഠികളുടേതുമായി പലപ്പോഴും താരതമ്യം ചെയ്യാറുണ്ട്.
29. എന്റെ കഴിവുകൾ വർദ്ധിപ്പിക്കാൻ ഞാൻ അധ്യാപകരിൽനിന്ന് അഭിപ്രായങ്ങൾ സ്വീകരിക്കാറുണ്ട്.
30. ക്ലാസ്സിൽ മോശമായ പ്രകടനം കാഴ്ചവെക്കേണ്ടി വരുന്ന അവസരങ്ങൾ ഞാൻ പരമാവധി ഒഴിവാക്കാറുണ്ട്.
31. സഹപാഠികളുമൊന്നിച്ച് പാഠഭാഗങ്ങൾ പഠിക്കുന്നതും സംശയനിവാരണം നടത്തുന്നതും എന്റെ അറിവ് വർദ്ധിപ്പിക്കാൻ സഹായിക്കുമെന്ന വിശ്വാസം എനിക്കുണ്ട്.

32. കുടുംബാംഗങ്ങളെ തൃപ്തിപ്പെടുത്തുന്ന പ്രകടനത്തിനു ഞാൻ ശ്രമിക്കാറുണ്ട്.
33. എന്റെ അധ്യാപകൻ ഞാൻ മികച്ചവനാണെന്ന് കരുതുന്നില്ലല്ലോ എന്ന ചിന്ത എന്നെ പലപ്പോഴും അലട്ടാറുണ്ട്.
34. പഠിക്കുന്ന ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കി പുരോഗമിക്കുമ്പോൾ സംതൃപ്തി തോന്നാറുണ്ട്.
35. എന്റെ അസൈൻമെന്റുകൾ സഹപാഠികളുടേതിനേക്കാൾ മികച്ചതാക്കാൻ ഞാൻ ശ്രമിക്കാറുണ്ട്.
36. സഹപാഠികളേക്കാൾ മികച്ച രീതിയിൽ പ്രവർത്തനങ്ങൾ ചെയ്യാൻ ഞാൻ ശ്രമിക്കാറുണ്ട്.
37. എന്റെ മികവുകൾ മറ്റുള്ളവരെ കാണിക്കാൻ ഞാൻ അത്യുൽസാഹം കാണിക്കാറുണ്ട്.
38. ക്ലാസ്സിൽ അധ്യാപകൻ പഠിപ്പിച്ചത് മുഴുവൻ പഠിക്കണം എന്നത് എനിക്ക് നിർബന്ധമാണ്.
39. സഹപാഠികളേക്കാൾ മികച്ച പ്രകടനം കാഴ്ച വെക്കണമെന്ന എന്റെ ആഗ്രഹമാണ് പപ്പോഴും എനിക്ക് പഠിക്കാൻ പ്രചോദനമാകുന്നത്.
40. മനസ്സിലാക്കാത്ത പാഠഭാഗങ്ങൾ മനസ്സിലാക്കുന്നതിന് ഞാൻ കഠിനപ്രയത്നം ചെയ്യാറുണ്ട്.
41. ഞാൻ മോശക്കാരനാണെന്ന് അധ്യാപകർ ചിന്തിക്കുന്ന സാഹചര്യം ഒഴിവാക്കാറുണ്ട്.
42. അധ്യാപകൻ ഏൽപ്പിക്കുന്ന അസൈൻമെന്റ് സഹപാഠികളേക്കാൾ മുൻപ് ചെയ്തു തീർക്കാൻ ശ്രമിക്കാറുണ്ട്.
43. പാഠ്യേതര വിഷയങ്ങളിൽ പങ്കെടുക്കുന്നത് എനിക്ക് സന്തോഷമുള്ള കാര്യമാണ്.
44. അധ്യാപകർ തെറ്റുകൾ ചൂണ്ടിക്കാണിക്കുമ്പോൾ മറ്റുള്ളവരുടെ മുൻപിൽ ഞാൻ മോശക്കാരനായതു പോലെ തോന്നാറുണ്ട്.
45. എന്റെ ഗ്രേഡ് മറ്റുള്ളവരേക്കാൾ മികച്ചതാക്കാൻ ഞാൻ ശ്രമിക്കാറുണ്ട്.

**APPENDIX VII**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**ACHIEVEMENT GOAL INVENTORY**  
**(Final)**

**Prof. (Dr.) P. Usha**  
**Professor**

**Mrs. Niranjana.K.P.**  
**Research Scholar**

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**Instruction:**

Given below are some statements related to your studies. For each statement three responses have been given viz, (1) Agree (2) Undecided (3) Disagree. Read each statement carefully and decide which of the responses indicate the extent of your preferences. Mark your responses with a tick mark (✓) against the statement number in the separate response sheet given. Take care to mark responses against all the statements.

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- 1 I listen to the teachers' class very well to understand the concepts clearly.
- 2 I evaluate my performance in class as not up to the mark.
- 3 I often learn by heart to exhibit better performance.
- 4 I am confident that I can develop my skills in lessons through hard work.
- 5 I do not like to lag behind my classmates even in co-curricular activities.
- 6 My aim is to perform better than my classmates.
- 7 I study systematically the topics which are covered in the class every day.
- 8 I study well, fearing that I may be worse than my classmates.
- 9 I consider my failure as the lack of my ability.
- 10 I like to study in depth whatever be the subject of study.
- 11 I never miss any opportunity to impress my teachers.
- 12 I refer maximum number of books to know the details of the concept taught in the class.
- 13 I wish that my classmates may accept that I am smart.
- 14 I seek the help of teachers in increasing knowledge related to the subject.
- 15 I feel guilty of my inability when I fail in exams.
- 16 I like others saying that my activities are perfect.
- 17 My ultimate aim is to bring out the inner abilities in me.

- 18 I often keep away from co-curricular activities due to fear of failure.
- 19 I enjoy when friends appreciate me.
- 20 My aim is to be an expert in the topics presented by teachers in the class.
- 21 I engage in only those activities ensuring success.
- 22 I regret about the poor performance in the class.
- 23 It is more important for me to show better off than my classmates' rather in-depth knowledge in subject.
- 24 I utilize all opportunities obtained to understand the concepts clearly.
- 25 I try to achieve good marks in exams to get praise from the teachers.
- 26 I am worried that I may score poor grades in class.
- 27 The fear of falling behind my classmates often motivates me for studying.
- 28 I often compare my performance with that of my classmates
- 29 I accept opinions from teachers to enhance my capabilities.
- 30 I try my best to avoid situations that make my performance poor in the class.
- 31 I believe that learning lessons with my friends help to clarify doubts and increase my knowledge.
- 32 I try to perform well to satisfy my family members.
- 33 I often worry that my teachers do not consider me as the best.
- 34 I feel satisfied when I progress by understanding the concepts clearly.
- 35 I try to make my assignments better than my classmates.
- 36 I try to do activities better than my classmates.
- 37 I am over enthusiastic to exhibit my talents to others.
- 38 I am very particular in learning lessons completely that is being taught in the class.
- 39 My desire to perform better than my classmates often motivates me to study.
- 40 I work hard to understand those lessons which are not comprehended by me.
- 41 I try to avoid situations where teachers may think that my performance is poor.
- 42 I try to complete the assignments given by the teacher before my classmates.
- 43 I am happy to take part in co-curricular activities.
- 44 I feel belittled before others when teachers point out my mistakes.
- 45 I take efforts to make my grades higher than others.



**APPENDIX VIII**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**ACHIEVEMENT GOAL INVENTORY**  
**RESPONSE SHEET**

Name of Student: ..... Standard: .....

Name of School: ..... Urban / Rural: .....

Girl / Boy: ..... Govt./Aided: .....

Sl. No.	Agree	Undecided	Disagree
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22			
23			

Sl. No.	Agree	Undecided	Disagree
24			
25			
26			
27			
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APPENDIX IX

DEPARTMENT OF EDUCATION  
UNIVERSITY OF CALICUT

SCALE ON SELF REGULATED LEARNING STRATEGIES  
(Draft)

Prof. (Dr.) P. Usha  
Professor

Mrs. Niranjana.K.P.  
Research Scholar

നിർദ്ദേശങ്ങൾ

താഴെ കൊടുത്തിരിക്കുന്നത് നിങ്ങളുടെ പഠന രീതികളെക്കുറിച്ച് മനസ്സിലാക്കാനുള്ള പ്രസ്താവനകളാണ്. ഓരോ പ്രസ്താവനക്കും മൂന്നുവീതം പ്രതികരണങ്ങൾ കൊടുത്തിട്ടുണ്ട്.

- 1) എല്ലായ്പ്പോഴും 2) ചിലപ്പോൾ മാത്രം 3) ഒരിക്കലുമില്ല

ഓരോ പ്രസ്താവനയും ശ്രദ്ധാപൂർവ്വം വായിച്ച്, അതിൽ പറയുന്ന കാര്യങ്ങൾ നിങ്ങളെ സംബന്ധിച്ചിടത്തോളം എത്രമാത്രം ശരിയാണെന്ന് തീരുമാനിക്കുക. തന്നിരിക്കുന്ന ഉത്തരക്കടലാസ്സിൽ അതാത് പ്രസ്താവനകളുടെ നമ്പറിന് എതിരെ നിങ്ങളുടെ പ്രതികരണത്തിന് ചുവടെയുള്ള കോളത്തിൽ (✓)ചിഹ്നം രേഖപ്പെടുത്തുക. എല്ലാ പ്രസ്താവനകൾക്കും പ്രതികരണം രേഖപ്പെടുത്താൻ ശ്രദ്ധിക്കണം.

1. പ്രയാസമുള്ള പാഠഭാഗങ്ങൾ മനസ്സിലാക്കുന്നതിനായി വ്യക്തമായ സംഗ്രഹം തയ്യാറാക്കാറുണ്ട്.
2. പഠന പ്രവർത്തനങ്ങൾക്ക് കൃത്യമായ രൂപരേഖ തയ്യാറാക്കാറുണ്ട്.
3. പഠനസംബന്ധമായ തുടർപ്രവർത്തനങ്ങൾ കൃത്യമായി ചെയ്തുതീർക്കാൻ ശ്രമിക്കാറില്ല.
4. പാഠഭാഗങ്ങൾ മറ്റു വിഷയങ്ങളുമായി ബന്ധപ്പെടുത്തി പഠിക്കാറുണ്ട്.
5. പാഠഭാഗങ്ങൾ ആസൂത്രണം ചെയ്യുമ്പോൾ പ്രധാന്യമുള്ള ഭാഗങ്ങൾ ആദ്യം ഉൾക്കൊള്ളിക്കാറുണ്ട്.
6. പാഠഭാഗങ്ങൾ തീരുമാനിച്ചുറപ്പിച്ചതുപോലെ തന്നെ പഠിക്കാറുണ്ട്.
7. പാഠഭാഗങ്ങൾ മുൻ അറിവുമായി ബന്ധപ്പെടുത്തി പഠിക്കാൻ മെനക്കെടാറില്ല.
8. ഓരോവിഷയത്തിന്റേയും സ്വഭാവത്തിനനുസരിച്ച് സമയം ക്രമപ്പെടുത്തുകയും ഭാഗിച്ചു കൊടുക്കുകയും ചെയ്യാറുണ്ട്.
9. വ്യക്തമായ ലക്ഷ്യങ്ങളെ മുൻനിർത്തി പഠനപ്രവർത്തനങ്ങൾ ക്രമീകരിക്കാറുണ്ട്.

10. പാഠഭാഗങ്ങൾ ആഴത്തിൽ മനസ്സിലാക്കേണ്ട ആവശ്യമുള്ളതായി കരുതുന്നില്ല.
11. കൃത്യമായി ടൈംടേബിൾ തയ്യാറാക്കിയാണ് പഠനപ്രവർത്തനങ്ങൾ ക്രമീകരിക്കാനുള്ളത്.
12. പഠന പ്രവർത്തനങ്ങൾക്ക് കൃത്യമായ ലക്ഷ്യങ്ങൾ രൂപീകരിക്കാറില്ല.
13. ക്ലാസ്സിൽനിന്ന് ലഭിക്കുന്ന ആശയങ്ങൾ സ്വയം രൂപീകരിച്ച ആശയങ്ങളുമായി ബന്ധപ്പെടുത്താറുണ്ട്.
14. അസൈൻമെന്റുകളും പ്രോജക്ടുകളും ചെയ്യുന്നതിന് സുഹൃത്തുക്കളുടെ സഹായം തേടാറുണ്ട്.
15. പുതിയ ആശയങ്ങൾ വിപുലപ്പെടുത്താൻ ശ്രമിക്കാറില്ല.
16. പഠന പ്രവർത്തനങ്ങൾ കൃത്യമായി ആസൂത്രണം ചെയ്യാറില്ല.
17. വ്യക്തമല്ലാത്ത ആശയങ്ങൾ തന്റേതായ രീതിയിൽ മാറ്റങ്ങൾ വരുത്തി മനസ്സിലാക്കാൻ ശ്രമിക്കാറുണ്ട്.
18. വ്യക്തമായ ലക്ഷ്യങ്ങൾ ഇല്ലാതെയാണ് പഠനപ്രവർത്തനങ്ങളിൽ ഏർപ്പെടാനുള്ളത്.
19. ഏൽപ്പിച്ചു തരുന്ന കാര്യങ്ങൾ സ്വയം ചെയ്തു തീർക്കാൻ ഞാൻ ഇഷ്ടപ്പെടുന്നു.
20. ക്ലാസിലെ പഠനക്കുറിപ്പുകളും അനുബന്ധ പഠനസാമഗ്രികളും ഉപയോഗപ്പെടുത്തി പ്രധാന ആശയങ്ങൾ കണ്ടെത്താൻ ശ്രമിക്കാറുണ്ട്.
21. പ്രയാസമേറിയ വിഷയങ്ങൾ പഠിക്കുന്നതിനായി കൂടുതൽ സമയം നീക്കിവെക്കാറില്ല.
22. പഠനപ്രവർത്തനവുമായി ബന്ധപ്പെട്ട കാര്യങ്ങൾ സുഹൃത്തുക്കളുമായി ചർച്ചചെയ്യാറുണ്ട്.
23. പാഠഭാഗങ്ങൾ ആവർത്തിച്ചുപഠിക്കാൻ താൽപ്പര്യമില്ല.
24. ഉയർന്ന സ്കോർ ലഭിക്കുന്നതിനായി പാഠഭാഗങ്ങൾക്കനുയോജ്യമായ പ്രവർത്തനങ്ങൾ കണ്ടെത്താറുണ്ട്.
25. പാഠഭാഗങ്ങൾ മനസ്സിലാക്കുന്നതിനായി മറ്റുള്ളവരെ ആശ്രയിക്കുന്നതിൽ താൽപര്യമില്ല.
26. പരിശീലനപ്രശ്നങ്ങൾ (practical problems) ആവർത്തിച്ചു ചെയ്യുമ്പോൾ ആശയങ്ങൾ കൂടുതൽ വ്യക്തമാകാറുണ്ട്.
27. പാഠഭാഗങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കുന്നുണ്ടോ എന്നറിയുന്നതിനായി സ്വയം ചോദ്യങ്ങൾ ചോദിക്കാറുണ്ട്.
28. സുഹൃത്തുക്കളുമായി ചർച്ച ചെയ്യുന്നത് പാഠഭാഗത്തിലെ അവിഷ്കൃത ഇല്ലാതാക്കാറുണ്ട്.
29. പാഠഭാഗങ്ങൾ സുഗമമായി ഓർത്തിരിക്കാൻ ചുരുക്കെഴുത്തുകൾ ഉപയോഗപ്പെടുത്താറുണ്ട്.
30. പഠനപ്രക്രിയയുടെ ഓരോ ഘട്ടത്തിലും അവലോകനം നടത്താറില്ല.

31. ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലായില്ലെങ്കിൽ അധ്യാപകനോട് വ്യക്തമാക്കി തരാൻ ആവശ്യപ്പെടാറുണ്ട്.
32. ആശയങ്ങളുടെ വ്യക്തതയ്ക്കായി അവയുടെ ഘടന തയ്യാറാക്കി സൂക്ഷിക്കാറുണ്ട്.
33. സ്വയം ചോദ്യങ്ങൾ തയ്യാറാക്കി ഉത്തരം കണ്ടെത്താൻ ശ്രമിക്കാറുണ്ട്.
34. അവ്യക്തമായ ആശയങ്ങൾ മറ്റുള്ളവരുടെ സഹായത്തോടെ വ്യക്തമാക്കിയെടുക്കാൻ ശ്രമിക്കാറില്ല.
35. ആശയങ്ങൾ ക്രമത്തിൽ ഓർത്തിരിക്കാനായി കുറിപ്പുകളുടെ/കാർഡുകളുടെ രൂപത്തിൽ എഴുതി സൂക്ഷിക്കാറില്ല.
36. ടൈംടേബിൾ അനുസരിച്ചാണോ പഠനപ്രവർത്തനങ്ങൾ മുന്നോട്ട് പോകുന്നത് എന്ന് ഉറപ്പുവരുത്താറുണ്ട്.
37. സമൂഹത്തിൽനിന്നും ലഭ്യമായേക്കാവുന്ന പഠനസഹായ സാധ്യതകൾ വേണ്ട വിധത്തിൽ പ്രയോജനപ്പെടുത്താൻ ശ്രമിക്കാറില്ല.
38. ആശയങ്ങളെ തമ്മിൽ ബന്ധിപ്പിക്കുന്നതിനായി ആശയമാപനരീതി (രീരലുറോമ്യൂശിഴ) ഉപയോഗിക്കാറില്ല.
39. നിശ്ചിതസമയത്തിനുള്ളിൽ പഠനപ്രവർത്തനങ്ങൾ ചെയ്തു തീർക്കാൻ സാധിക്കാറില്ല.
40. ഗ്രൂപ്പ് പ്രവർത്തനത്തിൽനിന്നും ഒഴിഞ്ഞുമാറി നിൽക്കാനാണ് താൽപര്യം.
41. പഠനത്തിനാവശ്യമായ രീതിയിൽ പഠനഭാഗങ്ങൾ ക്രമീകരിക്കാറില്ല.
42. പരീക്ഷകളിൽ ഉണ്ടാകുന്ന തെറ്റുകൾ കൃത്യമായി വിശകലനം ചെയ്യാറുണ്ട്.
43. ആശയങ്ങൾ കൂടുതൽ വ്യക്തമാക്കുന്ന ഗ്രന്ഥങ്ങളെക്കുറിച്ച് അധ്യാപകനോട് ചോദിക്കാറുണ്ട്.
44. പഠിക്കുമ്പോൾ പ്രധാന ആശയങ്ങൾ സംയോജിപ്പിച്ച് മുന്നോട്ടുപോകാൻ ശ്രമിക്കാറില്ല.
45. പരീക്ഷകളിൽ ഉണ്ടാകുന്ന തെറ്റുകൾ പീനീട് തിരുത്താൻ ശ്രമിക്കാറില്ല.
46. പഠിക്കുന്നതിനായി ശാന്തമായ അന്തരീക്ഷം തിരഞ്ഞെടുക്കാറുണ്ട്.
47. വസ്തുതകളും ആശയങ്ങളും എളുപ്പത്തിൽ ഓർത്തിരിക്കാൻ അവയെ പുനക്രമീകരിക്കേണ്ട ആവശ്യം ഉള്ളതായി തോന്നുന്നില്ല.
48. ലക്ഷ്യങ്ങൾ നേടാനുള്ള പ്രവർത്തനങ്ങളിൽ ഏർപ്പെടുന്നുണ്ടോ എന്ന് ഉറപ്പുവരുത്താറുണ്ട്.
49. വിരസത തോന്നുമ്പോൾ പഠനസ്ഥലം മാറ്റാറുണ്ട്.
50. പഠനപ്രവർത്തനങ്ങളിൽ നിന്ന് പിന്നോട്ട് പോകുമ്പോൾ ലക്ഷ്യങ്ങളെ കുറിച്ച് സ്വയം ഓർമ്മപ്പെടുത്താറുണ്ട്.
51. പഠനത്തിൽനിന്നും ശ്രദ്ധപതറിപോകുന്ന കാര്യങ്ങൾ ഇല്ലാതാക്കാൻ ശ്രമിക്കാറുണ്ട്.
52. ആശയങ്ങൾ എളുപ്പം ഓർത്തിരിക്കുന്നതിനായി ഒരേപോലെയുള്ള ആശയങ്ങൾ തരം തിരിച്ച് വെക്കാറുണ്ട്.

53. പരാജയമുണ്ടാകുമ്പോൾ പഠനത്തിൽ താൽപ്പര്യം നഷ്ടപ്പെടാറുണ്ട്.
54. ആശയങ്ങളിലെ അവ്യക്തത മാറ്റുവാനായി ലൈബ്രറി, ഇന്റർനെറ്റ് എന്നിവയുടെ സഹായം തേടാറുണ്ട്.
55. വിരസവും താൽപര്യജനകവുമല്ലാത്ത പാഠഭാഗങ്ങൾ പഠനത്തിൽ നിന്ന് പൂർണ്ണമായും ഒഴിവാക്കാറുണ്ട്.
56. പാഠഭാഗങ്ങൾ നിശ്ചിത സമയത്ത് പഠിച്ചു തീർത്ത് സ്വയം അഭിമാനിക്കാറുണ്ട്.
57. പഠനത്തിനായി പാഠപുസ്തകത്തെ മാത്രം ആശ്രയിച്ച് പഠിക്കുന്ന ശീലമാണുള്ളത്.
58. പഠിക്കാനുള്ള കാര്യങ്ങൾ കൃത്യമായി ചെയ്തുതീർക്കുകയാണെങ്കിൽ ആസ്വാദ്യകരമായ കാര്യങ്ങളിൽ ഏർപ്പെടാമെന്ന് സ്വയം ഓർമ്മപ്പെടുത്താറുണ്ട്.
59. ലൈബ്രറി, ഇന്റർനെറ്റ് എന്നിവ ഉപയോഗിക്കുന്നതിനായി നിശ്ചിതസമയം കണ്ടെത്താറില്ല.
60. പഠിക്കുമ്പോൾ വിരസത തോന്നിയാൽ പിന്നെ തുടർന്നു പഠിക്കാറില്ല.
61. സമൂഹമാധ്യമങ്ങളിൽ (social media) പങ്കെടുക്കുവാൻ സമയമെടുക്കുന്നതുകൊണ്ട് പഠനപ്രവർത്തനങ്ങൾ സമയാധിഷ്ഠിതമായി തീർക്കാൻ സാധിക്കാറില്ല.
62. പഠനപ്രക്രിയയിൽ വിരസത തോന്നുമ്പോൾ, വിഷയങ്ങൾ പഠിക്കുന്നതിന്റെ പ്രാധാന്യത്തെ കുറിച്ച് ചിന്തിക്കാറുണ്ട്.
63. ഉയർന്ന നേട്ടങ്ങൾ കരസ്ഥമാക്കുവാൻ സ്വയം പ്രോത്സാഹനം നൽകാറുണ്ട്.

APPENDIX X

DEPARTMENT OF EDUCATION  
UNIVERSITY OF CALICUT

SCALE ON SELF REGULATED LEARNING STRATEGIES  
(Final)

Prof. (Dr.) P. Usha  
Professor

Mrs. Niranjana.K.P.  
Research Scholar

നിർദ്ദേശങ്ങൾ

താഴെ കൊടുത്തിരിക്കുന്നത് നിങ്ങളുടെ പഠന രീതികളെക്കുറിച്ച് മനസ്സിലാക്കാനുള്ള പ്രസ്താവനകളാണ്. ഓരോ പ്രസ്താവനക്കും മൂന്നുവീതം പ്രതികരണങ്ങൾ കൊടുത്തിട്ടുണ്ട്.

- 1) എല്ലായ്പ്പോഴും 2) ചിലപ്പോൾ മാത്രം 3) ഒരിക്കലുമില്ല

ഓരോ പ്രസ്താവനയും ശ്രദ്ധാപൂർവ്വം വായിച്ച്, അതിൽ പറയുന്ന കാര്യങ്ങൾ നിങ്ങളെ സംബന്ധിച്ചിടത്തോളം എത്രമാത്രം ശരിയാണെന്ന് തിരുമാനിക്കുക. തന്നിരിക്കുന്ന ഉത്തരക്കടലാസ്സിൽ അതാത് പ്രസ്താവനകളുടെ നമ്പറിന് എതിരെ നിങ്ങളുടെ പ്രതികരണത്തിന് ചുവടെയുള്ള കോളത്തിൽ (✓)ചിഹ്നം രേഖപ്പെടുത്തുക. എല്ലാ പ്രസ്താവനകൾക്കും പ്രതികരണം രേഖപ്പെടുത്താൻ ശ്രദ്ധിക്കണം.

1. പ്രയാസമുള്ള പാഠഭാഗങ്ങൾ മനസ്സിലാക്കുന്നതിനായി വ്യക്തമായ സംഗ്രഹം തയ്യാറാക്കാറുണ്ട്.
2. പഠന പ്രവർത്തനങ്ങൾക്ക് കൃത്യമായ രൂപരേഖ തയ്യാറാക്കാറുണ്ട്.
3. പഠനസംബന്ധമായ തുടർപ്രവർത്തനങ്ങൾ കൃത്യമായി ചെയ്തുതീർക്കാൻ ശ്രമിക്കാറില്ല.
4. പാഠഭാഗങ്ങൾ മറ്റു വിഷയങ്ങളുമായി ബന്ധപ്പെടുത്തി പഠിക്കാറുണ്ട്.
5. പാഠഭാഗങ്ങൾ ആസൂത്രണം ചെയ്യുമ്പോൾ പ്രധാന്യമുള്ള ഭാഗങ്ങൾ ആദ്യം ഉൾക്കൊള്ളിക്കാറുണ്ട്.
6. പാഠഭാഗങ്ങൾ തീരുമാനിച്ചുറപ്പിച്ചതുപോലെ തന്നെ പഠിക്കാറുണ്ട്.
7. ഓരോവിഷയത്തിന്റേയും സ്വഭാവത്തിനനുസരിച്ച് സമയം ക്രമപ്പെടുത്തുകയും ഭാഗിച്ചു കൊടുക്കുകയും ചെയ്യാറുണ്ട്.
8. വ്യക്തമായ ലക്ഷ്യങ്ങളെ മുൻനിർത്തി പഠനപ്രവർത്തനങ്ങൾ ക്രമീകരിക്കാറുണ്ട്.
9. പാഠഭാഗങ്ങൾ ആഴത്തിൽ മനസ്സിലാക്കേണ്ട ആവശ്യമുള്ളതായി കരുതുന്നില്ല.

10. കൃത്യമായി ടൈംടേബിൾ തയ്യാറാക്കിയാണ് പഠനപ്രവർത്തനങ്ങൾ ക്രമീകരിക്കാനുള്ളത്.
11. പഠന പ്രവർത്തനങ്ങൾക്ക് കൃത്യമായ ലക്ഷ്യങ്ങൾ രൂപീകരിക്കാറില്ല.
12. ക്ലാസ്സിൽനിന്ന് ലഭിക്കുന്ന ആശയങ്ങൾ സ്വയം രൂപീകരിച്ച ആശയങ്ങളുമായി ബന്ധപ്പെടുത്താറുണ്ട്.
13. അസൈൻമെന്റുകളും പ്രോജക്ടുകളും ചെയ്യുന്നതിന് സുഹൃത്തുക്കളുടെ സഹായം തേടാറുണ്ട്.
14. പുതിയ ആശയങ്ങൾ വിപുലപ്പെടുത്താൻ ശ്രമിക്കാറില്ല.
15. പഠന പ്രവർത്തനങ്ങൾ കൃത്യമായി ആസൂത്രണം ചെയ്യാറില്ല.
16. വ്യക്തമല്ലാത്ത ആശയങ്ങൾ തന്റേതായ രീതിയിൽ മാറ്റങ്ങൾ വരുത്തി മനസ്സിലാക്കാൻ ശ്രമിക്കാറുണ്ട്
17. വ്യക്തമായ ലക്ഷ്യങ്ങൾ ഇല്ലാതെയാണ് പഠനപ്രവർത്തനങ്ങളിൽ ഏർപ്പെടാറുള്ളത്.
18. ഏൽപ്പിച്ചു തരുന്ന കാര്യങ്ങൾ സ്വയം ചെയ്തു തീർക്കാൻ ഞാൻ ഇഷ്ടപ്പെടുന്നു.
19. ക്ലാസിലെ പഠനക്കുറിപ്പുകളും അനുബന്ധ പഠനസാമഗ്രികളും ഉപയോഗപ്പെടുത്തി പ്രധാന ആശയങ്ങൾ കണ്ടെത്താൻ ശ്രമിക്കാറുണ്ട്.
20. പ്രയാസമേറിയ വിഷയങ്ങൾ പഠിക്കുന്നതിനായി കൂടുതൽ സമയം നീക്കിവെക്കാറില്ല.
21. പഠനപ്രവർത്തനവുമായി ബന്ധപ്പെട്ട കാര്യങ്ങൾ സുഹൃത്തുക്കളുമായി ചർച്ചചെയ്യാറുണ്ട്.
22. പാഠഭാഗങ്ങൾ ആവർത്തിച്ചുപഠിക്കാൻ താൽപ്പര്യമില്ല.
23. ഉയർന്ന സ്കോർ ലഭിക്കുന്നതിനായി പാഠഭാഗങ്ങൾക്കനുയോജ്യമായ പ്രവർത്തനങ്ങൾ കണ്ടെത്താറുണ്ട്.
24. പരിശീലനപ്രശ്നങ്ങൾ (practical problems) ആവർത്തിച്ചു ചെയ്യുമ്പോൾ ആശയങ്ങൾ കൂടുതൽ വ്യക്തമാകാറുണ്ട്.
25. പാഠഭാഗങ്ങൾ വ്യക്തമായി മനസ്സിലാക്കുന്നുണ്ടോ എന്നറിയുന്നതിനായി സ്വയം ചോദ്യങ്ങൾ ചോദിക്കാറുണ്ട്.
26. സുഹൃത്തുക്കളുമായി ചർച്ച ചെയ്യുന്നത് പാഠഭാഗത്തിലെ അവ്യക്തത ഇല്ലാതാക്കാറുണ്ട്.
27. പാഠഭാഗങ്ങൾ സുഗമമായി ഓർത്തിരിക്കാൻ ചുരുക്കെഴുത്തുകൾ ഉപയോഗപ്പെടുത്താറുണ്ട്.
28. പഠനപ്രക്രിയയുടെ ഓരോ ഘട്ടത്തിലും അവലോകനം നടത്താറില്ല.
29. ആശയങ്ങൾ വ്യക്തമായി മനസ്സിലായില്ലെങ്കിൽ അധ്യാപകനോട് വ്യക്തമാക്കിതരാൻ ആവശ്യപ്പെടാറുണ്ട്.
30. ആശയങ്ങളുടെ വ്യക്തതക്കായി അവയുടെ ഘടന തയ്യാറാക്കി സൂക്ഷിക്കാറുണ്ട്.

31. സ്വയം ചോദ്യങ്ങൾ തയ്യാറാക്കി ഉത്തരം കണ്ടെത്താൻ ശ്രമിക്കാറുണ്ട്.
32. അവ്യക്തമായ ആശയങ്ങൾ മറ്റുള്ളവരുടെ സഹായത്തോടെ വ്യക്തമാക്കിയെടുക്കാൻ ശ്രമിക്കാറില്ല.
33. ആശയങ്ങൾ ക്രമത്തിൽ ഓർത്തിരിക്കാനായി കുറിപ്പുകളുടെ/കാർഡുകളുടെ രൂപത്തിൽ എഴുതി സൂക്ഷിക്കാറില്ല.
34. ടൈംടേബിൾ അനുസരിച്ചാണോ പഠനപ്രവർത്തനങ്ങൾ മുന്നോട്ട് പോകുന്നത് എന്ന് ഉറപ്പുവരുത്താറുണ്ട്.
35. സമൂഹത്തിൽനിന്നും ലഭ്യമായേക്കാവുന്ന പഠനസഹായ സാധ്യതകൾ വേണ്ട വിധത്തിൽ പ്രയോജനപ്പെടുത്താൻ ശ്രമിക്കാറില്ല.
36. ആശയങ്ങളെ തമ്മിൽ ബന്ധിപ്പിക്കുന്നതിനായി ആശയമാപനരീതി (concept mapping) ഉപയോഗിക്കാറില്ല.
37. ഗ്രൂപ്പ് പ്രവർത്തനത്തിൽനിന്നും ഒഴിഞ്ഞുമാറി നിൽക്കാനാണ് താൽപര്യം.
38. പഠനത്തിനാവശ്യമായ രീതിയിൽ പഠനഭാഗങ്ങൾ ക്രമീകരിക്കാറില്ല.
39. പരീക്ഷകളിൽ ഉണ്ടാകുന്ന തെറ്റുകൾ കൃത്യമായി വിശകലനം ചെയ്യാറുണ്ട്.
40. ആശയങ്ങൾ കൂടുതൽ വ്യക്തമാക്കുന്ന ഗ്രന്ഥങ്ങളെക്കുറിച്ച് അധ്യാപകനോട് ചോദിക്കാറുണ്ട്.
41. പഠിക്കുമ്പോൾ പ്രധാന ആശയങ്ങൾ സംയോജിപ്പിച്ച് മുന്നോട്ടുപോകാൻ ശ്രമിക്കാറില്ല.
42. പരീക്ഷകളിൽ ഉണ്ടാകുന്ന തെറ്റുകൾ പീനീട് തിരുത്താൻ ശ്രമിക്കാറില്ല.
43. പഠിക്കുന്നതിനായി ശാന്തമായ അന്തരീക്ഷം തിരഞ്ഞെടുക്കാറുണ്ട്.
44. വസ്തുതകളും ആശയങ്ങളും എളുപ്പത്തിൽ ഓർത്തിരിക്കാൻ അവയെ പുനക്രമീകരിക്കേണ്ട ആവശ്യം ഉള്ളതായി തോന്നുന്നില്ല.
45. ലക്ഷ്യങ്ങൾ നേടാനുള്ള പ്രവർത്തനങ്ങളിൽ ഏർപ്പെടുന്നുണ്ടോ എന്ന് ഉറപ്പുവരുത്താറുണ്ട്.
46. വിരസത തോന്നുമ്പോൾ പഠനസ്ഥലം മാറ്റാറുണ്ട്.
47. പഠനപ്രവർത്തനങ്ങളിൽ നിന്ന് പിന്നോട്ട് പോകുമ്പോൾ ലക്ഷ്യങ്ങളെ കുറിച്ച് സ്വയം ഓർമ്മപ്പെടുത്താറുണ്ട്.
48. പഠനത്തിൽനിന്നും ശ്രദ്ധപതറിപ്പോകുന്ന കാര്യങ്ങൾ ഇല്ലാതാക്കാൻ ശ്രമിക്കാറുണ്ട്.
49. ആശയങ്ങൾ എളുപ്പം ഓർത്തിരിക്കുന്നതിനായി ഒരേപോലെയുള്ള ആശയങ്ങൾ തരം തിരിച്ച് വെക്കാറുണ്ട്.
50. പരാജയമുണ്ടാകുമ്പോൾ പഠനത്തിൽ താൽപ്പര്യം നഷ്ടപ്പെടാറുണ്ട്.
51. ആശയങ്ങളിലെ അവ്യക്തത മാറ്റുവാനായി ലൈബ്രറി, ഇന്റർനെറ്റ് എന്നിവയുടെ സഹായം തേടാറുണ്ട്.
52. വിരസവും താൽപര്യജനകവുമല്ലാത്ത പഠനഭാഗങ്ങൾ പഠനത്തിൽ നിന്ന് പൂർണ്ണമായും ഒഴിവാക്കാറുണ്ട്.



53. പാഠഭാഗങ്ങൾ നിശ്ചിത സമയത്ത് പഠിച്ചു തീർത്ത് സ്വയം അഭിമാനിക്കാറുണ്ട്.
54. പഠിക്കാനുള്ള കാര്യങ്ങൾ കൃത്യമായി ചെയ്തുതീർക്കുകയാണെങ്കിൽ ആസ്വാദ്യകരമായ കാര്യങ്ങളിൽ ഏർപ്പെടാമെന്ന് സ്വയം ഓർമ്മപ്പെടുത്താറുണ്ട്.
55. ലൈബ്രറി, ഇന്റർനെറ്റ് എന്നിവ ഉപയോഗിക്കുന്നതിനായി നിശ്ചിതസമയം കണ്ടെത്താറില്ല.
56. പഠിക്കുമ്പോൾ വിരസത തോന്നിയാൽ പിന്നെ തുടർന്നു പഠിക്കാറില്ല.
57. പഠനപ്രക്രിയയിൽ വിരസത തോന്നുമ്പോൾ, വിഷയങ്ങൾ പഠിക്കുന്നതിന്റെ പ്രാധാന്യത്തെ കുറിച്ച് ചിന്തിക്കാറുണ്ട്.
58. ഉയർന്ന നേട്ടങ്ങൾ കരസ്ഥമാക്കുവാൻ സ്വയം പ്രോത്സാഹനം നൽകാറുണ്ട്.

**APPENDIX XI**

**DEPARTMENT OF EDUCATION  
UNIVERSITY OF CALICUT**

**SCALE ON SELF REGULATED LEARNING STRATEGIES  
(Final)**

**Prof. (Dr.) P. Usha  
Professor**

**Mrs. Niranjana.K.P.  
Research Scholar**

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**Instruction:**

Given below are some statements to understand your learning process. For each statement three responses have been given namely, (1) Always (2) Sometimes (3) Never. Read each statement carefully and decide how far they are apt in your case. Mark your response in the given response sheet with tick mark (✓) against the statement number. Take care to mark responses against all the statements.

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- 1 A comprehensive consolidation is prepared to understand the difficult lessons.
- 2 Specific action plan is prepared for learning activities.
- 3 Efforts are not taken to complete follow-up activities of learning in time.
- 4 The lessons are learned by relating it to other subjects.
- 5 The important topics are first included while planning lessons.
- 6 Lessons are completed as per the schedule.
- 7 Time is structured and divided according to the nature of the subjects.
- 8 Learning activities are organized as per specified objectives.
- 9 No need is felt to understand the lessons in-depth.
- 10 Learning activities are organized by preparing timetable.
- 11 No specific objectives are set for learning activities.
- 12 Concepts obtained in class are related to the concepts formed by self.
- 13 I seek the help of friends to do assignments and projects.
- 14 No strain is taken to elaborate the new concepts.

- 15 Learning activities are not well planned.
- 16 The concepts that are not clear are transformed into my own ways to understand them.
- 17 I engage in learning activities without having clear objectives.
- 18 I like to complete assigned tasks by myself.
- 19 Effort is taken to find out the significant concepts by using class notes and related learning materials.
- 20 No special time is reserved for studying difficult subjects.
- 21 Activities related to learning are discussed with classmates.
- 22 There is no interest in learning lessons repeatedly.
- 23 Activities suitable for the lessons are found out to achieve high scores.
- 24 Concepts become clearer when practice problems are done repeatedly.
- 25 Reflective questions are asked to know whether the lessons are well understood.
- 26 Discussing the lessons with friends helps to remove ambiguity.
- 27 Short hands/forms are used to easily remember the lessons learnt.
- 28 Evaluation is not carried out at each stages of learning process.
- 29 I request the help of teachers to clarify the concepts not understood well.
- 30 Structure of concepts are prepared for the clarity of concepts.
- 31 Self made questions are asked and try to find out answers for that.
- 32 I never try to clarify the ambiguous concepts with the help of others.
- 33 The concepts are not written and kept as notes to remember them chronologically.
- 34 It is evaluated that the learning actions are progressed in accordance with the time table.
- 35 I never try to utilize the opportunities available for learning from the society.
- 36 Concept mapping is not used to relate between concepts.
- 37 I prefers to keep away from group activities.
- 38 Lessons are not arranged in the manner needed for learning.
- 39 The mistakes in the tests are analyzed properly.
- 40 I enquire the teacher about books which can clarify the concepts.
- 41 The important concepts are not combined together while learning.
- 42 The mistakes in the tests are not rectified after the test.

- 43 I select peaceful environment for studying.
- 44 There is no need for restructuring facts and concepts for easy memorization.
- 45 It is ensured that I am engaged in goal oriented activities.
- 46 While getting bored, I try to change the place of study.
- 47 Whenever lagging occurs in learning activities I remind myself about objectives.
- 48 I try to avoid matters that distract studies.
- 49 The concepts are classified to facilitate easy remembering.
- 50 Interest in studies is lost as a result of failure.
- 51 I seek the help from library and internet to remove ambiguity in concepts.
- 52 Boring and uninteresting lessons are completely avoided while learning.
- 53 Finishing lessons in stipulated time gives me pride.
- 54 Remind myself to engage in enjoyable matters if lessons are completed properly.
- 55 I never find specific time to use library and internet.
- 56 When I get bored in studies then I do not pursue studies.
- 57 When I felt bored in learning process the significance of the subjects being learnt is thought of.
- 58 Self motivation is provided to reach higher achievements.

**APPENDIX XII**

**DEPARTMENT OF EDUCATION**

**UNIVERSITY OF CALICUT**

**SCALE ON SELF REGULATED LEARNING STRATEGIES**

**RESPONSE SHEET**

Name of Student: ..... Standard: .....

Name of School: ..... Urban / Rural: .....

Girl / Boy: ..... Govt./Aided: .....

Sl. No.	Always	Sometimes	Never
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Sl. No.	Always	Sometimes	Never
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6. Analysis of recorded data to bring entries of similar nature to one place is
- A. analysis      B. summarising      C. classifying      D. book keeping
7. Special journals meant for recording transactions of similar nature are called
- A. Journal      B. Ledger      C. Day book      D. Invoice
8. When the manager of a firm is entitled to a commission of 10% on profits before charging commission, it is calculated on profits by using which formula?
- A. 10/90      B. 10/100      C. 10/110      D. 90/100
9. Cash or valuable owned by a business is known as
- A. assets      B. liabilities      C. income      D. revenue
10. A purchase of machinery for cash should be debited to
- A. cash a/c      B. machinery a/c      C. purchases a/c      D. sales a/c
11. Errors cancelled by another errors are called
- A. Errors of principles      B. Errors of omission  
C. Compensating errors      D. Errors of commission
12. Bought furniture from M/s Satheesh for Rs.50,000 and a cheque was issued on the same day. This transaction result in
- A. Increases furniture and decreases cash  
B. Increases bank and decreases furniture  
C. Increases furniture and decreases bank  
D. Increases purchases and decreases bank
13. Journal entries passed to correct errors are
- A. closing entry      B. opening entry  
C. rectifying entry      D. adjusting entry
14. Depreciation accounting is
- A. AS 3      B. AS 5      C. AS 4      D. AS 6

15. Under the diminishing value method of depreciation, depreciation is calculated on  
A. book value B. original value C. replacement value D. market value
16. Which of the following does not satisfy the accounting equation?  
A. Assets = Liabilities + Capital  
B. Liabilities = Assets - Capital  
C. Capital = Liabilities + Assets  
D. Capital = Assets - Liabilities
17. Journal entry to record provision for discount on debtors created is  
A. Debtors a/c Dr  
    To Profit and Loss a/c  
B. Profit and Loss a/c Dr.  
    To Debtors a/c  
C. Provision for discount on debtors a/c Dr.  
    To Profit and Loss a/c  
D. Profit and Loss a/c Dr.  
    To Provision for discount on debtors a/c
18. M/s Sumana has assets totalling Rs.55, 000 and liabilities totalling Rs. 15,000. The capital is  
A. 65,000 B. 70,000 C. 40,000 D. 50,000
19. Expenses outstanding are called  
A. assets B. liabilities C. income D. expense
20. The accounting concept that refers to the tendency of accountants to resolve uncertainty and doubt in favour of understanding assets and revenues and over standing liabilities and expense is known as  
A. conservatism B. consistency C. objectivity D. matching
21. Lost goods worth Rs. 2000 by fire will be recorded in  
A. purchase book B. sales book C. cash book D. journal proper
22. Any expenditure incurred in acquiring a fixed asset for the business is called  
A. revenue expenditure B. capital expenditure  
C. deferred revenue expenditure D. secret expense



23. Arrange the steps of accounting as a process of information in the correct order.
1. Preparation of summaries in the form of financial statements
  2. Communication of information
  3. Recording of data in the books of accounts
  4. Analysis and interpretation of information
- A. 2,3, 4,1      B. 3,1,4,2      C. 1,2,3,4      D. 4,3,2,1
24. Prepaid expenses appearing in the trial balance will appear in
- A. Balance sheet      B. Profit and Loss account  
C. Trading account      D. Prepaid expense account
25. A petty cash book is usually kept under \_\_\_\_\_ system.
- A. Single entry    B. Double entry    C. Imprest    D. Multi entry
26. Reserves created out of capital profits which do not arise from the normal operating activities are
- A. revenue reserves      B. reserve capital  
C. specific reserves      D. capital reserves
27. Mr. Hari, cycle trader, purchased furniture for office use but it was recorded in the purchase account. This type of error is
- A. error of principle      B. error of commission  
C. compensating errors      D. error of omission
28. While adjusting rent received in advance, the account debited is
- A. rent received in advance      B. rent received  
C. Profit and Loss account      D. Trading account
29. Qualitative transactions are not recorded in the accounts due to
- A. dual concept      B. accrual concept  
C. money measurement concept      D. going concern concept

30. Match list I with list II and select the correct answer using the codes given below the lists

List I		List II	
P.	Purchased goods for cash	1.	Journal proper
Q.	Purchased goods on credit	2.	Cash book
R.	Returned goods to supplier	3.	Purchases day book
S.	Purchased machinery on credit	4.	Purchases returns book

	P	Q	R	S
A.	1	2	3	4
B.	2	3	4	1
C.	3	4	2	1
D.	4	3	1	2

31. The book of original entry is called  
 A. Journal      B. Ledger      C. Account      D. Balance sheet
32. Debit note is prepared in relation to  
 A. purchases      B. purchases returns  
 C. sales      D. sales returns
33. If the insurance premium paid is Rs. 1000 and prepaid insurance is Rs.300. Calculate the amount of insurance premium shown in Profit and Loss account.  
 A. 1300      B. 1000      C. 300      D. 700
34. Name the process of ascertaining the difference between two sides of an account.  
 A. balancing      B. classifying      C. summarising      D. posting
35. From the following, show the chronological order of the preparation of accounts  
 A. Balance sheet, Trading account, Trial balance, Profit and Loss account  
 B. Profit and Loss account, Trading account, Balance sheet, Trial balance,  
 C. Trial balance, Trading account, Profit and Loss account, Balance sheet  
 D. Trading account, Trial balance, Profit and Loss account, Balance sheet

36. The transaction 'started business with cash' results in
- A. Increase in assets and decrease in assets
  - B. Increase in asset and increase in liability
  - C. Increase in assets and decrease in liability
  - D. Decrease in asset and increase in liability
37. The excess of operating revenue over operating expense is
- A. net profit                      B. operating profit
  - C. gross profit                    D. non operating profit
38. The original cost of the asset is Rs 2,50,000. The useful life of the asset is 10 years and net residual value is estimated to Rs. 50,000. The amount of depreciation to be charged every year is 20,000. What is the rate of depreciation?
- A.6%                      B. 8%                      C. 9%                      D. 10%
39. Journal entry to record salaries will include
- A. debit salary, credit cash
  - B. debit capital, credit cash
  - C. debit cash, credit salary
  - D. debit salary, credit creditors
40. How would the date of a balance sheet be properly worded?
- A. As on March 31, 2014
  - B. March 31, 2014
  - C. For the year ended March 31, 2014
  - D. Increase and Decrease on March 31, 2014
41. What is the amount of net profit, If gross profit: 1,00,000, salary: 2000, rent:1000, insurance: 4000, printing and stationary: 4000, telephone expenses: 1000, commission received:1000 ?
- A. 90,000                      B. 89,000                      C. 88,000                      D. 87,000
42. The assets bought for long-term use in the business are
- A. fixed assets                      B. current assets
  - C. floating assets                      D. wasting assets
43. An erection charge of machinery is debited to which account?
- A. Profit and loss a/c                      B. Sundry expense a/c
  - C. Machinery a/c                      D. Trading a/c

44. The process of transferring entries from books of original entry to the ledger is  
A. journalising    B. balancing    C. totalling    D. posting
45. If goods are sold for Rs. 12,500 and the discount allowed is Rs.600. what amount will be recorded in the cash book?  
A. 12,500    B. 11,900    C. 13,100    D. 600
46. Which qualitative characteristics of accounting information are reflected when accounting information is clearly presented?  
A. understandability    B. relevance    C. comparability    D. reliability
47. The \_\_\_\_\_ accounts are to be closed by transferring them to Profit and Loss account  
A. liabilities    B. assets    C. revenue and expense    D. capital
48. Granite quarry is an example of \_\_\_\_\_ assets.  
A. intangible    B. wasting    C. fictitious    D. tangible
49. Heera, the owner of business drew cash from bank for office use. The \_\_\_\_\_ account is debited  
A. bank    B. cash    C. Heera    D. drawings
50. The amount that the firm has not been able to realise from its debtors is  
A. outstanding income    B. Outstanding expense  
C. bad debts    D. provision
51. Divya's trial balance provides you the following information  
Debtors Rs. 80,000, Bad debts Rs. 2,000, Provision for doubtful debts Rs.4,000  
It is desired to maintain a provision for bad debts of Rs. 1000. State the amount to be debited / credited in Profit and Loss account  
A. 5,000 (debit)    B. 3,000 (debit)    C. 1000 (credit)    D. 2000 (credit)
52. Trading account is credited with  
A. purchases    B. direct expenses    C. sales    D. opening stock

53. Which among the following statement is correct?
- A. Depreciation is also charged on current assets
  - B. Depletion term is used in case of intangible assets
  - C. Depreciation is non-cash expense
  - D. Depreciation is charged to reduce the value of asset to its market value
54. The term 'amortization' is used in relation to
- A. fixed assets
  - B. current assets
  - C. intangible assets
  - D. wasting assets
55. While preparing final accounts, outstanding salary is added to the salary account. Which accounting principle is relevant to this context?
- A. matching
  - B. business entity
  - C. materiality
  - D. going concern
56. If the purchases amount to Rs. 70,000 and wages amounts to Rs. 8000. The cost of goods sold will be:
- A. 78,000
  - B. 70,000
  - C. 8,000
  - D. 62,0000
57. Calculate the amount of operating profit from the following.
- Net sales RS 4,00,000; Cost of goods sold Rs1,90,000: Operating expenses Rs.90,000.
- A. 1,20,000
  - B. 1,30,000
  - C. 1,10,000
  - D. 1,40,0000
58. Which among the following is not an objective of preparing Trial Balance?
- A. To know the profit or loss
  - B. To check the arithmetical accuracy of accounts
  - C. To help to locate errors
  - D. To provide basis for the preparation of final accounts
59. M/s Roopa Traders gives the following particulars. Ascertain the total of sales returns book.
- M/s Hrishi returned goods worth Rs.210
  - Returned goods by Tejus which were defective worth Rs.230
  - Mithra Co. returned back goods worth Rs.275
  - Allowance granted to M/s Indu for breakage of goods for Rs.215
- A. 910
  - B. 940
  - C. 920
  - D. 930
60. A statement of debit and credit balance of account is called a
- A. Journal
  - B. Ledger
  - C. Account
  - D. Trial Balance

**APPENDIX XIV**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**ACHIEVEMENT TEST IN ACCOUNTANCY**  
**(For Standard XI Students)**  
**(Final)**

**Prof. (Dr.) P. Usha**  
**Professor**

**Mrs. Niranjana.K.P.**  
**Research Scholar**

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**Instructions:**

Four responses a, b, c and d are given for each of the following items. Put a tick mark under the letter which represents the correct answer against the corresponding number of each item in the given response sheet.

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1. Returned goods to M/s Balakrishna Traders would be recorded in  
A. sales book                      B. sales returns book  
C. purchase returns book    D. purchase book
2. If the total of the credit side of the Profit and Loss account is more than the total of debit side , the difference is called  
A. net profit              B. asset              C. gross profit              D. liabilities
3. Analysis of recorded data to bring entries of similar nature to one place is  
A. analysis    B. summarising    C. classifying    D. book keeping
4. Special journals meant for recording transactions of similar nature are called  
A. Journal              B. Ledger              C. Day book              D. Invoice
5. Cash or valuable owned by a business is known as  
A. assets              B. liabilities              C. income              D. revenue
6. A purchase of machinery for cash should be debited to  
A. cash a/c    B. machinery a/c    C. purchases a/c              D. sales a/c
7. Errors cancelled by another errors are called  
A. Errors of principles              B. Errors of omission  
C. Compensating errors              D. Errors of commission

8. Bought furniture from M/s Satheesh for Rs.50,000 and a cheque was issued on the same day. This transaction result in
- A. Increases furniture and decreases cash
  - B. Increases bank and decreases furniture
  - C. Increases furniture and decreases bank
  - D. Increases purchases and decreases bank
9. Depreciation accounting is
- A. AS 3
  - B. AS 5
  - C. AS 4
  - D. AS 6
10. Which of the following does not satisfy the accounting equation?
- A. Assets = Liabilities + Capital
  - B. Liabilities = Assets - Capital
  - C. Capital = Liabilities + Assets
  - D. Capital = Assets - Liabilities
11. M/s Sumana has assets totalling Rs.55, 000 and liabilities totalling Rs. 15,000. The capital is
- A. 65,000
  - B. 70,000
  - C. 40,000
  - D. 50,000
12. Expenses outstanding are called
- A. assets
  - B. liabilities
  - C. income
  - D. Expense
13. The accounting concept that refers to the tendency of accountants to resolve uncertainty and doubt in favour of understanding assets and revenues and over standing liabilities and expense is known as
- A. conservatism
  - B. consistency
  - C. objectivity
  - D. matching
14. Lost goods worth Rs. 2000 by fire will be recorded in
- A. purchase book
  - B. sales book
  - C. cash book
  - D. journal proper
15. Any expenditure incurred in acquiring a fixed asset for the business is called
- A. revenue expenditure
  - B. capital expenditure
  - C. deferred revenue expenditure
  - D. secret expense
16. Arrange the steps of accounting as a process of information in the correct order.
- 1. Preparation of summeries in the form of financial statements
  - 2. Communication of information
  - 3. Recording of data in the books of accounts
  - 4. Analysis and interpretation of information
- A. 2,3, 4,1
  - B. 3,1,4,2
  - C. 1,2,3,4
  - D. 4,3,2,1

17. A petty cash book is usually kept under \_\_\_\_\_ system.  
 A. Single entry      B. Double entry      C. Imprest      D. Multi entry
18. Mr. Hari, cycle trader, purchased furniture for office use but it was recorded in the purchase account. This type of error is  
 A. error of principle      B. error of commission  
 C. compensating errors      D. error of omission
19. Qualitative transactions are not recorded in the accounts due to  
 A. dual concept      B. accrual concept  
 C. money measurement concept      D. going concern concept
20. Match list I with list II and select the correct answer using the codes given below the lists

List I

List II

- |                                  |                           |
|----------------------------------|---------------------------|
| P. Purchased goods for cash      | 1. Journal proper         |
| Q. Purchased goods on credit     | 2. Cash book              |
| R. Returned goods to supplier    | 3. Purchases day book     |
| S. Purchased machinery on credit | 4. Purchases returns book |

	P	Q	R	S
A.	1	2	3	4
B.	2	3	4	1
C.	3	4	2	1
D.	4	3	1	2

21. The book of original entry is called  
 A. Journal      B. Ledger      C. Account      D. Balance sheet
22. If the insurance premium paid is Rs. 1000 and prepaid insurance is Rs.300. Calculate the amount of insurance premium shown in Profit and Loss account.  
 A. 1300      B. 1000      C. 300      D. 700
23. Name the process of ascertaining the difference between two sides of an account.  
 A. balancing      B. classifying      C. summarising      D. posting



24. From the following, show the chronological order of the preparation of accounts
- A. Balance sheet, Trading account, Trial balance, Profit and Loss account
  - B. Profit and Loss account, Trading account, Balance sheet, Trial balance,
  - C. Trial balance, Trading account, Profit and Loss account, Balance sheet
  - D. Trading account, Trial balance, Profit and Loss account, Balance sheet
25. The original cost of the asset is Rs 2,50,000. The useful life of the asset is 10 years and net residual value is estimated to Rs. 50,000. The amount of depreciation to be charged every year is 20,000. What is the rate of depreciation?
- A.4%                      B. 6%                      C. 8%                      D. 9%
26. Journal entry to record salaries will include
- A. debit salary, credit cash
  - B. debit capital, credit cash
  - C. debit cash, credit salary
  - D. debit salary, credit creditors
27. The assets bought for long-term use in the business are
- A. fixed assets                      B. current assets
  - C. floating assets                      D. wasting assets
28. An erection charge of machinery is debited to which account?
- A. Profit and loss a/c                      B. Sundry expense a/c
  - C. Machinery a/c                      D. Trading a/c
29. The process of transferring entries from books of original entry to the ledger is
- A. journalising                      B. balancing                      C. totalling                      D. posting
30. If goods are sold for Rs. 12,500 and the discount allowed is Rs.600. what amount will be recorded in the cash book?
- A. 12,500                      B. 11,900                      C. 13,100                      D. 600
31. Which qualitative characteristics of accounting information are reflected when accounting information is clearly presented?
- A. understandability                      B. relevance                      C. comparability                      D. reliability

32. The \_\_\_\_\_ accounts are to be closed by transferring them to Profit and Loss account  
A. liabilities            B. assets            C. revenue and expense            D. capital
33. Granite quarry is an example of \_\_\_\_\_ assets.  
A. intangible            B. wasting            C. fictitious            D. tangible
34. Heera, the owner of business drew cash from bank for office use. The \_\_\_\_\_ account is debited  
A. bank            B. cash            C. Heera            D. drawings
35. The amount that the firm has not been able to realise from its debtors is  
A. outstanding income            B. Outstanding expense  
C. bad debts            D. provision
36. Trading account is credited with  
A. purchases            B. direct expenses            C. sales            D. opening stock
37. While preparing final accounts, outstanding salary is added to the salary account. Which accounting principle is relevant to this context?  
A. matching            B. business entity            C. materiality            D. going concern
38. Calculate the amount of operating profit from the following.  
Net sales RS 4,00,000; Cost of goods sold Rs1,90,000: Operating expenses Rs.90,000.  
A. 1,20,000            B. 1,30,000            C. 1,10,000            D. 1,40,0000
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A. To know the profit or loss  
B. To check the arithemtical accuracy of accounts  
C. To help to locate errors  
D. To provide basis for the preparation of final accounts
40. M/s Roopa Traders gives the following particulars. Ascertain the total of sales returns book.  
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▪ Returned goods by Tejus which were defective worth Rs.230  
▪ Mithra Co. returned back goods worth Rs.275  
▪ Allowance granted to M/s Indu for breakage of goods for Rs.215  
A. 910            B. 940            C. 920            D. 930

**APPENDIX XV**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**ACHIEVEMENT TEST IN ACCOUNTANCY**  
**RESPONSE SHEET**

Name of Student: ..... Standard: .....

Name of School: ..... Urban / Rural: .....

Girl / Boy: ..... Govt./Aided: .....

Sl. No.	A	B	C	D
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Sl. No.	A	B	C	D
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
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39				
40				

**APPENDIX XVI**  
**DEPARTMENT OF EDUCATION**  
**UNIVERSITY OF CALICUT**  
**ACHIEVEMENT TEST IN ACCOUNTANCY**

**Scoring Key**

<b>Sl. No.</b>	<b>Scoring Key</b>
1	C
2	A
3	C
4	C
5	A
6	B
7	C
8	C
9	D
10	C
11	C
12	B
13	A
14	D
15	B
16	B
17	C
18	A
19	C
20	B

<b>Sl. No.</b>	<b>Scoring Key</b>
21	A
22	D
23	A
24	C
25	C
26	A
27	A
28	C
29	D
30	B
31	A
32	C
33	B
34	B
35	C
36	C
37	A
38	A
39	A
40	D