Self-reliant Learners in Higher Education: Perspectives and Insights

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ARTICLE DETAILS

History:
Accepted 30 August 2022
Available Online September 2022

Keywords:
Self-regulated Learning; Content Analysis; Qualitative Research; Higher Education; Insights

JEL Classification:
I21, P36

DOI: 10.47067/real.v5i3.234

ABSTRACT

The prime objective of this study was to explore the level of adopted self-regulated learning (SRL) strategies of students studying at higher education. A qualitative research approach was adopted to collect data from the students of one public sector university. A convenient sampling approach was adopted to collect data from sixty participants studying in various undergraduate programs. A semi-structured interview protocol was developed to collect data based on the three key components of self-regulated learning. All the interviews were recorded verbatim for analysis. Content analysis was performed to analyze data. Subcategories of three phases of the SRL model were considered as units of analysis. Findings were inferred in view of each phase of self-regulated learning. Findings suggested that the adopted level of self-regulated learning of students in higher education was very weak. As to forethought, students do not set goals, plan and analyze their tasks. As to performance phase, students mostly report their working styles. They report certain strategies to perform their tasks, which were mostly collaborative. They did not particularly mention self-control and self-observation in relation to their tasks. Lastly, as to the self-reflection phase, no particular finding was identified in relation to this phase; students mostly depend on their teachers to receive feedback on their tasks. They hardly judge their performance and react accordingly.

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1. Introduction

Educational researchers shift their attention to self-regulatory processes e.g., critical thinking, self-efficacy, planning, metacognition and self-reflection to meet the current job market needs and trends (Oseni & Adejumo, 2022). Moreover, the 21st century educational frameworks are also emphasizing on developing life-long learners. Therefore, educators are tasked to focus on creativity, problem solving, communication, collaboration and life skills (Jay, 2016). In student-centered
classrooms, learners are not taught how to assimilate knowledge from the teacher, but rather, are guided on how they may learn to learn, which transforms schools from institutions of teaching to institutions of learning. Moreover, as Low and Jin (2012) state, learning, “is a kind of complex human activity to be done by students rather than to be done by students” (p.3015).

This means the prime objective of higher education is to produce such learners who are capable enough to analyze their own performance and strengthen their weak areas without depending on their teachers (Ion, Cano-García, & Fernández-Ferrer, 2017). This introduces the concept of self-regulated learning (SRL). Self-regulated learning is a process in which learners play an active role in their learning. They learn and do the required academic tasks independently. SRL activities support learners in exploring concepts, elaboration, rehearsal, organizing and monitoring their own performance efficiently. In the self-directed process, learners control their learning activities and transform their mental skills into academic skills (Zimmerman, 1990). Such learners create their own learning environment and are also able to adapt to new learning situations. Consequently, SRL enhances learners’ competence to cope with academic and, in the long run, professional challenges. Taking into account the need for self-regulated learning in higher education, this research aimed to gain a deep insight into self-regulated learning strategies adopted by students in higher education.

2. Theoretical background

Self-regulated learners actively plan their learning activities and motivate themselves for a variety of strategies to achieve their academic tasks. The learning attained through self-regulated activities brings a change in behavior as increased students’ understanding, academic outcomes and abilities, and also supports the transfer of knowledge (Soderstrom & Bjork, 2015). SRL helps in both academic and non-academic outcomes (Vo, Zhu, & Diep, 2017). Learners who adopt self-regulated learning are metacognitive, motivationally and behaviorally active in their learning, in contrast to beginner learners (Broadbent & Poon, 2015; Bandura, 1986). Moreover, learners are agents due to their power of action. Such learners set goals, motivate themselves, monitor their performance and set their own performance evaluation measures (Price, Handley, Millar, & O’donovan, 2010). Boekaerts and Corno (2005) categorized self-regulated learning as a top-down and bottom-up approach. The top-down approach means when learners are working on achieving their goals independently, their interests, beliefs, and values motivate them to attain expected satisfaction, rewards and outcomes. However, a bottom-up approach occurs when external factors play their role and provide rewards to motivate learners towards performance (Pitts, Lutsyshyna, & Hillyard, 2018; Cohen, Cavanagh, Chun, & Nakayama, 2012).

3. Framework of self-regulated learning

Self-regulated learning (SRL) has a variety of frameworks and models but the main components of these models/frameworks are nearly the same (Puustinen & Pulkkinen, 2001). A few models of SRL are conceptualized to comprise four phases (see, Pintrich, 2004; Winne & Hadwin, 2001) while others conceptualize SRL as a three-phase process (e.g., Zimmerman, 1990; 2000). These constructs are derived from varied backgrounds, but their proponents built a consensus on the three key phases including: (a) forethought phase, (b) the performance phase and (c) the self-reflection phase (Zimmerman, 1990). Following are the details of these phases and related components:
4. Forethought phase

The forethought is in fact the planning phase in which learners break down the learning tasks into smaller manageable tasks. The literature on SRL reported autonomous, deep and lasting learning reports on a range of activities, e.g., cognitive, affective, and physical means. One has to go beyond reading and listening (Efklides, 2011). First, the learner sets the learning goals and plans certain strategies to achieve his/her goals. Learners’ goal can be based on preparing an assignment, a presentation, a lecture or a session. At this stage, a learner must be aware of a variety of learning strategies best suited to the related activity that might include taking notes, designing critical questions and preparing answers, quizzes, preparing graphic organizers, outlining and writing a summary etc. The forethought phase has two further phases: task analysis and self-motivation beliefs:

5. Task Analysis

As mentioned above, the forethought phase further includes task analysis that leads towards actions through certain planned strategies (Zimmerman, 1998). Borkowski (1996) also highlighted this key component of SRL in his model and emphasized that strategic planning is actually based on tasks. Within the forethought phase, prior knowledge, beliefs and attitudes construct understanding of learners (Pintrich, 2004). First, learners should understand their tasks, set their goals to achieve those tasks through certain related strategies. Only then would they regulate their learning. Without knowing these, they cannot be considered as reliant learners. Schunk (1998) highlighted that goal setting has a mutual relationship between students’ goal setting and their self-efficacy. Learners set realistic and achievable goals or we can say SMART goals. They ideally show progress in achieving such goals, which ultimately enhances their self-efficacy. Wirth and Perkins (2008) are also proponents of SRL and promote goal setting in their class. They claim goal setting not only helps learners with achieving their plans but induces them to plan certain strategies to achieve the set goals (Zimmerman & Schunk 2012). Research also claims when autonomous learners gain cognitive and physical abilities they can work on multiple goals at the same time (Locke & Latham, 1990).
6. Motivation Beliefs

Motivational belief is another dimension of self-regulation. Motivational beliefs act as a frame of reference that guides students’ thinking, feelings and actions in a subject area (Boekaerts, 2002). Motivational beliefs consist of self-efficacy, task value, goal orientation and outcome expectations (Ocak & Yamaç, 2013). Motivation in SRL is based on the Deci and Ryan (1985) self-determination theory which has three components: autonomy, competence and relatedness. All these three components played a key role in self-regulated learning. Autonomy is developed by independent learners, competence is based on their SRL strategies to achieve certain goals, while relatedness is belonging to connecting with peers and colleagues. Sense of relatedness helps learners to take help from each other when stuck in doing complex tasks. Satisfaction of these needs’ leads to enhanced motivation, which is characterized by two types of motivation: intrinsic and extrinsic. The latter is based on external rewards, while intrinsic is doing an activity for self-satisfaction. In self-regulated learning, learners are self-responsible, self-determined and capable of achieving their goals, which is only possible through motivation or extrinsic (Zimmerman & Kitsantas, 2005). McCombs and Marzano (1990) in their view, self-regulated learning requires more than cognitive skill; it requires a will or motivational component as well. Performance goals could apply powerful motivational effects on learners (Schunk, 1995). Motivational beliefs encourage learners to pursue their goals and use a variety of learning strategies and persistence during the learning process (Pintrich, 2004; Montalvo & Torres, 2004).

7. Performance phase

The performance phase is the action or process phase that is further based on two operations: self-control and self-observation (Pintrich, 2000). At this level, reliant learners monitor and control their learning activities. In this action phase, all those strategies will be applied to achieve goals which were planned during the forethought phase. The self-control phase has further processes to accomplish goals e.g., self-instruction, imagery, attention-focusing and task strategies (Panadero, 2017). However, self-observation, in which learners monitor their own performance, also has sub-categories; self-recording and self-experimentation (meaning, trying different strategies for a solution which works best) (Zimmerman, 2002, 1998). Research proved that learners who observe and monitor their own performance performed better than other students (Lan, Bradley, & Parr, 1993).

8. Self-Control and Self-Observation

Self-control and self-observation are in fact metacognition, contrasting your performance with learning goals and learning strategies. This affects the performance phase. High achievers who adopt SRL observe/monitor their learning strategies and reflect on it perform better than other students (Ghanizadeh, 2017). In view of self-observation or monitoring, it can be done through self-assessment and peer assessment. However, there might be some social and environmental factors that play their role in achieving goals and tasks (Schunk, 2001). Such learners usually document their learning goals and strategies. Moreover, they also record their feelings, emotions and actions in view of achieving goals (Schmitz, Klug & Schmidt, 2011).

In self-regulated learning, learners must be able to control their attention, which is related to monitoring their own performance (Winne, 1995; Harnishferger, 1995). This process involves avoiding distracting thoughts and concentrating on goals and tasks. However, this is linked to a conducive learning environment and attention (Kuhl, 1985). In this regard, the role of teacher is crucial in providing a conducive environment and keeping students focused on their work. A teacher can remove such stimuli, creating noise, distraction and providing sufficient guidance, resources and breaks to
attain the goals. The process of monitoring your own performance comprises all the above strategies, setting goals, planning sufficient and related workable strategies, motivating yourself to achieve these goals, focusing on tasks to perform (Zimmerman, 2004). Thus, to become a reliant-learner, learners should own their learning and outcomes (Kistner et al., 2010). Again, teachers can push their students to observe and monitor their performance. This helps to visualize their progress and they can make improvements if required.

9. Self-Reflection Phase

Self-reflection phase is the most important phase through which a learner can reflect on his performance through self-judgement and self-reaction. This phase helps learners to compare their performance against set goals and tasks at hand. The results of post-reflection can be satisfied and dissatisfaction may lead to the first step of the SRL cycle or result in the form of better and improved achievement and performance. Winne and Hadwin (1998) concluded that learners are most likely to become autonomous learners when they are able to critically reflect on their own performance other than teachers’ summative assessment. By doing so, learners can readjust their strategies and meet goals (Schraw & Moshman, 1995). The self-reflection phase has two further processes; self-judgement and self-reaction. While learners monitor their performance, they identify their strengths and weaknesses. Both can encourage them to move on to achieve goals. Most of the self-regulated learning models propose that self-assessment is in fact part of each phase of SRL because monitoring and reflecting on his/her own performance at any stage helps learners to improve their planning, action and monitoring (Panadero & Alonso-Tapia, 2013). However, little research has been conducted on this line so far (Harris & Brown, 2018).

10. Self-Judgement and Self-Reaction

Self-judgement is the ability to make decisions about the quality of work of oneself (Tai, Ajjawi, Boud, Dawson, & Panadero, 2017). Evaluating judgement is also based on a metacognition process that requires learners to reflect on their performance based on their planned strategies and demonstrated performance (Booth, Dixon, & Hill, 2016). Self-reaction is based on varied strategies to respond to observed judgements linked to outcomes of the task. If learners achieve their goals successfully, their reaction will be satisfactory. If they do not perform well in their tasks, their reaction will be differing. Pintrich (2000) connected this reactive phase to reflexive, affective and motivational experiences. Moreover, self-reaction also comprises improvements, re-production of meta-level knowledge and beliefs that arise from self-evaluation and judgment (Butler & Winne 1995).

11. Research Questions

We put forwarded the following research questions to drive this research:

- What is the level of self-regulated learning adopted by students in higher education?
- What are the key self-regulated learning strategies adopted by students in higher education?

12. Research Methodology

12.1 Research Procedure and Design

The main purpose of this study was to explore the self-regulated learning strategies adopted by students in higher education. A qualitative research methodology was adopted to conduct a survey with university students. A semi-structured interview protocol was designed to identify certain strategies in relation to self-regulated learning strategies. In total, 60 students participated in this research. All the data were recorded for analysis. Content analysis was carried out to ascertain the self-regulated strategies. Informed consent was obtained from all the research participants.
12.2 Population

The population of this study comprised of one public sector university. Bahauddin Zakariya University, Multan, Pakistan is one of the largest universities among public sector universities in the south of Punjab, Pakistan. There are more than 28000 students enrolled at Bahauddin Zakariya University (BZU, 2021). Among these, students studying at BS level were considered as the targeted population for this study.

12.3 Sampling

Qualitative surveys are generally based on lower sample size to generalize the results as compared to quantitative research. Usually, a convenient sampling technique is best suited when it comes to selection of participants in such surveys. The same applies in this research. We involved 60 participants in this qualitative research. The sample size was limited to this number due to the time, efforts and available resources for this research. Moreover, this research was conducted during the Covid-19 closure of academic institutes, so it was quite hard to contact participants to take part in this research.

12.4 Research Instrument

This research is part of a large-scale research project based on self-regulated learning. To infer the insight of students about self-regulated learning, a semi-structured interview protocol was designed after considering the available models and frameworks of self-regulated learning strategies. Interview protocol was based on seven main and three sub-questions, excluding an introductory question. Researchers pilot tested the interview protocol after construction and tested initially with ten students. After analysis, some minor changes were made to a few questions for better representation of the related phenomena. Some sample questions are presented below: (a) How do you monitor your performance? (b) How your teachers help those students who do not show progress even after motivation and feedback?

12.5 Data Collection

As mentioned elsewhere, a qualitative survey was conducted to collect data from participants. Respondents were presented with certain questions in relation to adopting self-regulated learning strategies in their fields of studies. The last author of this research was responsible for data collection. The researchers visited the departments/faculties to take consent from students to participate in this research. After taking their consent for participation and recording of their opinion, a meeting was scheduled for interview and sometimes it happened immediately after the consent. Respondents were studying in 7th semesters of various BS programs e.g., sciences, engineering, business management, agriculture, computer sciences and different departments of social sciences. All the data were recorded on a device for analysis. On average, an interview lasted between 10 to 20 minutes.

12.6 Data Analysis

All the recorded data were transcribed verbatim for analysis. Mostly, interviews were in Urdu which were translated into English. It was made sure that the translation was accurate and the meaning remained intact. After preparing all the transcriptions, data were scanned to identify various codes designed on the basis of categories of a cyclic model of self-regulated learning presented by (Zimmerman, 1986). Each category of the model was based on further categories. Altogether, there were six subcategories of the following cyclic model: (a) Forethought phase, (b) Performance phase, (c) Self-Reflection phase. Each sub-category was considered as a code and linked to interview texts. All the
codes were also assigned numbers to count the frequency of that particular occurrence. Later, all these labeled codes were together in one table to calculate the percentages of these frequencies. Next to presenting the quantitative findings of this qualitative data, we also reported the interview chunks as evidence of these occurrences. As to the reliability of the codes, we requested a colleague to independently code the ten interviews on the stated criteria of content analysis. She was properly guided about the coding schema and methodology. After coding these ten interviews, we matched the similar codes and had discussion about the dissimilar codes. After finalizing the discussion, the reliability method presented by Matthew, Miles and Huberman (1994) was calculated. The calculated reliability was .83 which is in accordance with the benchmark of 80%.

13. Results

The prime purpose of this research was to explore the self-regulated learning strategies adopted by students in higher education. Content analysis was performed to analyze the collected data. In the following sections the results of the content analysis will be presented. We will follow the cyclic model of self-regulated learning to present the findings of this study:

13.1 Forethought Phase

As mentioned elsewhere, the forethought phase is mainly based on the following two elements: (a) task analysis, and (b) motivational beliefs. We calculated the frequencies and percentages of the responses for better representation of qualitative data. Percentages of the responses were calculated in relation to each phase independently. Three different questions were asked by the participants to find out their insights about this phase. During the analysis, no particular trend emerged in view of both elements of this phase. Participants responded to the questions in a very general manner and mostly shared their routines.

13.2 Task Analysis

As to task analysis, only two following codes emerged during analysis (F=6; P=2.60%). (e.g., putting efforts into understanding the questions) and (e.g., drawing the concepts to make them understandable). The frequencies show only six students analyzing their tasks in relation to each code. A respondent explained task analysis in the following way: “First, I put some efforts into understanding the assigned task and then I plan strategies to work on that” [...]. Another participant explained, “I usually draw concepts to make them understandable, and that helps to move on exploring its further parts and to plan related activities. This is linked to goal setting related to particular tasks, but when they were asked about setting academic goals they mainly shared their career goals and what they are aiming to achieve in life. We have identified two key themes against setting goals (F=11; P=4.76%) For example, respondents stated that “we usually study in groups and set our own targets like what we want to achieve for this planning includes noting down the lectures properly.” Similarly, another respondent shared his strategy in setting a goal, “for goal setting I set my timetable, I give proper time for effective working.” Respondents shared their general goals about their studies and careers. The following interview chunks is the evidence of this claim: “My first goal is to maintain my CGPA. We need to clear our concepts as there are no particular notes, we have to make them on our own.

So we need to study them to maintain the CGPA and there is no other option.’ Another participant shared, “I always look at my strengths and, according to my strengths, I opt for a suitable learning strategy to achieve goals. I analyzed the task and then looked for options to do it to achieve academic goals.” Other than these, the majority of respondents shared their general goals and some of them did not have any academic goal. Following interview chunks support this claim, “My goal is to do
CSS after completing my BS and for that purpose I am searching for academies in different cities.” [...] Another respondent stated, “I have not set any academic targets. I do not know anything. I have not set any goals yet.” Most of the respondents mentioned their exam targets. The following respondents highlighted that “my prime goal is to achieve maximum marks in exams without cramming. The best thing is that we understand the concepts clearly and attempt the exam by applying those concepts. By doing so, I can achieve my goal of the highest score.”

13.3 Strategic Planning

Strategic planning is the key theme, which is highlighted to a larger extent in all the interview transcripts. A major portion of codes were identified against strategic planning. Participants shared a number of strategies for their studies. Some of the participant study alone, mostly working in groups and using a variety of study strategies. Since our focus is to identify the self-regulated learning strategies that students used to study in higher education, we hardly identify such strategies. The following interview chunks presents some of the strategies which are commonly highlighted by the respondents in their interviews. One of the participants said, [...] “usually prepare my own timetable for activities in view of classroom tasks and exams. I follow my routine and try to complete my tasks”. Another most prominent strategy was highlighted by many of the respondents, make my own notes (F=79; P=34.20%).

A respondent stated that “I note down lectures very carefully and then, with the help of books and internet resources, I prepare my notes.” This strategy can be linked to self-regulated learning, where learners can put their own efforts to learn beyond classroom learning. Some of the respondents shared their following learning strategies. One respondent shared, “My strategy is that I sit alone. For studying a topic, “I usually write headings and subheadings of the topic, so by remembering these I get the concept of the topic.” Another stated, “[...] for theory, I cram headings and main ideas of the content by reading it repeatedly. By reading content repeatedly, I memorize things, then I write those memorized things two to three times” [...]. Some of the students highlighted their routines in the following way:” The majority of the respondents highlighted collaborative learning. In some cases, teachers push them to work together (F=131; P=56.70%). Following interview fragments highlighted their strategies. For group study, we set time and specific topics, then we decide to focus on our task and move towards the completion of our goal. We study together and in exams I prefer studying alone because I feel sometimes it is better to study alone” [...]. Another respondent explained. We study in a group, during lectures we discuss with our teachers and note down the lectures. Later, we discussed each other and asked questions from each other if we needed any clearance. Sometimes we divide work as well to share the burden and prepare good work.”

13.4 Motivational Beliefs

Motivational beliefs play an important role in the forethought phase. Learners cannot perform well without motivation. As mentioned elsewhere, motivation is based on self-efficacy, outcome expectations and interest in that particular task. In view of analysis, we hardly identified the motivational beliefs of learners in the case of this phase. Self-regulated learners get motivated on the basis of their abilities because they try to achieve the set goals and set their outcome expectations. It also depends on their level of interest in how much they want to do that work independently. We only recognized two codes in relation to motivational beliefs, (a) encourage myself and (b) give more time to my goal. (F=4; P=1.74%). These respondents highlighted their motivational beliefs in the following way: “I look at my monthly performance as what I have learnt in this month and where I am lacking.” Another stated, “I monitor my performance through exam results that help me to motivate.” One more participant explained, “I try to make a perfect assignment, I read it again and again to refine my work. I
also take help from my seniors to improve my work [...]. Another stated, “we can do anything if we determine to do it.”

### 13.5 Performance Phase

In this second phase, a learner is supposed to perform according to his planning in the first phase. This phase is based on two key components (a) Self-control, (b) Self-observation.

#### 13.5.1 Self-Control

In relation to these two components, we identified the following code which is mainly highlighted by the research participants. I compare my work with other students. As to self-control, respondents shared their strategies which were limited to collaborative work and helping each other students (F=260; P=83.87%). A respondent shared in the following way, “sometimes I find myself confused about understanding the questions, so I take help from my friends and colleagues, then I work according to their guidance. Another respondent shared, “we divide the work among all group members. But if I do not understand the work which is assigned to me, then I try to understand it by my group members. Generally, we help each other. Another explained, “some students share their learning strategies, but others do not. They have a specific style of study and they prefer to keep it secret.” One more explained, “in group work, mostly students do not work and rely on others to do their part and, of course, we do.”

As self-control further covers, task strategies, interest incentives and self-consequences, respondents also highlighted these in their talks, for example one of the respondents stated, “we prepare notes and shared with each other, we also shared with the whole class because in this way you know your errors and other students also help you in your work” [...]. As to interest incentives, one student shared his experience in the following way: “teachers helped us through motivation to develop our interest in study and that is really useful in enhancing my performance.” A few students also shared that they do peer study and help each other in their tasks. One of the respondents shared, “I often prefer to work in pairs, sometimes with a friend [...] we help each other with various tasks.” In contrast to these responses, some respondents also shared that they do not work in groups and they also claimed we never formed groups. This might link to work alone or may be limited to certain tasks which are not in the spirit of self-regulated learning. One respondent said, “I have never worked in any group, teachers assigned us work and we do it on our own” (F=20; P=6.45%).

#### 13.5.2 Self-Observation

As to making self-observation in view of self-regulated learning, respondents highlighted such strategies to a lesser extent to record their own performance. Generally, learners contrast their performance with other students or with their previous scores (F=30; P=9.68%). One of the students shared, when we work in a group, “I compare my performance with other students, which helps to reflect on ourselves to refine study strategies.” Another stated, “in our field, we have manuals to match our solutions with that, so I checked my solution from that manual. My best teacher is YouTube. I learnt a lot of things through YouTube” [...].

### 13.6 Reflection Phase

When it comes to reflection, which includes self-judgement and self-reaction, we noticed that respondents hardly reflect on their performance except a very few (F=17; P=5.85%). This is an important component in learning which helps learners to reflect on their performance in view of improvement. One of the respondents explained, “I always judge my performance according to my goal
that how far I was able to achieve it. If not, then I do work hard.” In this research, a few of the respondents mentioned that they evaluate the performance of each other, which is not directly linked to self-judgement. However, if learners are evaluating each other’s performance, that also helps them in a way to look at their own performance. As one of the respondents explained, “when we work in a group we sometimes evaluate each other’s performance for improvement, but not regularly because some students do not like to have comments on their work” (F=16; P=5.50%).

Though this is not the spirit of SRL, we assume in a way that they motivate each other to judge their performance. Similarly, teachers’ feedback could also be linked to this element. The majority of the respondents mentioned that their teachers give them feedback on their work (F= 193; P=66.31%). As one of the respondents claimed, “most of the time, our teachers give us verbal feedback to improve our work” [...]. Another stated, “usually teachers give oral feedback during our presentation and sometimes they give us feedback in front of the class and sometimes they call us in their offices.” Many of the participants also mentioned that their teachers do not give them feedback, they usually discourage them for their poor performance and often scold them (F=65; P=22.34%). One respondent said, “we hardly receive feedback from our teachers, they never return our assignments. We can see our performance through exam scores and often teachers scold us when we ask them about our performance.” As to the next self-reaction, we could not identify a single code in relation to this component of SRL.

14. Discussion & Conclusion

The main objective of the study is to map the level of self-regulation and its related strategies as adopted by students in higher education. Content analysis was carried out to analyze the collected data. During the analysis, the level of self-regulation and related strategies were found to a lesser extent. We analyzed data in view of each phase of SRL, we only identified some particular strategies in view of the performance phase. Strategies in relation to forethought and reflection phase were rarely identified. However, we tried to corroborate our findings with available research and found them interesting. Russell, Baik, Ryan, and Molloy (2022) identified in their research that teachers should engage students in self-regulated learning processes such as goal setting, task analysis and reflection on their performance. This is, however, in contrast to our study results. Our students do not follow such strategies nor their teachers push them to do so. Author Van Eekelen et al., (2005) highlighted that the role of teachers differs in view of promoting SRL. Some teachers promote such strategies, some do not because they themselves are not equipped with such strategies. This is perfectly in line with our study findings. Some respondents highlighted such strategies but some do not. Another author, Kramarski (2018) also concluded in their research that the role of teachers is crucial in promoting SRL in higher education. As to the forethought phase, we analyzed very weak findings in this phase that showed respondents were not familiar with the task analysis, goal settings and motivational beliefs etc. Our findings are also aligned with the available research. As Lock, Eaton, and Kessy (2017) revealed in their research, students who are highly competent in their studies might be better able to regulate their studies. As to performance phase, Anthony, et al. (2013) identified in their research, when learners move through different phases of SRL from forethought to performance, learners navigate among strategies to interact with peers and teachers, which is again based on the work context. The same is the case in our research. Most of the respondents shared that they work together, their teachers form their groups and they divide their work to achieve targets.

However, this SRL element is not directly linked to SRL but facilitates learners in achieving their tasks. A study conducted in a Pakistani context also confirms our study findings that high performing learners develop and adopted a variety of learning strategies and resources for efficient learning, which
is in line with our study findings in view of performance phase (Alvi, Iqbal, Masood, & Batool, 2016). This is further confirmed by the research results of DiFrancesca, Nietfeld, and Cao (2015). As to the reflection phase, Russell et al., (2022) concluded in their findings, the whole idea of SRL is based on self-reflection, self-judgement. This in fact should be from both teacher and student. They should reflect on the performance, which is again linked to both forethought and performance (Gibson et al., 2011). They have identified the reflection to a lesser extent in their research which is in line with our study findings, the lack of reflection on the performance could lead to affect the SRL processes.

15. Limitations and Directions for Future Research

The main purpose of this research is to explore the extent of adopted self-regulated learning at higher education and to examine the certain self-regulated learning strategies adopted by students at higher education. Although we tried maximum to cover in this research yet there are certain limitations which lead the future research. This qualitative research is mainly conducted with students to know their adopted self-regulated learning strategies. This is one side of the picture, involving their teachers knowing accurately about their students might be more useful to conclude the study results. Future research can consider this dimension. One of the limitations of qualitative research is to limit to certain questions in the shape of semi-structured and open-ended questions and generally it depends on the respondents how they respond to those questions.

Next to qualitative research, observation might be a useful research tool to observe their real-time practices in the classroom in view of their adopted SRL strategies, or a structured questionnaire might be helpful to endorse the responses to semi-structured interview responses. Another significant limitation was the sample size which is often very critical in qualitative research. However, it is extremely difficult to involve large sample sizes in contrast to quantitative research. Nevertheless, we recommend taking into account this limitation and adopting both qualitative and quantitative research to appropriately generalize the study results. Last but not the least, building a research narrative on a theory in qualitative research is sometimes challenging in view of data analysis. In the case of this research, we conducted content analysis since the majority of the students were not adopting SRL strategies, they reported their routines, so a lot of data were ignored during the analysis. On the other hand, in quantitative research, all the collected data is analyzed either way. On the other hand, in quantitative research all the collected data is analyzed either way.

References
Alvi, E., Iqbal, Z., Masood, F., & Batool, T. (2016). A qualitative account of the nature and use of self-regulated learning (SRL) strategies employed by university students. Australian Journal of Teacher Education, 41(8), 40-59.
Anthony, J. S., Clayton, K. E., & Zusho, A. (2013). An investigation of students’ self-regulated learning strategies: Students’ qualitative and quantitative accounts of their learning strategies. Journal of Cognitive Education and Psychology, 12(3), 359-373. http://dx.doi.org/10.1891/1945-8959.12.3.359
Boekaerts, M., & Corno, L. (2005). Self-regulation in the classroom: a perspective on assessment and intervention. Applied Psychology: An International Journal, 54(2), 199-231.
Booth, B., Dixon, H., & Hill, M. (2016). Assessment capability for New Zealand teachers and students: Challenging but possible. Journal Issue, (2).
Borkowski, J. G. (1996). Metacognition: Theory or chapter heading? Learning and Individual Differences, 8(4), 391-402.
Broadbent, J., & Poon, W. (2015). Self-regulated learning strategies & academic achievement in online
higher education learning environments: A systematic review. The Internet and Higher Education, 27, 1-13. doi: 10.1016/j.iheduc.2015.04.007

Butler, D. L., & Winne, P. H. (1995). Feedback and self-regulated learning: A theoretical synthesis. Review of Educational Research, 65(3), 245-281.

BZU, (2021). Prospectus Bahauddin Zakariya University, Multan. Retrieved from https://bzu.edu.pk/adv/prospectus%20pdf%20final%202021.pdf

Cohen, M. A., Cavanagh, P., Chun, M. M., & Nakayama, K. (2012). The attentional requirements of consciousness. Trends in Cognitive Science, 16(8), 411-417.

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. Journal of Research in Personality, 19(2), 109-134.

DiFrancesca, D., Nietfeld, J. L., & Cao, L. (2015). A comparison of high and low achieving students on self-regulated learning variables. Learning and Individual Differences, 45, 228-236. http://dx.doi.org/10.1016/j.lindif.2015.11.010

Efklides, A. (2011). Interactions of metacognition with motivation and affect in self-regulated learning: the MASRL model. Educational Psychologist, 46, 6-25

Ghanizadeh, A. (2017). The interplay between reflective thinking, critical thinking, self-monitoring, and academic achievement in higher education. Higher Education, 74(1), 101-114.

Harnishferger, K. K. (1995). The development of cognitive inhibition: Theories, definitions, research. In F. N. Dempster & C. J. Brainerd (Eds.), Interference and inhibition in cognition (pp. 176-206). San Diego: Academic.

Harris, L. R., and G. T. L. Brown. 2018. Using Self-Assessment to Improve Student Learning. New York: Routledge

Ion, G., Cano-García, E., & Fernández-Ferrer, M. (2017). Enhancing self-regulated learning through using written feedback in higher education. International Journal of Educational Research, 85, 1-10.

Jay., M. (2016). What exactly is Student-Centred Learning. Retrieved from https://mystudentvoices.com/whexactly-is-student-centred-learning-358f01b37600.

Kistner, S., Rakoczy, K., Otto, B., Dignath-van Ewijk, C., Büttner, G., & Klieme, E. (2010). Promotion of self-regulated learning in classrooms: Investigating frequency, quality, and consequences for student performance. Metacognition and learning, 5(2), 157-171.

Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In Action control (pp. 101-128). Springer, Berlin, Heidelberg.

Lan, W. Y., Bradley, L., & Parr G. (1993). The effects of a self-monitoring process on college students' learning in an introductory statistics course. Journal of Experimental Education, 62(1), 26-40.

Lock, J., Eaton, S. E., & Kessy, E. (2017). Fostering self-regulation in online learning in K-12 education. Northwest Journal of Teacher Education, 12(2), 2.

Locke, E. A., & Latham, G. P. (1990). A theory of goal setting & task performance. Prentice-Hall, Inc.

Low, R., & Jin, P. (2012). Self-regulated learning. In N. M. Seel (Ed.), Encyclopedia of the sciences of learning. Boston, MA: Springer

Matthew, B., Miles, A., & Huberman, M. (1994). Qualitative data analysis: An expanded sourcebook. Thousand Oaks: Sage/ Arizona State University

McCombs, B. L., & Marzano, R. J. (1990). Putting the self in self-regulated learning: The self as agent in integrating will and skill. Educational Psychologist, 25(1), 51-69.

Ocak, G., & Yamaç, A. (2013). Examination of the relationships between fifth graders' self-regulated learning strategies, motivational beliefs, attitudes, and achievement. Educational Sciences: Theory and Practice, 13(1), 380-387.
Oseni, R. E., & Adejumo, P., (2022). Conceptual Analysis of Student-Centred Learning. International Journal of Medicine, Nursing & Health Sciences, 3-(15-28). DOI: 10.5281/zenodo.6330778

Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. Frontiers in Psychology, 422.

Panadero, E., & Alonso-Tapia, J. (2013). Self-assessment: Theoretical and practical connotations, when it happens, how is it acquired and what to do to develop it in our students. Electronic Journal of Research in Educational Psychology 11(2):551–576.

Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. Journal of Educational Psychology, 92(3), 544.

Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. Educational Psychology Review, 16(4), 385-407.

Pitts, M. A., Lutsyshyna, L. A., & Hillyard, S. A. (2018). The relationship between attention and consciousness: an expanded taxonomy and implications for 'no-report' paradigms. Philosophical Transactions of the Royal Society B: Biological Sciences, 373(1755), 20170348.

Price, M., K. Handley, J. Millar, & O’Donovan, B. (2010). “Feedback: All That Effort, but What is the Effect?” Assessment and Evaluation in Higher Education. 35 (3): 277–289.

Puustinen, M., & Pulkkinen, L. (2001). Models of self-regulated learning: A review. Scandinavian Journal of Educational Research, 45(3), 269-286.

Russell, J. M., Baik, C., Ryan, A. T., & Molloy, E. (2022). Fostering self-regulated learning in higher education: Making self-regulation visible. Active Learning in Higher Education, 23(2), 97-113.

Schmitz, B., & Schmidt, J. K. M. (2011). Assessing Self-Regulated Learning Using Diary Measures with University Students: Technische Universität Darmstadt, Darmstadt, Germany. In Handbook of self-regulation of learning and performance (pp. 265-280). Routledge.

Schmitz, B., Klug, J., & Hertel, S. (2012). Collecting and analyzing longitudinal diary data. In B. Laursen, T. D. Little, & L. A. Card (Eds.), Handbook of developmental research methods (pp. 181–195). New York: Guilford Press.

Schmitz, B., Klug, J., & Schmidt, M. (2011). Assessing self-regulated learning using diary measures with university students. In B. J. Zimmerman & D. H. Schunk (Eds.), Handbook of self-regulation of learning and performance (pp. 251–266). New York: Routledge.

Schraw, G., & Moshman, D. (1995). Metacognitive theories. Educational Psychology Review, 7(4), 351-371.

Schunk, D. H. (1995). Self-efficacy, motivation, and performance. Journal of Applied Sport Psychology, 7(2), 112-137.

Schunk, D. H. (2001). Self-regulation through goal setting. ERIC Digest, (1-2). Retrieved from https://www.counseling.org/resources/library/eric%20digests/2001-08.pdf

Schunk, D. H., & Zimmerman, B. J. (1998). Self-regulated learning: From teaching to self-reflective practice. Guilford Press.

Schunk, D. H., & Zimmerman, B. J. (2012). Motivation and self-regulated learning: Theory, research, and applications. Routledge.

Schunk, D. H. (2001). Social cognitive theory and self-regulated learning. In Self-regulated learning and academic achievement: Theoretical perspectives, ed. B.J. Zimmerman and D.H. Schunk. Hillsdale, NJ: Lawrence Erlbaum Associates

Schunk, D. H., & Zimmerman, B. J. (1998). Self-regulated Learning: From teaching to self-reflective practice. New York, NY: Guilford

Soderstrom, N. C., & Bjork, R. A. (2014). Testing facilitates the regulation of subsequent study time. Journal of Memory and Language, 73, 99-115.

Tai, J., Ajjawi, R., Boud, D., Dawson, P., & Panadero, E. (2017). Developing evaluative judgement: Enabling students to make decisions about the quality of work. Higher Education.
Torrano Montalvo, F., & González Torres, M. (2004). Self-regulated learning: Current and future directions.

Vo, H. M., Zhu, C., & Diep, N. A. (2017). The effect of blended learning on student performance at course-level in higher education: A meta-analysis. Studies in Educational Evaluation, 53, 17-28.

Winne, P. H. (1995). Inherent details in self-regulated learning. Educational psychologist, 30(4), 173-187.

Wirth, K. R., & Perkins, D. (2008). Knowledge surveys. Session presented at the National Association of Geoscience Teachers (NAGT) Workshops: The Role of Metacognition in Teaching Geoscience, Carleton College, Northfield, MN. Retrieved March 11, 2010, from http://serc.carleton.edu/NAGTWorkshops/assess/knowledgesurvey/

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. Educational Psychologist, 25(1), 3-17.

Zimmerman, B. J. (1998). Academic studying and the development of personal skill: A self-regulatory perspective. Educational Psychologist, 33(2-3), 73-86.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. Contemporary Educational Psychology, 25(1), 82-91.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory into Practice, 41(2), 64-70.

Zimmerman, B. J., & Kitsantas, A. (2005). Homework practices and academic achievement: The mediating role of self-efficacy and perceived responsibility beliefs. Contemporary Educational Psychology, 30(4), 397-417.

Zimmerman, B. J., & Kitsantas, A. (2005). The hidden dimension of personal competence: Self-regulated learning and practice. In A. J. Elliot & C. S. Dweck (Eds.), Handbook of competence and motivation (pp. 204-222). New York, NY: Guilford Press.

Zimmerman, B. J., & Pons, M. M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. American Educational Research Journal, 23(4), 614-628.

Zimmerman, B. J., & Schunk, D. H. (2008). Motivation: An essential dimension of self-regulated learning. In D. H. Schunk & B. J. Zimmerman (Eds.), Motivation and self-regulated learning: Theory, research, and applications (pp. 1–30). Mahwah, NJ: Lawrence Erlbaum Associates.

Zimmerman, J. A., WebbIII, E. B., Hoyt, J. J., Jones, R. E., Klein, P. A., & Bammann, D. J. (2004). Calculation of stress in atomistic simulation. Modelling and simulation in materials science and engineering, 12(4), S319.