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Self-Directed Learning of Prospective Teachers through Active Learning Strategies: An Experimental Study

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Abstract: *This study was undertaken to investigate the effect of active learning strategies for developing Self Directed learning of prospective teachers. It was a one-shot experimental study. The prospective teachers were selected through purposive sampling technique. The active learning strategies were used as an independent variable, whereas self-directed learning was used as dependent variable of the study. The researchers administered the Likert scale at the start and end of treatment as a tool for data collection. The data analyses were done through mean score and t-test. It was found active learning strategies significantly increases some variables of self-directed learning such as planning, evaluation, reflection, effort, and self-efficacy of prospective teachers whereas self-monitoring, self-management and desire for learning were not affected by active learning strategies used. It is recommended that teachers assign some individual tasks to prospective teachers to enhance their desire for learning, self-management and self-monitoring.*

Key Words: Active Learning Strategies, Prospective Teachers, Self-Directed Learning, Pakistan

Introduction

Learning is a complicated process, mainly based on the readiness of learner. Individuals learn by different means one is when they have a desire to learn. It could be said that people could learn more effectively if they direct their own learning (Boekaerts, 1997). The term active learning is the teaching strategies used for a group of students during teaching-learning. When they actively participate during the process of learning, it enhances their enthusiasm. It is evident during previous decades it was an explosion of enthusiasm that opened the ways of engaging students through technology or by other strategies. These strategies actually ensure the active participation of the students in the classroom and not just listening to a lecture (Silberman, 1996). Self-Directed Learning (SDL) is a good approach to lifelong learning. It is true to say that the process of own learning is the responsibility of the self-directed students, which includes planning, motivation, effort, reflection, self-management, evaluation, regulation (Garrison, 1997).

There are various studies related to professional education that encourages the significance of self-directed learning which ensures their future success and professional development (Deyo, Huynh, Rochester, Sturpe, & Kiser, 2011). Autonomous learning is also an important factor that contributes to the success of self-directed learner (Milligan, Margaryan, & Littlejohn, 2013). Gibbon (2002), disputed that SDL is a natural process which could help the learner. He was of the view that SDL may be a technique or skill developed at any time, but it is not an essential ability (Wichadee, 2011). It is further emphasised that this strategy of learning cannot be used in isolation; rather, it needs support and cooperation of other members as well (Institute for Employment Research, 2001). Mostly, adults spend their substantial time in learning new skills through-self-directed learning.

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The commonly used label for self-directed learning is SDL (William & Kevin, 1999). The Marrow (1993) found that implementation and planning of models of management and to construct their own regulations of learners are encouraged by self-directed learning. It is proven that a collaborative environment provides learning chances to the students (Gillies & Ashman, 2003). Collaborative work helps to improve the process of learning, and approaches from self-directed learning could help in the improvement of collaborative work (Yew & Schmidt, 2009). It is well said that when the student enters an environment where they are supposed to update their knowledge by themselves, then they start stimulating their skills of self-directed learning. Self-directed learning plays an essential role in the education system, and it is considered as an asset in the 21st century (Murray & Lawrence, 2000). Keeping in view the above discussion, active learning strategies are used as a treatment in class as an independent variable, and its effect is investigated on sub-variables of self-directed learning as dependent variable.

The objective of the Study

The object of the study was

- To explore the effects of Active Learning Strategies on Self Directed Learning of prospective teachers studying School Management course.

Research Hypotheses of the Study

The objective is further translated through eight hypotheses.

- The mean score on the variable "planning" of self-directed learning of prospective teachers is not different at the start and end of the treatment.
- The mean score on the variable "self-monitoring" of self-directed learning of prospective teachers is not different at the start and end of the treatment.
- The mean score on the variable "evaluation" of self-directed learning of prospective teachers is not different at the start and end of the treatment.
- The mean score on the variable "reflection" of self-directed learning of prospective teachers is not different at the start and end of the treatment.
- The mean score on the variable "effort" of self-directed learning of prospective teachers is not different at the start and end of the treatment.
- The mean score on the variable "self-efficacy" of self-directed learning of prospective teachers is not different at the start and end of the treatment.
- The mean score on the variable "self-management" of self-directed learning of prospective teachers is not different at the start and end of the treatment.
- The mean score on the variable "desire for learning" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Literature Review

The growing theme of the era is to encourage the students to teach themselves (Knowles, Holton, & Swanson, 2011). Retaining information from lectures and utilizing it for the development of their skills might prove to be beneficial for their future lives.

Self-Directed Learning is a process in which individually take initiatives of learning with or without the help of others. The acquiring skill and information help the ability of students to restore their learning; the desire of the students learning included the reflection, evaluation, effort, planning, self-efficacy, self-monitoring, and self-management. In adult education the self-directed learning has a basic role; previously, it was tried at elementary and secondary level students. It is true to say that the process of own learning is the responsibility of the self-directed students, which includes planning, motivation, effort, reflection, self-management, evaluation, regulation (Garrison, 1997). There is a significant role of self-motivation, which drives the learner towards the promotion of their skills and achievement of their goals (Corno, 1992). It is a type of learning in which main control shifts from teacher towards learners. Here the learner enjoys independence in deciding what, how and when to learn. For instance, the

learners decide their targets and means through which they want to learn and when they are going to learn (their framework) (Morrow, Sharkey, & Firestone, 1993).

According to the Cheah, Tan, Divaharan (2011) in the 21st century, self-directed learning is the main characteristic that is possessed by every individual, which could assist them in handling the upcoming challenge. Nor and Saeednia (2008) highlighted that the qualities of self-directed learners of both children and adults are shared. The result of their study shows that the type of learning acknowledged as the self-directed learning; it is not absolutely for matures but for the learners at the age of nine and above become capable of doing so. The findings of the study showed that even children were able to enjoy their learning through self-discipline, persistence, and self-monitoring. The study had also shown a significant relationship between academic achievement and self-directed learning of under-graduate and graduated learners (Hyland & Kranzow, 2012). According to the Schipoca and Cazan (2014), the personality traits have a correlation with self-directed learning; in other words, they said the academic achievement of students could be predicted by self-directed learning. Burchard and Swerdzewski (2009) found that strategic learning and efficiency of the students could be changed by self-directed learning. Such students could manage themselves in the learning process easier.

The learning is a continuous process and keeps going even after the achievement of any academic degree. The self-directed learner is a strategy that even after the accomplishment of graduation enables the students to continue their learning; In other words, it can be said that self-directed learning is a precious commodity that certifies the success of a person. Previous studies have proven a strong correlation between self-directed learning and academic achievement (Zimmerman, 1990). It is revealed that self-directed learners become responsible for their learning, making it meaningful and valuable for themselves (Garrison, 1997). They become curious regarding their skill development. They always reflect a willingness to learning new things (Lyman, 1997).

Many educational philosophies reflect that people learn more effectively if they direct their own learning (Boekaerts, 1997). According to Taylor (1995), independent, self-oriented, self-motivation, self-discipline, and determination are the main factors of self-directed learning. The learners become effective through self-directed learning. The ultimate learning skills, self-sufficiency, self-possession, and self-discipline are various positive conclusions of self-directed learning (O'Shea, 2003). According to the Cshiopca & Cazan (2014), academic achievement is correlated with SDL and personality traits (openness, extraversion). The knowledge of acquisition is improved with the help of self-direction. (Murad, Coto-Yglesias, Varkey, Prokop, & Murad, 2010).

Taylor (1995) suggested engaging students in the discussion about different topics at a suitable stage could positively motivate learners towards awareness. He highlighted the importance of students' decision regarding when and how through which way the learning and evaluation process should be done. Taylor was of the view that learners should be given the opportunity to show their interest in the purpose of making learning more meaningful. He suggested that students can be motivated by generating issues or topics through the use of questions for the purpose of enhancing the interest of learners.

Morrow (1993) expressed that when the writer is given freedom for the selection of topic for their writing, they will feel more comfortable and will write more appropriate pieces of work. But on the other hand, it will be highly appreciated if the learners are not given full freedom, and teachers could develop a thematic framework within that timeline where learners are given choices (Temple & Rodero, 1995).

Bolhuis (1996) encourages risk-taking by giving open freedom to learners from all aspects. It will be helpful for learners in achieving a few objectives which are more important for them only. He stresses the teachers to encourage SDL by freeing themselves in tracking down and correcting the errors which are ego-threatening. Leal (1993), supported learners to investigate ideas by means of peer discussion even without getting full answers, but that may become helpful for the generation of new themes.

Corno (1992) also suggested that leaving the learners open to pursuing their personal interest will lead them in sustaining their interest and breaks barriers in the achievement of success. Saliman and Al-Shaikh (2015) revealed that active learning involves students to think and do things related to activities they do. Their study also summarizes the literature related to active learning, and it is concluded that

active learning leads towards the improvement of students work and thinking and creative work. They also cited evidence from McKeachie (1972) that one form of active learning known as the discussion may exceed from traditional lectures related to maintenance of the material. It also encourages learners for more study and for the development of their skills (Bonwell & Eison, 1991). Although, it is evident that all maintenance for dynamic learning is not exciting; the small lecture is the improvement of acting learning by self-directed (Mckeachie, 1972). According to the Felder (2000), the method of teaching at the workplace and have noted it is one of the 'seven principles of good practices as prescribed by Chickering and Gamson.

Choi, Jakob and Anderson (2017) described that during active learning strategies students are prompted to become responsible for their own learning, and self-directed learning focuses on the students and learning and opposed to the teachers and teaching. They used active learning strategies to reconstruct the class environment. They think it forces students to speak up in the class and not behave as empty vessels which may be filled by transferring knowledge by teachers. Din, Haron and Rashid (2016) said self-directed learning environment provides support to develop ability which can function without the help of a teacher. It can further improve individual and group responsibilities among teachers and students. Virtanen, Niemi and Nevgi (2017) conducted research with prospective teachers, and they are with the opinion that using active learning strategies can give a positive result for the achievement of professional competences. Further for the development of professional competences prospective teachers required to possess high-level motivation for learning and excellent strategy of self-regulation and all these can be benefited significantly from the use of active learning strategies.

Methodology

It was a one-shot experimental study. This study has been conducted for one semester (06 Months) for the 35 female prospective teachers who took a course of school management in the education department at the university level. The purposive sample technique was used in the study. The active learning strategies like student's answer summary, one-minute paper, daily journal, and immediate feedback and share/pair were used as a treatment in the experiment. These strategies were used during teaching to prospective teachers. Self-directed learning was dependent variable. It was measured by Likert scale. The statements on the Likert scale were based on sub-variables of self-directed learning such as planning, self-monitoring, evaluation, reflections, efforts, self-efficacy, self-management, and desire for learning. The Cronbach Alpha was used to measure the reliability of the scale, and its overall value was 0.78. The same scale was used at the start and end of the treatment as pre-assessment and post-assessment of self-directed learning score.

Data Collection and Analysis

After the reliability of the instruments, the researcher administered the self-directed learning scale at the start of the experiment, and it was again administered at the end of the experiment on the last day of the semester before examinations. The data analyses done through mean score and t-test indicated an increase in overall self-directed learning scores of prospective teachers. The scores on self-directed learning variables such as planning, evaluation, reflection, effort, and self-efficacy were significantly increased in the result of treatment whereas the score on self-management, self-monitoring, and desire for learning remained intact. The formulated hypotheses are tested as below.

Data Interpretation

H_{01}: The mean score on the variable "planning" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 1. Difference in mean Scores on the Sub Variable "Planning"

Experiment	N (prospective teachers)	M	SD	t-value	df	p-value
Pre-assessment	35	2.06				
			1.4	2.20	68	0.036
Post-assessment	35	2.53				

The above table illustrated that the sub variable planning pre-assessment mean score (2.06) with S.D of 1.4 was low, then the post-assessment overall mean (2.53). The t value (2.20) explained significant difference exists in mean score of pre-and post-assessment of prospective teachers for the sub variable of self-directed learning. The null hypothesis was rejected.

H_{02}: The mean score on the variable "self-monitoring" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 2. Difference in mean Scores on the sub Variable "Self-Monitoring."

Experiment	N (prospective teachers)	M	SD	t-value	df	p-value
Pre-assessment	35	2.34	1.02	0.59	68	0.5619
Post-assessment	35	2.43				

The above table explained that the sub variable self-monitoring pre-assessment mean score (2.34) with S.D of 1.02 was low then the post-assessment overall mean score (2.43). The t value (0.59) and p-value (.561) explained the difference in mean score is not significant on the sub variable "self-monitoring" of self-directed learning of prospective teachers. It depicts that active learning strategies have no effect on self-monitoring of prospective teachers. The null hypothesis is accepted.

H_{03}: The mean score on the variable "evaluation" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 3. Difference in mean Score on the Sub Variable "Evaluation."

Experiment	N (prospective teachers)	M	SD	t-value	df	p-value
Pre-assessment	35	2.30	0.57	4.06	68	0.03
Post-assessment	35	2.68				

The values in the table depicted that the sub variable evaluation pre-assessment mean score (2.30) with S.D of 0.57 was low, then the post-assessment overall mean (2.68). The t value (2.20) and p-value (.03) explained the difference in mean scores of pre-assessment and post-assessment is significant on the sub variable of evaluation of self-directed learning of prospective teachers. It reflects active learning strategies significantly affect the sub variable evaluation of self-directed learning of students. The null hypothesis is rejected.

H_{04}: The mean score on the variable "reflection" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 4. Difference in mean Scores on the Sub Variable "Reflection."

Experiment	N (prospective teachers)	M	SD	t-value	df	p-value
Pre-assessment	35	1.87	0.45	8.80	68	0.001
Post-assessment	35	2.54				

The values in the above table highlighted that the sub variable reflection pre-assessment mean score (1.87) with S.D of 0.45 was low, then the post-assessment overall mean score (2.54). The t value (8.80) and p-value (.001) explained the difference in mean scores of pre-assessment and post-assessment was significant. It depicted that active learning strategies have a significant effect on the sub variable reflection of self-directed learning of prospective teachers. So, the null hypothesis is rejected.

H_{05}: The mean score on the variable "effort" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 5. Difference in mean Scores on the Sub Variable "Effort."

Experiment	N (prospective teachers)	M	SD	t-value	Df	p-value
Pre-assessment	35	2.57				
			0.79	3.89	68	0.004
Post-assessment	35	3.09				

The values in the table showed the sub variable "effort" pre-assessment mean score (2.57) with S.D of 0.79 was low, then the post-assessment overall mean score (3.09). The t value (3.89) and p-value (.004) explained the difference in mean scores of pre-assessment and post-assessment was significant. It means the active learning strategies have a significant effect on the variable effort of self-directed learning of prospective teachers. The null hypothesis is rejected.

H_{06}: The mean score on the variable "self-efficacy" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 6. Difference in mean Scores on the Sub Variable "Self-Efficacy."

Experiment	N (prospective teachers)	M	SD	t-value	Df	p-value
Pre-assessment	35	2.46				
			2.87	7.91	68	0.001
Post-assessment	35	3.52				

The values in the above table depicted the sub variable self-efficacy pre-assessment mean score (2.46) with S.D of 2.87 was low then the post-assessment overall mean score (3.53). The t value (7.91) and p-value (.001) highlighted the difference in mean scores of pre-assessment and post-assessment was significant. The null hypothesis is rejected. It depicts that active learning strategies have a significant effect on self-efficacy of prospective teachers.

H_{07}: The mean score on the variable "self-management" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 7. Difference in mean Score on the Sub Variable "Self-Management."

Experiment	N (prospective teachers)	M	SD	t-value	df	p-value
Pre-assessment	35	1.09				
			0.59	1.71	68	0.09
Post-assessment	35	2.07				

Values in the above table indicated the sub variable self-management pre-assessment mean score (1.09) with S.D of 0.59 was low then the post-assessment overall mean score (2.07). The t value (1.71) and p-value (.09) explained the difference in the mean score of pre-assessment and post-assessment was not significant. It shows that active learning strategies have no significant difference in self-management variable of self-directed learning of prospective teachers. The null hypothesis is accepted.

H_{08}: The mean score on the variable "desire for learning" of self-directed learning of prospective teachers is not different at the start and end of the treatment.

Table 8. Difference in mean Score on the Sub Variable "Desire of Learning"

Experiment	N (prospective teachers)	M	SD	t-value	df	p-value
Pre-assessment	35	2.06				
			1.64	2.92	68	0.06
Post-assessment	35	2.87				

The values in table represented the sub variable desire of learning pre-assessment mean score (2.06) with S.D of 1.64 was low then the post-assessment overall mean (2.87). The t value (2.92) and p-value

(.06) explained the difference in the mean score of pre-assessment and post-assessment was not significant. It can be said that active learning strategies used have no significant effect on the desire of learning variable of self-directed learning of prospective teachers. The null hypothesis is accepted.

Discussion/Conclusion

The process of learning can be affected by many factors; some lie inside the class and initiate by teachers, and some take place outside the class. Teachers use different strategies to teach students to be self-learner so that they can promote their own learning without the help of a teacher and become self-directed learner (Thornton, 2010). In this experimental study different active learning strategies such as; students answer summary, one-minute paper, daily journal, immediate feed-back and pair/share were used by the researcher in the class of prospective teachers while teaching the course "school management" and its effect on self-directed learning of prospective teachers were investigated. The findings showed active learning strategies has a significant impact on planning, evaluation, reflection, effort and self-efficacy of prospective students, whereas the above active learning strategies don't have a significant impact on self-monitoring, self-management, and desire for learning variables of self-directed learning.

These findings are aligned with Choi, Jakob and Anderson (2017). It also endorses the findings of Saliman and Al-Shaikh (2015). Although some of the findings related to self-monitoring, self-management and desire for learning do not seem significantly affected by active learning strategies, and it may be because of the self-perception of prospective teachers. It is recommended to the teachers to design activities for individual students having less ability of self-monitoring and self-management and asks to meet deadlines then they may acquire the said skills. Actually, these three variables are inter-related. If the prospective teacher has a desire for learning they perform the task assign to them, they can do it in a better way if they have self-management and self-monitoring skills.

All the variables on which active learning strategies have a significant impact like planning, evaluation, reflection, effort and self-efficacy are related to class where the teacher gave a gentle push, and respondents become self-directed learner but where the teachers support removed these strategies not working. So along with some assignment recommended for prospective teachers, it is also recommended to teachers use some other strategies during class to improve students' desire for learning, self-management and self-monitoring skills so that they may be able to learn how to learn at their own.

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