

## **SELF-DIRECTED LEARNING AND ACADEMIC SELF-EFFICACY OF EDUCATION COLLEGE STUDENTS**

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### **Abstract**

The purpose of this study is to investigate the Self-Directed Learning and Academic Self-Efficacy of Education College Students. Descriptive research design and survey method were undertaken in this study. The research instruments for this study are Self-directed Learning and Academic Self-Efficacy scale. Self-Directed Learning is the combination of the index of the Rowbotham M. Schmitz GS (2013) development and Validation of a Student Self-Efficacy Scale. *J Nurs Care* 2;126 doi. The Cronbach Alpha values were .865 for Self-Directed Learning and Academic Self-Efficacy. The participants for this study were randomly selected from Monywa Education College. A total of 400 of the second year students (200 males and 200 females) were participated in this study. Among the male students, 100 of males are science and remain are art. And also 100 of females are science and 100 are art. The collected data was analyzed by descriptive and inferential statistics. The result of the study indicated that there were significant differences in the Self-Directed Learning on the Education College students according to awareness, learning strategies, Learning activities, evaluation and interpersonal skills by gender. The result of the study indicated that there were significant differences in the Self-Direct Learning on Education College students according to awareness, learning strategies, learning activities, evaluation and interpersonal skills by subject. And then, there were significant differences in the Academic Self-Efficacy of students in according to subject and gender. According to the results of this study, since the Self-Directed learning skill is a skill that has overarching effects on an individual's ability to tolerate unmet wants or needs, handle disappointments and failures, and work towards success. The research suggested that Self-Directed Learning should more actively involve for the promotion of Academic Self-Efficacy skill of the children. And in education sector, teachers and educators should also organize effective Self-Directed Learning programs or activities so that can be implemented inside and outside the schools in order to enhance the Self-Directed Learning skill of students.

**Keywords:** Learning, Self-Directed Learning, Self-Efficacy, Academic Self-Efficacy

### **Introduction**

At present Myanmar is undergoing an educational curriculum reform. The philosophy underpinning this reform is to build "learning communities". Most educators need to adapt their teaching styles and perspectives on teaching and learning. Among these aspects, student Self-Directed Learning and cooperative learning by activity are considered to be important, as they can transform students' learning styles from passivity to initiative-driven, promote the students to participate in the process of teaching and learning, and move the focus from the indirect and outward experience to the intrinsic and direct experience. In other words, it can develop smoothly not only the students' knowledge, competence and skills, but also their values, attitudes and emotions.

It is now recognized that education has to be a lifelong process. The practice of education and its underlying knowledge base change so rapidly that it is essential that teachers continue to learn throughout their professional career. However, continuing professional education is not simply a matter of keeping up to date, but also entails reflection on practice in order to incorporate new experiences, to relate present situations with previous experiences, and to recognize current experiences based upon this process. Self-Directed Learning enables the learner, whether student or practitioner, to do these important things.

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Due to the rapid developments in science and technology in today's information age, information continually accumulates and already existing information lose its up-to date and changes quickly. In addition, the advancements and changes in information technologies have enabled individuals to access information through more flexible learning environments and new learning opportunities. When these new learning opportunities are applied effectively, students can manage their learning according to their own learning preferences, specialize based on their interests and abilities and acquire more knowledge about social, cultural, vocational and actual issues. Increasing in parallel with the developments in information age, these new learning opportunities imply that learning cannot be confined to educational institutions. It can even be claimed that educational institutions will soon have fewer roles in this context and out-of-school learning will be more effective on learners' lives than school learning in formal education. The fact that learning is no more limited to educational institutions brought a new dimension to the issue: the skills that individuals should have. It is necessary for students to be individuals who are able to access knowledge, to question the knowledge obtained, to adapt this knowledge to their beliefs and life styles, and finally to expand and to transfer their knowledge when need arises. In other words, they should be equipped with "self-development" and "life-long learning" skills. The Commission for a Nation of Lifelong Learners (1997) defined life-long learning as "a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will need throughout their lives and to apply them with confidence, creativity, and enjoyment in all roles, circumstances, and environment. According to Soran , Akkoyunlu and Kavak, life-long learning turns educational activities and learning into a dynamic process that provides individuals with opportunities to learn everywhere and every time rather than in a fixed time and place. The most important skill necessary for individuals to be a part of lifelong learning process (life-long learners) is "self-directed learning. Self-Directed Learning combines a number of educational movements such as adult learning, cooperative learning, democratic learning, and critical pedagogy.

Self-Directed Learning is not the latest trend in education. It has been around since the beginnings of cognitive development (Aristotle and Socrates), and is a natural pathway to deep understanding and efficacy. By being mindful of the ways Self-Directed Learning can appear in the classroom, and leveraging it as an integral part of how people learn, teachers can create a more meaningful learning experience for students that will last beyond the regurgitation of memorized content.

### **Purpose of the Study**

The main purpose of the study was to investigate the Self- Directed Learning and Academic Self-Efficacy of Education College Students.

### **Definitions of Key Terms**

**Learning;** "A change in human disposition or capability that persists over a period of time and is not simply ascribable to processes of growth" (Robert Gagne, Briggs &Wager, 1992).

**Self-Directed Learning;** "refers to the ability of students to be in control of their own Learning process rather than being directed by their teachers (Brockett, R.G. 1994).

**Academic Self-Efficacy;** refers to "personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performances". (Schunk, D. H.1981).

## **Review of Related Literature**

The concept of self-directed learning has been in existence since antiquity. For example, Aristotle, Plato and Socrates advocated self-direction as part of their methodology (Kulich, 1970). Early examples of programs that encouraged Self-Directed Learning in the United States have been found in adult education through correspondence courses, an early type of distance learning. These included the Ticknow Society in 1897 and the Chautauqua movement which began in 1881 (Agassiz & Eliot, 1897; Bergmann, 2001; Long, 1990; Vincent, 1885). The conceptual framework for SDL was initially created as part of the field of adult education. In 1926, Lindemann proposed that adults' source of motivation stemmed from their experiences and the opportunity to choose the path for their own learning (Brookfield, 1984). Lindemann and Knowles were both credited with the introduction of the term, andragogy, which was defined as "the art and science of helping adults learn" (Knowles, 1980, p. 43 as cited in Merriam, 2001). Knowles developed a conceptual framework for adult learning based on five assumptions. Adult learners have a self-concept that is independent and tends to be self-directed. They have experience that serves as a learning resource. Adult learners may have changing social roles that drive learning. Adults are interested in immediate application of knowledge that is problem based. Finally, adult learners tend to be more internally motivated (Merriam, 2001). Researchers determined that Self-Directed Learning plays an important part in the process of adult learning (e.g., Bolhuis, 2003; Brockett & Hiemstra, 1991; Kulich, 1970; Merriam, 2001). As adult education became an important field in its own right, the study of Self-Directed Learning joined andragogy as two important parts of adult learning research. The demands of the information age increased the need for continuing education of the workforce which tended to drive the research in andragogy and Self -Directed Learning (Candy, 2004; Houle, 1988).

Bandura (1997) argued that self-efficacy has its most powerful motivational effects through the process of cognized goals. Goals provide the basis for self-regulation of effort by providing a standard for judging the adequacy and effectiveness of goal relevant effort and strategy (Bandura & Cervone, 1983). Specific and difficult (but not impossible) goals are strongly related to performance in a wide variety of tasks and settings (Locke & Latham, 1990). Self-efficacy leads to higher goals being set (Wood et al., 1990; Zimmerman, Bandura, & Martinez-Pons, 1992), and high goals increase the positive effects of self-efficacy by providing an evaluative context to aid self-regulation (Cervone, Jiwani, & Wood, 1991). When goals provide a standard, highly efficacious persons show a stronger relationship among self-evaluation, self-direction, and performance (Bandura & Schunk, 1981). Goals, and the broader category of positive expectations, are one type of vehicle by which efficacy effects are manifested.

Anxiety and negative emotions can be debilitating. Academic Self-efficacy has an impact on affect through its effects on attention and construal of environmental demands, by the choice of actions taken, and through its effect on the ability to control and manage negative or potentially negative emotions. Lazarus and Folkman (1984) argued that the way in which an individual construes the demands placed by the environment can have dramatic impact on his or her ability to cope with that environment. They made a distinction between regarding demands as "threats" versus "challenges." Bandura (1997) also argued that a high sense of coping efficacy encourages individuals to adopt courses of action designed to change hazardous environments. People with high perceived efficacy are less likely to be immobilized by anxiety (Betz &

Hackett, 1983; Krampen, 1988). For example, Meece, Wigfield, and Eccles (1990) found that effects of past performance on math anxiety and math performance were mediated by personal efficacy beliefs. Pintrich and DeGroot (1990) also reported that it was the efficacy beliefs, rather than anxiety, that were predictive of academic achievement. Self-efficacy beliefs are related to an enhanced ability to use effective problem-solving and decision-making strategies, to plan and manage one's personal resources more efficiently, to entertain more positive expectations, and to set higher goals. Very central to these self-efficacy effects seems to be the ability to manage the stressors created in demanding situations by means of a more positive analysis of extant risks and available coping resources, which results in the tendency to see demanding situations as challenges rather than threats.

### Research Method

Descriptive research design and survey method were undertaken in this study. Self-Directed Learning and Academic Self-Efficacy questionnaires were used to assess Self-Directed Learning and Academic Self-Efficacy beliefs. The demographic factors of each student were also collected. For Self-Directed Learning, there were 5 dimensions. They are; (1) Awareness, (2) Learning-Strategies, (3) Learning-Activities, (4) Evaluation and (5) Interpersonal Skills. Each dimension contains 12 items. For Academic Self-Efficacy, there were 10 items.

### Sampling

Subject Stream	Arts		Science	
Gender	Male	Female	Male	Female
Number of students	100	100	100	100
Total	200		200	

### Instrumentation

The research Instrument used for this study were Self-directed Learning and Academic Self-Efficacy scale. Self-Directed Learning is the combination of the Rowbotham M. Schmitz GS (2013) development and Validation of a Student Self-Efficacy Scale. *J Nurscare* 2;126 dol. Students respond to items using a 5-point Likert scale through "1= Never; 2=Seldom, 3=Seldom, 4=often, 5=Always for five dimensions of Self-Directed Learning. Each dimension of Self-Directed Learning contains twelve items and total of sixty items. Academic Self-Efficacy scale contains ten items. The demographic factors of participants including gender and, subject were also investigated.

### Procedure

Preparing and modifying Self-Directed Learning and Academic Self-Efficacy Questionnaires was done carefully done the expert validity, the pilot testing was primarily conducted to be sure that research study were valid and reliable. Then data collection was conducted from 400 pre-services teachers of selected Monywa Education College during the last week January, 2019.

400 pre-service teachers were randomly selected from second year students commensurate to the Art and science and males and females. After giving the required instruction, the student teachers took 45 minutes to complete questionnaires including the participants' demographic factors. The data collection process was assuring completed at the end of the first week February, 2019.

After conducting the survey procedures the data were examined in terms of descriptive statistics; the results were described in Table 1.

**Table 1 Descriptive Statistics for Self-Directed Learning of Education College Students**

Subscales	N	Minimum score	Maximum score	Mean	SD
Awareness	400	25	60	46.36	5.969
Learning –Strategies	400	19	85	47.50	6.567
Learning-Activities	400	25	60	44.86	6.403
Evaluation	400	24	60	46.33	6.865
Interpersonal Skills	400	23	60	45.49	6.712
Total(Self-Directed Learning)	400	122	297	230.54	27.131

Since the observed mean score (230.54) was higher theoretical mean score (180), the level of student teachers was satisfactory.

Gender based analysis was conducted to reveal the differences in Self-Directed Learning between male and female students. The mean and standard deviation for achievement motivation of males and females students were reported in Table 2.

**Table 2 Means and Standard Deviations of Self-Directed Learning by “Gender”**

Variable	Gender	N	Mean	SD
Awareness	Male	200	46.03	6.013
	Female	200	46.69	5.921
Learning -Strategies	Male	200	46.17	5.915
	Female	200	48.85	6.918
Learning -Activities	Male	200	44.04	5.894
	Female	200	45.68	6.791
Evaluation	Male	200	45.11	6.579
	Female	200	47.54	6.945
Interpersonal Skills	Male	200	44.61	6.372
	Female	200	46.38	6.942
Self-Directed Learning	Male	200	225.95	25.096
	Female	200	235.13	28.351

According to table 2, the mean scores of males (Mean=225.95) were higher than females (Mean=235.13). Thus, females were higher than males in self-directed learning by gender.

To study the significant differences between male and female students in Self-Directed Learning, Independent Samples *t* test was used the result were shown in Table 3.

**Table 3 Results of Independent Sample *t* test for Self-Directed Learning by Gender**

Variable	<i>t</i>	<i>df</i>	<i>p</i>	Mean Difference
Awareness	-1.106	398	.269	.660
Learning Strategies	-4.164***	398	.000	-2.680
Learning Activities	-2.579**	398	.010	-1.640
Evaluation	-3.592***	398	.000	-2.430
Interpersonal Skills	-2.649**	398	.008	-1.765
Self-Directed Learning	-3.427***	398	.001	-9.175

In the table 3, the result shows that there were significant differences in total (Self-Directed Learning) at the 0.001 level by Gender.

To find out the significant differences by subject stream that the preservice teachers were specialized, independent sample *t* test was used. The mean and standard deviation for Self-Directed Learning by subject-Stream were reported in table 4.

**Table 4 Means and Standard Deviations of Self-Directed Learning by Subject Stream**

Variable	Subject Stream	N	Mean	SD
Awareness	Art	200	46.63	5.94
	Science	200	46.09	5.99
Learning -Strategies	Art	200	47.84	6.46
	Science	200	47.17	6.67
Learning Activities	Art	200	46.00	6.39
	Science	200	43.72	6.22
Evaluation	Art	200	47.19	6.92
	Science	200	45.47	6.72
Interpersonal Skills	Art	200	46.21	6.79
	Science	200	44.78	6.58
Total Self-Directed Learning	Art	200	233.86	27.51
	Science	200	227.22	26.39

According to the table 4.4, the mean score for total Self-Directed Learning of student teachers of art were (233.86) and the mean score for total Self-Directed Learning of student teachers of science were (227.2). Therefore, the mean score of art students were found greater than the science students.

To find out the significant differences by “Subject Stream”, independent sample *t* test was used. The results were shown in Table 5.

**Table 5 Results of Independent Sample *t* test of Self-Directed Learning by Subject- Stream**

Variable	<i>t</i>	<i>df</i>	<i>p</i>	Mean Difference
Awareness	.90	398	.366	.540
Learning -Strategies	1.02	398	.308	.670
Learning Activities	3.61***	398	.000	2.28
Evaluation	2.52*	398	.012	1.72
Interpersonal Skills	2.15*	398	.032	1.44
Total(Self-Directed Learning)	2.47*	398	.014	.01

According to table 5, there was significant difference in learning activities, evaluation, interpersonal skills of Self-Directed Learning according to Subject-Stream. And then, there was significant difference between Arts students and science students in the whole Self-Directed Learning ( $t=2.4$ ,  $p=.014$ ) at the 0.05 level.

In terms of descriptive statistics, minimum, maximum scores mean and standard deviation of Academic Self-Efficacy of Education College Students were calculated to analyze data. The results were described in Table 6.

**Table 6 Descriptive Statistics for Academic Self-Efficacy of Education College Students**

Variable	N	Minimum score	Maximum score	Mean	SD
Total Academic Self-Efficacy	400	15	50	38.14	5.872

The observed mean score (230.54) was higher than theoretical mean score (180). The level of Education College Students’ academic self-efficacy was satisfactory.

Gender based analysis was conducted to reveal the differences in Academic Self-Efficacy between male and female students. The mean and standard deviation for Self-Efficacy of male and female students were reported in Table 7.

**Table 7 Means and Standard Deviations of Academic Self-Efficacy by Gender**

Variable	Gender	N	Mean	SD
Total Academic Self-Efficacy	Male	200	37.28	5.36
	Female	200	39.00	6.24

According to table7. The mean scores of males (Mean=37.28) were higher than females (Mean=39.00). Since the mean score (39.00) was higher than the (37.28). According to the Myanmar culture, nature of females are shy and obedience of the older person or teachers and respect to the others.

To study the significant differences between male and female students in Self- Efficacy, independent samples *t* test was used.

The result of *t* test which showed the comparison of Academic Self- Efficacy between male and female students was shown in Table 8.

**Table 8 Result of Independent Sample *t* test of Academic Self- Efficacy by Gender**

Variables	<i>t</i>	<i>df</i>	<i>p</i>	Mean Difference
Academic Self-Efficacy	2.957	398	.033	-1.720

For investigating the students’ Academic Self-Efficacy. The results were shown in the following Table 9.

**Table 9 Mean and Standard Deviations of Academic Self-Efficacy by Subject Stream**

Variables	Subject Stream	N	Mean	SD
Academic Self-Efficacy	Art	200	38.64	5.818
	Science	200	37.65	5.899

According to table 9, the means scores of Academic Self-Efficacy by Art was 38.64 and the means scores of Academic Self-Efficacy by Science was 37.65. Since the mean score of 38.65was higher the Art students than the Science students. Therefore, Academic Self-Efficacy of Art students and science students were satisfactory.

To study the significant differences between art and science student s in Self-Efficacy, independent samples *t* test was used. The result of *t* test was shown in Table 8.

**Table 10 Result of Independent Sample *t* test of Academic Self-Efficacy by Subject Stream**

Variables	<i>t</i>	<i>df</i>	<i>p</i>	Mean Difference
Academic Self-Efficacy	1.690	389	.092	.990

According to table 10, it was shown no significant differences in the Academic Self-Efficacy of Education College students by Subject Stream ( $t=1.690$ ,  $p=.092$ ). It can be interpreted that almost of the student teachers were entering into the Education College with high marks, they had prior knowledges in each person in earlier.

In order to investigate whether the students Self-Directed Learning and Academic Self-Efficacy were related or not, Pearson correlation coefficient was computed. The correlation coefficient between Self-Directed Learning and Academic Self-Efficacy was expressed in the Table 11.

**Table 11 Pearson Correlation between Self-Directed Learning and Academic Self-Efficacy of Education College Students**

Variables	Self-Directed Learning	Academic Self-Efficacy
Self-Directed Learning	-	.722

Table 11 showed that the correlation between Self-Directed Learning and Academic Self-Efficacy of Education College Students from selected Monywa Education College. In this research there was a significant positive correlation between Self-Directed Learning and Academic Self-Efficacy of Education College Students it was Significant positive correlation ( $r = .722$ ) ( $p < 0.01$ ) level (2 tailed). Therefore, Indicated that as Self-Directed Learning increase, Academic Self-Efficacy increase accordingly.

### Conclusion

Self-Directed Learning is the transformative process of information that- when internalize and mixed with what he has experience- change what he knows and build and what he does. It is based On input, process and reflection. It is what changes us. To enhance students' problem-solving ability, teacher educators should pay more attention to the positive impact of self-directed learning and self-efficacy in teacher educators' education.

Teachers also should encourage to students to develop their own ideas in their studio work and, eventually, to set their own goals and artistic problems. Teacher educators interested in measuring a generic ability or readiness for Self-Directed Learning have been particularly active with this concept of self-direction.

Self-directed learning is life- long process of gaining and using information presented to us .The abilities to learning is only successful when the information gained is use and understood. Learning is the transformative process of information that- when internalize and mixed with what he has experience- change what he knows and build and what he does. It is based On input, process and reflection. It is what changes us.

“Acquire knowledge and skill and having readily available from memory so we should make sense of future problem and opportunities”.

This study's aim was to provide teacher educators with guidance and support needed to apply the knowledge , skill and understandings gained in self-directed learning ,in order to better organize and monitor their own learning more effectively. Learners will apply techniques for managing time, setting appropriate goals, evaluating performances and reporting on their learning. Reflection activities will help learners understand how to apply these skills more broadly to learning other subjects as well. Instructors will assist Self-Directed Learning and more



autonomous learners. For Self-Directed activities learners took the opportunity to learn about aspects of special education that we were not as familiar with.

By Self-Directed learning, the prospective teachers are able to ensure that they fully understood not only Self-Directed Learning but also learning process, how they related to special education and their everyday classroom experienced teacher. In short, the future learners are to learn about the educational policies and rationales behind special education and better understand the process that take place.

Learning is the transformative process of information that- when internalize and mixed with what he has experience- change what he knows and build and what he does. It is based on input, process and reflection. It is what changes us.

Should enhance students' problem-solving ability, student teachers should pay more attention to the positive impact of self-directed learning readiness and academic self-efficacy in student teachers' education.

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### References

- Agassiz & Eliot (2003); metacognitive on student self-directed learning.
- Bandura, A. (1977). *Social Learning theory*, Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). *Self Efficacy; The exercises of control*. New York, NY: Worth Publisher.
- Brookfield, S. (1981). *Self-directed learning: A critical review of research*. In S.
- Brookfield (Ed.). *Self-directed learning: From theory to practice* (pp. 5-16). *New directions for continuing education*; no. 25. San Francisco: Jossey-Bass.
- Bolhuis, S. (2003). *towards processes –oriented teaching for Self-Directed Learning life-long learning. A Multidimensional perspective*. *Learning and instruction* (13) 3 (327-347). doi :10.1016/50959
- Brockett, R.G. (1994). *Resistance to self-direction in adult learning: Myths and misunderstandings*. In R. Hiemstra & R.G. Brockett, R.G. (1994). *Resistance to self-direction in adult learning: Myths and misunderstandings*. In R. Hiemstra & R.G.
- Brockett, R. G., & Hiemstra, R. (1991). *Self-direction in adult learning Perspectives on theory, research and practice*. (p. 2). New York, NY: Routledge
- Brockett, R. G., and Hiemstra, R. (1991) *Self-direction in adult learning: Perspectives on theory, research, and practice*, London: Routledge.
- Brookfield, S. D. (1985) 'Self-Directed Learning: A Conceptual and Methodological Exploration', *Studies in the Education of Adults*, 17/1, pp. 19-32.
- Caffarella, R.S. (2000). *Goals of self-directed learning*. In G.A. Straka (Ed.), *Conceptions of self-directed learning: Theoretical and conceptual considerations* (pp. 37-48). Berlin, Germany: Waxmann.
- Candy, P. C. (1991) *Self-direction for lifelong learning: A comprehensive guide to theory and practice*, Oxford, San Francisco: Jossey-Bass.
- Education Research Conference, Calgary: Faculty of Continuing Education, university of Calgary.

- Garrison, DR. (1997) Self- Directed Learning Toward a comprehensive model Adult Education Quarterly,48(1)18-33 dio:10.1177/07417/369704800113
- Houle, C.O. (1961). The inquiring mind. Madison, University of Wisconsin Press. New York: Association Free Press.
- Khan, A. (2011).Teacher efficacy A Toll to Enhance Academic Achievement of Secondary School .*Language in India* ,11(6),235-247.
- Knowles, M.S. (1975). Self-directed learning: A guide for learners and teachers. New York: Association Free Press.
- Long, H. B. (1993). Self-directed learning knowledge: Some issues. In H. B. Lon and Associates (Eds.), Emerging perspectives of self-directed learning pp. 1-8).
- Norman, OK: Oklahoma Research Center for Continuing Professional and Higher Education of the University of Oklahoma
- Meyer, J.P.,& Stanley L.J.,& Parfyonova , N. M(2010). Employee commitment profiles. Journal of vocational Behaviour ,80, 1-6.
- Merriam& Caffarella, 1999-Andragogy and Self-Directed Learning. Pillars of adult learning theory. New Directions for Adult and continuing Education, 1999(39)
- Myanmar ministry of education Website. Retired December 15 2017, from [http://www.moe.gov mm](http://www.moe.gov.mm)
- Richey,Rita c. The legacy of Robert M.Gagne .2000.283-291
- Schunk, D. H. (1981). Modeling and attributional effects on children's achievement: A self-efficacy analysis. Journal of Educational Psychology, **73**, **93-105**
- Taylor, I.M. Ntoumanis, & STANDAGE, (2008) Journal sport and Exercise Psychology 30,75-94.
- Tough, A. (1971). The adult's learning projects: A fresh approach to theory and practice in adult learning. Toronto: Ontario Institute for Studies in Education.