ASSESSMENT OF SELF-REGULATED LEARNING AT HIGHER EDUCATION LEVEL

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THESIS AND DEFENSE APPROVAL FORM

The undersigned certify that they have read the following thesis, examined the defense, are satisfied with the overall exam performance, and recommend the thesis to the Faculty of Social Sciences for acceptance.

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Candidate of **Master of Philosophy** at the National University of Modern Languages do hereby declare that the thesis **"Assessment of Self-regulated Learning at Higher Education Level"** submitted by me in partial fulfillment of MPhil degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

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ABSTRACT

Title: Assessment of self-regulated learning at Higher Education Level.

The study was designed to examine the practices of self-regulated learning at higher education level and to compare self-regulated learning of students on the basis of gender. The theoretical framework of the study was based on the self-regulated learning model presented by Zimmerman (2002), which comprised of three phases of self-regulated learning as forethought/pre-action (task analysis, motivational believes), performance (self-control, self-observation), and self-reflection (self-judgment, self-reaction). The researcher used the quantitative research approach, further, the comparative research method used for the research. For the current study, students enrolled in the social sciences departments (Total=8659) (session 2019) of public sector universities of Islamabad were the population. Stratified proportionate sampling technique was used. The researcher divided the entire population into sub-groups of male and female then randomly selected the final number proportionally from both groups. The sample size was 10% which was 866, (Male=480, Female= 386). Self-developed questionnaire was used, based on self-regulated learning phases (Zimmerman (2002). The result of reliability was (.979). Data analyzed by Statistical package for social sciences (SPSS). Independent t-test was used for gender comparison. Mean was calculated for assessing self-regulated learning practices. The students were practicing Task Analysis, Motivational Believes, Self-Control, and self-Reaction, and students were in less practice of Self-observation and Self-judgment. Further, there was significant difference found in practices of self-regulated learning between male and female students. Female university students were found better in practice of self-regulated learning than male students. It is recommended that; that university management may conduct session for Video-based activity to enhance self-observation. And it was recommended that university management may conduct Interview session to enhance self-management. It was also suggested that university may conduct classroom activities to enhance the practices of self-regulated learning in the students at universities. It was suggested that university management may conduct session to guide students especially for male and provide specific cues for using self-regulated learning strategies.

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LIST OF ABBREVIATIONS

BS	Bachelor of Science (degree)
df	Degree of Freedom
Fig	Figure
MPhil	Master's in philosophy (degree)
MS	Master of Science (degree)
sig.	Significance (p)
SPSS	Statistical Package for Social Sciences
SRL	Self-regulated Learning
t	t-test
TA	Task Analysis
MA	Motivational Beliefs
SC	Self-control
SO	Self-observation
SJ	Self-judgment
SR	Self-reaction

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DEDICATION

This thesis is dedicated to

Amjad Mehmood Khattak,

to my love who gave me support and encouragement,

and to

Muhammad Daud Khattak,

to the one who made me a mother, for my first born.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

It is one of the most important goals for students to assess their abilities that help students to improve their self-regulated learning (SRL), Self-regulated learning is important to learn independently and successfully. Those students who learned self-regulated learning, can play a better role emotionally, motivational, and cognitively, in their learning process. Students with the true efforts of self-activate and self-direct can gain more knowledge and skills through specific strategies of self-regulated learning rather than passively reacting to their teachers. Self-regulated learning actively plays a positive role in the students' life and make them able to understand and meet their set goals and objectives. According to research self-regulate implies transforming or modifying oneself or any characteristics of oneself (Forgas, Baumeister, & Tice, 2009). During this the learner directs himself to his learning, it is the process of self-regulated learning (Boekaerts, & Corno, 2005).

This broad concept of self-regulated learning was started in 1960 by Bandura. The initial concept of self-regulation was related to the social cognitive theory, which is related to education, psychology, and communication (Bandura, 2001). It was developed from social learning theory, by Bandura in 1960. The social cognitive theory was about the social learning context and related to the personal, behavior, and environment of oneself (Bandura, 1994). Then it was elaborated about the inner self of a person which was depending on the

onside of the person. Zimmerman defined it as self-regulated learning, in which a person decides on his learning (Zimmerman & Pons, 1986). It depends upon different stages, and it has a process through which a person can be able to learn by himself. The stages of self-regulated learning are forethought, performance, and reflection. It became specific for the students and related to the learning process (Zimmerman, 2002). Self-regulated learning is one of the most important aspects of a person. Everybody wants to stay healthy physically and try to avoid unhealthy deeds, likewise the mind the health of the mind is also important and self-regulated learning is a healthy activity by a person. In this way, the individual can know about the cause and motivation for what he or she is doing (Mehmoodi, Kalantari & Ghaslani, 2014).

According to Pintrich and Zusho (2002), in the lively optimistic method of self-regulated learning learners firstly set the goals, and then they monitor and alter them with the control of their cognition, mutation, and behavior. They do work according to their goals in a suitable environment (Pintrich, 2004). Student takes their studies to develop their level of learning and study styles. Also, can plan the learning strategies preparation for practical life, to learn independently. Independent studying is a self-direct procedure through which students can get a chance to convert their mental competencies into academic competencies, and it is a learning process that makes the learners reachable to their goals and meets required objectives (Zimmerman, 2002).

Self-regulated learning makes the learners confident and independent, therefore, they can also learn to take responsibility and to complete the work which they must do. It can enhance their personality and make them suitable in society in a better way. Studies showed that the students who employ self-regulated learning to learn and achieve his or her goals are more fulfilled in their study (Ryan & Deci, 2000). Therefore, self-regulated learning is the cause

of unique contribution and the strong willpower of a learner which makes them a good planner and performer. After great and satisfactory work performance learners get the encouragement and the strength for the next tasks (Lapan, Kardash & Turner, 2002).

Self-regulated learning could provide a broad view on learning skills, knowledge, and motivation, and the keen nature and problems of Self-regulated learning appeal the researcher to discover the effective and different ways to enhance the learning abilities for the teachers, students, and the other stockholders of education. Self-regulated Learning is a dynamic and productive process, through which learners fixed their objectives and then go to control their cognition and behavior (Bandura, 1986). Students can get motivated by their goals according to their environment (Alvi, Iqbal Masood & Batool, 2016). Self-regulated learning actively plays a positive role in the students' life and make them able to understand and meet their set goals and objectives (Amir & Kamal, 2011). There are fewer studies in Pakistan to measure self-regulated learning at the higher education level, and very little study on self-regulated learning based on gender comparison, according to the researcher. As a result, the researcher chose this topic to compare self-regulated learning in university students depending on gender. However, the researcher also intended to look at the practices of self-regulated learning among university students. The three phases of Zimmerman's self-regulated learning were used to measure self-regulated learning in this quantitative study, which helped to close the gap (Zimmerman, 2002). For this study, the target group is students in higher education; as a result, the study is useful in improving self-regulated learning at a higher level, which has a progressive influence on learning outcomes.

1.2 Rationale of the Study

According to Abid (2006), the prosperity of a country depends upon the level of education; therefore, to enhance the quality of education researchers are continuously doing research work in this context. Researchers found positive and helpful findings of variables or factors related to education in the context of other countries. These studies are beneficial for the education sector. Studies show that self-regulated learning is an essential way of learning from an educational perspective to bring the learning improvement and outcomes of students (Zimmerman, 2008).

Researchers discovering the benefits of self-regulated learning in professional literature, to increase the contextual complexity and learning autonomy, as academic achievement is linked with self-regulated learning (Kitsantas, Reiser & Doster, 2004). Students need to do an effort while learning skills and gaining knowledge by self-activate and self-regulated learning, instead of reacting to only teachers' instructions. Self-regulated learning is related to motivation and supportive vision, which are important and supportive in the process of learning. In this way, the student can learn effectively. Self-regulated learning is also supportive to improve the achievement of the student (Mahmoodi, Kalantari & Ghaslani, 2014). According to a study about the association between self-regulated learning and academic achievement, result shows self-regulated learning helps academic achievement (Alotaibi, Tohmaz, and Jabak, 2017). Many considerable studies had explored self-regulated learning related to the phases, strategies, and processes of students learning, which has been done in a different context with different levels of students (Effeney, Carroll & Bahr, 2013), (Wang, Schwab, Fenn & Chang, 2013), (Mehmoodi, Kalantari & Ghaslani, 2014). Therefore, studies show the self-regulated learning is a very essential component of any student in educational years and which have a constructive effect on their academic experience, it is directly related to academic achievement (Zimmerman, 1990). Furthermore, the researchers explored the importance and need for students to enhance their learning

skills, because of that they ensure success at the level of university (Iqbal, Suhail & Shahzad, 2010). The researcher analyzed that in different research this variable is discussed with other variables like performance, academic achievement, family and School Environment, distance learning, and motivation (Ahmad, 2012), (Sarwar 2004) (Arshad, Zaidi & Mahmood, 2015). Studies showed that self-regulated learning actively plays a positive role in the students' life and makes them able to understand and meet their set goals, and according to Zimmerman & Schunk (2001) students also can learn to be more self-regulated. Although there are studies to assess self-regulated learning at different levels (Nosheen, 2016). A study about the similar framework and education level had done in Pakistan, which is qualitative research on the strategies of self-regulated learning (Alvi, Iqbal, Masood & Batool, 2016), the researcher observed that in the Pakistani context there are fewer studies to assess self-regulated learning at higher education level and very little research conducted on self-regulated learning based on gender comparison. Therefore, the researcher selected this area to compare self-regulated learning in students at the university level based on gender however, the researcher also wanted to explore the practices of self-regulated learning of students at the university level. This quantitative research helped to address this gap by assessing self-regulated learning by three phases of Zimmerman (2002). The focused group of people is the students of higher education level for this study; Therefore, the study is helpful to improve the self-regulated learning at the higher level which impact the learning outcomes progressively.

1.3 Statement of the Problem

The University level is the most important in the learning process, where a learner has the chance to establish his or her self-regulated learning skills and be successful in academics. Self-regulated learning is a very essential factor in the educational perspective to affect the

learning improvement and outcomes of students. In the process of self-regulated learning, students create motivation internally and externally, which makes them able to achieve their goals. With self-regulated learning skills, the learner can play a good and active role in the classroom and society. The current study intended to explore the practices of self-regulated learning at university level students. Thus, the main objective of this study was to compare the self-regulated learning of university students by gender. However, the other studies showed the difference in self-regulated learning practices among university students based on gender. The awareness made by this study is specific to the Pakistani context, where there is a lack of research on self-regulated learning processes and phases. Therefore, they can use these skills in their future life and do the practice these skills at their workplace. Thus, the current study explored the practices of self-regulated learning and compare these practices of university students based on gender.

1.4 Research Objectives

1. To examine the practices of self-regulated learning at the higher education level.
2. To compare self-regulated learning of students on the basis of gender.

    2a. To compare self-regulated learning of students related to the forethought phase on the basis of gender.

        2ai. To compare self-regulated learning of students related to task analysis on the basis of gender.

        2aii. To compare self-regulated learning of students related to motivational believes on the basis of gender.

    2b. To compare self-regulated learning of students related to the performance phase on the basis of gender.

2bi. To compare self-regulated learning of students related to self-control on the basis of gender.

2bii. To compare self-regulated learning of students related to self-observation on the basis of gender.

2c. To compare self-regulated learning of students related to the self-reflection phase on the basis of gender.

2ci. To compare self-regulated learning of students related to self-judgment on the basis of gender.

2cii. To compare self-regulated learning of students related to self-reaction on the basis of gender.

1.5 Null Hypotheses

The null hypotheses were:

$H_0$1. There is no difference in students' self-regulated learning on the basis of gender.

H01a. There is no difference in students' self-regulated learning related to the forethought phase on the basis of gender.

H01ai. There is no difference in students' self-regulated learning related to task analysis on the basis of gender.

H01aii. There is no difference in students' self-regulated learning related to motivational believes on the basis of gender.

H01b. There is no difference in students' self-regulated learning related to the performance phase on the basis of gender.

H01bi. There is no difference in students' self-regulated learning related to self-control on the basis of gender.

H01bii. There is no difference in students' self-regulated learning related to self-observation on the basis of gender.

H01c. There is no difference in students' self-regulated learning related to the self-reflection phase on the basis of gender.

H01ci. There is no difference in students' self-regulated learning related to self-judgment on the basis of gender.

H01cii. There is no difference in students' self-regulated learning related to self-reaction on the basis of gender.

1.6 Theoretical Framework

Zimmerman's (2002) Model of self-regulated learning (SRL) presents specific information and tells the significance of self-regulated learning in proper procedure and phases. In this study, the researcher took the three phases of Zimmerman's Model (2002) as the theoretical framework of the study, which is consisted of three phases of SRL.

1.6.1 Forethought

The first phase was Forethought, it referred to the process of prior thinking and planning. It had two sub-phases, Task analysis is the learning process by observing the performance of tasks and Motivational believes is the motivation to complete the tasks.

1.6.2 Performance

The second phase was Performance, which described the process which appears in motoric efforts. It had two sub-phases, Self-control is the ability to control oneself

especially in difficult and emotional situations and self-observation describes one's reactions and cognitive process.

1.6.3 Self-reflection

The third phase was Self-reflection, which described the process of efforts and influence which appears after the performance. It had two sub-phases, Self-judgment is related to the learner's thoughts and meanings attached to those thoughts which produce related feelings and Self-reaction is the process in which the learner adjusts according to the situation.

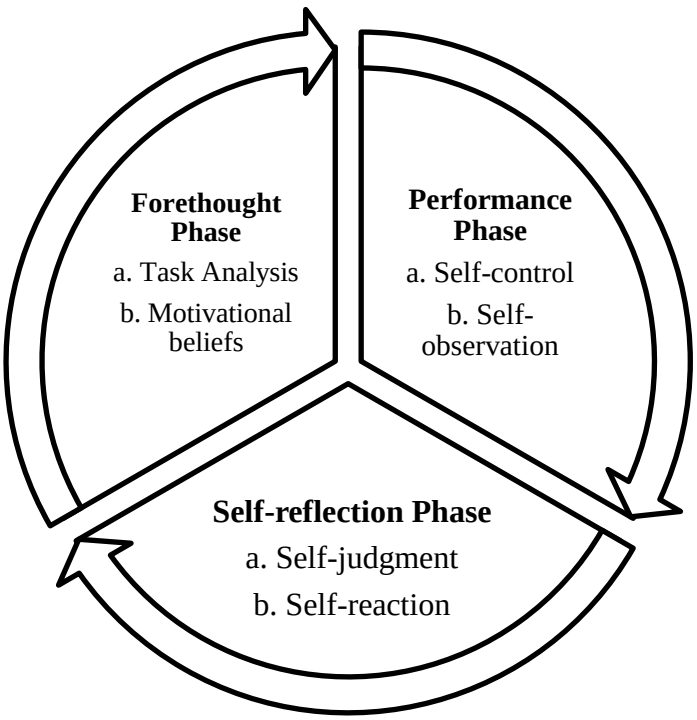

Fig 1.1 Self-regulated Learning Model by Zimmerman (2002)

1.7 Significance of the Study

This research would be mainly useful for male and female students at the higher education level. This research focused mainly upon self-regulated learning of students which would lead the students to learn independently and effectively. The study would be helpful for students, they would know about self-regulated learning, so they can try continuously to learn quickly and independently.

The current research is significant for the teachers at universities because productivity and performance are dependent on the teachers. Teachers can take guidance from the results of the current study and can give attention to work on the self-regulated learning of their students and themselves. Because of that they will effectively learn and consume less time in the future.

The current study will be helpful for the authorities and the administrators at universities to organize seminars and conferences to betterment of students' self-regulated learning. As the study showed the benefits and positive impacts of self-regulated learning. The study would be helpful for policy makers, to make policies for the creativeness and improvement of the skills of self-regulated learning. The study would be helpful for teacher training institutes, which can train the teachers to create more independent and self-regulated learners and do not make students follow blindly anything, without learning. It will give awareness regarding self-regulated learning, not only students but the teachers and staff of the universities because of the importance of self-regulated learning.

The study is useful for universities because of the significance of self-regulated learning. By doing work on the betterment of self-regulated learning of students, universities can produce self-competent youth and can be able to compete with other universities effectively.

This research is a contribution to the existing literature as there are very little research has been done on self-regulated learning in the context of Pakistan, and no research found that shows the gender-based difference of self-regulated learning in the Pakistani context. Therefore, the results of the study can be a unique contribution to the existing literature. With the little contribution of awareness about the benefits and improvement in the result of self-regulated learning, this study will be important and helpful in Pakistani literature.

1.8 Methodology

1.8.1 Research Approach

For this study, a quantitative research approach was used by the researcher because data was collected numerically by the researcher, Due to the nature of research objectives and hypotheses, the researcher used the quantitative approach as it is more appropriate for the analysis of numeric data.

1.8.2 Research Design

The Descriptive design was used in this research. The study had two key goals to investigate self-regulated learning among university students at higher education levels, and to compare self-regulated learning among university students on the basis of gender. Both objectives were related to the analysis and according to the current situation of education. Descriptive research deals with the issues and problems of the current situation. The thesis is about self-regulated learning in the field of education, so it falls under the category of descriptive research design. The comparative form was also used by the researcher in the descriptive research survey. The questionnaire was used to gather information.

1.8.3 Population of the Study

Registered students in the department of social sciences in public universities of Islamabad were 8659 (Session, 2019), which 0was the population of the study. Among the students, 4795 male students and 3864 were female students (See Appendix H). According to the Higher Education Commission, 11 public universities in Islamabad offer social sciences subjects (See Appendix I).

1.8.4 Sampling Technique

The proportionate Stratified sampling technique was used by the researcher for the sample selection. The researcher divided the entire population into a subgroup of male and female then randomly selected the final number proportionally from both groups of gender. There were two main groups of males (480) and female (386) students as the population for the study. To get the best possible results researcher chose the same percentage of both groups of students.

1.8.5 Sample Size

In the Universities of public sector Islamabad, 8659 students were enrolled in the department of social sciences (session 2019 fall). According to Gay, Mills, and Airasians (2012) if the population is about or beyond 5000 then 500 would be a sufficient sample size. Which constitute 10% of the population. By considering above mentioned source, For the current study, 10% of the population had taken from each group by the researcher, as a research sample, which is 866 students, 480 males, and 386 females.

Table No. 1.1

The details of whole population and sample was mentioned in the table.

Study Population and Sample

Group	**Population**	**Sample**
Male	4795	480
Female	3864	386
Total	8659	866

1.8.6 Research Instrument

The researcher used one questionnaire as a tool for data collection, which was about self-regulated learning and developed by the researcher based on self-regulated learning phases of Zimmerman (2002) (See Appendix-K). There were few self-regulated learning scales to measure the different strategies and practices of self-regulated learning, but they were not suitable in the context of Pakistan. That is why the researcher developed a questionnaire for the study. Model of three main phases and six sub-phases was selected from the models of Zimmerman as a conceptual framework, the accurate questionnaire was not available which can measure the SRL practices properly in the Pakistani context. That is why the researcher developed the SRL scale. It contains 42 items of 3 phases.

1. Forethought,
2. Performance control
3. Self-reflection

Table No 1.2

The table described the phases and sub-phases of the scale used in the current study.

Description of Self-Regulated Learning Scale

Scale	**Sub Variables**	**Items**
Self-regulated learning	Forethought	16
	Performance Control	10
	Self-Reflection	16
Total Items		42

1.8.7 Validity of Instrument

For the validation of instruments, the researcher consulted research experts from the field of education to check and validate the instrument of this study. Due to the Pandemic, some universities were closed so the researcher did contact experts via email also and get responses. With the help of valuable suggestions from expert's researcher brought some changes in the instrument and exclude the extra and irrelevant questions (See Appendix-J).

1.8.8 Pilot Testing

The pilot testing was carried out by the researcher to assess the reliability of the instrument's six components. Each segment included 05 objects. The tool was initially distributed to 35 of the sample's respondents. 30 people responded and returned the questionnaire in full. The data collected during the pilot trial was coded into six self-regulated learning sub-headings and analyzed using the Statistical Package for Social Sciences (SPSS) 21.

1.8.9 Reliability of Instrument

For the test of reliability, the instrument of this study was managed on 30 students of the social sciences department at public sector universities in Islamabad for pilot testing with Cronbach alpha and calculating the correlations related to items. As result in the final questionnaire, there were 30 correlated items for the study.

1.8.10 Data Collection

The researcher was visited by personal to collect data from the students of the social sciences department from public universities of Islamabad. Data was collected through the self-developed questionnaire.

1.8.11 Data Analysis

The data were analyzed by using Statistical Package for Social Sciences (SPSS). The independent t-test was used as a statistical test to compare the self-regulated learning practices between the groups of male and female students. Mean was calculated for assessing self-regulated learning among students.

Table No. 1.3

The table described objectives, hypotheses, instruments, and statistical tests which were used in the study.

Description of Objectives, Hypothesis, Instrument, and Statistical Analysis

Objectives	**Hypotheses**	**Instrument**	**Statistical test used**
1. To examine the Practice of self-regulated learning at the higher education level.		Questionnaire	Mean
2. To compare self-regulated learning of students on the basis of gender.	There is no significant difference in students' self-regulated learning on the basis of gender.	Questionnaire	Independent sample t-test

To compare self-regulated learning of students related to task analysis on the basis of gender.	There is no significant difference in students' self-regulated learning related to task analysis on the basis of gender.	Questionnaire	Independent sample t-test
To compare self-regulated learning of students related to motivational believes on the basis of gender.	There is no significant difference in students' self-regulated learning related to motivational believes on the basis of gender.	Questionnaire	Independent sample t-test
To compare self-regulated learning of students related to self-control on the basis of gender.	There is no significant difference in students' self-regulated learning related to self-control on the basis of gender.	Questionnaire	Independent sample t-test
To compare self-regulated learning of students related to self-observation on the basis of gender.	There is no significant difference in students' self-regulated learning related to self-observation on the basis of gender.	Questionnaire	Independent sample t-test

To compare self-regulated learning of students related to self-judgment on the basis of gender.	There is no significant difference in students' self-regulated learning related to self-judgment on the basis of gender.	Questionnaire	Independent sample t-test
To compare self-regulated learning of students related to self-reaction on the basis of gender.	There is no significant difference in students' self-regulated learning related to self-reaction on the basis of gender.	Questionnaire	Independent sample t-test

The above table described the objectives of the study and relative hypothesis of these aims and which analysis was used to test the respective hypothesis on SPSS to conclude the results of the current study.

1.9 Operational Definitions

The researcher explained organizational concepts in the light of the research subject in the following lines.

1.9.1 Self-regulated Learning

It applies to the method of taking care of one's own learning and behavior and assessing it. It stresses an individual's autonomy and control through monitoring behavior against objectives.

1.9.2 Practice

It is a real application or use of a method or an idea according to any theory or belief.

1.9.3 Forethought/Pre-action

It refers to the process of thinking beforehand, planning, prior or previous reflection.

1.9.4 Task Analysis

It is the learning process by observing how they perform their tasks and achieve their intended goals.

1.9.5 Motivational Believes

It refers to the motivations that drive a person to complete a task, whereas volitional techniques are concerned with a person's desire and capacity to control his motivation and behavior.

1.9.6 Performance Control

It describes the process which appears in motoric efforts and affects attention and action.

1.9.7 Self-control

The ability to control oneself especially in a difficult situation, such as emotions and desires.

1.9.8 Self-observation

It describes one's attitude, reactions, and cognitive process.

1.9.9 Self-reflection

It describes the process which appears after performance effort and influences that experience.

1.9.10 Self-judgment

It results from an individual's thoughts, and the meanings they attach to those thoughts, which produce related feelings such as anger, depression, and anxiety.

1.9.11 Self-reaction

It is the process in which an individual automatically compensates or adjusts to a changed condition.

1.10 Delimitations

The study was delimited to:

1. The public universities at Islamabad recognized by HEC were restricted for the study (See Appendix G).
2. The department of social sciences was selected for the study (See Appendix I)
3. The social sciences subject was restricted to the list provided by the HEC (See Appendix I).

CHAPTER 2

REVIEW OF THE RELATED LITERATURE

The literature review of the research is discussed in this chapter. The focus is on the variable of the study, which is self-regulated learning (SRL) and gender. the secondary source used by the researcher to collect the majority of the literature, from online books, journals, articles, and thesis.

The chapter started with the introduction to (SRL) and continued with the analysis of (SRL) and gender literature. The chapter also included a description of the relevant models about self-regulated learning that the researcher followed for the current study.

2.1 Concept of Self-Regulated Learning

Self-regulated learning is one of the areas of self-regulation, and it is important for the learning process as well as a problem for students. It relates to learning, which is driven by metacognition, which means thinking about someone’s thinking, it also relates to strategic action which includes the standard steps of planning, monitoring, and evaluating personal progress. It also relates to taking control of someone’s learning behavior. Metacognition was not much important in the past but now researchers consider it a component of self-regulated learning (Winne & Hadwin, 1998).

Self-regulation refers to students' ability to regulate their intellect, behavior, feelings, and motivation by using personal tactics to accomplish the goals they have set for themselves.

It stresses the independence and self-control of cognition which means metacognition, control of behavior, emotions, and monitoring and directs actions towards goals of gaining information, increasing knowledge, and self-improvement (Paris and Paris, 2001).

Behavior control from the definition explains the need of students while learning process to guide their behavior towards the set goals to achieve it. Likewise, control of emotions must be towards achieving academic tasks (Boekaerts & Corno, 2005). Emotions are very important for the learner to be happy and stay positive and avoid negative thoughts and emotions, must be controlled by the learner through self-control in the process of self-regulated learning (Zimmerman, 2001)

Then to control the motivation means to know about the triggers and generators of self-motivations, a sufficient level of interest is required to achieve the goals and to be attentive towards tasks. Therefore, a learner must know how to control his motivation (Corno, 2008; Wolters, 2003a).

Self-regulated learners succeed because they have the power to make on-track their thoughts, emotions, and inspiration. Learners establish their goals they make their goals according to their requirements and then regulate themselves to achieve the goals (Boekaerts & Niemivirta, 2000). Learners use goal-oriented strategies towards learning (Paris, Byrnes, & Paris, 2001; Paris & Paris, 2001). The learner must have the appropriate goals for that he or she can do the effort by choosing the proper and suitable goals (Paris, Byrnes, and Paris, 2001).

2.2 Definition of Self-regulated Learning

In Education, learning is the main purpose and is better if it is self-regulated learning, which is an important construct of education (Boekaerts, 1999). When we take this phenomenon, it consists of three things, first, the self which shows the independent behavior of the learner, it also indicates the goal-oriented behavior which makes the learner learn the thing with self-motivation. Second, it relates to regulation styles which are also connected with metacognition which makes the learner understand their thinking. Third, it relates the learning styles, with the knowledge of these styles' learners can learn in the most appropriate learning style according to the requirements. These three layers of the learning process are beneficial for educators and researchers (Boekaerts, 1999).

By self-regulated learning, learners create the skills to covert the mental abilities by organizing and managing their thoughts and then understand and use cognitive abilities and make the possibilities to complete the tasks and achieve the set goals (Zimmerman, 2001).

2.3 Phases of Self-regulated Learning

According to Zimmerman (2002), there are three phases of self-regulated learning:

2.3.1 Forethought

According to Zimmerman 2002, the first phase of self-regulated learning is forethought, which is about the planning and analysis before any action. Self-motivation and self-awareness are also included here. At this stage learner get to know about the task, the details of complications and difficulties of the task, then the learner can make and design the whole effort plan which is required for the task. It is very important and self-regulated learners must do it to prior planning for the learner and choose the strategies for the task. The self-regulated learner knows how

to maintain motivation and how to sustain the effort. With the support of self-efficacy and motivation, self-regulated learners increase their interest and competency, therefore, a learner can get into the second phase of performance (Harding, 2018).

2.3.2 Performance

According to Zimmerman (2002), in the second phase of self-regulated learning learners use the whole planning of the first phase and practically do the work on the task. The chosen strategies will be used here to perform in a better way. This phase is practical so, a learner is aware of the actions and strategies about it, learner also regulates and motivates the behavior to achieve the purpose. By doing practically the learner can bring some changes in the planning according to the requirement to achieve the goal. Learners take actions on self-observation and keep a record of their progress and motivation. A good self-regulated learner can explain the whole process of achievement including strategies and planning, learner also can defend the chosen planning and approach. By keeping a record of the task process, learners use it in the future or can learn from mistakes and can do better in the future (Harding, 2018).

2.3.3 Self-reflection

According to Zimmerman (2002), the third phase of self-regulated learning is self-reflection, in which the learner has done the planning and performance. It is the time learner evaluates the whole process of planning and judges the performance. The used strategies for the goal achieving process are also important to evaluate by the learner. At this stage learner has the outcomes, so, a learner can compare the outcomes and

observe the feedback. It is clear for the learner now, the causes of credits and the fruitfulness of the efforts. The attributions or credit that learners found from the process can lead to goal achievement. Therefore, these all factors of effort, competency, difficulty, and selection of strategies give the learner self-confidence and great motivation for the future. So, a learner can be clearer in his future selection of tasks and can do with more confidence and competency (Harding, 2018).

2.4 Educators and Self-regulated Learning

Every child has different psychology and background. Every student has different education issues, every learner understands the different styles of learning. It is because every individual has his or her own childhood experiences which built the cognitive and behavioral abilities according to their experiences. According to Dignath (2012), These all differences can be challenges in the learner's life, but these are solvable issues by learning self-regulated learning.

Learners learn the self-regulated learning (SRL) process by teachers, which plays a vital role in the learning process. Teachers teach the appropriate skills which can be beneficial and essential to learn and do work according to self-regulated learning. These skills make the learner successful to understand metacognition. By explaining the importance and usefulness of self-regulated learning enhance the awareness of SRL. One another way for teachers to teach the SRL is by explaining the different strategies of SRL. It is very important to appropriate use of SRL skills and strategies to understand the full process (Dignath, 2012).

Teachers enhance the SRL skills of the learner in a better way when they already have SRL skills themselves because self-regulatory teachers are often thought of as (pro)active agents

who originate certain educational beliefs, establish appropriate instructional practices in response, and proactively manage the teaching environment and conditions (Butler, 2003; Manning & Payne, 1993; Randi, 2004). Learners learn with awareness of learning and the process of their thoughts. Learners understand the pattern of their thinking working behind. therefore, teacher SR is based on metacognitive processes (Manning & Payne, 1993) that follow a cyclical process of SRL: teachers set teaching and learning goals, plan appropriate actions, choose appropriate strategies for implement on set goals, monitor, and evaluate outcomes, and adapt and revise their approach as needed (Bartimote-Aufflick et al., 2010). They make their decisions beneficial for learners because teachers who are self-regulatory reflect about their decisions thoughtfully and in advance (Manning & Payne, 1993; Randi, 2004). At the end of the process, teachers' reflection becomes useful, and the self-evaluations become effective and valuable and come to be the encouragement for other teachers. Self-regulated instructors, as autonomous learners, can learn from teaching and are expected to use similar SRL tactics as students, such as seeking mentorship, seeking feedback, and searching professional literature for new ideas (Butler, 2003; Butler et al., 2004; Manning & Payne, 1993; Randi, 2004).

2.5 Self-regulated learning Strategies

There are some strategies for self-regulated learning. These strategies are research-based instructional techniques. The purpose of it is to help the self-monitoring and self-managing of learning about their skills of learning (T. C. F. S 2012). The strategies of self-regulated learning are the techniques and defined activities of the phases of self-regulated learning (Dabbagh and kitsantas, 2004).

According to (Nussbaumer, Dahn, Kroop, Mikroyannidis & Albert, 2015) they defined nine strategies of self-regulated learning, they structured the strategies in three groups. Which are cognitive strategies, metacognitive strategies, and resource management. According to (Abbanasab, Saad & Boroomand, 2012) the after setting the goal, there are the steps of monitor, regulate and control of cognition, motivation, and behavior (wolters, pintrich, & karabenick, 2003). When in this process, a learner is doing the direction by his self, it is called self-regulated learning (pintrich, 2003). According to Zimmerman and Risemberg, (1997) the action initiated by the self is defined as self-regulated learning. Which includes goal settings, self-monitoring management of time, and physical and social regulation. Self-regulated learning is the ability of a learner to use metacognitive strategies or to control cognition, which is the first approach of learning strategy (Abbanasab, Saad & Boroomand, 2012). The second approach of SRL strategy was metacognitive, planning, monitoring, and regulating are included in these strategies (pintrich and McKeachie, 1991). According to Schoenfeld (1992), this second approach deals with both approaches of SRL as the ability of the learner. Pintrich (1999) said rehearsal, elaboration, and organizational strategies are the main points of the first approach which is related to cognitive strategies of a learner, which shows the importance of combined motivation of the components of cognitive and metacognitive SRL strategies of learner (Tanner & Jones, 2003). According to (Nussbaumer, Dahn Kroop Mikroyannidis & Albert, 2015) The first group has consisted of organization, elaboration, and rehearsal tasks of learning topics, the second group, metacognitive strategies consists of goal-setting, self-monitoring, and regulating. This group is about targeting the tasks and controlling the process of own learning. The next group of resource management strategies includes time management, help-seeking, and enabling. This group is about taking care of the resources of learners for the learning process (Nussbaumer, Dahn Kroop Mikroyannidis & Albert, 2015).

2.6 Self-regulated Learning Stages

Self-regulated learning is the learning process that can be run by some essential skills. These skills lead the learner to SRL and work on the independent behavior, self-motivation, dedication, and positive emotions of the learner. These skills help the students to achieve goals. Teachers and educator can play their role in this process, and they can transmit these skills to the learners in an effective way. For this task, teachers must know about these skills and knowledge about how to use these skills (Demiroren, Turan & Tasdelen, 2020).

Self-regulated learning is an independent learning process thus the learner must approach the three stages of SRL for learning these skills. Three stages of planning, performing and reflection will help the learner in the learning process, according to the cyclic model of Zimmerman (2002).

Self-regulated learning is a method for students to better manage their thoughts, behaviors, and emotions so that they can navigate their learning experiences successfully. When a student's intentional activities and processes are aimed toward acquiring knowledge or abilities, this process happens. SRL models are divided into stages in general. Three main phases are discussed in one prominent cycle model: planning and forethought, performance monitoring, and performance reflections (Pintrich & Zusho, 2002; Zimmerman, 2000).

The first stage is planning which is important as every goal and standard can be set at this stage. The perception of a student is also involved in it and students get the specific knowledge about the span and vision of the main task that is why students plan everything. The second stage is performance, at this stage, students performed practically according to planning and gain learning experiences. In this way, students monitor their learning and check if it is suitable for goals and according to the standards or not. The third stage is

reflection, which comes after practical experience. at this stage by understanding the thinking student evaluate the learning experience and reflect the ideas and feedbacks, a student also saves this knowledge as a new concept and use it in the future (Demirören, Turan & Taşdelen, 2020).

2.7 The Benefits of Self-regulated Learning

SRL is the procedure of that learning in which the learner regulates himself and controls his emotions, thinking attitude, and environment. With independent learning or learning becomes able to control his mind also according to the learning process and goal requirements, which is helpful and directly related to the learning or educational experiences, learner also manage his time as they see how it can be good teachers (Ramdass & Zimmerman, 2011).

The learner takes responsibility for his learning with strong and inner encouragement and motivation, he does not easily accept failure and have the strength to do it again and again, at that time learner does not need anyone to tell you how to do or what to do. That is why learner learns sooner and in a better or successful way (Winne, 1997). That is why anyone wants to be a self-Regulated learner to learn for a long time. The learner knows his goals and the requirement to achieve them in a better way so it becomes more challenging for the learner, and it will make them stronger and more confident for future tasks.

SRL is the process in which the learner crosses the whole process thoroughly and does work in his way and covers the gaps and redo the wrong things, learner takes initiative again and again and skips all flaws. From this whole process, the learner takes the lessons for the rest

of his life and can apply the learned points to his life and spend a better family and social life (Harding, 2018).

2.8 Sources of Self-regulated Learning

During the process of SRL, to develop motivation, students' effect by some factors from internal and external sources. Internal sources are related to personal motivation factors and external sources are related to the environment in which the learning process is going on by the learner (Bandura, 1986). Students can achieve their goals by encouraging through these sources (Grant & Dweck, 2003). Therefore, there are some sources of self-regulated learning (SRL). Which focused on the inner view and mentioned the internal factors of SRL. These sources motivate the learner to do something and to reflect his work, he also can achieve his set goals by these internal forces and sources of SRL (Iran-Nejad and Chissom, 1992).

The researcher mentioned three internal sources of SRL which are given below:

2.8.1 Internal Sources of Self-Regulated Learning

The researcher mentioned three internal sources of SRL which are given below:

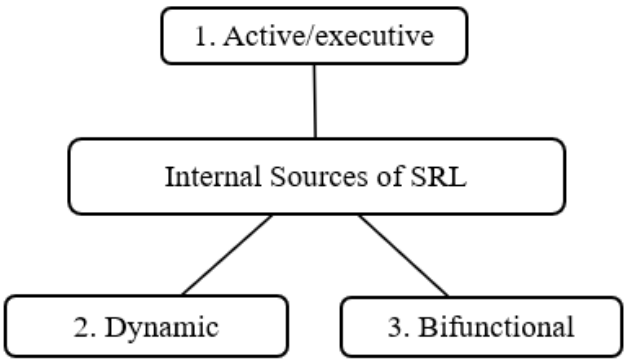

Fig 2.1 Internal sources of Self-Regulated Learning (Iran-Nejad and Chissom, 1992)

2.8.1.1 Active/ executive

The first source is active and intentional. In which learners deliberately and consciously give focus to learn. The voluntary learner uses his self-regulated learning skills and tries to learn on his own. A learner can this habit and get aware of this strategy, he knows how he's thinking, and mind can get controlled by himself, he controls himself and makes it possible to learn about that area according to the set goals (Iran-Nejad and Chissom, 1992).

2.8.1.2 Dynamic

The second source of self-regulated learning is dynamic self-regulation. In which the learner is not aware of the internal source of SRL. But he is still learning from the SRL source. This learning process is self-motivated and does the self-reflection and achieves his set goal by his internal will (Iran-Nejad and Chissom, 1992).

2.8.1.3 Bifunctional

This is the third source of self-regulated learning. In which learning does work in both ways, active and dynamic. From this combination' learner do learn at his best and according to his interest. it is a more creative source than others. in this process, the learner knows some of his SRL skills but some skills he got unconsciously. We can say that learner driven in both ways (Iran-Nejad and Chissom, 1992).

2.8.2 External Sources of Self-regulated Learning

Effeney, Carroll, and Bahr (2013) mentioned some external sources of self-regulated learning strategies, which found out the influence level of these sources on the SRL of participants. These external sources are:

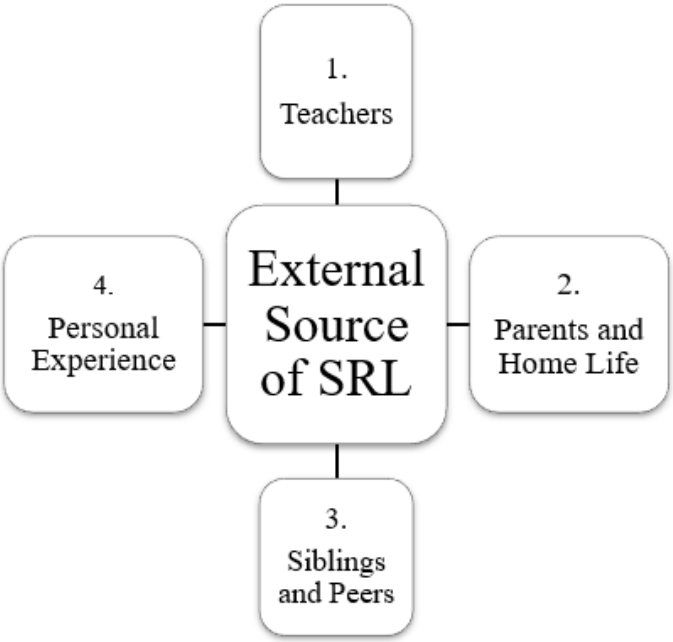

Fig 2.2 External Sources of Self-Regulated Learning (Effeney, Carroll, and Bahr, 2013)

2.8.2.1 Teachers

A teacher is the important and dominant source of self-regulated learning strategies. In the learning, process the learner becomes a self-regulated learner with the help of teachers. Teachers are not prominent and dominant in the self-regulated learning process but are very important for assistance and guidance. Teachers have different ways to deal with different students, as there are lower and high achievers in the class, lower-ranked students are less confident and more dependent on a teacher (Effeney, Carroll, and Bahr, 2013). According to Zimmerman (2005), with the least teacher support students operate and do their work at advanced stages of SRL development. Zimmerman et al. (2005).

2.8.2.2 Parents and home life

Parents are another source of self-regulated learning strategy, from home life, learners are directly connected to their families and parents, and they have a prominent impact. The philosophy and home routine set by parents can play role in the learner's life. According to Effeney, Carroll, and Bahr (2013), those learners whose parents were strict in their childhood about the routine and timetable, have fewer issues in their school life routines. Those parents who were strict about the organized nature of their children were also played a prominent role in their children being self-organized and self-motivated. therefore, supportive parents with developing organized habits and engaging their children in different schedules are the prominent source of SRL strategies.

2.8.2.3 Siblings and peers

Siblings and peers were also identified as sources of self-regulated learning strategies. According to Effeney, Carroll, and Bahr (2013), older siblings are the source of SRL for younger siblings, they shared experiences which is helpful, and youngers observe their older siblings which give them the SRL abilities. But in this relationship the main thing which matters is the positive bonding between the siblings, it makes the possibilities of SRL.

2.8.2.4 Personal experience

One another source is the personal experience of the learner. In which learner adopts the self-regulated learning strategy by experiences of themselves. It is the actual level

of SRL if the learner is successful to create self-motivation and self-reflection, and it is also helpful to be a high academic achiever. With repeated and continuous experiences learner got the academic habit and in an ongoing process of SRL, he become a high-ranked learner (Effeney, Carroll, and Bahr, 2013).

2.9 Models of Self-regulated Learning (SRL)

Self-regulated learning (SRL) is the key concept to identify or understand the aspects of learning. These aspects are related to the cognition, motivational, and emotional behaviors of a learner. SRL is related to psychology and played a great part in educational psychology which is beneficial and important for the students, teachers, and scholars. Any organized and new concept can be presented by the Models and Theories.

A model can be a simple diagram or a picture presentation of a concept. It is an idea that contains all the aspects of the concept including related elements. It shows the system, chain, relations, and steps, etc. The diagram helps to understand the specific view and related ideas. Theory can be a rational type of a concept; it also can be the result of the concept which contains a rational thinking process.

In the start, scholars began to do work and research on SRL by distinguishing between SRL and metacognition (Zimmerman, 1986). Then it extended as a field and experts presented different models and theories, which developed the concept of SRL (Sitzmann and Ely, 2011).

SRL is a field that has grown over time and research by experts and now it is mature enough. In 2001 after the theoretical review by Puustinen and Pulkkinen, which included different models relevant to SRL, this phenomenon developed meaningfully. Then published Meta-analysis about SRL is the evidence of the evolution of SRL. In the handbook by Zimmerman and Schunk published in 2011, there are different methods to evaluate the SRL.

There are different theories and models of SRL presented by experts. Some have the same phases and steps and resemble each other. But some models are presented with different

angles and different from each other. Strategies, phases, and steps are mentioned. In this portion, the researcher has gathered those methods and theories to know about SRL more.

2.9.1 Introduction of Zimmerman

Barry J. Zimmerman was the researcher who wrote first time about the SRL in 1986 with developed structure. He presented and explained three different models of self-regulated learning, after four years and represented different aspects of SRL. He explained the other connections and interactions which is important to influence the SRL.

2.9.2 History and Development of the Models

According to Zimmerman individuals gain knowledge through his observation about other individuals and with the social interaction, which is called a socio-cognitive theory. Therefore, the work of Zimmerman evolves around the socio-cognition and the models presented by him also show his expertise.

2.10 Triadic Model of SRL by Zimmerman (1989)

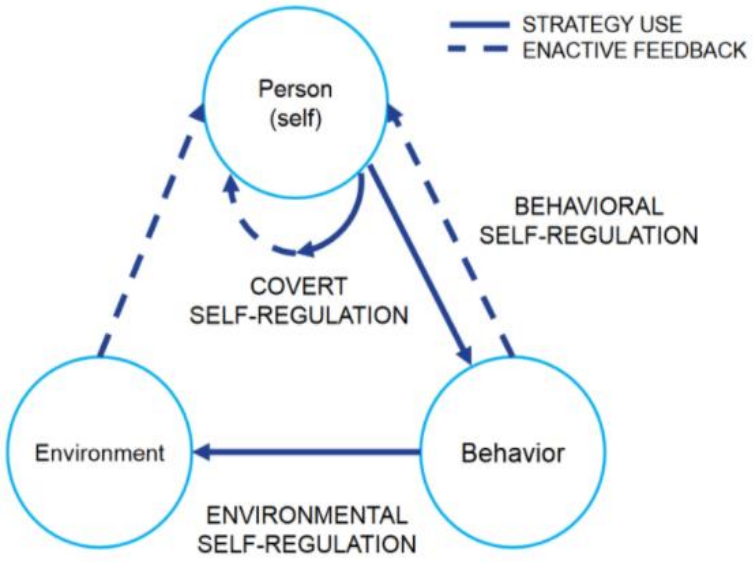

Fig 2.3 | Triadic model of SRL (Zimmerman 1989)

There is a Triadic model, presented by Zimmerman in 1989. According to this model, there are three factors, self, behavior, and environment, which influence the self-regulation of a learner.

The first factor is the person (self), which is about the individual or the learner, what is his aims about the tasks, how he sets his goals, and what are the objectives to achieve the goals. These abilities to set goals and maintain the objectives effects the self-regulation of the learner and play a great role to monitor himself and in the progress of learning. If the learner sets a goal to do any assignment and continually monitors his progress graph and understands his ability to achieve the goal, it means he becomes aware of his achieving ability and he is regulating his learning. In this way, he increases his belief in self-efficacy

(Winne & Hardwin, 1998). In this way, the learner converted his capabilities into the skills through which he does the practice to achieve learning goals.

The second factor is about behavior in which the learner's behavior is concerned. Here the self-reaction and self-observation are included. Self-observation is also a learner's behavior. A learner's ability to learn something is influenced by behavior. These three behaviors affect the regulation ability of learners (Winne, 2015).

The first behavior is self-observation. In which learner monitor his capacity and ability about learning and to progress to achieve the goals. How well learning is doing and what hurdles learner can face through this progress and studies. When learners got the answers to such questions, can become aware of progress to achieve the goals (Winne, 2015). When learners do self-observation, the next stage is self-judgments.

By self-judgment, the learner finds out his ability to compare the achievement and performance. In this way, the learner wants to know the gap between present performance and previous performance. With this comparison, the learner reflects his situation. Then learner reflects on different strategies and ways through which he got better achievements and the learner also wants to know the weak points or weak strategies through which he went down and could not get better achievements according to the objectives. One another way of self-judgment is the comparison of self-performance with any brilliant achiever or student (Moos & Ringdal, 2012). In this way, the learner will improve the learning performance and get the right skills and strategies.

This is the third aspect of a learner; self-reaction gives the ability the learner to change his behavior and make performance better. In this way, learners positively take criticism and learn positively.

The third factor of this model is the environment, which also influences the self-regulation of the learner. Environment means the learner's surroundings or physical area in which the learner is doing efforts of learning. It can be an educational institute or a living area. Where the teachers and parents are also available and can-do help or can affect the learner positively and then achieving goals can be easier. In this factor, the physical things are also included which are used by the learner in the process. What sitting area learner is using and what are the other things like pen, papers, sounds, computer, tablet, and chair, etc. These things can affect the environment of learning (Harding, 2018). It depends on the learner, some of them like to arrange to surround neatly, but some learners feel comfortable in their bed or living room, etc. sounds and lights are also very important in the environment. The learner makes the environment comfortable for learning. Therefore, these three factors affect the SRL in the triadic model of SRL, presented by Zimmerman.

2.11 Cyclical Phases Model by Zimmerman (2000)

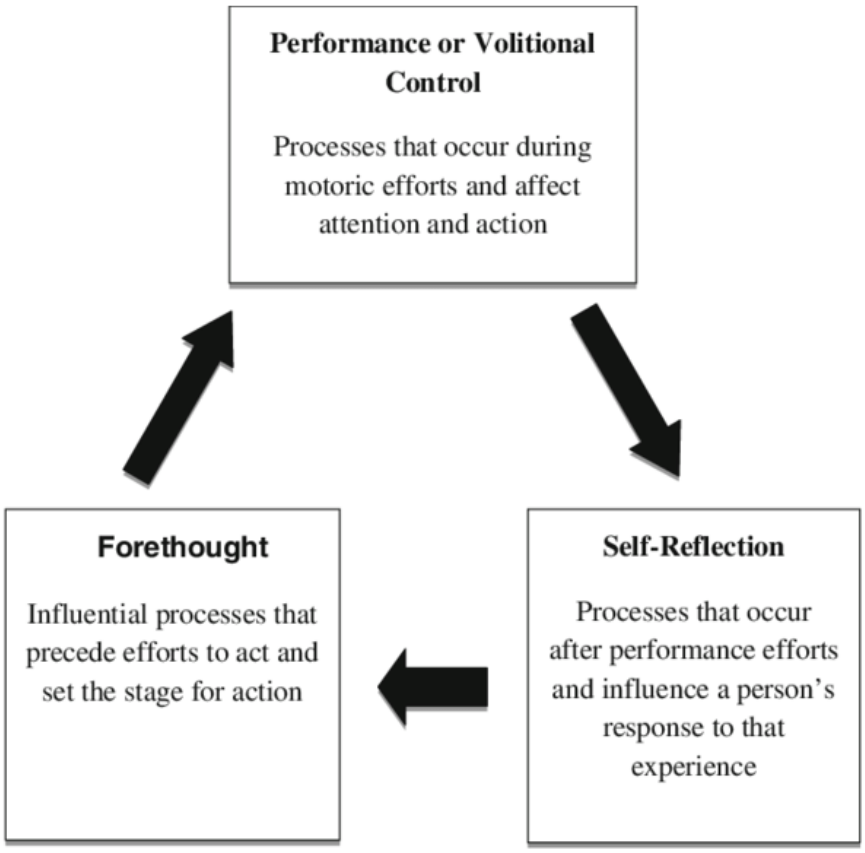

Fig 2.4 Cyclical phases model (1st version) by Zimmerman, 2000

In the Cyclical Model of SRL, cyclicality exists. According to that, there are three phases of this model of SRL. First is Forethought, second is performance and the third is self-reflection.

The three phases of the SRL model relate to each other and after one phase learners go forward to the next phase. The first phase, which is forethought, is related to pre-thinking and planning for goal setting. Self-efficacy and expectations come in phases. Then the second phase is performance, in which the learner will take the strategies. Self-instruction and experiments come in this phase. Being attentive and focused are the basic points for a

good performance. Then the last phase, which is self-evaluation. It is as worthy a phase as the hard work has been done in the first two phases. Self-reflection and self-satisfaction come in this phase. Taken strategies are also evaluated here and learners can decide to take them for the future also. Each phase is important and if the learner skips any phase, the process will not be complete in the proper way (Winne, 2015).

In this cycle model, the cyclicality is important, because in the first phase the learner adapts the change and plans for preparation to correspond in the other phase. Then with the chosen strategies the learner does act according to goal settings after completion of this step or performance, the learner got self-satisfaction and achieves the set goals. The cyclic nature in this model of SRL shows the interdependency of all aspects, that is why learners get self-regulation and can be independent to bring any change in the learning process according to the goals and objectives (Panadero, 2017).

2.12 Cyclic Model by Zimmerman (2002)

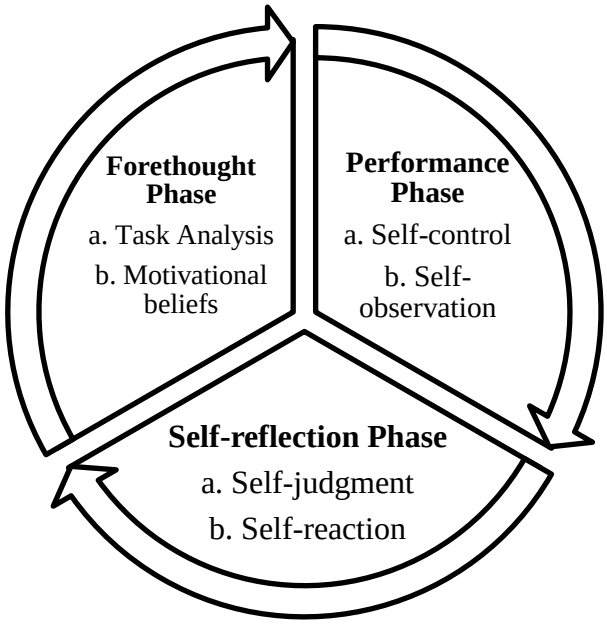

Fig 2.5 Cyclical phases model by Zimmerman, 2002

The cyclical model of SRL (2002) is a revised model of the cyclic model (2000). There are three phases of this model of SRL. First is Forethought, second is performance and the third is self-reflection.

2.12.1 Forethought

Zimmerman (2002) presented model has the first phase of forethought. Planning and analysis before the task are included in this phase. Learners get to know about the task in this phase with all the complications and details. Further two phases are task analysis and motivational beliefs. According to Harding (2018), Prior planning and selection of the right strategies play a vital role in the success of any plan. With the perfect planning of goal, a learner gets motivated and interested in the task.

2.12.2 Performance

The second phase of SRL is performance (Zimmerman, 2002). After completion of the first phase, a learner does the practical work on a task. In this phase, a learner implements chosen strategies according to the planning of forethought. This phase is practical therefore, learners perform in a better way on the planning which has done in the first phase. The behavior of the learner gets motivated and regulated with the performance and work by doing. Two subphases of performance are self-control and self-observation. A learner does practice these and gets motivated to achieve the required goal. According to Harding (2018), With the record of self-observation and practice of self-control learners use the steps of achievement in the future with fewer mistakes and with an efficient timeframe.

2.12.3 Self-reflection

The third phase of the cyclical model of self-regulated learning is the self-reflection phase (Zimmerman 2002). In this phase, the learner completed the first and second phases of planning and performance and now it is the time of self-evaluation of a learner. There are two sub-phases of this phase. Which are self-judgment and self-reaction. At this stage learner has the outcome therefore the comparison of outcomes and observations of the feedbacks have become possible here. According to Harding (2018), Learners may identify the credits and fruitfulness of the effort. This attribution found by the learner takes the lead to the achievement of a goal. Therefore, the effort and competency with the right selection of strategies give self-confidence and motivation to the learner and the learner may do the task performance in a better way in his future life with fewer mistakes and with competency.

2.13 Current Version Cyclical Phases (Zimmerman and Moylan, 2009)

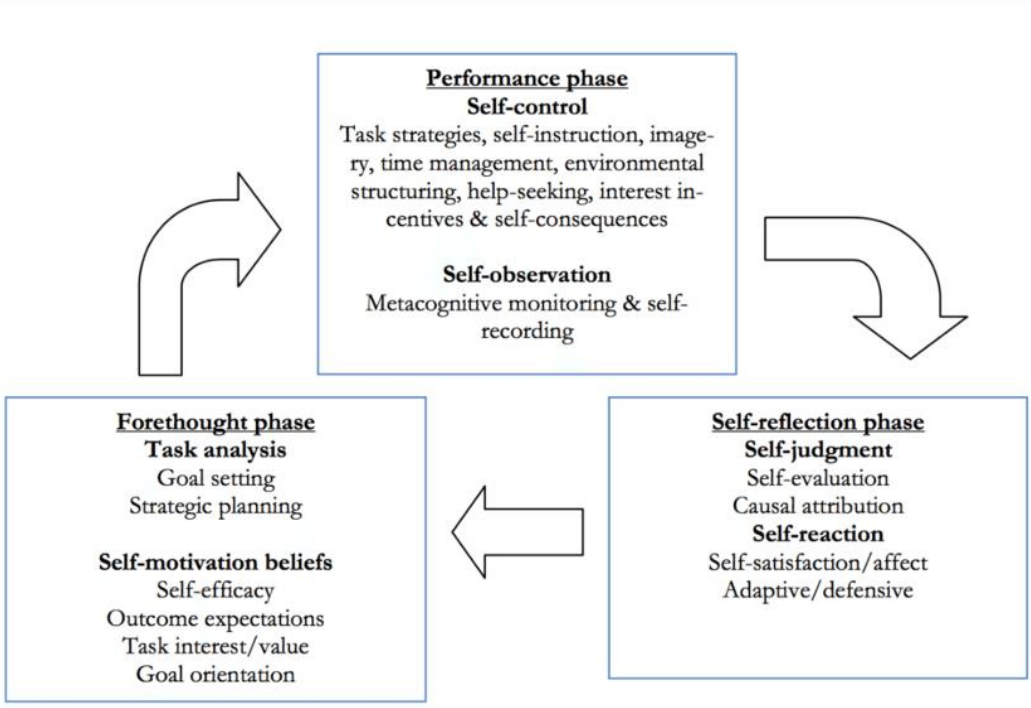

Fig 2.6 Current version Cyclical phases model by Zimmerman and Moylan (2009)

The original model was presented by 2000. Then after some years updated model was published in 2009 by Zimmerman and Moylan. In which they included the more capabilities of a learner in the self-control section.

Different researchers have been discussed the self-regulated learning (SRL) procedure and tried to clear the concept and present the framework. (Boekaerts & Corno, 2005; Winne & Hadwin, 1998). But the model presented by Zimmerman and Pantrich is cyclical, which shows the difference between phases more clearly. In this way, the process of SRL becomes easier to understand and open.

The cyclical Model shows its phases in detail. The first phase is included the details of the goal/forethought/intentions phase. The planning and pre-thinking come in this phase. The second phase, which is the performance phase, action/strategies come here. The thinking

and things related to the action or performance and practice by doing come here. Then the third self-reflection phase discusses the self-reflection/monitoring. In which the after-process things come here, and the leaner concludes the result according to the achievements of the objectives. These explanations make the new version of the Model special and the 'open' process. (Efklides, 2011).

In the updated model of SRL, some frameworks show as evidence more similarities than the differences (Panadero, 2017), the only positive point mentioned here about this model is the detailed and clear instructional intervention and involvement from the teacher.

2.14 Six-component Model of SRL (Boekaerts 1996b)

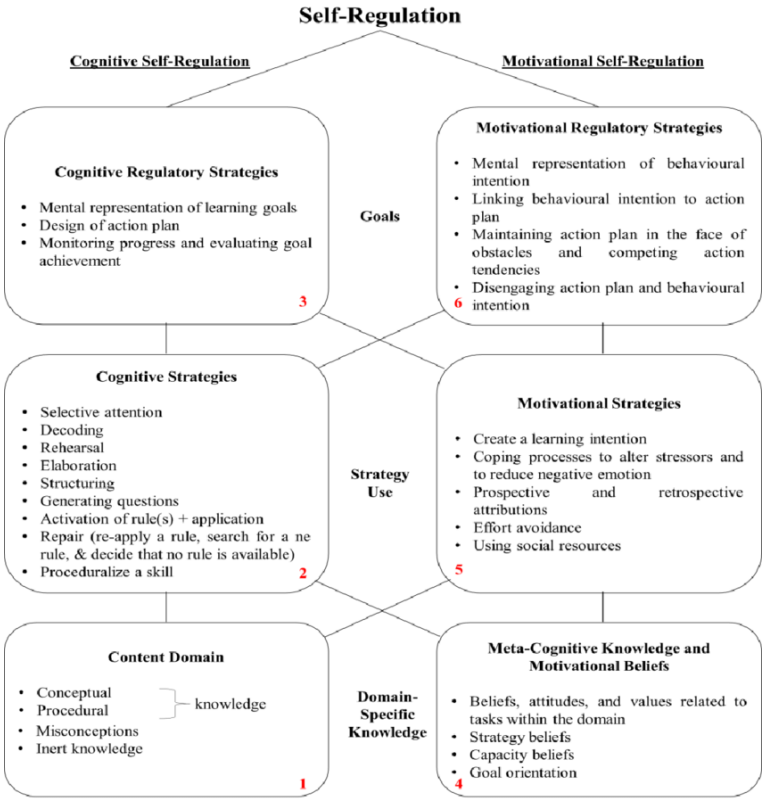

*Fig 2.7 "*Six-component model of SRL by Boekaerts, 1996b

Boekaerts: Different Goal Roadmaps (Top–Down/Bottom–Up) and the Role of Emotions

Boekaerts did good work on SRL from the 1980s earliest experts. According to Boekaerts (1991), She worked on her first model of self-regulated learning (SRL). She did work because of clinical psychology, as it was her field. She has proven her according to her expertise. By focusing on her field, she worked on the phase of setting the goal. She explained how students relate their goals and regulation. According to her students activate their goals with regulation. She also evaluated self-regulated learning (SRL) and the motivation of students.

Boekaerts presented the “model of self-regulated learning. She gave the six components” to this model through which she made the structure of SRL. She used the basic mechanism of self-regulated learning to organize it. The mechanism is cognitive, affective/motivational self-regulated learning. With the internal view of this model, she made it possible to help in teacher training and make vast this field of research. The six components of this model are (1) Domain-specific knowledge and skills, (2) cognitive strategies, (3) cognitive self-regulatory strategies, (4) Motivational believes and theory of mind, (5) motivational strategies, and (6) motivational self-regulatory strategies (Boekaerts, 1991).

Boekaerts was the initiator of SRL, who focused on the set goals by students, and how they determine those goals. He did work on the evaluation of the SRL motivation of learners and for this purpose, he decided on some steps or phases for that task. In this regard, Boekeart presented two types of models (Panadero, 2017).

2.13 Research related to Self-regulated Learning

Self-regulated learning (SRL) is essential for anyone to learn and act independently (De Boer, 2013). According to Zimmerman & Schunk (1989), SRL turned to the life of a student and related to the process of their academic achievement. SRL is a wide term to describe the learner's cognitive, motivation, and behavior promotion for their educational achievement. Different theories can deal with these three dimensions effectively and can help to solve educational problems of students to be a high achiever in academics. SRL is an explanation of how and why students adopt a self-regulated procedure, strategy, or response as a routine.

According to Zimmerman & Schunk (2001) Students also can learn to be more self-regulated. Although there are studies to assess the SRL at different levels. The focused group of people in the students of higher education level for this study as the development of self-regulated learning begins in the early years of life (Bronson, 2000), so the study will be helpful to improve the SRL at this level which impacts the learning outcomes progressively.

About the SRL, Pintrich also does work on it and reviewed Zimmerman's work and theories, and gave us the revised theories on the same phases but with different names (de Boer, 2013). Pintrich (2000) described SRL as an active productive process. In which learners learn anything according to their set goals and then go through the phases of monitor, regulating, and controlling their understanding, inspiration, and behavior. With the suitable environment learner guided by their set goals.

From different involved elements, self-regulated learning is a dynamic learning procedure it is goal-oriented which sets clear goals and focused on the achievement of those goals. Another element is control of cognition which makes them able to use the different strategies

because of the improvement in the learning process (Zimmerman, 1990). Motivation is also related to cognition which helps to reach and achieve the set goals (Boekaerts, 1996). The environment is another vital component for self-regulated learning, which can influence it in positive and negative ways, so it should be suitable.

Studies show that the students with the training of SRL sustained their level of self-reported SRL actions. According to Paris and Paris (2001), self-regulated learning emerged with different aspects like mental strategies, metacognition, inspiration, task arrangement, and open supports in classrooms, in a constructive way and with a broad view. Which covers the acquired skills and knowledge, and motivation of the students. In this way, study views the set goals of SRL skills.

SRL is an energetic and productive procedure in which learners set intentions to achieve fixed goals of their learning and then cross the phases of Observe, regulate, and control their cognition, motivation, and behavior (Mahmoodi, Kalantari, & Ghaslani, 2014). Goals guide them in the suitable environment (Schunk, 2005). So, with cognition, motivation, and contextual elements SRL is a complex method in which Metacognition is important to control these elements. With self-regulated learning students' academic performance can also be predicted (Wolters, 1999). Advanced knowledge and use of metacognitive, motivational, and learning strategies of the students are related to the higher literacy skills students and be the cause of it (Schunk & Zimmerman, 2007).

The study of Alotaibi, Tohmaz, & Jabak (2017) examined the association among SRL and academic achievement of Community College students of at a university. Results indicated that the study tool was effective and trustworthy for use in a university environment. According to the results of the study there is an important and optimistic relationship between SRL and the academic achievement of students. Likewise, the ideas of self-

regulated learning (i.e., setting goal and policy, record keeping and detecting, practice and memorization, and social support seeking), especially goal setting and arrangement, were established to be considerably and completely associated to success. Moreover, self-regulated learning and its concepts, especially setting of the goal and scheduling, were found to be important interpreters of academic achievement.

The study of Abdullah (2016) meant to detect the collaboration effects of gender and motivational views on students' SRL. Precisely, researcher observed the three types of motivation opinions under the Expectancy-value Model, especially self-efficacy, control beliefs and anxiety. According to results self-efficacy and control beliefs had been surely related to students' SRL. Anxiety, though, was once determined to be adversely related to SRL. The dealings between gender and levels of motivational views on SRL have been also discovered in this study. The associations according to gender amongst self-efficacy and SRL had been changed. Though, there had been no considerable interface outcomes between gender and inner controller views on SRL. This indicates that gender variants in SRL were not due to the changes in control beliefs and anxiety.

Article by Kobayashi (2008) runs an overview of research related to the increase of SRL abilities, with an importance on effective policies for the improvement of such abilities in learners. This article delivers an indication of research related to the development of SRL aptitudes, specifically concentrating in the areas of overt strategy training, surrounded strategy usage, and additional instructional design considerations for the improvement of self-regulation.

According to Bandura (1991), tells the importance of self-regulated learning in the academic related goals. He contends that students expect the results according to their struggle, so doing work by follow the set goals can make the positive results possible. There is strong

connection between self-regulatory efficacy and cognitive efficacy. By doing self-regulated learning student can enhance and increase their cognitive efficacy through which the academic goals can be achieved in a better way (Zimmerman, Bandura & Martinez-Pons, 1992).

In the academic process self-regulated learning is revolves around a social-cognitive model (Zimmerman, 1990), which makes learning very effective and made it possible the effective process of evaluation, cognition, and motivation. This cyclical process gave three phases of SRL, which is consisted upon planning, performance, and self-motivation. The phase related to planning is about setting goals and make motivation to reach the goal possible. In the second phase, which is performance, focus on how to perform the task in a better way and then make the assessment of learning possible. Then student will reach the third phase of self-regulated learning in which student will do the self-assessment about what he learnt was effective and according to the goals or not. This whole process of SRL make possible the effective learning and develop the possibilities of understanding and using strategies of SRL (Pintrich, 2004).

As the professional literature has been explore the many benefits of SRL, which make students to assess themselves and increase the ability to understand the academic related complexity and autonomy of learning. Study shows that the SRL make possible the better academic achievement (Wolters, 1999). By using learning strategies, students get the overall achievements and higher literacy skills (Metallidau & Vlachou, 2010). Self-regulated learning could engage the students in challenging process, as SRL is not the easy task and way of learning. In this process students can face the difficulties in any phase or stage of learning through unproductive or incompetent and incomplete strategic learning in this whole cycle of SRL. Students face the different difficulty on different stages, for instance,

on the initial stage of planning, may be its hard to organize the material in a specific timeframe or goals cannot be achieved on the set time or in the set organized way, and result to achieve goal may be get delayed. Students, on the performance stage, can do mistakes to judge the accuracy in performance and can face the hardship to monitor the performance and improvement on the task according to the set goals (Klassen & Lynch, 2007). These types of difficulties can waste the time and can resulting delayed and poor performance of assignment, which can make students uncomfortable and anxious. The ineffective learning strategies can convert students' success to the failure. The solution of this problem is to teach the students in different ways to self-regulate their learning and give awareness of the learning process and students can learn in different ways and in which way the positive learning can be possible (Baker, Chard, Kettelin-Geller, Aichatabutra & Doabler, 2009).

Studies about SRL tells the whole process of it in which students take the responsibility of their learning and to learn in the best way, students set their goals and make the strategies to achieve them. The main positive point of initiative about SRL is that the students give importance to their own determination and adaptive skills to initiate a search-based learning (Zimmerman, 2009), which is very important to gain the self-confidence. To learn in a perfect way, student use these selected and adopted strategies to regulate their skills of cognition, behavioral and motivational. Students also focus on certain environmental characteristics (Zimmerman and Martinez Pons, 1986).

In previous years, SRL has become the essential factor of better educational achievement and success in the applied educational studies (Tanriseven and Dilmac, 2013). Cognitive, motivational, and behavioral constructs of SRL have been in the focus of the western academia to measure the impact and effects of academic achievement. In Pakistan, there is

less focus on such important factor, educational research environment still lacking this valuable phenomenon and the impact of it, which can boost our learning environment.

Social cognitive theory (Bandura, 1986), which is also called social learning theory and observational learning theory. Because the importance of beyond the behavior alone, and with the cognition and observation individual can change and enhance his learning and actions. This theory became prominent and in the focus of the educational professionals and experts. Many articles and experts' reviews show the explanation and description of the elements about this theory and the different ways and points in which it can be more useful. They made easy n understandable with the clear concept of identifying and bringing change in self, which is called self-efficacy, modeling, and emotional coping, and self-monitoring (O'Leary, 1985).

In the professional literature, self-regulated learning played an extensive role. As self-regulated learning is helpful to develop behavior to support the prediction of academic achievement (Wolters, 1999), Because SRL trigger the independent behavior of learning and improve the relative complications (Kitsantas, Reiser, & Doster, 2004).

If we talk about the behavior changes so SRL make students more purposeful and capable to behave in strategical way, the behavior full of devotion becomes their part, they got metacognition and understand their thinking. They go according to their set plans, they have the ability to observe their selves and they evaluate the expected progress and achievement and compare it with their set goals, they also learn in better way because of their internal motivation (Zimmerman, 1995). Such students also can control their environment of learning to encourage and motivate themselves, and self-awareness about their capabilities to reach the required possible set level according to their set goals. Those students who consider learning as their own responsibility have independent behaviours of learning which

is helpful to achieve academic goals and more self-confidence so they can meet their goals in better way.

In focus of educational studies, the character of self-regulated learning (SRL) is very active and rich, as in the last few years the self-regulated learning concept is an important variable to meet the set goals to academic achievements and make the more chances to get the success (Tanriseven and Dilmac, 2013). To pay attention on the concept of self-regulated learning (SRL) western academia did the prominent work and paid attention on the impact of three constructs of SRL, which are cognitive, motivational, and behavioral. But when we talk about Pakistani context, the research environment is still not paying attention on this important and prominent concept of SRL, which can make possible the huge and positive change in the learning success.

According to a study of Rovers, Clarebout, Savelberg, de Bruin & Marrienboer (2019), they worked on a critical question, that is about self-regulated learning. As in current educational environments, there are many studies about to assess self-regulated learning and some studies had focus on the use of behavioral indicators of self-regulated learning (Rovers, Clarebout, Savelberg, de Bruin & Marrienboer (2019). Researcher used the self-report questionnaire data and tried to get the most valid and reliable indicators of self-regulated learning by an ongoing scientific discussion about the comparison of behavioral measures of SRL and traditional ways of measuring SRL. By dealing with this question, the results showed that the hardness has importance in this comparison, and it effects the intensity of the report about strategies of SRL of learners. Results also showed that the self-report questionnaire gave the accurate picture of the degree of SRL at the global level which can be helpful in the research of education and their solutions.

A study (Cho, Mariadi, Langendyk & Hu, 2017) was conducted to explore SRL in clinical environment and how it was measured by reviewing the scope of SRL, that it is the ability of an individual, in which strategies of SRL used to reach the goals in learning process. With the use of mix methods and quantitative and qualitative methods, research found the changes in SRL in the clinical environment with success in clinical skills and mental health. And also found different factors which can support SRL in medical students.

Study of (Gandomkar & Sandars, 2018) was explored and clear difference between two terms, which are self-directed learning and self-regulated learning. Study was conducted to solve the confusion and misunderstanding about these terms. According to the results self-directed learning is a general approach. This learning approach can be explored with the use of a general aptitude questionnaire. Study found about SRL, that this is a dynamic approach and strictly related to learning environment. Which requires specific strategies and measures.

Research (Panadero, Andrade & Brookhart, 2018) was conducted to explore the research work about the relationship of formative assessment and self-regulated learning. Study was to be more active in self-reflection and collaborative pedagogy.

A study (Yan, 2020) was conducted to find out the characteristics of self-assessment practices on different phases of self-regulated learning and its relationship with academic achievement. By focusing on the phases of self-regulated learning, researcher analyse the course assignments of students of master program. Collected the score of assignments. Research conclude that the basic skill of self-regulated learning is self-assessment, which implies on each phase of self-regulated learning and among SRL phases, auto-aggressive relationship was found. In second phases, performance phase, self-reflection was found to effect feedback of third phases of appraisal phase. Self-directed feedback was found in

performance phase which is a good predictor of academic performance. However, for appraisal phase, academic achievement influenced negatively (Yan, 2020).

Study by (Callan & Cleary, 2019) was conducted to examine the relationship of sequence of SRL phases and to investigate the predictive influence of this on the mathematics performance. Study implies on the eighth-grade students. Study found the statistically significant correlated students' goals and strategic plans, in all phases. In first phase, self-reflection was not predicted in process, second phase (metacognitive monitoring) dint found correlation with the process of self-regulated learning, and in third phase, the strategies adapted by students did not affect the adaptive inferences of students. About predictive influences, the strategic planning adopted, however, students and metacognitive monitoring were significantly correlated in positive with the performance of mathematics. Therefore, with the use of strategies and metacognitive monitoring, it is a positive predictor of performance.

Winne (2018) did research work about the levels and depth of processing information in self-regulated learning, also did work to find the sensitivity of levels of research about self-regulated learning. He concluded that level constructs and operational definitions can be helpful to understand the research of self-regulated learning in the context of levels. However, these levels are not enough helpful to differ the process in self-regulated learning on the information of depth, it can figure the characteristics of levels. Thus, self-regulated learning not deeper but more complex process of learning.

A study (Barboza, Torres, Nez & Martnez 2017) was conducted with focusing of self-regulated learning achievements during the action phases and the reflection of the process and self-regulatory actions of students in the graduate program for preschool education. with the use of descriptive and inferential statistical analyses results showed the importance of

individual learning in the process of self-regulated learning. Results also showed the importance of digital tools during the phases of self-regulated learning. That is why there were suggestions to use the digital tools and recording of reflections during self-regulated learning process. It was also suggested to create relationships among learning management tools and the processes of cognitive and meta-cognitive process. According to the results student's classification was in three groups on the basis of their achievement.

A review of self-regulated learning was conducted by Panadero (2017). Self-regulated learning is under an umbrella, in which many of other aspects also there. The extraordinary aspects of cognitive, meta-cognitive, behavioral, motivational, and emotional effects of learning are included. In this research six models of self-regulated learning were discussed, the comparison and analysis of these six models were used for this purpose. Researcher discussed six models of self-regulated learning, which were from Zimmerman, Boekaerts, Winne and Hardwin, Pintrich, Efklides and Hadwin, Jarvela and Miller. He touches each model in detail and explored different important aspects. This meta-analysis is very important for educational sector as it explored and examined the empirical evidence. Results showed the comprehensive research on self-regulated learning can be the strategic and clear framework for students to be thought and this meta-analysis has the evidence of differences and effects of self-regulated learning model which can be helpful to understand for students at their developmental stages and it can be the cause of increase the skills of self-regulated learning in students.

A study (van Houten, Berkhout, van Dijik, Endediik, Jaarsma & Diemers, 2018) was conducted to find out the factors and their effects of self-regulated learning for medical students and their residences or workplace-based learning. Cyclic process of self-regulated learning was used for setting goals, learning strategies, and assessing the process. A clear

overview of missing the self-regulated learning key strategies at residences and workplace. Therefor the study provided the effective self-regulated learning strategies on the basis of theoretical overview for medical students. According to the conclusion, in the clinical environment, self-regulated learning has complex process to interact between person and context.

A meta-analytic review by Panadero, Jonsson & Botella (2017) explores the effects of self-assessment on the self-regulated learning and self-efficacy of male and female students. By viewing 19 studies for this meta-analysis, researcher found females benefiting more with the effects of self-efficacy on self-regulated learning, and self-assessment has importance to increase self-regulated learning by using suitable strategies of self-regulated learning.

A study by (Jansen, Van Leeuwen, Janssen, Jak & Kester, 2019) was conducted a meta-analysis to resolve and explore the effects of self-regulated learning interventions on academic achievements in higher education. The results of this meta-analysis give the indication for partial mediation. According to the results with three meta-analyses about the performance to investigate the role of relationships among self-regulated learning intervention with achievement and activity separately and collectively. Studies showed that interventions are effective to improve the self-regulated learning activity and achievement. Study investigated the effect size and found the effective factors of the interventions of self-regulated learning.

A study was conducted by Adam, Alzahri, Soh, Bakar & Kamal (2017), to explore self-regulated learning for online learning. It is a systematic review, consisted of 130 articles. Self-regulated learning is effective for learning, and it is ongoing process in which learner can plan before task and do it in systematic and effective way. It is a cyclic process and repeated during learning process. Technology brings changes in the style of learning. Online

learning is possible because of technology and self-regulated learning can make it effective as well as it makes effective learning in any atmosphere. By analyzing the articles, this systematic review covered articles written in three decades. Online learning of mathematics was in focus and discussed several models, phases, and topics about self-regulated learning.

A study conducted by Yang, Chen & Chen (2018), to discover the effects of self-regulated learning support on improving learning performance and on the other side to explore the influence of self-regulated learning support on prior knowledge. Study aimed to examine the differences in behaviours of high prior knowledge students and low prior knowledge students in the environment of interaction with self-regulated learning. Study found the gap of learning performance removed with continuing learning process among high prior knowledge students and low prior knowledge students and they used different strategies of self-regulated learning. The results of study also found the similarity in high prior knowledge students and low prior knowledge students with respect to the phases of forethought and self-reflection. However, there was difference found in the performance, the second phase of self-regulated learning, where found the dependency of low prior knowledge students on notes and quiz records while high prior knowledge students found independent in this way.

Viberg, Khalil, Baars (2020) conducted an empirical review of self-regulated learning and learning analytics in the online environment. As self-regulated learning is very important for the academic performance, it has more importance for online learning settings. Learning analytics is very important to support learners in the development of self-regulated learning, learning analytics can improve learning practice by transforming the ways we support learning is critical. By review the papers on learning analytics for self-regulated learning in online learning context. The study focused on self-regulated learning phases methods,

forms, evidence for learning analytics and different types of online learning settings. By using Zimmerman's model, examined the learning analytics in relation to different prepositions. Results showed the focus was on parts from first and second phases of self-regulated learning, which are forethought and performance. And third phase, reflection had less focus. About learning analytics, results showed the improvements in learning outcomes and in teaching. Results also showed that learning analytics research was focused to measure self-regulated learning rather than support it.

A study by Leidinger & Perels (2012) aimed to promote a powerful learning environment for supporting self-regulated learning by using learning materials. Fourth grade students were the sample and used self-regulated learning questionnaire for evaluation. Results showed the self-regulated training group students easily maintained their self-reported, self-regulated learning activities. A significant declined was observed for the control students and a slightly greater improvement was found for the students with self-regulated training.

A study by Dignath & Buttner (2008), conducted to investigate the impact of various training characteristics on the training outcomes, regarding academic performance, strategy use and motivation of students. Two school levels were selected to compare and conducted meta-analysis separately for both school levels of primary and secondary. By investigating the effect size, it was found difference in effect size when training was conducted by researcher and by regular teachers. With researchers' effect size recorded high. Moreover, attained interventions effected higher with mathematics instead of any reading and writing or any other subject. Results showed the self-regulated learning can be fostered effectively at both school levels of primary and secondary. However, difference was at both levels at the basis of theoretical background on which the training program was based.

Puustinen & Pulkkinen (2001) conducted a review to present and to compare the latest models of self-regulated learning, including by Boekaerts, Brokowski, Pintrich, Winne and Zimmerman. Study compared the models on four criteria's, which are background theories, strategies of self-regulated learning, components of models and empirical work. According to the results of this study theoretical background is very important and has the quality to to differentiate the features. Almost similar models, more than other models, which were from Pintrich and Zimmerman were inspired by the same theory of social cognitive theory, that is why there is resembled each other. And other two models which are differed most, from Borkowski and Winne, were removed ones theoretically.

Paris & Paris (2001) conducted a study to explore how self-regulated learning became an important topic in the field of educational psychology and how the research has been translated into classroom practices. By reviewing of last 30 years of work on students learning and achievement has expanded and involve cognitive strategies, meta cognition, motivation, task engagement and social support in the classroom. These skills are under the umbrella of self-regulated learning and being delt in more holistic way of the skill, knowledge, and motivation that students acquire. Researcher do work in this field of complexity because of the positive impact on the educational benefits and for teachers and students directly. This study discussed and provided three areas of research with self-regulated learning in the classroom, which are strategies for reading, writing, cognitive engagement in tasks, and self-assessment." This dissection was occurred in the light of pedagogical principles. It was found in the discussion that the skill which can teach in the self-regulated learning classrooms, got from experiences. However, teachers can play a big role in all ages of students by giving and providing them the opportunities and the can get the abilities to become strategic, motivated, and independent learners.

A study conducted by Clark (2012) to present a detailed decomposition of the values, theories and goals of formative assessment and discussed the extent to which formative feedback actualizes and reinforces self-regulated learning strategies among students. Self-regulated learning is a successful process with sequences, on which theoreticians are agreed because self-regulated learning is predictive of improved academic performance. Formative assessment is a theory with instructions and guides practice and improves the learning process with the strategies of self-regulated learning. By discussing all of research continually worked to find the cognitive and affective states of self-regulated learning which gives a continuous drive to the learners by increasing the motivational nature to learn, developing the reasoning of learners, upgrading the skills of meta-cognition, and bringing improvement in the performance outcomes. The study purpose was to deliver a very wide concept of theory of formative assessment and the goal on which formative feedback work to recondite the process of learning and then the applying strategies of self-regulated learning with the supportive qualities to improve the outcomes and realize the drive for lifetime learning.

Nicol & Macfarlane (2006) conducted a study to explore how students can be self-regulated learner, with the help of formative assessment and feedback. For this purpose, this study worked on the seven principles of positive feedback practice which is supportive towards self-regulated learning. study argue point was that students already were assessing their work and making them feedback which is very necessary at higher education level. Study sported the principles presented and gave discussion of examples to applicable feedback strategies. By using feedback, students were positively practical instead of only responsive. Study had the points of implications for teachers and students with organize assessment and self-regulated learning.

A study (Cassidy, 2011) conducted to investigate the emphases self-regulated learning as a relevant and valuable concept in higher education and another aim was to promote the study of those constituent elements considered most likely to develop our understanding beyond the mere description of those processes thought to be involved in self-regulated learning. the study was presented for learning styles, academic control believes and student elf-evaluation as essential characteristics that contribute to a better understanding of self-regulated learning of student and enable its implementation in pedagogy by increasing its tangibility and useability.

A study from Lovens, Magda & Rikers (2008) was conducted to investigate the role of self-directed learning in problem-based learning and examined how self-directed learning related to self-regulated learning. study discussed the different aspects of self-directed learning and self-regulated learning and found difference at some aspects. Self-directed learning incorporates the additional assumption of empowering students in the selection and assessment of learning resources. Self-directed learning can include self-regulated learning, but not the other way around. The results of study indicated the self-directed learning and self-regulated learning, both are the process of development, and the part of 'self' is very important. Problem based learning can encourage the self-directed learning. study concluded that conceptual clarity of what self-directed learning includes, as well as assistance for both teachers and students can improve the development of self-directed learners through problem-based learning.

A study (Ley & Young, 2001) was conducted to indicate principles for embedding support in instructions to facilitate self-regulation in less expert learners. The concepts were based on an analysis of the expanding body of research on the distinctive differences of self-regulated learning among learners with high and low achievement. Four instructional

principles came in the light through the research which has ability to considered good support for self-regulation. Research did support those principles and the included instructional examples. Research provided the evidence in the instructional interventions which can be helpful for the self-regulated learners by supporting in the capacity of present skills of self-regulated learning.

A study (Jouhari, Haghani & Changiz, 2015) was conducted to investigate the factors of self-regulated learning, which makes self-regulated learning able to effect students but the strategies and skills. The results of this qualitative study found five main themes which effect the self-regulated learning. The study showed in conclusion that the factors effecting on the understanding of students' self-regulated learning suggest bringing improvement in the self-regulated learning of students, the facilitating factors can be used by students individually and in way effects of preventing factors also can decrease.

Study from Yukselturk & Bulurt (2009) was conducted to analyse the gender differences in self-regulated learning components, motivational beliefs, and achievements in self-regulated online learning environment. The study results showed the significant difference in female and male students' achievement. Female students found more in variance of two variables, which were self-efficacy for learning and performance and the other was task value. Results also found no significant difference with respect to male and female students, in motivational beliefs, self-regulated learning and achievement in programming.

A study conducted by Moos & Ringdal (2012) was empirical research to support the assumption about students that individual differences exist in how students learn. According to research, active participation in learning, which includes setting meaningful objectives, choosing suitable and task-specific techniques, monitoring motivational levels and changings according to the feedback is positively connected to outcomes of learning.

research dealt with a broad question about how teachers can support students' development and use of these learning process. Study examined research with the use of self-regulated learning theory.

A study (Mahmoodi, Kalantari & Ghasiani, 2014) aimed to find the self-regulated learning strategies used by learners of English as Foreign Languages in the program of Learning English, the purpose of the study was to find the relationship between motivation and self-regulated learning and relationship between self-regulated learning and level two achievement. Study found significance relationship between motivation and self-regulated learning and found no significance relationship between self-regulated learning and L2 achievement.

A study (Ness & Middleton, 2012) was conducted to emphasis one approach for teaching self-regulated learning skills to students with learning disabilities in the context of middle level school. A strategy of self-regulated learning provided to demonstrate the value of incorporating needs of students, the process of self-regulated learning and related variables into strategy execution. Study demonstrated the way of implement self-regulated learning strategy for teacher of special education on the student of sixth- grade with learning disabilities. The results indicated that the strategy for the improvement contributed to the preparation of the classroom, behaviour related to the task, the grade level of class and the teacher perception of student actions in the math class.

A study (Orange & Hodges, 2015) was conducted to examine the relationship between self-regulated learning, parent education and the need to enroll in post-secondary remedial education courses. The data was collected from the first-year college students. This observational study found the strong relationship between self-regulated learning behaviour and enrollment in postsecondary remedial courses. The results show that the intermediary

between high school and the need for after-secondary remediation is a key element in self-regulation, such as learning behavior and proactive management of the use of personal time and parental education.

In a study by Domingues & Marcelo (2017) was about the development of self-regulated learning strategies during the learning process can make easier way with the use of technology. In this regard, study arose questions about technology which used university students for their self-regulated learning and development the strategies of self-regulated learning are helpful with the use of technology and another question was about the profiles might which students identify on the basis of their usage of technological self-regulated learning. the study results indicated that university students are not able to use these technologies to manage their self-regulated learning, even though they are often used in digital technology. In terms of students' usage and frequency, students differ from one another. There are groups of students who utilize the strategies of self-regulated learning in the technology learning. also, there are two groups of students recorded that indicated the difference in levels of self-regulated learning.

According to Miedijensky & Lichtinger (2016) students practice self-regulated learning process for planning, setting goals, monitoring, self-encouragement, and control of emotions. They conducted study with aim at promoting self-regulated learning of students by presenting a thesis seminar. The perspective of the students as to the contribution of the seminar to their learning process have been identified and the influence on their manifestations of self-regulated learning was examined. The results of the study highlight the importance of self-regulated learning in thesis writing.

A study (Kobayashi & Lockee, 2008) gives an overview of studies on the development of self-regulated learning skills and skills with an emphasis on successful ways to improve

learning skills. The results of study suggested a number of ways for improving students' abilities to effectively regulate their learning behaviours.

A study (Kute & Palsamkar, 2017) was based on a descriptive correlational research study that looked at the link between internet usage and the self-regulated learning of students. The findings of such investigations show a wide range of possibilities. The results of this study indicated the strong relationship between internet usage and self-regulated learning of students. The relationship found was positive and minor.

A literature review conducted by Zumbrunn, Tadlock & Roberts (2011), covered the literature including the introduction of self-regulated learning, the explained relationship among self-regulated learning and motivation in the classroom. Strategies of self-regulated learning specifically for students use, different approaches for encouragement of self-regulated learners and healthy discussion with authentic references on the challenges and hurdles which might bother teachers during teaching to their life-time self-regulated learners.

A study (Wolters, 2003) was conducted with the purpose to emphasize regulation of motivations another important aspect of self-regulated learning. for which a unique conceptual understanding of motivational regulation was provided for this purpose and was utilized to explain theoretical contrasts between this process and motivation, metacognition, and decision. The study highlighted links among strategies of self-regulated learning and values of "students' motivation, cognitive engagement, and achievement. The research is important as it offered a roadmap for further study on theoretical definition, assessment, development, and guidance of self-regulated learning strategies of motivation.

In a study (Stone, 2000) the researcher reviewed the calibration and self-regulated learning literature. Calibration as accurate measurement of assessment of individuals for their knowledge and confidence. the exact aspects of self-regulated learning frequently change, and different calibration levels may indicate distinct uses of self-regulated learning. Various calibration levels might indicate different uses for self-regulated learning or different stages of task completion or learning. calibration may be affected by some forms of self- regulated learning. The reciprocal effects of calibration and self-regulated learning are unknown and should be investigated further. A crucial challenge in instructional design is determining whether self-regulated learners can and should become properly calibrated.

A gender-based study (Bidierano, 2005) was conducted to examined how gender affects self-regulated learning methods including metacognition, elaboration, critical thinking, organization, rehearsal, time and effort management, assistance seeking and peer learning. several statistically significant discrepancies were discovered throughout the research. Rehearsal, organization, metacognition, time management abilities, elaboration, and effort were all over reported by female students. In terms of studying with peers, requesting help and critical thinking abilities, no statistically significant gender differences were discovered.

In a study (Usher & Pajares, 2008), scores on the self-efficacy for self-regulated learning scale from Bandura's Children self-efficacy were studied for their psychometric characteristics and multigroup measurement invariance. For boys and girls, as well as students in elementary, middle, and high school, the findings indicated a unidimensional construct with similar component pattern coefficients. Self-efficacy for self-regulated learning is stronger among elementary school students than among middle and high school students. Self-efficacy, self-concept, task goal orientation, apprehension and accomplishment are all linked to the latent component.

The main purpose of study from Sungur & Takkaya (2006) was to compare and contrast the effects of problem-based learning and traditional instructional approaches on different aspects of self-regulated learning, such as motivation and learning strategies. When compared to control-group students, problem-based learning students exhibited greater degrees of intrinsic goal orientation, task value, use of elaboration, task value, use of elaboration learning strategies, critical thinking, metacognitive self- regulation, effort management and peer learning.

The article from Schunk (1990) showed the subject of the goal-setting and perceived self-efficacy self-regulated learning processes. Students joined learning activities with objectives in mind and the confidence to achieve them. As they complete assignments, students evaluate their own performance and progress towards their goals. Self-observation, self-judgement, and self-reaction all have an impact on self-efficacy and goal setting. Goal characteristics self-set objectives, progress feedback, contracts and conferences and ability concepts were all discussed in depth. Establishing upper and lower goal boundaries, as well as using games, contracts, and conferences, can help students learn to set realistic goals and evaluate their progress.

A study (Azevedo & Cromley, 2004) examined the effectiveness of self-regulated learning training in facilitating college students' learning with hypermedia, for this undergraduate student was randomly assigned to either a training condition or a control condition and used a hypermedia environment to learn about the circulatory system. The self-regulated learning condition enabled the change in learners' mental models substantially more than the control condition, which was linked to the usage of the self-regulated learning variables provided during training, according to verbal protocol data.

A study (Lovens, Magda & Rikers, 2008) investigated the role of self-directed learning in problem-based learning and examined how self-directed learning relates to self-regulated learning. study explained the way of self-directed learning in problem-based learning environment and the similarities of self-directed learning and self-regulated learning were highlighted, however, both concepts were different on important aspects. The findings showed that self-directed learning and self-regulated learning are developmental processes, that the 'self' element is important, and that the problem-based learning can help to promote self-directed learning. it is determined that conceptual clarity of what self-directed learning implies, as well as assistance for both teachers and students, can assist problem-based learning in producing self-directed learners.

Research from Vanderstoep, Pintrich & Fagerlin (1996) examined college students' knowledge, motivation and self-regulatory learning strategies in humanities, social science, and natural science college courses. The findings showed that in social science and in natural science classes, the components of knowledge, motivation and self-regulated learning do separate high from low performers, but not in humanities courses. The implications for assessing self-regulated learning in different disciplines are explored, as well as the generalizability of our models of self-regulated learning across disciplines.

A study (Narciss, Proske & Koerndle, 2007) was conducted, self-regulated learning via the internet or hypermedia necessitates both specialized and general meta-cognitive methods in addition to cognitive learning tactics. The study 2000 project, which took place, aimed to create, and assess writing tools that aid teachers and students in web-based learning and instruction. The findings reveal that students spent nearly 70% of their study time with text, 11% with learning activities, and 12% with active and expanded learning tools, while meta-cognitive aids were little employed.

A study (Corno, 1986) about function of metacognitive control activity in self-regulated learning discussion. Metacognitive components were considered as required but inadequate for self-regulated learning, and they are given extra attention in order to keep the system running smoothly. Task completion is crucial for maintaining motivation for schooling and also serves as a metric by which teachers assess pupils. A foundation for evaluating data from diverse classroom experiments is provided by a hypothesis of the psychological processes that constitute volition.

The purpose of a study (Wang, Shannon & Ross, 2013) was to examine the relationship among students' characteristics, self-regulated learning, technology self-efficacy and course outcomes in online learning settings. Students with prior online learning experiences tended to have more successful learning methods while taking online courses, and hence had greater levels of motivation in their online courses, according to the final model's findings. Furthermore, students' level of technology self-efficacy and course satisfaction improved when they were more motivated in their online courses. Finally, students who scored higher on technology self-efficacy and course satisfaction received higher final marks.

An article (Schunk, 1986) consisted of the concept that overt verbalization aids in the development of children's self-regulated learnings of cognitive abilities is discussed. Children's attention to task-relevant elements can be improved by verbalization. Verbalization, as a kind of rehearsal, can help with content categorization, storage, and retention, making retrieval and usage easier. Research on the impact of verbalizing knowledge to be recalled, modeled behaviours, and methods on children's learning is summarized.

2.14 Literature in Pakistani Context

Pakistani culture is rich in many things but in education, studies and students' behavioral issues have main problem. Health is one cause, as physical and psychological health is important for rich cognition and thinking (Arshad, Zaidi, & Mahmood, 2015). Learning and education directly linked with cognition. According to Zimmerman (2000), with the self-regulated learning skills students can have better learning. SRL makes the possibility to understand independently and in better way. There is some research work from Pakistani context.

An analytical study conducted by Ahmad (2012), shows the relationship among academic self-efficacy and self-regulated learning. Study was gender based and results showed the strong relationship in both variables. Results also showed that girls were better at the academic self-efficacy and boys were better at self-regulated learning.

An exploratory factor analysis by Nousheen (2016) was of motivation dimensions of motivated strategies, for learning questionnaire. Analysis was about motivational believes, course experiences and future postgraduate students of Pakistan. Study showed the factor structure of questionnaire was modified with sample of Pakistani students. Study found the need for further development and careful adaptation to use in Pakistani context.

Iqbal, Sohail, Shahzad (2010) investigated the learning and study strategies used by students at university level. Researcher used the inventory of learning and study strategy (LASSI). Study found the significant difference among faculties for self-testing. Study showed the need to improve students' skills so serious succeeding problems can be avoided.

A comparative study was conducted by Sarwar (2004). researcher compared the study attitudes of low and high achievers in his study. Academic attitude measured by obtained marks by students. Study showed the relation among study attitude and academic

achievement of student. Study also showed the significance difference between the study attitude of both gender of students. Researcher focused the area through which study found the difference between the study attitude of rural and urban students.

A study conducted to analyse the motivation strategies for learning, Pakistani context was focused and student at private sector institutes were the population. Amir & Kamal (2011) described the active participation is essential to learn something, and without motivation, active participation is difficult. Thus, performance depends on learning motivation. The essential parts of the learning are learning style, strategic behavior, self-regulated process, and personal dedication. Study found the impact of self-regulated learning strategies on the performance level of students. Study also found the relationship among performance, self-efficacy, and the intrinsic goal orientation.

An assessment was conducted about self-esteem and academic performance by Arshad, Zaidi, & Mahmood (2015). University students were in focus, from Pakistani context a University from Faisalabad was taken as population. Researcher described behavioral and educational problem of students. Study showed the relation among self-esteem and performance. Study also showed the difference among male and female students with respect to variables. Female students outperformed male students in academic results. Male students had high self-esteem scores.

By exploring strategies of self-regulated learning Alvi, Iqbal, Masood & Batool (2016) describe the process of initiative, planning, implementation, and monitoring Strategies in the procedure of learning and teaching. This research showed the results of self-regulated learning strategies effects with the extreme cognitive process and by using SRL strategies student can improve their SRL skills.

Everyone has own and unique style of learning and thinking. We do research on the base of gender because female has different ways to knowing, (Miller, Finley, & McKinley, 1990). So, in this way we get better results. These are the research about self-regulated learning skills, focusing on the gender.

According to Zimmerman (2000), with the self-regulated learning skills students can have better learning. Alvi, Iqbal, Masood, & Batool (2016), showed with self-regulated learning skills learner can achieve goals and enhance academic capabilities.

Gafoor, Kurukkan (2015), showed in their study that self-regulated learning results to increase achievement and make possible to gain affective and desirable results and outcomes.

A study was conducted by Abdullah (2016), showed the effects of gender and motivational beliefs upon self-regulated learning. With the three types of motivational believes findings of the study showed the constructive relationship of SRL and two variable of motivational beliefs which are self-efficacy and control beliefs. Study also showed the negative relationship between anxiety and self-regulated leaning. With findings study revealed the significant difference between male and female self-efficacy and their self-regulated learning.

A study with similar result was conducted by Arshad, Zaidi, & Mahmood (2015), which was gender-based comparison of two skills, at university level, self-esteem, and academic performance. Researcher found the significance difference between male and female students. According to results there were high scores of female students on academic performance than male students, and the scores of self-esteems was high in male students.

A study with the opposite results from the current study was conducted by Ahmad, Hussain & Azeem (2012). The aim of this gender-based study was to discover the relationship between academic self-efficacy, self-regulated learning, and three other variables. As a result, a significant correlation between the variables was discovered. Girls outperformed boys in academic achievement for self-regulated learning, while boys outperformed girls in self-efficacy for self-regulated learning. There was no variation in tests of self-efficacy beliefs or other factors.

2.15 Summary

The chapter of literature review is consisted of the existing literature on the variable of self-regulated learning. Study is based on the gender comparison and the literature about gender comparison of self-regulated learning was in focus of researcher. The educational higher level was the target for this study. the literature review was based on the induction and background of the self-regulated learning and by discussing the history of self-regulated learning, study cover the research on this variable. Researcher discussed the research work about the importance regarding self-regulated learning. researcher also discussed the gender with the focus on the self-regulated learning. for reviewing and investigating the self-regulated learning research followed the Zimmerman's model and with three phases of self-regulated learning explained the variable in organized way. Study achieved two main objectives to explore the self-regulated learning practices and to compare on the bases of gender. two main hypotheses were there.

This chapter showed the importance and significance of the self-regulation in the learner's life. In was discussed with references that learner learn in better way and with less mistakes if the learner has the skills of self-regulated learning. it helps the learner and create the

motivation and interest for the task therefore the process of learning becomes easy and time consuming.

Researcher conducted this chapter by focusing on the three phases and six sub phases of self-regulated learning. with the practice of self-regulated learning learner can forethought and plan the steps and strategies for the task. With complete planning learner go further and perform the task to achieve the set goal. With the completion of practical phase learner safe his observations and with the self-judgment to be successful in the future.

In the existing literature researcher found the gap of research of self-regulated learning in the Pakistani context. Research did not find the self-regulated learning study won the basis of gender in this context. Therefore, exploring the practices and to compare on the basis of gender would be the great help for the future researcher and for the learners.

CHAPTER 3

METHODS AND PROCEDURES

This chapter is about the methodology and procedure of the research. In this chapter, the progress of the research is discussed in detail. The research approach and method were discussed. Population and sampling details were also discussed with the size and technique of the sample. The details of the tool and pilot testing are included in this chapter. Pilot testing and the procedure of pilot testing and creating the final tool with validated items are included here.

3.1 Research Approach

The current research is based on the quantitative approach. The statistical analysis applies to collected data in a quantitative approach. This approach involves numerical data for the interpretation of the results, which is why the researcher chose this approach in which data can be translated into usable numbers, allowing for the conclusion of the evidence and the discovery of facts with finding different research patterns.

It is critical to choose a paradigm early in the study design process since it will influence the researcher's methods. This research took a quantitative method, based on the philosophical paradigm of positivism, which may be found in the writings of mid-20th century philosophers such as Comte, Mill, and Locke. Cause-and-effect links, numerical measurements of phenomena, and objectivity throughout the investigation are all part of a

positivist/post positivist paradigm (Phillips and Burbules, 2000). The study used a positivist/post-positivist worldview and used a quantitative technique. Because psychological safety is viewed as a required or desired condition in an organization due to the vast theoretical support of its benefits, the study took a quantitative approach with a positivist/post positivist paradigm. This study looked at an objective inquiry into the cause-effect/antecedent-outcome relationship between organizational/personal factors and psychological safety.

This approach was considered most suitable for examining the practices of self-regulated learning (SRL) at the higher education level, and the comparison of gender to SRL. The requirement of each gender was quantitative data and its statistical interpretation. All goals required the collection of quantitative data and its mathematical analysis. That is why the quantitative method was preferred by the researcher. The tool used to collect data was a questionnaire and the result was based on the 30 respondents that were for pilot testing. Moreover, the researcher had clearly defined research objectives and hypotheses and carefully designed all aspects before the collection of data. In this respect, the technique was established during the proposal writing period. The information gathered came in the form of numbers and statistics, which were then organized into graphs, maps, and figures. This study can be used to generalize concepts more widely as well. The researcher collected the data in structured form and follow the quantitative data collection method. Which is also the reason to select the quantitative approach.

The researcher designed a questionnaire with three parts and six sub-sections of closed-ended objects, which were used to collect the data. The objects were evaluated using a 5-point Likert scale. The responses were coded on a scale of 1 to 5, ranging from firmly disagree to agree, and the statistical test was used to analyze and draw the study's conclusion.

The responses gathered from these items acted as the foundation for a more in-depth discussion of the chosen subject and its current activities.

3.2 Research Method

The descriptive research design was used in this report. The study has two key goals: to investigate self-regulated learning (SRL) at the higher education level and to compare self-regulated learning among students based on gender. Both objectives were related to the analysis and according to the current situation of education. Descriptive research deals with the issues and problems of the current situation. The thesis is about self-regulated learning in the field of education, so it falls under the category of descriptive research.

The comparative form was also used by the researcher in the descriptive research survey. The questionnaire was used to gather information. The survey was conducted by personal visit to the respondents and collect the responses. The researcher compared social sciences students' awareness about self-regulated learning on the basis of gender, with the involvement of comparative style.

3.4 Population

The research is to examine the practices of self-regulated learning and compare students' SRL on the basis of gender. This study's research population included all students from Islamabad's public universities' social sciences departments (Session, 2019). In the department of social sciences at Islamabad's public universities, there were 4795 male students and 3864 female students (See Appendix H), for a total of 8659 students according to the latest updates of session 2019. Total 15 public universities are based in Islamabad

according to the Higher education Commission, and 11 universities have faculty of social sciences (See Appendix I).

Table No. 3.1a

Table 3.1a shows the total number of students in the public universities of Islamabad in the department of social sciences.

Total Number of the Population

Group	**Population**
Male	4795
Female	3864
Total	8659

The population number of male students was 4795, the sample was 480 and respondents were 346, female students were 3864, the sample was 386 and respondents were 254. Therefore, the total population was 8659, the number of samples was 866, and the number of respondents was 600.

3.5 Sampling Technique

As a large number of populations, the researcher decided to choose the procedure of sampling to study the male and female students at the public universities of Islamabad. According to McMillan (1996), the purpose of sampling in quantitative analysis is to collect or provide explained information from the group of subjects that represent the broader individual's group. In the current study, two groups are involved, the male students' group and the second was female students' group. The researcher picked the same percentage of male students' group and the female students group. Therefore, the researcher used

proportionate Stratified Sampling for this study to divide the population into two groups, male, and female. According to Gay, Mills, and Airasians (2012) if the population is about or beyond 5000 then 500 would be a sufficient sample size. Which constitute 10% of the population. By considering above mentioned source, For the current study, 10% of the population had taken from each group by the researcher, as a research sample, which is 866 students, 480 males, and 386 females. The researcher followed these steps for the sampling procedure:

Step 1: The population of this research was the students from the public universities of Islamabad. Pakistan.

Step 2: The entire population was divided into two groups, which were male and female groups.

Step 3: For the current study researcher took the 10% as the size of the sample from the entire population.

Step 4: For collecting the data from each group of gender researcher applied the proportionate stratified sampling. The sample of male respondents was 346 and female respondents were 254. The rate of return was 600.

3.5 Sample Size

The male and female students enrolled in the public universities of Islamabad were the population, which is a quite large number to study of the population. For this purpose, the solution is sampling. To study the whole population of public universities of Islamabad it was decided to apply the sampling procedure. In the social sciences departments of Islamabad's public universities, there were 8659 students (4795 male and 3864 female). For

determining the sample size researcher used the Cohen, Manion, and Marrison (2007) method, which would be 10% of the entire population, which is 866 students as the sample, in which 480 were male and 386 were female students (Table No. 3.1). The instrument was distributed among 866 students, who were selected as a sample. The rate of return was 600 (70%).

Table No. 3.1b

Table 3.1b shows the sample of the study and the rate of return.

Sample of the Study

Group	**Sample**	**Rate of return**
Male	480	346
Female	386	254
Total	866	600

3.6 Tool Construction

The researcher used questionnaires as a tool for data collection. The scale was about SRL which was developed by the researcher on the basis of SRL phases of Zimmerman (2002). There were few self-regulated learning scales to measure the different strategies and practices of self-regulated learning. Model of three main phases and six sub-phases was selected from the models of Zimmerman as the conceptual framework, the accurate questionnaire was not available which can measure the SRL practices properly in the Pakistani context. That is why the researcher developed the SRL scale. It contains 42 items of 3 phases. It contains 30 items of 3 phases, each phase has two parts; (See Appendix-J).

1. Forethought (Task Analysis, Motivational Beliefs)

2. Performance Control (Self-control, Self-observation)

3. Self-reflection (Self-judgment, self-reaction)

As a result, the questionnaire was divided into three main sections and six sub-sections. As a result, the questionnaire was divided into two sections: demographic information and self-regulated learning scale (SRL).

3.6.1 Demographic Information

The demographic section was based on items related to University Type, Gender, Age, Semester, Academic Program, Professional Qualification, Marital Status, Teaching Experience. This section provided basic information about the background of the respondents.

3.6.2 Self-regulated Learning Scale (SRLS)

The part is related to the Self-regulated learning scale (SRLS). In the initial stage, 45 closed-ended items were developed by the researcher for the Self-regulated learning Scale the detail of these items is as presented in table (Table 3.2).

Table 3.2

The table shows the phases and sub-phases of the SRL scale of the initial version.

List of items (Initial version) self-regulated learning scale (SRLS).

Scale	**Major section**	**Sub section**	**Items**	**No of items**
Self-regulated Learning Scale (SRLS)				**45**
	Forethought/Pre-action	Task Analysis	TA1 - TA8	08
		Motivational Beliefs	MB1 - MB7	07
	Performance	Self-control	SC1 - SC6	06
		Self-observation	SO1 - SO8	08
	Self-reflection	Self-judgment	SJ1 - SJ8	08
		Self-reaction	SR1 - SR8	08
				45

The first edition of the questionnaire had three main parts and sub-sections. Four sub-sections included 08 questions, one sub-section contained 07 questions, and one sub-section contained 06 questions, one of which was a reverse question.

3.7 Validation of the Tool

The researcher used a self-made questionnaire self-regulated learning scale (SRLS) as a tool in the current study. Contacted five educational experts from different universities to validate the questionnaire. According to the study objectives and research model, experts validated the tool and gave their precious advice and comments for the improvement. According to their suggestions tool, got improved and rearranged by the researcher and prepared for the collection of data. The validated questionnaire is given (See Appendix J). The experts' detail is also mentioned in the given table:

The focus of her research is quantitative research, especially Experimental Research. Areas of research are Educational Psychology, Teacher Education, Teaching of Science (Pedagogy, theories to practice, etc.) Academic Transition, Higher Education, Teacher Education, 21st-century Learning, Bridging theory and practice.

Table No 3.3

The table showed the experts of tool validation with their designation, name of their institute, and area of expertise.

List of Experts Validation (See Appendix C)

Expert Name	Area of Expertise	Designation	Institute name
Dr. Shamsa Aziz	Quantitative researcl Experimental researc Educational psychology	Assistant Professor Chairman Department of Education	International Islamic University Islamabad
Dr. Fouzia Ajmal	Academic transition Teacher education	Assistant Professor Department of Education	International Islamic University Islamabad
Dr. Fozia Fatima	Teacher Education	Assistant Professor HEP, FSS	Air University, Islamabac
Dr. Amtul Hafeez	Teacher Education	Assistant Professor Department of Education	Allama Iqbal Op University Islamabad
Miss. Tooba Saleen	Qualitative research	Associate Lecturer Department of Education	Allama Iqbal Op University Islamabad

3.8 Pilot Testing / Study

The pilot testing was carried out by the researcher to assess the reliability of the instrument's six components. Each segment included 05 objects. The tool was initially distributed to 35 of the sample's respondents. 30 people responded and returned the questionnaire in full. The

data collected during the pilot trial was coded into six SRL sub-headings and analyzed using the (SPSS) 21.

3.9 Reliability of the Instrument

A pilot examination was performed to investigate the information and gauge the scale strength as tables and set up the things for the last state of the device. To this end, Cronbach Alpha Reliability, Item Total Correlation, and Intersection Correlation were completely considered.

Table 3.4

The details of SRLS reliability are mentioned in the table.

Cronbach Alpha Reliability of Self-Regulated Learning Scale (SRLS) Pilot Testing (n = 30)

Scale	**Sub-section**	**Items**	**Cronbach Alpha Reliability**
Self-Regulated Learning Scale (SRLS)		30	0.831
	Task Analysis	05	0.693
	Motivational Beliefs	05	0.350
	Self-Control	05	0.505
	Self-Observation	05	0.556
	Self-judgment	05	0.494
	Self-Reaction	05	0.598

According to Table 3.4, the reliability of the Self-Regulated Learning Scale (SRLS) was 0.831. Although the reliability of the sub-sections was determined by Task Analysis,

Motivational Beliefs, Self-Control, Self-Observation, Self-judgment, and Self-Reaction were 0.693, 0.350, 0.505, 0.556, 0.494, and 0.598 respective.

Table 3.5

Table 3.5 shows the item-total correlation of the Self-regulated Learning Scale (SRLS).

Item-total correlation of Self-Regulated Learning Scale (SRLS) Pilot Testing (n = 30)

Items Codes	**r**	**Items Codes**	**r**
TA1	.598**	SO1	.211
TA2	.543**	SO2	.389*
TA3	.619**	SO3	.439*
TA4	.115	SO4	.469**
TA5	.259	SO5	.204
MB1	.774**	SJ1	.406*
MB2	.356	SJ2	.289
MB3	.498**	SJ3	.139
MB4	.322	SJ4	.355
MB5	.058	SJ5	.572**
SC1	.267	SR1	.266
SC2	.725**	SR2	.636**
SC3	.647**	SR3	.731**
SC4	.420*	SR4	.365*
SC5	.310	SR5	.634**

“Correlation is significant at the 0.01 level” (2-tailed). **

“Correlation is significant at the 0.05 level” (2-tailed). *

The Item-total Correlation of the Self-regulated Learning Scale is seen in table 3.5. The lowest correlations were found for item No. TA4 (.115), TA5 (.259), MB5 (.058), SC1 (.267), SO1 (.211), SO5 (.204), SJ2 (.289), SJ3 (.139), and SR1 (.266). Which indicated the items that needed to improve and replace.

Table 3.6

Table 3.6 indicates that the sub-sections were statistically significantly correlated with each other at the 0.01 level of significance.

Intersection Correlation of Self-Regulated Learning Scale Pilot Testing (n = 30)

	Task Analysis	**Motivational Beliefs**	**Self-Control**	**Self-Observation**	**Self-judgment**	**Self-Reaction**
Task Analysis	1					
Motivational Beliefs	.267	1				
Self-Control	.332	.635**	1			
Self-Observation	.275	.429*	.152	1		
Self-judgment	.275	.429*	.152	.688**	1	
Self-Reaction	.590**	.468**	.603**	.518**	.518**	1
Self-Regulated Learning	.672**	.701**	.790**	.564**	.564**	.852**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The lowest correlation was found between the sections task analysis and motivational beliefs (.267), task analysis and self-observation (.275), task analysis and self-judgment (.275), self-control and self-observation (.152), and self-control and self-judgment (.152). Sections need to be revised.

3.10 Revision Final Version of Research Tool

Table 3.5 shows that 09 out of 30 items were having less than 0.30 levels of correlation. Items No. TA4 (.115), TA5 (.259), MB5 (.058), SC1 (.267), SO1 (.211), SO5 (.204), SJ2 (.289), SJ3 (.139), and SR1 (.266). For tool improvement 2 out of 30 items were removed and replaced. While for the finalized version of the instrument, 7 items were improved. Table 3.7 shows the final version of the research tool.

Table 3.7

The details about replaced and improved items are mentioned below.

List of improved and replaced items (Old and new items) self-regulated learning Scale (SRLS)

Sr no.	**Code**	**Old Items**	**Improved Items**
01	TA4	I identify the resources needed during the learning process.	I choose the appropriate resource during the learning process.
02	TA5	I identify the objectives to be achieved at the end of the learning process.	I know my set objectives in the whole learning process.
03	MB5	I derive new learning assignments for myself from the things I observe around me.	I do more thinking on the things around me which I observed.
04	SC1	I make choices to help me succeed, even when they aren't the most fun right now.	I make serious choices to help me succeed.
05	SO1	I use my time wisely to complete my work.	I complete my work on time.

06	SO5	I always know the reason for my anxious feelings.	I am aware of my uneasy feeling.
07	Sj2	I try to be loving towards myself when I'm feeling emotional pain.	I can identify my good and bad moods.
08	SJ3	I become consumed by feelings of inadequacy when I fail at something important to me.	I can manage my failure and think on the way out.
09	SR1	I work as hard as I could have.	I always complete my work on time.

Table 3.8

The final version of the Self-regulated learning scale is mentioned in the table.

List of items (final version) Self-Regulated Learning Scale (SRLS).

Scale	**Major section**	**Sub section**	**Items**	**No of items**
Self-Regulated Learning Scale (SRLS)				30
	Forethought/Pre-action	Task Analysis	TA1 – TA5	05
		Motivational Beliefs	MB1 – MB5	05
	Performance Control	Self-Control	SC1 – SC5	05
		Self-Observation	SO1 – SO5	05
	Self-Reflection	Self-judgment	SJ1 – SJ5	05
		Self-Reaction	SR1 – SR5	05
				30

The details of the items used in the final edition of the tool as seen in table 3.8. There was a total of 30 items and no reverse questions.

3.11 Data Collection

The practice of collecting data about the targeted area is data collection, which is a very important part of the research because it makes it possible for the researcher to compile the findings of the data collection process and have a discussion based on the results. The data was gathered from the social science students at the public universities in Islamabad, by using the self-developed questionnaire. From the public universities, only social sciences students were the target to collect the filled questionnaire.

Data collection is an important part of the research process. This process was time-consuming at various stages. During the COVID-19, the researcher faced problems because most of the educational institutes were closed, and students were not allowed to attend the institute classes in the pandemic situation. It was a big hurdle for the researcher because the population consisted of the students at Islamabad universities and the researcher was unable to collect data from the universities. The solution of the situation was the collection of data without visiting the universities was to approach them online. For this purpose, the researcher personally visited the universities which were open at the start of the period of data collection and used online platforms such as email, google form, WhatsApp, and Facebook groups to collect data.

Round 1

Step1: Because the researcher was unable to collect data at universities due to COVID-19, the first and most important step in the data collection process was to identify groups of

students studying social sciences. As a result, the researcher used social media to post messages to university groups at Islamabad public universities.

Step 2: After that, the researcher created a Google forms questionnaire to make it easier for participants to complete the questionnaire online.

Step 3: After receiving university contacts from university groups, the researcher attached the questionnaire built on Google forms and send it to the students through a Google farm connection. Participants when the courage to engage in the study are describing the pandemic situation, as a result of which the researcher collected data online for the study, as well as the possible benefit of the study to that university and the entire education sector.

Step 4: The question was distributed to a total of N=866 participants, who were male and female students from Islamabad public universities' faculties of social sciences.

Step 5: The majority of students did not click on the link or complete the questionnaire. That is why the response rate was so low. As a result, during the short months when universities were open, researchers collected data from students. The researcher also assured the participant that all of their data would be kept confidential.

Round 2

Step 6: The researcher went to the university and distributed the questionnaire to the students.

Step 7: The questionnaire was returned to the researcher for further processing.

Step 8: The Google Form link received just 90 responses out of a total of 866. The overall response rate was relatively low; but, when data was collected through self-visits when

universities were opened, the response rate was high. The total number of questionnaires distributed by female and male students was 776, also with the researcher receiving 510.

3.12 Data Analysis

Data was collected, processed, and analysed using the social sciences statistics program with the use of questionnaires. Statistical tools such as the Cronbach Alpha Reliability test, correlation, mean, and t-test were used to analyse the data. The second objective was to compare self-regulated learning among university students based on gender. The independent sample t-test was used for the comparison utilizing inferential statistics. When the researcher does not know the standard deviation and mean of the exact/population, the t-test is utilized. The autonomous t-test, additionally called the two-example t-test, the free t-test, or the understudy t-test is a nonsensical measurable test that evaluates if There is a huge contrast. In this examination, male and female understudies were viewed as free models. The results of this test were presented in tabular form in Chapter 5. The statistical test used to test the hypotheses are presented in the table below.

In the study, the researcher used Cohen's D, and mention effect size for the comparison between male and female students. Effect size emphasizes the size of the difference, it is a statistic that may use to compare two groups. Therefore, for a comparison of two means, Cohen's D is suitable to effect size. In the study, the researcher used this test and mention effect size for the comparison between male and female students.

Psychologist Jacob Cohen published his book 'Statistical Power Analysis for the Behavioral Sciences' in 1969. Jacob Cohen introduces and explains the Effect Size for the first time in this book. Cohen's d is used to compare two groups. It expresses the difference between two means in standard deviation units. It indicates the number of standard deviations that exist

between the two means. Cohen's d is a measurement of the standardized difference between two means. It can be used to complement the reporting of t-test, for example. It's also popular in meta-analysis. Cohen's d is a good effect size to use when comparing two means. The extent of differences identified is explained by effect size, whereas statistical significance assesses whether the findings are likely to be due to chance. Both are required for readers to fully comprehend the significance of your work. Impact sizes aid in establishing if a clinically meaningful effect exists, in selecting sample size for future investigations, and in comparing scientific findings.

Table No. 3.9

Table 3.9 shows the objectives, hypotheses, Instrument, and statistical analysis of the current study.

Description of Objectives, Hypothesis, Instruments, and statistical analysis

Objectives	**Hypothesis**	**Instrument**	**Statistical test used**
To examine the practices of self-regulated learning at the higher education level.		Self-regulated Learning Scale	Mean
To compare self-regulated learning of students based on gender.	There is no significant difference in students' self-regulated learning based on gender.		Independent Sample t-test

Two main objectives were fulfilled, and Null hypotheses were used. One questionnaire was used as Instrument. The statistical test used to test the hypotheses, which was the Mean and the Independent t-test.

3.13 Ethical Consideration

Best research practices necessitate ethical consideration when working with the public and their data. Aside from academic integrity, researchers must be conscious of ethical considerations and reliable data collection, as well as be honest and respectful in their contacts with study participants, causing no harm to them. The following ethical guidelines for survey research were observed in the current study, according to the American Association for Public Opinion Research (AAPOR).

1. Throughout the study procedure, the respondents' privacy, and confidentiality, as well as that of the university that approved data collecting on their premises, were protected.
2. Before delivering the questionnaire on university grounds, the university administration was given advance notice.
3. Transparency in the research's objective and use of respondents' data was stated in the cover letter as well as during face-to-face and online interaction.
4. No one was paid or forced to participate in the study, and it was entirely voluntary.
5. In exchange for their participation in the survey, the participants received no reward.
6. This study's data is based on the respondents' self-reports and was neither faked nor invented.
7. In the reference list, all sources were cited, including research papers and books.

3.14 Delimitations

The study was delimited to:

1. Public universities of Islamabad, recognized by HEC (See Appendix G).
2. Restricted to students of the department of social sciences. I cannot collect data from all the departments at universities due to the shortage of time. I wanted to do the comparison based on gender (See Appendix I).
3. Limited to all subjects of social sciences departments. The complete subjects list is provided by the HEC (See Appendix I).

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 Summary of the Analysis (n=30)

The four sections in this chapter are developed for the analysis of research objectives. Mean and Independent t-test was used in the data process.

4.1.1 Section I Tool Finalization

The first section is about tables, which are related to the tool of the research. The self-developed questionnaire was related to the variable of self-regulated learning based on the model by Zimmerman (2002). There are reliability and correlation (item-total and intersection) of the tool included in this section.

4.1.2 Section II Demographics Presentation of the Sample

The second section deals with the demographic information and its interpretation, this information was collected by the first part of the questionnaire, which was added by the researcher. That part was based on the gender of the respondent.

4.1.3 Section III Practices of Self-regulated Learning among University Students

The third section is about the analysis of data against objective No. 1 ‘to examine the practices of self-regulated learning at higher education level’. This section is

included the calculated individual scores of the respondents which were divided into five levels. Thus, the tables were generated accordingly, and results were drawn.

4.1.4 Section IV Gender-based Comparison of the Self-regulated Learning among University Students

The fourth section is about the analysis of data against objective No. 2, to compare self-regulated learning of students on the basis of gender. The independent sample t-test was used for the comparison between male and female respondents. Further, for the effect size researcher used Cohen's D, which is a statistic that may be used to compare two groups. Effect size emphasizes the size of the difference. Therefore, for a comparison of two means, Cohen's D is suitable to effect size. In the study, the researcher used this test and mention effect size for the comparison between male and female students.

Cohen (1992) provided some guidelines:

Small: .00 - .20

Medium: .21 - .50

Large: .51 - .80

Section I

4.2 Tool Construction

Table 4.1

The table shows that the reliability of the Self-regulated Learning Scale (SRLS).

Cronbach Alpha Reliability of the Self-regulated Learning Scale (SRLS) (n=30)

Scale	**Sub-section**	**Items**	**Cronbach Alpha Reliability**
Self-Regulated Learning Scale (SRLS)		30	0.979
	Task Analysis	05	0.936
	Motivational Beliefs	05	0.922
	Self-Control	05	0.868
	Self-Observation	05	0.879
	Self-judgment	05	0.859
	Self-Reaction	05	0.911

The reliability of the Self-regulated Learning Scale (SRLS) was 0.979. While the reliability of the sub-section was Task Analysis, Motivational Beliefs, Self-Control, Self-Observation, Self-judgment, Self-Reaction were 0.936, 0.922, 0.868, 0.879, 0.859, and 0. 911 respectively, which was found very well.

Table 4.2

The table showed the item-total correlation of the self-regulated learning scale that was used in the study by the researcher.

Item-total Correlation of the Self-regulated Learning Scale (SRLS) (n=600)

Items Codes	**r**	**Items Codes**	**r**
TA1	.880**	SO1	.707**
TA2	.790**	SO2	.856**
TA3	.869**	SO3	.669**
TA4	.847**	SO4	.727**
TA5	.850**	SO5	.719**
MB1	.927**	SJ1	.826**
MB2	.869**	SJ2	.579**
MB3	.871**	SJ3	.551**
MB4	.871**	SJ4	.773**
MB5	.687**	SJ5	.853**
SC1	.848**	SR1	.775**
SC2	.899**	SR2	.856**
SC3	.841**	SR3	.766**
SC4	.661**	SR4	.811**
SC5	.560**	SR5	.896**

**Correlation is significant at the 0.05 level (2-tailed).

The item-total Correlation of the Self-Regulated Learning Scale is seen in table 4.2. Item No. MB1 had the highest correlation (.927**) and item No. SJ3 had the lowest correlation (.551**). Moreover, all the items on the Self-regulated Learning Scale were significantly correlated with each other.

Table 4.3

Table 4.3 shows that all the sub-sections were statistically significantly correlated with each other at the 0.01 level of significance.

Intersection Correlation of Self-Regulated Learning Scale (n = 600)

	Self-reaction	**Self-observation**	**Self-judgement**	**Motivational Believes**	**Self-control**	**Task Analysis**
Self-reaction	1					
Self-observation	.841**	1				
Self-judgment	.819**	**.**688****	1			
Motivational Believes	.895**	.883**	.835**	1		
Self-control	.884**	.758**	.895**	.878**	1	
Task Analysis	**.**904****	.826**	.825**	.895**	.838**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The highest correlation (.904**) was observed between task analysis and self-reaction. The lowest correlation (.688**) was observed between self-judgment and self-observation. The correlation among six SRL's practices (Task Analysis, Motivational Believes, Self-control, Self-observation, Self-judgment, Self-reaction) was significant at the 0.01 level of significance.

Section II

4.3 Demographics of the Sample

Table 4.4

The table shows the percentage of gender of the respondent of the study.

Gender-wise distribution of the Sample (n=600)

Gender	Frequency	Percent
Male	346	57.7
Female	254	42.3
Total	600	100.0

Table 4.4 elaborates that there was a total of 600 respondents in which 346 (58%) were male and 254 (42%) were female students of the social sciences department in Islamabad universities.

Section III

4.4 Practices of Self-Regulated Learning

Objective No.1 To examine the practices of self-regulated learning at the higher education level.

Table 4.5

The table illustrated that the means of values of Self-regulated Learning (SRL) particularly of practicing by the students at public universities in Islamabad.

Mean Value of Variables

Variables	Sub-variables	n	Mean	Status
Self-regulated Learning		600	4.14	Agree
	Task Analysis	600	3.51	Agree
	Motivational Beliefs	600	3.50	Agree
	Self-control	600	3.51	Agree
	Self-observation	600	3.30	Neutral
	Self-judgment	600	3.39	Neutral
	Self-reaction	600	3.52	Agree

The above table shows that students were practicing Self-regulated Learning in public universities. The analysis of the research showed that the mean value of respondents related to variable self-regulated learning was 4.14 with the status of agreed. About the six sub-variables of self-regulated learning (Task Analysis, Motivational believers, Self-control, Self-observation, Self-judgement, and Self-reaction) the analysis of the research showed that the mean value of respondents related to sub variable task analysis was 3.51 with the

status of agreed. This means that the majority of the students were practicing planning their tasks according to resources and managing time for efficient work. They plan to choose appropriate resources and set objectives to achieve in the learning process. The analysis of the research showed that the mean value of respondents related to sub-variable motivational belief was 3.50 with the status of agreed. This means that students were practicing doing the things according to their interest in the learning process and in which they decided to search for new things. Moreover, students get curious about new ideas, and they had their decisions with motivation. The analysis of the research showed that the mean value of respondents related to sub variable self-control was 3.51 with the status of agreed, which means students were practicing controlling their emotions and desires, especially in difficult situations. They were practicing making suitable choices and taking decisions in time to make possibilities for their success. Moreover, they focus on their task while working and try to not give up. The analysis of the research showed that the mean value of respondents related to sub-variable self-observation was 3.30 with the status of neutral, which means the majority of the students were in less practice of completing their work on given time. Therefore, they are not managing time and resources to achieve the goals, which they set for themselves. Moreover, they are doing less reflective practice about their done work and their uneasy feelings. The analysis of the research showed that the mean value of respondents related to sub variable self-judgment was 3.39 with the status of neutral, which means the majority of the students were in less practice of taking difficult tasks as part of the learning process and they were not practicing paying attention to their mood, as a result, they can act accordingly. Moreover, they were not managing their failure and take time to leave it behind with positive learning. For the reason of less knowledge and less practice of self-judgment, students were not taking their failure as a challenge. The analysis of the research showed that the mean value of respondents related to sub-variable self-reaction was

3.52 with the status of agreed, which means the majority of students were practicing completing their task on time and maintaining their high standard. They think to put effort into the quality of work. Moreover, they were managing their resources in a better way and asking for help if needed to achieve their objectives. Many students believe in different learning practices of self-regulated learning but these practices which they are doing have room for improvement, as self-regulated learning is essential for the learning process.

Section IV

4.5 Gender wise Comparison of Self-regulated Learning

Objective No.2 To compare self-regulated learning of university students on the basis of gender.

$H_0$1. There is no significant difference in students' self-regulated learning on the basis of gender.

For the second objective, the researcher conducted the independent t-test for the gender-based comparison of self-regulated learning at the university students of Islamabad.

Table 4.6

Gender wise Comparison of Students related to Self-regulated Learning (SRL) (n=600)

Variable	Gender	n	Mean	t value	df	Sig.	*d*
Self-regulated	Male	346	3.39	2.06	598	0.04	0.17
Learning	Female	254	3.55				

**p <0.05, **p <0.01*

Table 4.6 indicated the t value (t=2.06) is statistically significant at (sig = .04) 0.05 level of significance. Significant difference was found in Male (M=3.39) and Female students (M=3.55) related to self-regulated learning at the university level. Female students were found better in the practice of self-regulated learning. The Cohen's D value showed a small effect size (0.17).

Therefore, the first hypothesis No. H_o^1: There is no significant difference in students' self-regulated learning on the basis of gender is failed to accept.

Objective ai. To compare self-regulated learning of students related to task analysis on the basis of gender.

$H_0$1ai: There is no significant difference in students' self-regulated learning related to task analysis on the basis of gender.

Table 4.7

Comparison of task analysis practice university students on the basis of Gender (n=600)

Variable	Gender	n	Mean	t value	df	Sig.	*d*
Task Analysis	Male	346	3.42	2.38	598	0.01	0.20
	Female	254	3.64				

**p <0.05, **p <0.01*

Table 4.7 indicated the t-value (t=2.38) is statistically significant at (sig = .01), 0.01 level of significance. Significant difference was found in Male (M=3.42) and female (M=3.64) students related to task analysis. Female students were found better in the practice of task analysis. The Cohen's D value showed a small effect size (0.20).

Therefore, hypothesis No $H_0$1ai: There is no significant difference in students' self-regulated learning related to task analysis on the basis of gender is failed to accept.

Objective aii. To compare self-regulated learning of students related to motivational believes on the basis of gender.

$H_0$1aii: There is no significant difference in students' self-regulated learning related to motivational believes on the basis of gender.

Table 4.8

Comparison of motivational believes of university students on the basis of Gender (n=600)

Variable	Gender	n	Mean	t value	df	Sig.
Motivational Believes	Male	346	3.46	1.18	598	0.23
	Female	254	3.57			

**p <0.05, **p <0.01*

Table 4.8 indicated the t-value (t=1.18) is statistically not significant (sig = .23). Thus, significant difference was not found related to motivational believes between Male (3.46) and Female (3.56) students. Therefore, the hypothesis No $H_0$1aii: There is no significant difference in students' self-regulated learning related to motivational believes on the basis of gender is accepted.

Objective bi. To compare self-regulated learning of students related to self-control on the basis of gender.

$H_0$1bi: There is no significant difference in students' self-regulated learning related to self-control on the basis of gender.

Table 4.9

Comparison of self-control of university students on the basis of Gender (n=600)

Variable	Gender	n	Mean	t value	df	Sig.	*d*
Self-control	Male	346	3.42	2.74	598	.00	0.23
	Female	254	3.63				

**p <0.05, **p <0.01*

Table indicated the t-value (2.74) is statistically significant at (sig = .00) 0.01 level of significance. Significant difference was found between Male (3.42) and Female (3.63) students at the university level related to self-control. Female students were found better in practice. Cohen's d value showed a medium effect size (0.23). Thus, the hypothesis No $H_0$1bi: There is no significant difference in students' self-regulated learning related to self-control on the basis of gender is failed to accept.

Objective bii. To self-regulated learning of students related to self-observation on the basis of gender.

$H_0$1bii: There is no significant difference in students' self-regulated learning related to self-observation on the basis of gender.

Table 4.10

Comparison of self-observation of university students on the basis of Gender (n=600)

Variable	Gender	n	Mean	t value	df	Sig.
Self-observation	Male	346	3.25	1.29	598	0.19
	Female	254	3.36			

**p <0.05, **p <0.01*

Table indicates the t-value (t=1.29) is statistically not significant (sig = 0.19). Significant difference was not found between Male (M = 3.25) and Female (M = 3.36) students at the university level related to self-observation. Therefore, hypothesis No $H_0$1bii: There is no significant difference in students' self-regulated learning related to self-observation on the basis of gender is accepted.

Objective ci. To self-regulated learning of students related to self-Judgment on the basis of gender.

$H_0$1ci: There is no significant difference in students' self-regulated learning related to self-judgment on the basis of gender.

Table 4.11

Comparison of self-judgment of university students on the basis of Gender (n=600)

Variable	Gender	n	Mean	t value	df	Sig.
Self-judgment	Male	346	3.33	1.85	598	0.06
	Female	254	3.48			

**p <0.05, **p <0.01*

Table 4.13 indicated the t-value (t=1.85) is statistically not significant (sig = 0.06). Significant difference was not found related to self-judgment between Male (M = 3.33) and Female (M = 3.48) students at the university level. Therefore, hypothesis No $H_0$1ci: There is no significant difference in students' self-regulated learning related to self-judgment on the basis of gender is accepted.

Objective cii. To self-regulated learning of students related to self-reaction on the basis of gender.

$H_0$1cii: There is significant difference in students' self-regulated learning related to self-reaction on the basis of gender.

Table 4.12

Comparison of self-reaction of university students on the basis of Gender (n=600)

Variable	Gender	n	Mean	t value	df	Sig.	*d*
Self-reaction	Male	346	3.44	2.15	598	.031	0.18
	Female	254	3.63				

**p <0.05, **p <0.01*

Table 4.14 indicated the t-value (t=2.15) is statistically significant at (sig = .03) 0.05 level of significance. Significant difference was found in Male (3.44) and Female (3.63) students at the university level related to self-reaction. Female students were found better at practice. The Cohen's D value showed a small effect size (0.18). Therefore, hypothesis No $H_0$1cii. There is no significant difference in students' self-regulated learning related to self-reaction on the basis of gender is failed to accept.

4.6 Summary of Results

By the overview of hypotheses decisions, the current study for male and female students from the Islamabad universities is mentioned below:

Table 4.13

The table showed the results of hypotheses and statistical tests which were used.

Summary of Hypotheses Testing

No.	Null Hypothesis	Statistical test	Decision	Results
$H_0$1	There is a significant difference in students' self-regulated learning on the basis of gender.	Independent Sample t-test	Failed to accept	t=2.0, p<0.05
$H_0$1ai.	There is no significant difference in students' self-regulated learning related to task analysis on the basis of gender.	Independent Sample t-test	Failed to accept	t=2.3, p<0.05
$H_0$1aii.	There is no significant difference in students' self-regulated learning related to motivational believes on the basis of gender.	Independent Sample t-test	Accepted	t=1.1, p>0.05
$H_0$1bi.	There is significant difference in students' self-regulated learning related to self-control on the basis of gender.	Independent Sample t-test	Failed to accept	t=2.7, p<0.01

$H_0$1bii.	There is no significant difference in students' self-regulated learning related to self-observation on the basis of gender.	Independent Sample t-test	Accepted	t=1.2, p>0.05
$H_0$1ci.	There is no significant difference in students' self-regulated learning related to self-judgment on the basis of gender.	Independent Sample t-test	Accepted	t=1.8, p>0.05
$H_0$1cii.	There is significant difference in students' self-regulated learning related to self-observation on the basis of gender.	Independent Sample t-test	Failed to accept	t=2.1, p<0.05

The table showed the significant difference among male and female students regarding self-regulated learning. There was significant difference was also found regarding sub-variables of task analysis, self-control, and self-reaction. There was no significant difference between male and female students was found regarding motivational belief, self-observation, and self-judgment.

CHAPTER 5

SUMMARY, FINDINGS, DISCUSSION, CONCLUSION, AND RECOMMENDATION

This chapter of the study deals with summary, findings, discussion, conclusion, and recommendation based on research analysis. The chapter outline is shown below:

5.1 Summary

This study aims to highlight the gender-based comparison of self-regulated learning of university students. As per the interpretation of data analysis of the study dealt in here,

1. To examine the practices of self-regulated learning at the higher education level.
2. To compare self-regulated learning of students on the basis of gender.

Furthermore, this research study was comprised of two main questions and one hypothesis which had six sub-hypotheses. The data was collected from the 15-public university of Islamabad with a population of 8659, including 4795 male students and 3864 female students. For this analysis, the researcher used proportionate stratified sampling. Further, split into two main categories on the basis of gender. To have an effective outcome of the study, only students of social sciences of the public universities in Islamabad were involved in the study.

The questionnaire was used as a data collection tool for the analysis. The researcher developed the Self-regulated Learning Scale (SRLS) based on Zimmerman's SRL phases (2002). There were few self-regulated learning scales to measure the different strategies and practices of self-regulated learning. Model of three main phases and six sub-phases was selected from the models of Zimmerman as the framework, the accurate questionnaire was not available which can measure the self-regulated learning practices properly in the Pakistani context. That is why the researcher developed the self-regulated learning scale. It contains 42 items of 3 phases. The questionnaire had 30 items divided into three phases including i) Forethought, ii) Performance, and iii) Self-reflection. Thus, the questionnaire was also based on six sub-sections. In the initial stage, 45 closed-ended items were developed for the scale of SRL. After validation according to the experts' suggestions and advice tool got rearranged by the researcher and in the revised version 30 check the reliability of the tool. For this purpose, 30 students that were male and female university validated items were prepared for data collection. The researcher collected data for pilot testing to students were selected for data collection. With the help of pilot testing, the result analysis tool got reliable and improved according to the suggestions given by educational experts from different universities. With the up gradated tool, the researcher developed one main and six sub hypotheses with the objectives. The population of the study was 4795 male students and 3864 female students at the universities of Islamabad. To select the sample researcher used the proportionate stratified sampling techniques. For the collection of data, the researcher used online platforms. Furthermore, in the current situation of COVID-19, researchers faced issues about some closed educational institutes and could not approach enough students from universities, easily. After the collection of some data from universities, the researcher also went for an online data collection that via contacting the students through emails. The ratio of online data collection was low, and a smaller number

of students responded. The overall data collected was with a 70% rate of return. For the analysis of data, the researcher used different tests of Cronbach Alpha, Correlation (inter-section and item-total correlation), mean score, and independent t-test to analyze the data. To run these tests researchers used the 21st version of SPSS (Statistical Package for Social Sciences). By using the tests researcher interpreted the results and got findings and also gave recommendations on the basis of results.

Table 5.1

The table showed the key finding with related objectives and hypotheses.

Key Findings of the Study

Objectives	**Null Hypotheses**	**Key Findings**
O1: to examine the practices of self-regulated learning at the higher education level.		Students were "Agreed" to practicing self-regulated learning as a whole as well as related to task analysis, motivational beliefs, self-control, and self-reaction. Students were undecided (neutral) regarding the practices of self-observation and self-judgment.
O2: To compare self-regulated learning of	**$H_0$2.** There is no difference in students' self-regulated	Significant difference was found between male and

students on the basis of gender.	learning on the basis of gender.	female students. As well as female students were better at practicing self-regulated learning.
	$H_0$1ai. There is no difference in students' self-regulated learning related to task analysis on the basis of gender.	Significant difference was found between male and female students. Female students were better at practicing task analysis.
	$H_0$1aii: There is no difference in students' self-regulated learning related to motivational believes on the basis of gender.	No significant difference was found between male and female students in the practice of motivational beliefs.
	$H_0$1bi. There is no difference in students' self-regulated learning related to self-control on the basis of gender.	Significant difference was found between male and female students. Female students were better at practicing self-control.
	$H_0$1bii. There is no difference in students' self-regulated learning related to self-observation on the basis of gender.	No significant difference was found between male and female students in the practice of self-observation.

	$H_0$1ci. There is no difference in students' self-regulated learning related to self-judgment on the basis of gender.	No significant difference was found between male and female students in the practice of self-judgment.
	$H_0$1cii. There is no difference in students' self-regulated learning related to self-reaction on the basis of gender.	Significant difference was found between male and female students. Female students were better at practicing self-reaction.

5.2 Findings

The findings of the current study are discussed in this section:

1. Findings regarding practices of self-regulated learning of the current study showed that respondents' status was agreed, which means that students at public universities were practicing self-regulated learning to proceed with their efforts to act and set the goals beforehand. Moreover, students were agreed to practice self-regulated learning and put practical and psycho-motor effort to enhance their attention and action. Additionally, students were agreed that they put effort after the performance to learn from their experiences with the help of self-reflection.

The study found male and female students were practicing self-regulated learning. The practices of six sub-variables of self-regulated learning (Task Analysis, Motivational believers, Self-control, Self-observation, Self-judgement, and Self-reaction) were also explored among university students. The details of sub-variables are mentioned below:

1a. As per the analysis of the research data, the 1st sub-variable of self-regulated learning regarding task analysis showed that the status was agreed, which means that they were practicing planning their task according to resources and managing time for efficient work. Moreover, they plan to choose appropriate resources and set objectives to achieve in the learning process.

1b. As per the analysis of the research data, the 2nd sub-variable of self-regulated learning regarding motivational beliefs showed that the status was agreed, which means that they were practicing taking action according to their interest in the process of learning. Moreover, they get curious and think about varied reasons.

1c. As per the analysis of the research data, the 3rd sub-variable of self-regulated learning regarding self-control showed that the status was agreed, which means that the majority of students were practicing making suitable choices and practically taking decisions in time to make possibilities for their success. Moreover, they focus on their task and try to not give up.

1d. As per the analysis of research data, the 4th sub-variable of self-regulated learning regarding self-observation showed that the status was neutral, which means that the majority of students were in less practice of completing their work in given time and they were not managing time and resources to achieve their goals, which they set for themselves. Moreover, students were doing less reflective practice about their done work and their uneasy feelings.

1e. As per the analysis of research data, the 5th sub-variable of self-regulated learning regarding self-judgment showed that the status was neutral, which means that the majority of students were doing less practice of taking difficult things as part of the learning process. Students were doing less practice of paying attention to their mood

to act in a good way. Moreover, they were in less practice of taking their failure as a challenge and facing the toughness of reality.

1f. As per the analysis of the research data, the 6th sub-variable of self-regulated learning regarding self-reaction showed that the status was agreed, which means that the majority of students were practicing completing their task on time and maintaining their high standard. Moreover, they think about putting effort into the quality of work and try to manage their resources in a better way, with the use of their experiences. Additionally, they ask for help if needed and try to achieve their objectives.

2. Findings regarding no significant difference between male and female students at the public universities in Islamabad, related to self-regulated learning, showed the significant difference between male and female students at university level related to self-regulated learning, and female students were found better in practices of self-regulated learning.

2a. The results showed that significant difference was found regarding task analysis, between male and female students at the university level. Female students were found better at the practice of self-regulated learning regarding task analysis.

2b. The results showed that there is no significant difference regarding motivational beliefs, between male and female students at the higher education level of public universities in Islamabad.

2c. The results showed that significant difference was found regarding self-control, between male and female students at the higher education level of public universities in Islamabad. Female students were found better at the practice of self-regulated learning regarding self-control.

2d. The results showed that no significant difference was found regarding self-observation, between male and female students at the higher education level of public universities in Islamabad.

2e. The results showed that no significant difference was found regarding self-judgment, between male and female students at the higher education level of public universities in Islamabad.

2f. The results showed that significant difference was found regarding self-reaction, between male and female students at the higher education level of public universities in Islamabad. Female students were found better at the practice of self-regulated learning regarding self-reaction.

5.3 Conclusions

From the findings of the current study researcher derived the following conclusion:

The current research was carried out to investigate the practices of self-regulated learning at the higher education level among male and female students in Islamabad's public universities. In this self-regulated learning analysis, a questionnaire with three main phases (forethought/pre-action, performance, and self-reflection) and six sub-phases (Task Analysis, Motivational Beliefs, Self-Control, Self-Observation, Self-Judgment, and self-Reaction) was used. The overall number of students was 600, with components of Task Analysis, Motivational Beliefs, Self-Control, Self-Observation, Self-Judgment, and Self-Reaction.

The first objective was to investigate self-regulated learning practices at the university level. It was concluded that the students were practicing self-regulated learning. Then about the three phases, it was concluded that students plan their task according to resources and time

for efficient work and set objectives. It was also concluded regarding the first Phase (Forethought) that students get curious about new things and think about their reasons. Regarding the second phase (performance), it was concluded, that students make suitable choices as they take decisions in time to make possibilities for their success and focus on their task. Moreover, students cannot manage their time and resources to complete their tasks practically. Regarding the third phase (self-reflection), it was concluded, that students feel hard to take difficult things as part of their life and take their failures as challenges. Moreover, students maintain high standards and try to manage resources in a better way.

The current research aimed to compare self-regulated learning among male and female students at public universities in Islamabad. It was hypothesized that results about the second objective showed significant differences in self-regulated learning practices as a whole between male and female respondents from public universities in Islamabad. It was concluded that the significant difference was found in practices of task analysis, self-control, and self-reaction and female respondents were found better in these practices of self-regulated learning than male respondents. It was also concluded that no significant difference was found regarding other practices of motivational beliefs, self-observation, and self-judgment. Moreover, these practices were important to enhance in students at the university level. These practices are important for the learning process and the knowledge depends on the content and the context. Students enhance the practices of self-regulated learning through their existing knowledge and practicing these skills through educational activities.

5.4 Discussion

The findings of the current study of the first objective showed that male and female students at the university level, practice self-regulated learning. A similar findings study was conducted at the higher education level to explore the nature and use of self-regulated learning strategies showed that students at the university level practice self-regulated learning. Therefore, they achieve their goals more efficiently and enhance their academic abilities with self-regulated learning, and learners learn in cognitively rich and deep processes with SRL (Alvi, Iqbal, Masood, & Batool 2016). With the same findings a study was conducted (Jouhari, Haghani & changez, 2015) at higher education level and a qualitative approach was used. the researchers explored the students must have the skills of self-regulated learning for successful learning. The study also explored the factors which can affect self-regulated learning to the understanding of the students. A study (Foong, Ghouse & Lye 2021) was conducted on medical students and found the characteristics of high-performing students from the self-regulated learning perspective to gain a better understanding of the applications of SRL for effective learning. The findings revealed that high-performing students applied self-regulated learning and describe the rationales of practices. Gafoor & Kurukkan (2015), showed in their study that the result of self-regulated learning practice is to increase achievement and make it possible to gain effective and desirable results and outcomes. The above literature showed the benefits and more chances to succeed in learning. learners may get an effective way to achieve their goals and have experience for their upcoming life.

The second objective of the research was to compare the self-regulated learning of students on the basis of gender. The current findings of the study with relation to the gender-based comparison of self-regulated learning practices intensify that female student at Islamabad's public universities pursue self-regulated learning more than male students concerning task

analysis, self-control, and self-reaction. In other practices, the result shows the gender did not find any superiority.

The current study found the female students practice more than male students at the university level. With a similar result a study conducted by (Bezzina 2010), which found the use of self-regulated learning strategies by female students more than the male students. A gender-based comparative study was conducted by (Yukselturk & Bulut 2009). Which showed no significant difference found between male and female students related to the success in the area of motivational believes and performance achievement. A Study with the opposite result was conducted by Ahmad, Hussain, & Azeem (2012), it was a gender-based analysis of the relationship among academic self-efficacy to self-regulated learning, test anxiety, school identification, and significant relationship was discovered between the variables. females outperformed males in terms of academic performance. Other factors have little impact on the calculation of self-efficacy beliefs. The above literature indicated the research work on the gender-based comparison of the practices of self-regulated learning by other researchers. Studies showed the gender superiority of male and female students at higher education levels with a variety of multiple backgrounds in different contexts.

5.5 Recommendations

The following recommendations are based on the findings and conclusion of the current study. according to the first objective of the study, which was to examine the practices of self-regulated learning at the university level:

1. It was found out that university students were in less practice of self-observation. It is suggested that university management may conduct a session for Video-based activity. In

which students present any topic. Through watching his video, he observes his pros and cons. After that learner improves self-observation practice accordingly.

2. It was found out that university students were less in the practice of self-judgment. It is suggested that university management may conduct Interview sessions for positive awareness. In which students were asked the questions and made a list of things they like about themselves. They also discuss and recognize their strengths and weaknesses.

3. It was also suggested that universities may conduct classroom activities to enhance the practices of self-regulated learning in which students may deal with their real problems. They identify the problem and gather relevant information, then they practice brainstorming for possible solutions, making choices, and taking action.

4. To improve motivation belief, practice to set high but achievable goals, and set personal goals for challenge and interest but possible to achieve. Seek chances to learn and take part in activities and projects.

It was suggested that university management may conduct a session to guide students especially males and provide specific cues for using self-regulated learning strategies, including group discussion and reflective dialogue, provide corrective feedback.

The following recommendations are based on the findings and conclusion of the current study. according to the second objective of the study, which was to compare self-regulated learning of university students on the basis of gender.

5. According to the findings, females are more in the practice of self-regulated learning than males in three sub-variables of self-regulated learning (task analysis, self-control, and self- reaction). It is suggested that male students may use related strategies to enhance self-

regulated learning regarding these skills. University management conduct session to guide students and provide specific cues for using self-regulated learning strategies, including group discussion and reflective dialogue, providing corrective feedback, using hands-on learning activities, and helping to separate relevant and irrelevant information. use experiential learning activities and focus on the application of knowledge in broader contexts.

6. Female students found better at three practices of SRL (motivational beliefs, self-observation, and self-judgment). Therefore, it is recommended that both male and female students need to enhance self-regulated learning skills. As they had less than enough knowledge about SRL practices.

The following recommendations are based on the findings and conclusion of the current study and recommended for future researchers of self-regulated learning.

7. It is recommended for future researchers, to add more skills of SRL by following other SRL theories. The current study has only six skills.

8. Current study is focusing on gender only; other demographic factors can also be in focus by researchers.

9. It is recommended to increase the sample size. As the current study had less sample size due to the Coronavirus pandemic period.

10. The current study was limited to the Islamabad territory; future research can add the area or can do the same study on any other area.

11. The current study had only one variable (SRL), future studies can focus on other variables also.

5.6 Limitations of the Study

The current study was related to exploring self-regulated learning among university students of Islamabad. The study focused on the students enrolled in the public universities of Islamabad. The researcher faced pandemic restrictions and lockdown during collecting the data. Data could not be collected by visiting all the universities due to the COVID-19, therefore, the researcher visited only those universities which were open. Researchers also used online platforms to collect data.

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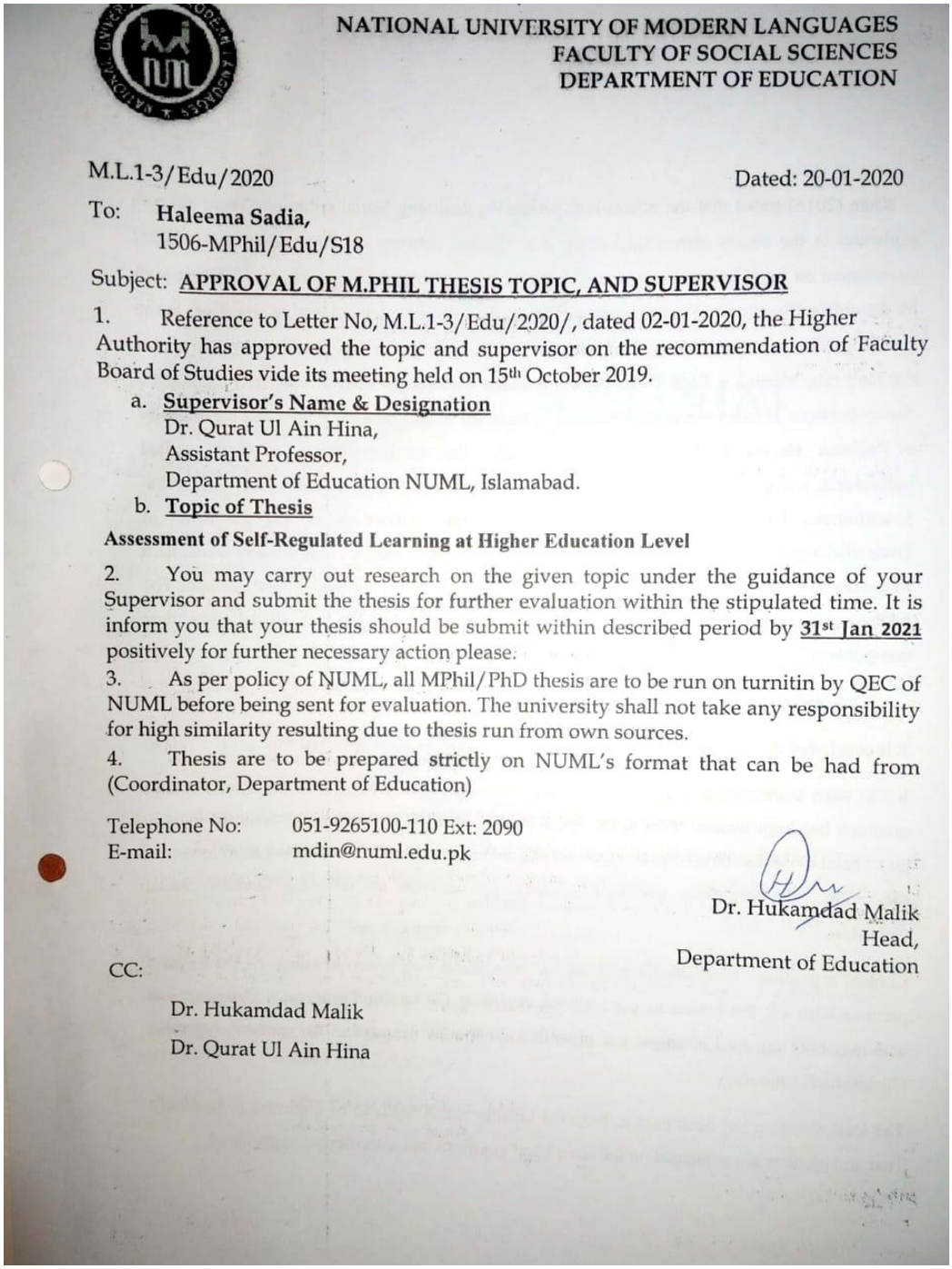
Appendix-A



NATIONAL UNIVERSITY OF MODERN LANGUAGES
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF EDUCATION

M.L.1-3/Edu/2020 Dated: 20-01-2020

To: **Haleema Sadia,**
1506-MPhil/Edu/S18

Subject: **APPROVAL OF M.PHIL THESIS TOPIC, AND SUPERVISOR**

1. Reference to Letter No, M.L.1-3/Edu/2020/, dated 02-01-2020, the Higher Authority has approved the topic and supervisor on the recommendation of Faculty Board of Studies vide its meeting held on 15th October 2019.

   a. **Supervisor's Name & Designation**
      Dr. Qurat Ul Ain Hina,
      Assistant Professor,
      Department of Education NUML, Islamabad.

   b. **Topic of Thesis**

Assessment of Self-Regulated Learning at Higher Education Level

2. You may carry out research on the given topic under the guidance of your Supervisor and submit the thesis for further evaluation within the stipulated time. It is inform you that your thesis should be submit within described period by **31st Jan 2021** positively for further necessary action please.

3. As per policy of NUML, all MPhil/PhD thesis are to be run on turnitin by QEC of NUML before being sent for evaluation. The university shall not take any responsibility for high similarity resulting due to thesis run from own sources.

4. Thesis are to be prepared strictly on NUML's format that can be had from (Coordinator, Department of Education)

Telephone No: 051-9265100-110 Ext: 2090
E-mail: mdin@numl.edu.pk

Dr. Hukamdad Malik
Head,
Department of Education

CC:

Dr. Hukamdad Malik

Dr. Qurat Ul Ain Hina

Appendix-B

Theoretical framework

Zimmerman's (2002) Model of self-regulated learning (SRL) present's specific information and tells the significance of SRL in proper procedure and phases. In this study, researcher take the three phases of Zimmerman's Model (2002) as theoretical framework of the study.

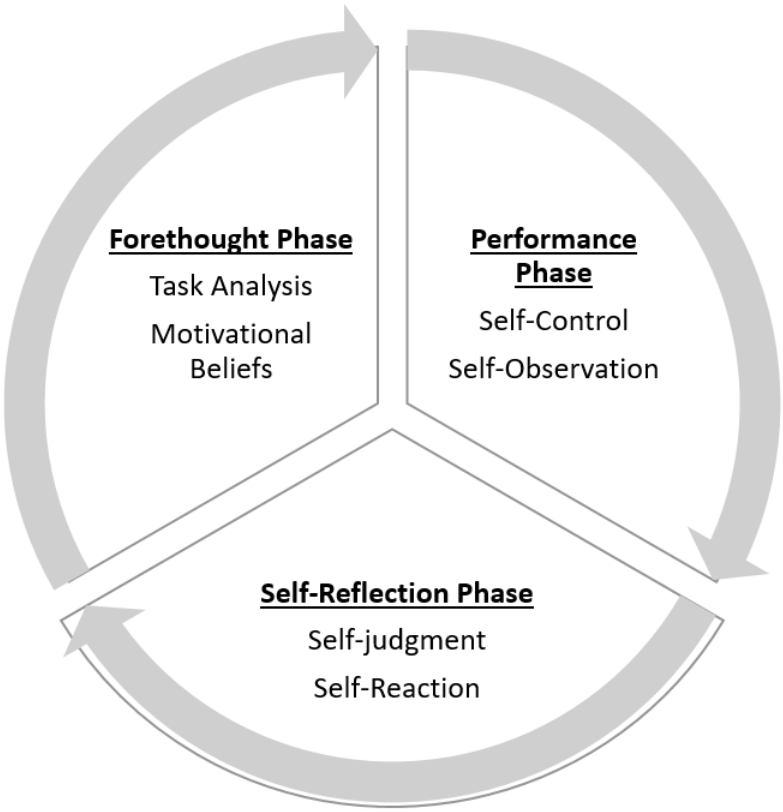


Fig 1.1 Self-regulated Learning, Zimmerman's Model (2002)

Appendix-C

Validation of the Tool

Researcher used self-made questionnaire self-regulated learning scale (SRLS) as tool in current study. Contacted to five educational experts from different universities to validate the questionnaire. According to the study objectives and research model, expert validated the tool and gave their precious advice and comments for the improvement. According to their suggestions tool god improved and rearranged by the researcher and prepared for the collection of data. Validated questionnaire is given. The experts' detail is also mentioned in the given table:

List of Experts Validation

Expert Name	Designation	Institute name	Date
Dr. Shamsa Aziz	Assistant Professor Chairman Department of Education	International Islamic University Islamabad	31-12-2019
Dr. Fouzia Ajmal	Assistant Professor Department of Education	International Islamic University Islamabad	31-12-2019
Dr. Fozia Fatima	Assistant Professor HEP, FSS	Air University, Islamabad	30-12-2019
Dr. Amtul Hafeez	Assistant Professor Department of Education	Allama Iqbal Open University Islamabad	31-12-2019
Miss. Tooba Saleem	Associate Lecturer Department of Education	Allama Iqbal Open University Islamabad	31-12-2019

Appendix-D

Cover Letter of Questionnaire

ASSESSMENT OF SELF-REGULATED LEARNING TO SOCIAL SCIENCES DEPARTMENT AT THE HIGHER EDUCATION LEVEL

Haleema Sadia

M.Phil Scholar

National University of Modern Languages,

Islamabad

Respected Sir/ Madam

I am a student of MPhil in Education at National University of Modern Languages, Islamabad and conducting research on "Assessment of self-regulated learning to social sciences department at the higher education level".

Your valuable time in completing this questionnaire will help me to identify the required outcomes of this study. Questionnaire is provided below. Your contribution towards this research is highly appreciated. Collected data will be used for research purpose only.

Appendix-E

Assessment of student self-regulated learning of social sciences department at the higher education level.

Subject: <u>Request for Validity Certificate</u>

Respected Sir/Madam

I have attached my questionnaire developed for the purpose of research titled as "Assessment of student self-regulated learning of social sciences department at the higher education level".

> Zimmerman's (2002) Model of self-regulated learning (SRL) present's specific information and tells the significance of SRL in proper procedure and phases. This questionnaire is consisted of the three phases of Zimmerman (2002).

Kindly check my questionnaire, its content and construction, provide your valuable suggestions for its improvement and certify its validity by filling the certificate attached at the end of the document.

Haleema Sadia

M.Phil. Scholar, Dept. of Education,

National University of Modern Languages,

Islamabad, Pakistan

Appendix-F

CERTIFICATE OF VALIDITY
(Self-Regulated Learning Scale)

Assessment of Student Self-Regulated Learning of social sciences department at Higher Education Level

By Mrs. Haleema Sadia,

M.Phil. Scholar, Department of Education, Faculty of Social Sciences National University of Modern Languages, H-9, Islamabad, Pakistan

This is to certify that the questionnaire developed by the scholar towards his thesis has been assessed by me and I find it to have been designed adequately to assess the Self-regulated learning of student at higher education level. The questionnaire has 3 phases of Self-Regulated Learning (Forethought, Performance control, Self-reflection). Responses thus collected will aid treatment of the subject in a scientific matter.

It is considered that the research instrument, developed for the research above titled is according to the objectives and hypothesis of the research, assures adequate construct and content validity according to the purpose of research, and can be used for data collection by the researcher with fair amount of confidence.

Name Dr. Amtul Hafeez

Designation Assistant Professor

Institute A104

Signature

CERTIFICATE OF VALIDITY

(Self-Regulated Learning Scale)

Assessment of Student Self-Regulated Learning of social sciences department at Higher Education Level

By Mrs. Haleema Sadia,

M.Phil. Scholar, Department of Education, Faculty of Social Sciences National University of Modern Languages, H-9, Islamabad, Pakistan

This is to certify that the questionnaire developed by the scholar towards her thesis has been assessed by me and I find it to have been designed adequately to assess the Self-regulated learning of student at higher education level. The questionnaire has 3 phases of Self-Regulated Learning (Forethought, Performance control, Self-reflection). Responses thus collected will aid treatment of the subject in a scientific matter.

It is considered that the research instrument, developed for the research above titled is according to the objectives and hypothesis of the research, assures adequate construct and content validity according to the purpose of research, and can be used for data collection by the researcher with fair amount of confidence.

Name Dr. Fozia Fatima

Designation Assistant Professor

Institute HEP, FSS, Air University

Signature

CERTIFICATE OF VALIDITY
(Self-Regulated Learning Scale)

Assessment of Student Self-Regulated Learning of Social Sciences Department at Higher Education Level

By Mrs. Haleema Sadia,

M.Phil. Scholar, Department of Education, Faculty of Social Sciences

National University of Modern Languages, H-9, Islamabad, Pakistan

This is to certify that the questionnaire developed by the scholar towards her thesis has been assessed by me and I find it to have been designed adequately to assess the Self-regulated learning of student at higher education level. The questionnaire has 3 phases of Self-Regulated Learning (Forethought, Performance control, Self-reflection). Responses thus collected will aid treatment of the subject in a scientific matter.

It is considered that the research instrument, developed for the research above titled is according to the objectives and hypothesis of the research, assures adequate construct and content validity according to the purpose of research, and can be used for data collection by the researcher with fair amount of confidence.

Name Dr. Fouzia Ajmal
Designation Assistant Professor
Institute Department of Education,
International Islamic University Islamabad

Signature

CERTIFICATE OF VALIDITY
(Self-Regulated Learning Scale)

Assessment of Student Self-Regulated Learning of social sciences department at Higher Education Level

By Mrs. Haleema Sadia,

M.Phil. Scholar, Department of Education, Faculty of Social Sciences National University of Modern Languages, H-9, Islamabad, Pakistan

This is to certify that the questionnaire developed by the scholar towards her thesis has been assessed by me and I find it to have been designed adequately to assess the Self-regulated learning of student at higher education level. The questionnaire has 3 phases of Self-Regulated Learning (Forethought, Performance control, Self-reflection). Responses thus collected will aid treatment of the subject in a scientific matter.

It is considered that the research instrument, developed for the research above titled is according to the objectives and hypothesis of the research, assures adequate construct and content validity according to the purpose of research, and can be used for data collection by the researcher with fair amount of confidence.

Name _____

Designation _____

Institute _____

Signature _____

Dr. Shamsa Aziz
Associate Professor/Chairperson
Department of Education
International Islamic University
Islamabad

CERTIFICATE OF VALIDITY
(Self-Regulated Learning Scale)

Assessment of Student Self-Regulated Learning of social sciences department at Higher Education Level

By Mrs. Haleema Sadia,

M.Phil. Scholar, Department of Education, Faculty of Social Sciences National University of Modern Languages, H-9, Islamabad, Pakistan

This is to certify that the questionnaire developed by the scholar towards her thesis has been assessed by me and I find it to have been designed adequately to assess the Self-regulated learning of student at higher education level. The questionnaire has 3 phases of Self-Regulated Learning (Forethought, Performance control, Self-reflection). Responses thus collected will aid treatment of the subject in a scientific matter.

It is considered that the research instrument, developed for the research above titled is according to the objectives and hypothesis of the research, assures adequate construct and content validity according to the purpose of research, and can be used for data collection by the researcher with fair amount of confidence.

Name Tooba Saleem

Designation Lecturer

Institute AJKU

Signature

Appendix-G

HEC Recognised Universities and Degree Awarding Institutions

Name	Sector	Chartered By	Discipline	Province	City
Air University	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
Allama Iqbal Open University	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
Bahria University	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
COMSATS Institute of Information Technology	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
Federal Urdu University of Arts, Sciences & Technology	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
Institute of Space Technology	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
International Islamic University	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
National Defense University	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
National University of Modern Languages	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
National University of Sciences & Technology	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
National University of Technology (NUTECH), Islamabad	Public	Government of Pakistan	Engineering & Technology	Islamabad Capital Territory	Islamabad
Pakistan Institute of Development Economics (PIDE)	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
Pakistan Institute of Engineering & Applied Sciences	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
Quaid-i-Azam University	Public	Government of Pakistan	General	Islamabad Capital Territory	Islamabad
Shaheed Zulfiqar Ali Bhutto Medical University	Public	Government of Pakistan	Medical	Islamabad Capital Territory	Islamabad

Appendix-H

Population of the study

S#	University	Total Students	Male	Female
1.	National University of Modern Languages	1994	1155	839
2	International Islamic University Islamabad	2200	1194	1006
3	Quaid -i- Azam University	245	130	115
4.	Bahria University	877	373	504
5.	COMSATS Institute of Information Technology	155	115	40
6.	Federal Urdu University of Arts, Sciences &Technology	392	282	110
7.	National University of Sciences & Technology	215	188	27
8.	Pakistan Institute of Development Economics (PIDE)	298	171	127
9.	Allama Iqbal Open University	1750	878	872
10.	National Defence University	378	204	174
11.	Air University	155	105	50
Total		**8659**	**4795**	**3864**

The table explains the student's numbers enrolled in social sciences department.

Appendix-I

List of social sciences disciplines

HIGHER EDUCATION COMMISSION
H-9, Islamabad (Pakistan)
Phone: (051) 90402116, Fax: (051) 90402102,
E-mail: tshah@hec.gov.pk

No. DD/SS&H/CDSSHP/List/2015 Dated: 3rd February 2015

NOTIFICATION

It is hereby to notify all concerned that the list of subjects for disciplines of Social Sciences, Arts & Humanities and Business Education has been revised and stated below:

Social Sciences

- Archeology
- Anthropology
- Archival Studies
- Economics
- Econometrics
- Disaster Economics
- Political Science
- Public Administration
- Defence & Strategic Studies
- International Relations
- Psychology including Clinical, Industrial, Developmental Psychology
- Philosophy
- Sociology
- Iqbal Studies / Iqbaliyat
- Rural Development Studies
- Social Work
- Criminology
- Library and Information Sciences
- History
- Demography and Population Studies
- Ethnography
- Conservation Studies
- Religious Studies / Comparative Religion
- Islamic Studies / Arabic Studies
- Education
- Special Education
- Law and Legislature
- Home Economics
- Pakistan Studies
- Peace & Conflict Studies
- Behavioral Sciences
- Women and Gender Studies
- American Studies
- Area Studies
- Development Studies
- Journalism
- Mass communication
- Media Studies
- Rural / Urban Studies
- Women Studies

Arts & Humanities

- Fine Arts
- Liberal Arts
- Photography
- Performing Arts
- Musicology
- Film / Film Production
- Physical Education and Sports
- Languages and Literature
- Translation Studies
- Museology (Museum Science)
- Curatorial Studies
- Design
- History of Art & Design
- Architecture
- Urban & Town Planning
- Pedagogy of Arts & Design
- Visual Arts

Business Education

- Finance all subjects including
  - Accounting
  - Public Finance
- Business Administration/Studies
- Organization Science
- Operations Research & Supply Chain
- Marketing
- Finance
- Banking
- Commerce
- Administrative Sciences
- Management Information Systems
- Skills Development
- Industry Focused Disciplines
- Management Sciences:
  - Human Resource Management/Human Resource Development
  - Financial Management
  - Marketing Management
  - Management
  - Quality Management
  - Project Management
  - Disaster and Risk Management
  - Hotel Management
  - Services Management

Note: - Other related subjects can be added after confirmation from the experts in the relevant disciplines.

With Best Regards,

3-2-2015

Dr. Muhammad Tahir Ali Shah
*Dy. Director (Academics) / Focal Person (*Social Sciences & Humanities)
Higher Education Commission, Sector H-9, Islamabad.
Ph : 90402116, Fax : 90402102
Email : tshah@hec.gov.pk

Appendix-J

Serial No: _____

Assessment of Student Self-regulated learning of social sciences department at the higher education level

Self-Regulated Learning Scale

Dear Respondent,

I am M. Phil Scholar (Education) conducting research on the above-mentioned topic. I request you to fill this attached questionnaire. The first part of the questionnaire consists of demographic information. The remaining part of the questionnaire deals with the assessment of students self-regulated learning of social sciences students at higher education level.

This questionnaire is made for a research purpose. I will keep your responses confidential and information that you provided. I respect the autonomy and dignity of yourself.

Haleema Sadia

M. Phil Scholar (Education)

Faculty of Social Sciences

National University of Modern Languages,

Islamabad, Pakistan

DEMOGRAPHICS

1.	**University Type**	Public 1		Private 2	
2.	**Gender**	Male 1		Female 2	
3.	**Age**	20-30 1	31-40 2	41-50 3	51 + 4
4.	**Semester/ Year**	1/2 1	3/4 2	5/6 3	7/8 4
5.	**Academic Program**	BS/MA/MSc 1	M.Phil. 2	PhD 3	Other 4
6.	**Professional Qualification**	B.Ed. 1		M.Ed. 2	Other 3
7.	**Marital Status**	Single 1		Married 2	
8.	**Teaching Experience (year)**	0-5 1	6-10 2	11-15 3	16 + 4

INSTRUCTION:

Read the Questionnaire carefully. Mark the option appropriately and show your sincerity. Please mark your responses against 3 to 1, that indicate your response like (5=Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1= Strongly Disagree).

Self-Regulated Learning Scale								
Sr. No.	**Code**	**1. Forethought/Pre-action** Influential process that precedes efforts to act and set the stage for action.	**SD**	**D**	**N**	**A**	**SA**
		I. Task Analysis					
1	TA1	I plan to utilize resources and strategies in order to reach my goal.	1	2	3	4	5
2	TA2	I manage my time in order to learn as efficiently as possible.	1	2	3	4	5
3	TA3	I plan to utilize learning resources efficiently.	1	2	3	4	5
4	TA4	I choose the appropriate resources during the learning process.	1	2	3	4	5
5	TA5	I know my set objectives in the whole learning process.	1	2	3	4	5
		II. Motivational Beliefs					
6	MB1	I take action to learn according to my interests.	1	2	3	4	5
7	MB2	I search for possibilities to learn new things.	1	2	3	4	5
8	MB3	I am curious about the causes of things I see, hear, or read	1	2	3	4	5
9	MB4	I attentively observe/examine things around me.	1	2	3	4	5
10	MB5	I do more thinking on the things around me which I observed.	1	2	3	4	5
		2. Performance Control Processes that occur during motoric efforts and affect attention and action.	**SD**	**D**	**N**	**A**	**SA**
		I. **Self-Control**					
11	SC1	I make choices to help me succeed.	1	2	3	4	5
12	SC2	I want to do something about it as soon as I see things aren't going right.	1	2	3	4	5
13	SC3	I keep trying as many different possibilities as necessary to succeed.	1	2	3	4	5
14	SC4	I have difficulty maintaining my focus on projects that take a long time to complete.	1	2	3	4	5
15	SC5	I often give up when I get behind on my work.	1	2	3	4	5
		II. **Self-Observation**					
16	SO1	I complete my work on given time.	1	2	3	4	5
17	SO2	I am putting enough effort into my work.	1	2	3	4	5
18	SO3	I am achieving the goals that I have set for myself.	1	2	3	4	5
19	SO4	I used to do reflective practices about my done work.	1	2	3	4	5
20	SO5	I am aware about my uneasy feeling.	1	2	3	4	5

		3. <u>Self-Reflection</u> Processes that occur after performance efforts and influence on that experience.	**SD**	**D**	**N**	**A**	**SA**
		I. **Self-judgment**					
21	SJ1	I see the difficulties as part of life that everyone goes through, when things are going badly for me.	1	2	3	4	5
22	SJ2	I can identify my good and bed moods.	1	2	3	4	5
23	SJ3	I can manage my failure and think on the way out.	1	2	3	4	5
24	SJ4	I remind myself that there are lots of other people in the world feeling like I am, when I'm down and out,	1	2	3	4	5
25	SJ5	I tend to be tough on myself, when times are difficult,	1	2	3	4	5
		II. **Self-Reaction**					
26	SR1	I always complete my work on time.	1	2	3	4	5
27	SR2	I set and maintain high standards for myself.	1	2	3	4	5
28	SR3	I spend enough time to do quality work.	1	2	3	4	5
29	SR4	I make good use of available resources.	1	2	3	4	5
30	SR5	I ask questions if I needed help.	1	2	3	4	5

Self-regulated Learning Scale (SRLS) by Haleema Sadia

haleemasadia.iiui@gmail.com

M.Phil. Education 2021, NUML, Pakistan