USING LMS FOR BEYOND SCHOOL CONNECTIVITY AND SELF-REGULATION OF LEARNING: A CASE STUDY OF *EDOPIA*

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Abstract
Self- regulated learning skills (SRL) are deemed essential for survival in the 21st century and should be developed among students by providing the opportunities of beyond school connectivity (Jaclyn Broadbent, 2017; Uz & Uzun, 2018). Current study is a case study of Edopia School, utilizing Learning Management System (LMS) and face-to-face interaction in an aim to develop SRL skills among students. Therefore, this research was conducted to find out the level of the SRL skills among the students and record their views about the provision of LMS for beyond school connectivity and its role in the development of SRL Skills. Motivated Strategies for Learning Questionnaire (MSLQ) was administered to assess the level of SRL skills followed by focus group discussions to gather views of the students. It was found that LMS helped the learners in developing SRL skills with the mean score of 5.45, 5.7 and 5.5 on three components of MSLQ. During focus group discussion students highlighted the learning environment of the school, student- teacher ratio and parental involvement as motivating factors for the development of SRL skills.
Keywords: Self- Regulated Learning Skills, Motivated Strategies for Learning Questionnaire, Learning Management System, Beyond School Connectivity

1 INTRODUCTION

Blended learning environments provide the learners a rich learning experience (Thornbury, 2017a) and collaborate with each other beyond the boundaries of time and space (Brown, 1999).They help the learners to connect their learning to the practical life thus preparing them for life by development of life-long learning skills (Wagner, 2010). Life-long learning skills, later named as self-regulated learning skills help the learner to take charge of his own learning.

According to Zimmerman (1994) , the skills of self- regulation enables the learner to regulate his behavior, motivation and cognitive processes to take charge of his own learning. It's a continuous process which becomes the part of the learners learning experience and can be observed as early as in the age of infancy (Bronson, 2000; *Pintrich, P. R., & Schunk, D. H. (1996)*.

ISTE (*ISTE Standards for Educators | ISTE*, n.d.) also highlights the importance of blended learning environments to provide collaborative learning opportunities to connect with each other through digital technologies. Learning Management System has been found effective to enhance the self - regulated learning Skills in the learners (J. Broadbent & Poon, 2015; Dabbagh & Kitsantas, 2013; Roll & Winne, 2015). On account of this, LMS has been suggested to be incorporated in the education system at all levels (Hariri, 2013; *NETP17.Pdf*, n.d.; Radygin et al., 2017). However, in Pakistan, it is only utilized by few universities and schools. International education systems are utilizing LMS at elementary level (Ullah et al., 2017).Whereas, in Pakistan, a few schools fostering beyond-school connectivity were found. However, *Edopia* school was found to have a customized Learning Management System with a vision to develop self-regulated learning skills, i.e. to make them independent learners.

2 LITERATURE REVIEW

2.1 Blended Learning

Blended learning has made innovative changes in the field of teaching and learning (Jachin & Usagawa, 2017). It provides a learning environment where online learning supports the face to face learning by providing students with the ability to control their pace, time and efforts, integrating different mediums of instructions through beyond school connectivity (Arney, 1672; *Learning Online*, n.d.)

2.2 Beyond School Connectivity

Beyond school connectivity plays an important role in the teaching and learning process(Thornbury, 2017b).It provides the students an opportunity to collaborate with others and provides rich learning experience and allows the teachers to enhance their pedagogy and learning material through online global resources available (Siemens, 2004). ISTE (n.d.) also highlight the collaborative learning as one of the standards and emphasize on the ability to collaborate, connect and communicate.

2.3 Learning Management System

Learning Management System is one of the effective digital tool to provide beyond school connectivity to the learner and can be customized according to the needs and requirement of the institution. It provides an interactive platform to the students, teachers and parents and working together as a community for proficient advancement of the learning process and enriched learning experience (Mtebe, n.d.; Sergiovanni, 1994). Thus making it possible for the community to work for a shared purpose and helps in the development of the learning communities.

The learning community helps the students to collaborate, cooperate, take responsibility, manage time and reflect on their own performance thus taking them towards taking charge of their own learning-self regulation (So & Brush, 2008).Shea and Bron(2010) claim that learning communities enhance the self- efficacy skills along with the cognitive and motivational behavior and help in the development of self- regulated learning skills.

2.4 Self-Regulated Learning Skills

Self- regulated learning skills have been of great importance in the research, since many years. Some researchers name it as self- control, self- management, life- long learning, independent or self- regulated learning skills. It enables the learner to take charge of his own learning by regulating his behavior and learning strategies. It involves intrinsic motivation and cognitive learning strategies to enable the learner set smart goals and achieve desirable results through constant effort (Zimmerman & Bandura, 1994).

Self-regulated learning is a triadic process consist of three main components: cognition, metacognition, and motivation and is a triadic process that involves the interaction between personal, behavioral and environmental processes (Bandura, 1986). Cognition includes skills necessary to encode, memorize, and recall information. Metacognition includes skills that enable learners to understand and monitor their cognitive processes. Whereas, motivation includes beliefs and attitudes that affect the use and development of cognitive and metacognitive skills (Schraw, 2006). These three components help the learner to take control of their own learning.

However, motivation of the learner is crucial for the effective self-regulated learning. Winne and Roll (2015) describe that every individual attempts to self-regulate but effective self-regulation involves self-discipline and achievements of the goals.

Theoretical Background of the study

Motivational model of self-regulation based on cyclical model of Zimmerman's cyclical model of self- regulation served as the theoretical framework for the study. The model is presented in four phases considered essential for development of self- regulated learning and occur simultaneously(Panadero, 2017). The four phases of the model are explained below:-

Phase 1-Forethought, planning and Activation.

It involves setting objectives and designing the way of achieving these objectives. It further involves activation of the insight and prior learning related to the task at hand and interrelationship of the self and the task

Phase II- Monitoring

It entails watching and keeping an eye on the progress of achievement of the objectives that the learner aims to achieve and metacognitive aspects of learning which entails the relationship of the learner with the task and the situation.

Phase III- Control

Phase 3 is concerned with regulating oneself according to the task and situation and staying focused for the achievements of the objectives.

Phase IV- Reaction and Reflection

Phase 4 encompasses the efforts of the self-regulated learner to reflect on the achievement of the objectives that were designed in the forethought phase and take further actions for his learning accordingly.

Edopia School

Edopia School is a k-12 education system, established in 2014. The school follows an alternative education model to promote a community based learning environment. The school ensures beyond school connectivity in a virtual environment of learning management system. Development of learners in accordance with their individual learning studies, choices and making them independent learners is the key feature of the school.

3 METHODOLOGY/MATERIALS

Single Embedded explanatory case study design was used for the research study to understand the practices and perceptions of the learners of *Edopia* School to incorporate blended learning and the skills that are being developed in the learners as an effect of incorporating these practices(Yin, 2017). Quantitative and qualitative data was collected in different phases to get quantitative data and in-depth understanding of the phenomenon.

3.1 Data Tools and analysis process

For quantitative data, Motivated Strategies for Learning Questionnaire –MSLQ (Pintrich & And Others, 1991)) was used. The MSLQ is based on Pintrich model of self-regulation. It is 81 item questionnaire comprising of simple statements to be rated on the 7 point likert scale. For scoring and analysis of data collected through MSLQ, 3 was considered as the cut point as guided by the MSLQ manual. The data was analyzed using the MSLQ analysis guide. For qualitative data, focus group discussion were conducted with students. Focus group discussion guide was prepared based on Pintrich Model of self- regulation. Focus group discussions were audio recorded and carefully transcribed. Qualitative data was analyzed using deductive thematic analysis. However, some of the themes emerged during the coding process include; role of parents, student-teacher ratio, beyond school connectivity through learning management system and teaching style.

Table 3.1 Showing deductive themes from Pintrich Model of self- regulation (Pintrich, 2004)

Sr. No.	Sections	Main Themes	Sub themes
1.	Motivation	Value Component	Intrinsic Goal Orientation Extrinsic Goal Orientation Task Value
		Expectancy Component	Control Beliefs Self- Efficacy for Learning and Performance
		Affective Component	Test Anxiety
2.	Learning Strategies	Cognitive and metacognitive Strategies	Rehearsal Elaboration Organization Critical thinking Metacognitive Self- regulation

	Resource Management Strategies	Time and Study Environment Effort Regulation Peer Learning Help Seeking

3.2 Data Sources

The data was collected from the students in two phases. In the first phase Motivated Strategies for Learning Questionnaire- MSLQ was administered to check the level of self- regulation among students and in the later stage, focus group discussions were conducted to get in- depth understanding of the practices and learning strategies used by the students.

4 Results and Findings

4.1 Quantitative results and findings

Motivation

Motivational beliefs and regulation of these beliefs is considered important for the development of self- regulated learning skills. Boekearts(2002) argue that the beliefs of the students regarding their motivation in the learning activity enhances the ability of a student to be successful in any task and vice versa.

Table showing mean score and no. of items of MSLQ measuring the components

Self- regulation category	Components	No. of items	Mean
Motivation	Value Component	14	5.4
	Expectancy Component	12	5.75
	Affective Component	5	5.3
	Total	31	5.48

The component of motivation is divided into three main categories; value component, expectancy component and affective component. Participants were asked to respond to 31 items to measure three components of the motivation category in MSLQ.These responses helped to analyze the motivational beliefs of the students towards learning. The results are presented in the table which shows the overall mean scores of the students on all three components is higher than the cut point 3. The average mean of the three components namely value, expectancy and affective component was 5.48. The data shows that the mean score of the students of expectancy component is relatively higher than other two components. The mean score of expectancy component is 5.75, which is higher than the other components and with 5.3 is lowest in the affective component.

4.2 Learning Strategies

Learning strategies include the strategies and tactics used by the students to enhance their performance. They are also known as “the how to” knowledge essentials (Alexander et al., 1998). The strategies involve the conscious efforts by the learner to be successful in attaining the desirable outcomes. This section of MSLQ comprises of 50 items with 31 items measuring the cognitive and metacognitive techniques and strategies incorporated by the students in their study habits.

4.3 Cognitive and Meta-cognitive Strategies

Cognitive and meta-cognitive strategies include scales for measuring cognitive strategies, meta-cognitive strategies and critical thinking skills. The table shows the mean scores of the students in utilizing these strategies.

Component of Learning Strategies	*Indicator*	*No. of items*	*Mean*
Cognitive and	Cognitive Strategies	14	5.5

Meta- Cognitive Strategies	Critical Thinking	5	5.86
	Meta Cognitive Strategies	12	5.28
	Total	31	5.54

The table shows mean score of cognitive and meta-cognitive strategies is 5.54, which means that the student use these strategies in their task. Cognitive strategies refer to the abilities of the learners to regulate their cognition and mental capabilities. These strategies involve the engagement of the learner in the activities that includes activation of the prior knowledge and connection of the new information to build stronger links between the information. Whereas, the mean score of the metacognition scale is 5.28 which shows that the students have the ability to regulate their metacognitive strategies in order to get effectively benefited from the cognitive strategies during all phases of learning.

4.4Resource Management Strategies

Pintrich (2004)highlights that environment regulation in the class room is not fully dependent on the learners, however, involve certain external factors as well. MSLQ has 19 items to evaluate the strategies of the students through four scales including time and study environment, effort regulation, peer learning and help seeking.

Table showing mean of sub-scales of Resource Management Strategies

Component of Resource Management Strategies	**Indicator**	**No. of items**	**Mean**
Resource Management Strategies	Time and Study environment	8	5.43
	Effort Regulation	4	6.1
	Peer Learning	3	5.6
	Help Seeking	4	5.7
	Total	19	5.7

The mean score of all these scales that refer to the resource management of the students is presented in the table. The mean of 5.7 shows that the students are effectively utilizing the available resources to enhance their learning experience which is important for the self- regulated learning skills.

4.5 Qualitaitve results and findings

Motivation

The students during the focus group discussions reported that the teacher explains the reasons of learning any concept and the practical implications of the concept which motivates them to learn more. One of the student during focus group discussion said,

The teachers help us understand the reason behind learning a specific concept and this help us understand the concept and motivate us to learn more about it. (Participant A)

The qualitative data from the focus group discussions also supported that the students belief in themselves for the completion of the task and their success or failure is dependent upon the efforts they put in to complete the task. They shared their views as,

I think my future seems to be very promising. But it really depends on the efforts “I” put in.

Overall, the result under this theme revealed that the student understand that hard work is the key to success. The mean score signified that the participants understand that their performance depends on the efforts they put in and positivity towards the outcomes. It also shows that the students have the confidence in themselves to be successful based on their efforts towards learning.

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The students shared their strategies for regulating the cognition of the students, the participant students shared that they read and reread the content to get better clarity of the concept.

Whenever a task is assigned, I use internet, search and research until I get on a track to complete the task. (Participant A)

Participant B shared that they get authentic learning content by the teachers and they refer to different sources and look for the similar information in different sources to reach the conclusion. The participant shared that

I find the common points, jot them down and write the final explanation of what I understood from all those sources and make my final notes.

(Participant D)

Participants were expected to memorize the answers that in their previous schools. But in *Edopia*, the students have to answer the questions in their own words to demonstrate their understanding of the concept.

The participants shared that they set their goals before starting their assignment or project. They said that they have minimum three days to complete the assignment, therefore, they have to regulate their efforts to get the end result. They said that initially, it was difficult for them to set goals before hand and design their plan of action before starting their projects but in *Edopia*, they have to share their transition from one point to the other. The participants shared that

We have to present our plan to the teacher before executing it, because if we need extra time to complete our task, the teacher would know about our plan and progress.

(Participant A)

The students reported that beyond boundaries classroom provide them comfortable environment which is conducive to learning. Participant E shared that

Being comfortable is very important for learning as it helps me concentrate on my assignment.

(Participant E)

The students said that the democratic environment at school helps them to develop self-confidence. The participants shared that they faced unnecessary restrictions in their previous schools regarding student mobility and classroom environment but in *Edopia,* they can control their study environment and can also give suggestions to improve the environment of the school. The students said that they can study anywhere in the school they want. They further reported that comfortable environment helps them to focus more on their learning rather than being afraid of the school.

The students were prompted about their time management skills, where they shared that the students need to decide their own timelines for the completion of their tasks and assignments. They are usually given three days to complete the assignment but they can set their own deadlines for the submission keeping in view their learning speed. They said that they feel living in a community where everyone is available to help one another. The student shared that

It's a very community based operation here at *Edopia* and it brings everyone together and it's very warm and respectful in terms of student activity.

(Participant E)

The participants shared that depending upon the nature of the query they seek help from the teachers and their peers that promotes social interaction. As also highlighted by Pintrich ((2004)that social interaction and utilization of the learning society to improve one's learning is very important for the development of self-regulated learning skills.

The above mentioned themes were deduced from the Self- regulation model (Pintrich, 2004). However, during the interviews and focus group discussion, certain other themes factors were also identified which are helping in the development of self- regulated learning skills. In the next section, the emergent themes, emerged from the data and explained in the table are discussed.

Table Showing Emergent themes of the qualitative Data	
Themes	Sub themes

Student- Teacher Ratio	Less students in each class Individual attention Accessing Teachers
Beyond School Connectivity through LMS Role of Parents Free Inquiry week	LMS Forum for connectivity Flip Classroom Parents' Support Exploring different fields
Teaching Style	Teacher availability Teacher Behavior

Student-Teacher Ratio.

Zee and Bree ((2016)) discovered that healthy student-teacher ratio acts a means of developing self- regulated learning skills in the students. During the focus group discussions, it appeared that *Edopia* School has a healthy student-teacher ratio which is 10:1. The students were found to be satisfied with the current student- teacher ratio, and said that the less student- teacher ratio makes the learning more accessible.

Role of Parents.

Every child enters the school with a set of beliefs, attitudes and motivation ((Grolnick et al., n.d.). However, the research also revealed that self- regulation is influenced by the *bidirectional* response from the parents to foster their motivation (Grolnick & Slowiaczek, 1994). The students during the focus group discussion said that the attitude of the parents towards learning helps them to stay focused and take charge of their own learning. The student shared that the parent's belief in the learners' ability to be successful plays an important role to enhance their motivation or worsen their abilities to be successful. The students shared that,

My parents gave me the opportunity to explore every field and choose the subjects according to my interest, which made me learn more about those subjects.

(Participant A)

Participant B who initially could not choose subjects according to his own choice added that his mother wanted him to be a physicist while mother's desired to see him as a doctor. Therefore, he had a difficult time when he had to make important decisions for his career. He shared that,

All my journey was much about changing the subjects and convincing my parents.

(Participant B)

Participant shared that the parents should give importance to the learners' decisions. If the parents feel that the learners should select the subjects according to their choice, they should explain the advantages and disadvantages of the field and guide them more realistically rather than imposing their decisions on the learners.

Beyond School Connectivity through LMS.

The connection and interaction between the students (as mentioned in the above section) increases collaboration. It makes sharing of resources and ideas easy and accessible to everyone ((Kalinga et al., 2010)). The qualitative data from the focus group discussion of the students show that connectivity beyond the school helps them to take charge of their learning and stay focused. Participants shared their experiences of beyond school connectivity and said that,

All important updates and information of the course is updated on LMS and all the important announcement are on LMS. So, even if I miss school someday for some reason, I know that what I have to prepare for the next day and what the teacher taught today.

(Participant A)

Participants shared that Learning Management system reminds them about their pending tasks and assignments. Student shared that,

LMS helps me remember the things that we have to do. It's like a homework journal, it helps me to view the topics that we need to cover.

(Participant B)

The students informed that not only the students but the parents can also access their LMS accounts which keeps the parents informed about the practices being carried out at the school.

Conclusively, the data of this theme shows that *beyond school connectivity* through Learning Management System helps the students to remember the tasks assigned by the teacher and stay focused on the task.

Free Inquiry Week.

Free inquiry week is the life skill week organized by the school to make them aware and get a flavor of different fields. The students during the focus group discussion revealed about this activity and shared their free inquiry projects and experiences. The students explained that classroom knowledge is practically implied in the free inquiry projects. He further shared that the free inquiry projects do not have to be necessarily academic. It involves integration of academic content with the practical skills.

Participant B shared that the free inquiry week enables them to work with the set goal and achieve visible results at the end of the week. It involves independent learning, concentration and time management skills. Participant B chose guitar as the project and synchronized playing guitar with the song. The only video made to learn playing the song was the song itself but he was successful because he believed in himself and stayed committed towards the end goals. Participant shared,

The free inquiry week was a proof to myself that if I work on something with concentration, I can get it done.

(Participant B)

The data under this theme shows that the free inquiry week helps the students to explore different fields and set achievable goals and assess their skills. All participants were of the view that free inquiry week allows them to take charge of their own learning. They get guidance from the teachers and explore different resources, but at the end of the week they have to present about their goal and to the extent they were able to achieve their goal.

The analysis of both strands of the data shows the level of self- regulated learning skills in the students and how they are developing the SRL skills.

5. CONCLUSION

The research study focused on the views of the students about beyond school connectivity through Learning Management System (LMS). The views of the students were collected through focus group discussions. Qualitative data indicated that the beyond school connectivity helped them to take charge of their own learning.

The qualitative data found that learning management system customized by the *Edopia* School provides a platform to the teachers, students, administration and parents to interact with each other and provide variety of other functions such as homework log, calendar, reminder, content log, report card and digital portfolio to be accesses at the end of the year.

The data indicated that beyond school connectivity through the learning management system facilitated students to collaborate and help each other to progress from their initial state. Friedman (2007) claims that effective beyond school connectivity helps to respect each other It was supported from the qualitative data that the students like to share their learning with the others rather than learning in the isolation. The data also revealed that all the students were ready to help each other.

It was found that learning management system of *Edopia* worked as a homework log, where the students, teachers and administration and as well as parents were able to access the homework and also see the submission deadlines set by the students themselves. The students were liable to meet their own set deadlines otherwise it gets marks red. .

The students reported that the helping content for the next class is uploaded on the learning management system that helps them to be prepared for the class beforehand and participate in the teaching-learning process effectively.

Conclusively, the findings of this research study revealed that the beyond school connectivity through learning management system makes the students take charge of their own learning. The findings further show that the beyond school connectivity helps everyone stay connected to each other on the go. Furthermore, the LMS keeps the students updated about the important

announcements. It was found that learning management system through its features of reminder, progress log, report card and flexible deadlines help them to develop self- regulated learning skills.

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