

A Comparison Of Students' Outcomes In Two Classes: Business Administration Students VS Communication Arts Students Based On Self-Directed Learning Activities

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ABSTRACT

With research showing the benefits of self-directed learning, more activities are needed to provide learners opportunities for self-directed practice (Khomson, 1997; Lee, 1998; Phongnapharuk, 2007). A 12-week experimental study was performed with 80 EFL learners; one group contained 40 Communication Arts students and the other one consisted of 40 Business Administration students. All of them were taught through self-directed learning activities for twelve weeks. The instruments used in this study included an English proficiency test, a self-directed learning questionnaire, a learning style questionnaire, and an opinion questionnaire toward self-directed learning activities. The data were analyzed by One-way ANOVA, dependent and independent t-tests, mean and standard deviation. Results from the statistical tests revealed that students in both groups gained higher English mean scores and self-directed learning abilities at a significance level even with limited time spent practicing language skills in a self-directed environment. When dividing BA and CA students into four learning styles, it was found that language mean scores of students in all the four groups improved significantly; however, only two groups of BA students, namely pragmatists and theorists, improved their self-directed learning ability.

Keywords: self-directed learning; reading comprehension; learning styles

INTRODUCTION

Recently, a kind of learning that has played an important role in language instruction is self-directed learning - one educational goal of the nation. It has been extensively enforced since it was stipulated in the National Education Act of 1999. The Ministry of Education of Thailand has long been attempting to foster autonomous learning in educational practice. The concept of self-directed learning originated in the field of adult education, and many terms used in this kind of learning include independent learning, self-planned learning, autonomous learning, self-education, and so forth (Roberson, 2005). The core concept of self-directed learning, as given in the Longman Dictionary of Language Teaching and Applied Linguistics, involves learners' taking charge of their own learning. The learning particularly concerns learners' selection of learning contents and methods to achieve their learning goal. Knowles (1973) describes self-directed learning as a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. This means the learners take charge of their own learning. Whenever students are aware of some needs for learning, they will continue their studies without being controlled by the others.

As previously mentioned, learners need to have a certain learning capacity in order to become successful learners. According to Littlewood (1996), the capacity refers to ability and willingness to assume learning responsibility. The ability includes both the knowledge and skills for carrying out whatever choices the learners see appropriate for their learning. In addition, Hiemstra & Sisco (1999) define self-directed learning as individualizing instruction, a process focusing on characteristics of the teaching-learning transaction. In essence, this aspect of self-

direction centers on those factors external to the individual. Self-direction is best viewed as a continuum or characteristic that exists to some degree in every person and learning situation. Individual learners can become empowered to take increasingly more responsibility for various decisions associated with the learning endeavor.

According to Peter (2000), self-directed learning places a lot of emphasis on the ability to learn and to continue to learn independently and autonomously. He also states that the trend in learning and teaching in any universities will be oriented to the principles of continuing education and lifelong learning more than before. Self-directed learning is more likely to become true at the university level than any other levels such as in primary and secondary schools because university students have more freedom to select things they like, for example; subjects or study time. Given such opportunities to study on their own to seek knowledge, they are able to direct themselves appropriately to achieve the goal. Since lifelong, self-directed learning (SDL) has been identified as an important ability for Thai graduates, most language curricula have been much developed accordingly. Nowadays, learning activities in EFL classes in higher education level are organized to promote autonomous learning of the students. In addition, many studies were conducted to find out whether the created models or teaching approaches can help improve students' language proficiency as well as their self-directed abilities in the field of language teaching (Phongnapharuk, 2007; Junlapho, 2008; Kim, 2010) and other fields (Suwannasilp, 2000; Wattananamkul, 2001; Pornpan, 2003; Saha, 2006). The findings from those studies have documented the need for students to be prepared for the rapidly changing environment.

Students' learning style is another important aspect that teachers cannot ignore. Understanding the ways in which students learn is a key element to education improvement. Morris, Ross & Kemp (2004) define learning styles as the characteristics individuals demonstrate when undertaking learning tasks and processing information. The importance of learning styles is emphasized in the National Education Act of 1999: Section 24 stating that "In organizing the learning process, educational institutions and agencies concerned shall (1) provide substance and activities in line with the learners' interests and aptitudes, bearing in mind individual differences." The teaching and learning process, then, aims at enabling the learners to develop themselves at their own pace and to the best of their potentiality. This means that, in organizing instruction, learning style is one factor that should be taken into consideration. Using an appropriate teaching method to learners' learning style will help to promote their motivation to learn and enhance their learning potential, leading to higher learning achievement (Brown, 1994).

One of the models dealing with how people take in and possess information is Honey and Mumford's Learning Styles. Honey and Mumford's LSQ has subsequently been applied to a wide range of subjects, including students in higher education (Duff & Duffy, 2002). The LSQ is designed to probe the relative strengths of four different learning styles: activist, reflector, theorist and pragmatist. People with different learning styles can learn best with different situations. Activists are likely to learn best from opportunities to work with other people, or as part of a team, flexible situations without the constraint of rules and guidelines, the opportunity to tackle problems 'head-on', and new challenges and experiences. For pragmatists, they are likely to learn best from understanding the real world application, the opportunity to try things out, having a clear structured plan with a definable purpose. Theorists are likely to learn best from information that is presented in a theoretical framework, opportunities to analyze information and develop a plan, being able to explore the associations and relationships between things. Reflectors tends to learn best from thinking about what has been learned, listening to and observing others, thinking through before acting on them, and working at their own pace which allows them to be thorough and careful (Honey & Mumford, 2000).

Consequently, this study aimed at investigating the effects of self-directed learning activities on students' language ability and self-directed learning skill. However, since individual difference was considered important as mentioned earlier, the experiment was conducted with an awareness of learners' learning styles. It is interesting to find out which learning styles can be improved best by self-directed learning activities. The findings will provide a new way of learning that increases the students' language proficiency, motivation to learning and autonomy.

OBJECTIVES OF THE RESEARCH

This study contains four main research objectives as follows:

- To compare pre-and post-test mean scores of students from the School of Business Administration and students from the School of Communication Arts based on their learning styles.
- To compare post-test mean scores between two groups: students from the School of Business Administration and students from the School of Communication Arts.
- To compare pre- and post-self-directed learning ability of students from the School of Business Administration and students from the School of Communication Arts based on their learning styles.
- To study the opinions toward self-directed learning activities of students from the School of Business Administration and the School of Communication Arts.

SCOPE OF THE RESEARCH

- The subjects in this study included 80 undergraduate students from the School of Business Administration and the School of Communication Arts enrolled in EN111: Fundamental English in semester 1/2009.
- In this study, the independent variable was the teaching process based on three self-directed learning activities while the dependent variables were the students' language ability evaluated by the test, their self-directed learning ability assessed by the questionnaire created by Guglielmino, and their opinion towards self-directed learning activities examined by the opinion questionnaire.

RESEARCH METHODOLOGY

Research Design

The population in this research study was 5,445 students enrolled in the EN 111 course of 3 credits in the first semester of 2009 academic year. The samples included two sections, each of which contained 40 students, got from cluster sampling since students were already assigned to their sections.

Instruments

Four research instruments were used to assess the effectiveness of the self-directed learning activities.

The first one was English proficiency tests designed in parallel form covering reading and writing skills, administered as pre-test and post-test. The total score was 50 points. The contents for testing students included three main parts: 1) read a story and answer 5 questions 2) read a story and write a summary in 3-5 sentences 3) write a paragraph in 50 words. Time allotted for both tests was 100 minutes. The items of the tests were constructed, verified for content validity by three experts and piloted with one class in the previous semester.

The second instrument was a self-directed learning questionnaire. The instrument most widely used in educational research to measure self-directed learning readiness created by Guglielmino (1977) was employed in this study. It consisted of 58 items, and the questions pertaining to 8 factors were labeled as follows: 1. openness to learning opportunities, 2. self-concept as an effective learner, 3. initiative and independence in learning; 4. informed acceptance of responsibility for one's own learning; 5. a love to learn, 6. creativity, 7. future orientation, and 8. the ability to use basic study skills and problem-solving skills. It was a Likert type scale questionnaire designed to measure a degree to which learners perceive themselves as having the skills and attitudes concerning the term "self-directed learning." The scale was structured with a 5-point scale for responses, ranging from almost always true to almost never true. The inventory was submitted to evaluate by 3 experts who have more than 5 years of experience in teaching English for establishing validity. To determine validity each item must get a score of more than 80 percent, and all of the experts (100%) agreed that the items could be used to measure a specific learning style pattern of learners. The validated questionnaire was pilot tested with 20 non-subject students to test for readability and understanding of the items. The validated questionnaire was processed for determining its reliability with 40 non-

subject students by the coefficient alpha technique. The reliability value was .856, implying that the questionnaire was reliable.

The third one was Honey and Mumford's Learning Style questionnaire which was administered to the students to investigate their preferred learning styles. This questionnaire was Likert formatted ranging from 1 to 5 as follows: 1 = strongly disagree, 2= disagree, 3 = neither agree nor disagree, 4= agree, and 5 = strongly agree. All of the items were related to how the students perceived their learning styles -- activist, reflector, theorist, and pragmatist. The questionnaire consisted of totally 24 items, 6 denoting each type of learning styles. Even though it had been widely used in many pieces of research, to make sure of its content validity, the items in the questionnaire were rated again by three experts who have keen experience in teaching English for more than 5 years. To determine validity, each item must get a score more than 80 percent, and all of the experts (100%) agreed that the items could be used for measuring a specific learning style pattern of learners. After that, the validated learning style inventory was processed for determining its reliability with 40 non-subject students by the coefficient alpha technique. The result was highly reliable with the Cronbach alpha coefficient of .814.

The last one was a questionnaire employed to investigate students' opinions towards self-directed learning activities. It was used to investigate how the students felt after they experienced these activities. It consisted of 16 items. The Likert five-rating scale (1= strongly disagree, 2= disagree, 3 = neither agree nor disagree, 4= agree, and 5 = strongly agree) was used for this post-study survey.

Activities For Promoting Self-Directed Learning

The study mainly employed three activities.

Project work was the first activity providing students with the opportunities to work cooperatively in teams, hence equipping them with the knowledge and skills that were necessary for doing a project, e.g. practicing presentation skills, learning to effectively use the Internet, etc. In groups of 5 members, students worked on a project titled "A Person of Integrity". The students chose a living or dead person whom they think deserves to be called "a person of integrity" and investigated more information on this particular person's life. Then, they prepared an interesting oral presentation as a whole group to present a short autobiography of the selected person and their opinions to illustrate why they think this person is a person of integrity. The overall presentation took about 10 minutes. To show their creativity, the students could plan, organize, create, mix and match their own presentation by using various tools: PowerPoint, role-playing, a short VDO clip, etc.

The second one was the use of a learning contract in which students stated their specific objectives over a limited period. Contracts are written agreements between students and instructors, which commonly involve determining the number and type of assignments that are required for particular scores. In this study, there were ten reading passages along with score allocation provided on the teacher's website, and students were required to choose the stories of their interest, depending on their goal set in the contract. To begin, they were required to read the passage. Then they summarized the content of the passage in a few sentences to tell what the passage was mainly about and came up with a personal response. Finally, they needed to answer comprehension questions.

The last one was "Peer Review," an activity requiring students to read each other's draft and give comments on it. "Peer Review" provided students with the opportunity to learn how to provide and receive constructive feedback. The main goal of using peer review is to help both writers and commentators to improve their writing. The peer review in this research was conducted in pairs. The students were trained on the principles of peer correction and how to give feedback so that they would not encounter any difficulties when giving comments. Peer review training was available before the lesson started officially. This means they were taught how to follow the review procedure step by step, how to consult dictionaries when in doubt, and how to write up a comment, etc. Giving feedback focused on the following issues: 1) topic sentence 2) relevant and adequate coverage of topic focusing on central idea or good supporting details 3) coherence (transition use) 4) misspellings 5) mistakes on grammatical points. With this activity, students were expected to be able to write well-organized paragraphs.

Data Collection And Analysis

First, the participants were given the Learning Style questionnaire, self-directed learning questionnaire, followed by a proficiency test of which the total score was 50. Then a 3-hour lesson was taught through self-directed learning activities for 12 weeks. The intervention was followed by the post-test, self-directed learning questionnaire, an opinion questionnaire on self-directed learning. The obtained scores from the test and self-directed learning questionnaire were compared with the previous ones using descriptive and dependent samples t-tests in SPSS Program to reveal changes in language performance and self-directed learning ability. The mean scores of BA and CA students got from the post-test were compared using an independent t-test. P values < 0.05 were considered statistically significant. Also, the data from the opinion questionnaire were analyzed and presented in a form of mean and standard deviation.

RESULTS OF THE EXPERIMENT

Part I: Results Of The English Proficiency Tests

This part contains the proficiency scores of the students who obtained the treatment of self-directed learning. The data from the pre-and post-test scores were quantitatively analyzed by descriptive and inferential statistical procedures, and the findings were examined in light of two research questions: 1 and 2.

Research Question 1: Will students improve their abilities after they are taught with self-directed learning? If so, to what extent?

This research question explores students' score improvement after the treatment by comparing the scores of pre-and post-tests with dependent samples t-test as shown in Table 1.

Table 1. Comparisons Of Pre- And Post- Mean Scores Of BA And CA Students

Group	Before		After		t	p
	\bar{X}	S.D.	\bar{X}	S.D.		
BA students (n=40)	23.97	6.92	29.20	6.21	12.54*	.00
CA students (n=40)	23.62	7.07	32.07	6.25	15.56*	.00

*P< .05

Hypothesis 1: *The reading mean score of the post-test is significantly higher than that of the pre-test.*

From a t-test analysis, the post-test mean score of students from the School of Business Administration was significantly higher than the pre-test mean score $t(39) = 12.54$, $p < 0.05$. This means that the students improve their language proficiency through self-directed learning. The result also indicates that Communication Arts students who had been exposed to self-directed learning made a significant improvement, $t(39) = 15.56$, $p < 0.05$, on their English pre- and post-tests after 12 weeks of the treatment. Therefore, Hypothesis 1 was accepted.

To investigate whether the language improvement existed in every learning style, the overall mean scores of BA and CA students were calculated for mean and standard deviation in the four learning styles -- activist, pragmatist, theorist, and reflector, and t-test analysis was conducted to examine the language improvement .

Table 2. Comparisons Of Pre- And Post- Mean Scores Of BA Students Classified By Learning Styles

Learning Style	Pre-test		Post-test		t	P
	\bar{X}	S.D.	\bar{X}	S.D.		
Activist (n=9)	22.33	6.84	27.78	5.99	5.51*	.00
Pragmatist (n=15)	23.33	7.19	28.40	6.29	7.87*	.00
Theorist (n=10)	25.10	8.05	29.60	7.62	8.00*	.00
Reflector (n=6)	26.17	4.79	32.67	2.80	4.27*	.00

*P< .01

Hypothesis 2: BA Students in the four learning styles improve their mean scores significantly.

Table 2 shows that the mean scores of BA students in the four learning styles improved significantly after the experiment. This means that all learning styles can be best improved by self-directed learning. Hypothesis 2 was accepted.

Table 3. Comparisons Of Pre- And Post- Mean Scores Of CA Students Classified By Learning Styles

Learning Style	Pre-test		Post-test		t	P
	\bar{X}	S.D.	\bar{X}	S.D.		
Activist (n=8)	20.37	6.61	30.75	6.56	9.03*	.00
Pragmatist (n=15)	26.60	8.01	34.33	7.04	8.78*	.00
Theorist (n=9)	21.67	5.34	30.44	4.19	7.62*	.00
Reflector (n=8)	23.50	6.19	31.00	6.14	6.20*	.00

*P < .05

Hypothesis 3: CA Students in the four learning styles improve their mean score significantly.

Table 3 shows that the mean scores of CA students in the four learning styles improved significantly after the experiment. This means that all learning styles can be best improved by self-directed learning. So, Hypothesis 3 was accepted.

Research Question 2: Is there a significant difference in mean scores between the two groups after they have studied through self-directed learning?

Since the two groups were cluster randomized, the pre-test scores were used to observe the normal distribution within both groups by the Quantile-Quantile Plot (Q-Q Plot) to ensure that they represented the normal population. Once the distribution of both groups was proven to be normal, the English pre-test mean scores of both groups were compared to ensure that their levels of proficiency were similar before their post-test scores were compared. No significant difference existed in the pre-test scores between two groups, but there was a significant difference in the post-test scores between two groups as below:

Table 4. A Comparison Of Post-test Mean Scores Between The BA Group And CA Group

Group	\bar{X}	S.D.	df	t	p
BA students (n=40)	29.20	6.21	78	2.064*	.04
CA students (n=40)	32.07	6.25			

*P < .05

Hypothesis 4: The mean scores of the BA and CA groups are significantly different.

To test the hypothesis and to see the efficacy of the intervention, students' mean scores obtained from the post-test of the two groups were analyzed using an independent t-test to see if there was a statistically significant difference. Table 4 indicates that the overall mean score of the CA group was different from that of the BA group (32.07, 29.20). As a result, a t-test analysis showed a statistically significant difference in their proficiency at a level of .05. Therefore, Hypothesis 4 was accepted.

Table 5. Comparisons Of Mean Scores With The Criteria

Group	\bar{X}	percentage	result
BA students (n=40)	29.20	58.40	not pass
CA students (n=40)	32.07	64.14	pass

**full score: 50/ criteria = 60 %

Table 5 indicates that the mean score of BA students was only 29.20 or 58.40 per cent, so their score did not meet the criteria. The CA students got 32.07 or 64.14 per cent; therefore, their score met the set criteria.

Part II: Results of Self-directed Learning Abilities

Research Question 3: To what extent do Bangkok University students with different learning styles improve their self-directed learning ability?

Table 6. Mean, Standard Deviation, T-test Analysis Of Self-Directed Learning Ability Obtained From The BA Group Classified by Learning Styles

Learning Style	Pre-test		Post-test		t	p
	\bar{X}	S.D.	\bar{X}	S.D.		
Activist (n=9)	199.22	14.04	203.00	12.66	2.03	.07
Pragmatist (n=15)	206.93	15.79	212.40	14.10	3.63*	.00
Theorist (n=10)	197.20	11.74	207.10	17.27	3.92*	.00
Reflector (n=6)	202.50	9.65	205.33	9.00	2.10	.09

*P < .05

Hypothesis 5: BA Students in the four learning styles will obtain significantly higher self-directed ability after they are exposed to self-directed learning.

It was found that only two learning styles namely pragmatist and theorist in the group of BA students developed their self-directed ability at a significance level of .01 while the two learning styles namely activist and reflector did not improve their self-directed learning ability. So, Hypothesis 5 was not accepted.

Table 7. Mean, Standard Deviation, T-test Analysis Of Self-Directed Learning Ability Obtained From The CA Group Classified by Learning Styles

Learning Style	Pre-test		Post-test		t	p
	\bar{X}	S.D.	\bar{X}	S.D.		
Activist (n=8)	205.62	15.81	212.25	16.08	4.57*	.00
Pragmatist (n=15)	208.33	14.26	222.53	15.19	3.74*	.00
Theorist (n=9)	190.22	19.25	215.00	16.63	3.92*	.00
Reflector (n=8)	201.25	17.10	215.12	24.40	2.91*	.02

* P < .05

Hypothesis 6: CA Students in the four learning styles will obtain significantly higher self-directed ability after they are exposed to self-directed learning.

The results from the self-directed learning strategies questionnaire have shown that there were differences between pre-and post mean scores of the four learning styles for CA students at a significance level of .05. It can be concluded that CA students in all learning styles gained higher self-directed ability at a significant level. Therefore, Hypothesis 6 was accepted.

Table 8. Comparisons Of Pre-And Post- Self-Directed Ability Of BA And CA Students

Group	Before		After		t	p
	\bar{X}	S.D.	\bar{X}	S.D.		
BA students (n=40)	202.10	13.81	207.90	14.07	5.70*	.00
CA students (n=40)	202.30	17.38	217.30	17.63	6.34*	.00

*P < .05

Hypothesis 7: *The self-directed learning mean scores of the BA and CA groups increase significantly after the treatment.*

From Table 8, it was found that BA and CA students gained higher self-directed learning ability after the intervention at a significance level of .05. That is, self-directed learning activities could be used to enhance self-directed learning ability of the two groups. Therefore, Hypothesis 7 was accepted.

Part II: Results Of Opinions Towards Self-Directed Learning Activities

Research Question 4: How do the students in the two groups react to self-directed learning activities?

It was expected that the students in the treatment group are likely to have a positive opinion towards self-directed learning activities. (Mean score of opinion ≥ 3.5 from the 5-point scale on the questionnaire).

Table 9. Mean, Standard Deviation, And Level Of Opinion Scores Of BA And CA Students

Statement	BA		CA	
	\bar{X}	S.D	\bar{X}	S.D
1. The activities made me feel like having more participation.	4.20	.52	4.43	.59
2. The activities gave me more motivation to learn.	4.08	.57	4.00	.60
3. Signing a learning contract made me realize and have more responsibility to accomplish my work as promised.	4.13	.61	4.20	.61
4. A learning contract made me have strong determination to accomplish my work as promised.	3.90	.63	4.05	.64
5. The activities enabled me to become mature and self-disciplined.	4.05	.60	4.05	.64
6. The activities provided me with an opportunity to study more broadly.	4.00	.64	4.40	.59
7. The activities made me learn to acquire knowledge more.	3.80	.76	4.00	.72
8. I had an opportunity to study from a variety of sources through these activities.	3.95	.68	4.05	.68
9. I had more decision on how to learn through this learning.	4.15	.58	4.10	.55
10. The activities helped me to understand the contents well.	4.08	.73	4.25	.67
11. These activities didn't give too much burden to students.	4.13	.52	4.13	.69
12. Doing assignments about what I had studied from different sources helped me to gain knowledge.	4.25	.63	4.20	.61
13. The activities made me learn freely.	4.00	.55	4.13	.56
14. I could control my own learning based on the activities given.	4.13	.56	4.10	.59
15. The activities encouraged me to acquire knowledge on my own.	4.03	.66	4.20	.69
16. The activities increased my confidence in my study.	3.78	.80	4.00	.72
Total	4.04	.28	4.14	.30

Table 9 showed that the overall mean scores of opinion of the BA and CA students were at a high level as expected ($\bar{X} = 4.04, 4.14$). The three highest mean scores for BA students fell on item no. 12, no. 1, and no.9 accordingly (studying from different sources, more participation, and more decision on how to learn). However, the three highest mean scores for CA students were different. CA students chose item no. 1, the most, followed by no. 6, and no. 10 (having more participation, studying more broadly, and understanding the contents).

DISCUSSION

This study was carried out to determine whether the self-directed learning is a better approach to teaching the English language in Thailand. The findings are summarized below:

First, from the obtained findings, this study provided sufficient support for the improvement of the language ability of EFL learners after using self-directed learning activities to help them have more chances in planning, monitoring as well as evaluating their learning outcome. These effective results were evidenced by the obviously higher mean scores obtained from the pre- to post-tests of the two groups (BA students = 23.97: 29.20, CA students = 23.62: 32.07). The reason for this might be because the students were given an opportunity to set the

goal for learning. Signing the learning contract motivated them to be more responsible for their study. Especially, when language abilities were examined based on their learning styles, the mean scores of students in the four learning styles still improved significantly after the experiment. This finding could be used to confirm that students in all learning styles could improve their English proficiency through self-directed learning. This kind of learning still appeared to be not only practical but also efficient. Such findings generally lend support to the published research in the field of language teaching and others (Suwannasilp, 2000; Wattananamkul, 2001; Pornpan, 2003; Saha, 2006; Kim, 2010; Phongnapharuk, 2007). This might be because the students had more opportunities to take charge of their learning. Also, the score increase may be particularly due to the steps that were demonstrated clearly and the objectives that were stated repeatedly by the instructor. This reason can be supported by Hiemstra & Sisco (1999) stating that individual learners can become empowered to take increasingly more responsibility for various decisions associated with the learning endeavor. However, it is interesting to see that BA students did not gain enough scores to pass the criteria in spite of the increasing scores while CA students' obtained scores could meet the criteria. This is probably because of the nature of BA students themselves; they rather did not accept the new way of learning. They were rather fixed to the subject contents and teaching methods in their own field. It might take some time to adjust themselves to self-directed learning. For Communication Arts students, the contents in their field are rather flexible and adaptable, so they tend to adjust themselves easily to anything new.

Second, there was a change in the subjects' self-directed learning ability. After the experiment, it was found that two groups of students (BA and CA students) significantly improved their self-directed learning ability at the .05 level. This is probably due to the three self-directed learning activities used as the methods or procedure in the learning process management provided the learners with more chances to decide on the outcomes. Also, they were able to choose the learning contents and methods to achieve their learning goal. This finding can be employed to confirm that self-directed learning ability can be enhanced in a self-directed learning environment. However, when learning styles were considered, it is interesting to see that only two learning styles, namely pragmatist and theorist in the group of BA students could increase their self-directed ability while CA students in all learning styles gained higher self-directed ability at a significant level of .05. The result informed us that not all activists and reflectors can significantly improve their self-directed learning skill; there should be some factors to be considered such as the students' field of study.

RECOMMENDATIONS FOR FURTHER STUDIES

First, it is recommended that future research should extend to investigate a broader sample of students to gain better understanding of the effect of self-directed learning activities. Second, there should be two groups, employing different treatments to compare the results since the findings from the present study are relevant to only one treatment: self-directed learning. Third, it is interesting to achieve transferability by conducting further studies in other contexts, with local resources or with other participants. Finally, it is recommended that other kinds of qualitative instruments such as semi-structured interview and learning logs should be included in future studies. These instruments are needed to allow a more in-depth study.

AUTHOR INFORMATION

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