

A Study of the Relationship between Self-Determination, and English Learning Outcome to Junior College Students in Taiwan-The Mediating Effect of Learning Engagement

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ABSTRACT: *Students in junior colleges in Taiwan seem to have lower achievement in English, comparing with those in junior high schools and universities, but they'd like to put more efforts on it as long as they are motivated. The purpose of the study was to ascertain self-determination motivators towards the learning outcome mediating by learning engagement and secondarily to test the hypothesis that, from evaluation of English learning outcome, self-determination motivators are mediated by learning engagement by the students. About 339 completed questionnaires were received from a junior college in Eastern Taiwan in the 2015 academic year. The Motivation Scale-College Version (AMC-C28) and the Student Course Engagement Questionnaire (SCEQ) are the research instruments as well as students' academic records. The results showed that self-determination motivators have a significant indirect influence on learning outcome by learning engagement, while only attitude indicator has a significant indirect influence. The conclusion is that self-determination, intrinsic motivation and extrinsic motivation causes English learning outcome and the effect is mediated by learning engagement and attitude engagement. The suggestions are that students can change their attitudes toward English learning for better performance and teachers can help student focus on what their favorite ways to learn English.*

KEYWORDS -self-determination theory, English learning outcome, junior college, learning engagement, Taiwanese students

I. INTRODUCTION

English is one of the most commonly spoken languages in the world and is used as a means of communication by many countries. As a result, English can be considered to be an international language and is spoken in a variety of contexts such as schools, places of work, and in daily conversations. Now those in many non-native English speaking countries, ranging from Tunisia in North Africa to Turkey in southern Europe, have become aware that English is a key when moving between countries (Wu and He, 2011). Since 2005, third grade elementary school students in Taiwan have had to study English as one of their main subjects, while in other Asian countries such as Japan, Korea, and Thailand, advanced English education has been compulsory in the elementary stage (Li, Chuang, and Fu, 2005) since then. China introduced the same criteria a year earlier.

To advance improvement in English education, Taiwan's Ministry of Education (MOE), was given a budget of 500 million dollars to undertake a big project: top universities and/or research centers were to employ more foreign teachers and recruit more international students. The outcome of this project has been that the number of English classes or programs where the participants use only English as the instrument of instruction has grown dramatically on campuses. For a long time now, other higher vocational educational systems apart

from schools and universities have focused on English improvement because of its importance in the workplace, not just as a school subject. In 2003, the MOE implemented “The Project for Enhancing Students' Foreign Language Proficiency” which is still in place. Furthermore, in 2010 the MOE’s Department of Technological and Vocational Education implemented a project named “Reshaping Technological-Vocational Education” which includes the policy of enhancing college students’ Basic English proficiency and encourages them to achieve an international license by passing an English proficiency test such as TOEIC, TOFL, or the IELTS.

It is apparent, from the introduction of the policies outlined above, that in Taiwan, educating students to achieve more than merely an understanding of English at a basic level, but to become proficient in the language is of national importance. Analyzing the outcomes of the focus on the learning of English is complex and cannot only be based on school results or English proficiency tests. Effective learning depends on student’s motivation. Without motivation, learning will be limited. This study aims to examine English education in Taiwan, especially at the junior college level. It will analyze the causes of low achievement in English learning and identify the relationship between motivation and English learning outcomes.

The education system in Taiwan comprises 12 years of compulsory schooling plus higher education, which includes universities and graduate schools. Students must complete a minimum of three years at senior high schools or vocational high schools after their time at junior high schools. Alternatively, students can choose to do five years at a junior college if they wish to study for higher degrees. In the Chinese culture, graduating with at least a bachelor’s degree is highly regarded and is believed that such a qualification will open the doors to good jobs.

In response to the growing demands of parents for their children to obtain a degree, more and more universities have been established during the last few decades. However, junior colleges are crumbling. This is due to the increase in the number of universities, the falling birth rate, and the fact that tuition fees at senior high schools or vocational schools are conditionally exempted. In addition, more and more universities have recently re-established colleges to recruit potential students. How has this affected junior colleges? Do they in fact need to exist? It is common knowledge that junior college graduates are more practical and have reliable work ethics. Students can carry their experiences and skills into pre-service training if they study at junior schools and will be ready to work when they graduate.

Compared to other students, junior school students are keen to learn and they are independent in their learning habits. However, while they are expected to get better grades in school subjects, this is not always the case. Chang, Yuan, Lin, & Li, (2013) concluded that the reason for this is that these students’ English skills are very weak due to the inconsistency in the curriculums of junior schools and junior colleges. Xie (2016) reported an example of a student who was good at English but had dropped out of a five-year program of a junior college simply because the standard required for English was too low and he felt he would not be able to progress. It’s apparent that junior college students are not taking responsibility for learning English and are not engaging with the subject. Another perspective is that getting a degree has become easier than in previous years and students do not regard their education as an indication of success. They incorrectly assume that their efforts are directed at specific results and they are not intrinsically motivated to acquire knowledge. Although considerable research has been devoted to the current situation of Taiwanese junior college students’ weak English ability, strong learning motivation, and the contribution of engagement, rather less attention has been paid on the relationship among learning engagement, learning outcome and motivation. The introduction of the paper should explain the nature of the problem, previous work, purpose, and the contribution of the paper. The contents of each section may be provided to understand easily about the paper.

II. LITERATURE REVIEW

Motivation is the first step in learning. Without motivation, there is no starting point for acquiring knowledge. Self-determination theory (SDT), which was developed by Deci and Ryan in 1985, considers intrinsic motivation, extrinsic motivation, and amotivation. Deci and Ryan declared that humans have three psychological needs (universal, innate and psychological which include the need for competence, autonomy and

psychological relatedness) that influence a person's motivation. These have to be supported by the social context and the process is dynamic while motivation is being internalized. Intrinsic motivation satisfies all three human needs and is therefore optimal.

When it comes to learning, individuals will make their own decisions. Unless students have intrinsic motivation, they will only make a worthwhile contribution to the subjects they are interested in and have no regrets about doing so. Liao (2009) concluded that when it comes to learning English, senior high school students' learning environment, self-determination, learning strategies and learning outcomes are strongly connected: the learning environment affects self-determination; self-determination affects learning; and learning strategies affect learning outcomes. Hsu (2010) and Wang (2011) declared that highly motivated university students are more proficient in English and obtain better learning outcomes when they have a choice about how they learn. Interestingly, Chang (2014) found no significant difference in learning outcomes between students who had prior sight of the English exam questions and those who did not. Outcomes are more influenced by high autonomy and self-perception. Students who are self-motivated when preparing for the English exam will achieve better results than those who lack such motivation. Hence, students in a good environment for learning English (social context) and who are motivated to learn (interest) tend to be immersed in English and learn better.

Learning engagement refers to a variety of learning activities, such as studying, interaction with colleagues, physical training, and time management. External factors may also motivate/affect individuals' learning engagement. While a student may be motivated by a great program, a good lecture, an excellent instructor, or a government education policy, it is still the student who has to take the first step in the learning environment and contribute to the development learning skills. It is only after these steps are taken that learning outcomes will be influenced. Therefore, it is important to observe how students learn instead of only estimating how students are affected. When it comes to students' learning, the focus should be on persistence, meaning, and time.

First, persistence is a way to do a certain activity continuously. It also applies to English learning. Dale (1969) referred to a theory known as the Cone of Learning that he developed in 1946, which was tested in National Training Laboratories in the United States in 1969. The Cone of Learning is shown in Figure 1. The Cone of Learning was developed as the better known "Learning Pyramid". The theory behind the Learning Pyramid is that learners will retain approximately 90 percent of what is learned depending on the process they use: for the best results, they need to master the content, internalize it and then teach it to others. Learners will gain most of the learned knowledge in the end. The Learning Pyramid is shown in Figure 2.

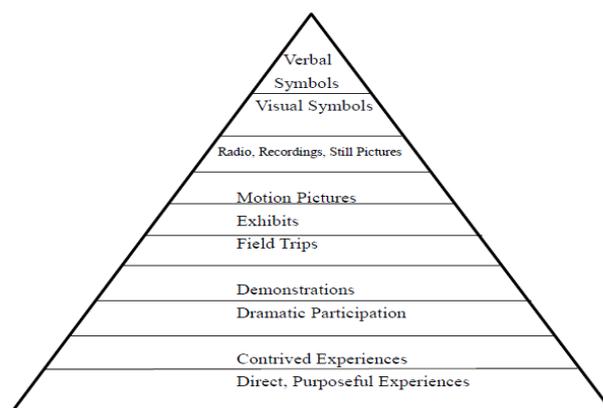


Figure 1. Cone of Learning

Source: Adapted from E. Dale. (1946). *Audio-visual methods in teaching*. New York: Dryden Press, p39.

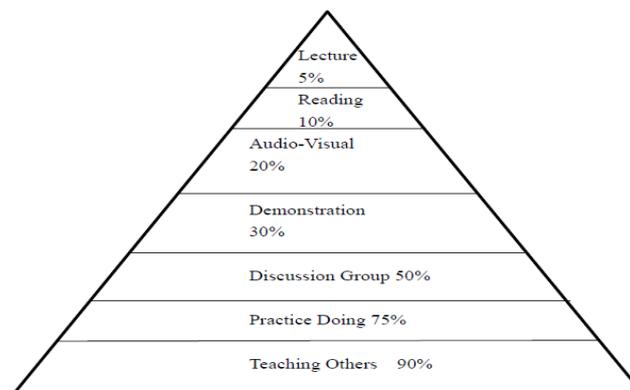


Figure 2. Learning Pyramid (average learning Retention Rates)

Source: National Training Laboratories, Bethel Maine

While the National Training Laboratories provides a pyramid that indicated the retention of what learners have learned based on experiments in 1969, Dale had more findings about the learning pyramid regarding theory and personal observation (Dale, 1969). To summarize the numbers, Dale claimed that learners retain approximately:

90% of what they learn when they teach someone else/use immediately.

75% of what they learn when they practice what they learned.

50% of what they learn when engaged in a group discussion.

30% of what they learn when they see a demonstration.

20% of what they learn from audio-visual.

10% of what they learn when they've learned from reading.

5% of what they learn when they've learned from lecture.

Since learners use the way of interacting with other and/or learning materials to learn, it is assumed that they remain more than 50 percent of what they learn, meaning they are not only supposed to have higher number of retention of learning,, but the more they engage into learning, the higher number of retention there is.

Secondly, it is believed that if learners perceive the target knowledge as meaningful or will become meaningful, they will be eager to learn and/or achieve expected learning outcomes. Ausubel (1978) claimed that learning for meaning is a good way to steadily connect new knowledge to cognitive structures. When learning new concepts, learners are about to acquire knowledge only if the target knowledge is within the cognitive load and a well-structured advanced organizer is the key to connect their prior knowledge with the new knowledge. Furthermore, some researchers found that learners discover their learning style spontaneously and what they learn becomes part of their cognitive structure. This is genuine learning (Lin, 1990; Yang, 2006; Zhong, 2007). Finally, time spent and learning outcomes are positively related. The more time spent on learning, the greater the likelihood of success (de Bilde, Vansteenkiste, & Lens, 2011; Drake, Duncan, Sutherland, Abernethy, & Henry, 2008; Phan, H. 2009a, Phan, H., 2009b). King (2015) used the Time Perspective Model developed by Zimbardo and Boyd to monitor Filipino university students' learning outcomes He found that students who have a positive attitude to learning, are motivated to learn more and expect to be successful. Delayed gratification, which appears in the Zone of Proximal Development (ZPD), contributes to better results.

Learning outcome is a measurement of achievement and the result of certain learning activities. The relationship between the learning process and results is complex and it is not always the case that those who are self-motivated do better than those who are less motivated. However, it is believed that there are certain mediators that can positively influence the results (Ho and Peng, 2016; Huang, Lu, and Kong, 2012). Meaningful interaction with teachers and colleagues is good for learning and is especially beneficial for good outcomes (National Survey of Student Engagement, 2016).

To summarize, learning begins with motivation and motivation is related to the outcome of learning. Motivation determines how students learn. When students take learning as a process to attain success, they tend to take meaningful steps to get as involved with their learning as possible. The level of engagement in learning involves persistence, making the process meaningful, and spending time learning. These are all positively related to learning outcomes.

III. THE RESEARCH FRAME AND THE HYPOTHESES

Considering the purpose and based on the literature review, it is assumed that Taiwanese Junior College students' self-determination is the start of English learning to English learning outcome that English learning outcome is possibly related to their self-determination and leaning engagement. Self-determination includes intrinsic motivation and extrinsic motivation, while learning engagement is supported by skills engagement, attitude engagement, emotion engagement, interaction engagement, and performance engagement. The research frame is as follows.

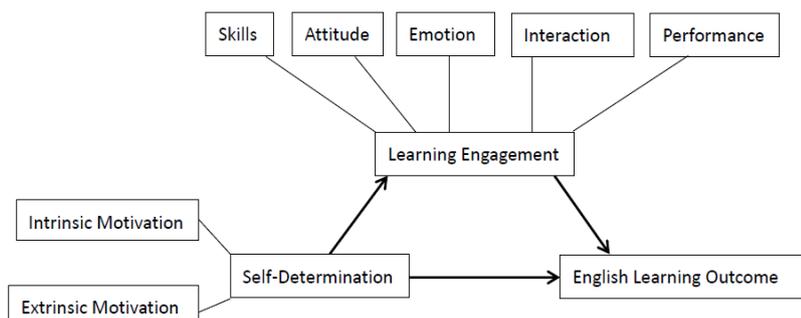


Figure 3. The research frame

In the research frame, self-determination is the independent variable, English learning outcome is the dependent variable and the relationship between the two variables is mediated by learning engagement. It is assumed that students' English learning outcome is positively related to self-determination and its two motivators, which refer to intrinsic motivation and extrinsic motivation, and learning engagement and its five factors, which refer to skills, attitude, emotion, interaction, and performance, as well. Therefore, here are the four hypotheses in the study.

Hypothesis 1 Taiwanese Junior College students' English learning outcome is positively related to their self-determination motivator and learning engagement.

Motivation is the base of learning and learning starts from motivation. When students are motivated to learning things, it has more chance for them to learn successfully or to meet the requirement of achievement of training. When students make contact with learning targets, they make sense to them and become a part of their lives. Day after day, learning engagement has something to do with English learning outcome.

Hypothesis 2 Taiwanese Junior College students' Self-Determination motivators are positively related to their learning engagement.

There is always a reason that students get engaged into something. They may be curious, interested, and/or eager to the thing, but whatever the reason, the motive makes them become a part of learning.

Hypothesis 3 Taiwanese Junior College students' self-determination motivators cause English learning outcome.

Students have better performance only if they value learning. They may want to have good results of English at school, to pass English class, to avoid bad results, to reduce possible disasters. However much they contribute to English learning outcome, self-determination is the starter.

Hypothesis 4 The relationship between Taiwanese Junior College students' English learning outcome and their self-determination motivators is mediated by learning engagement.

English is a foreign language in Taiwan, where Taiwanese Junior College students learn English as a school subject. If learning starts from motivation, then it can be said that learning engagement plays an important role between motivation and English learning outcome. Students have to pay attention on English, no matter the language, the culture, or the function, since they don't usually acquire English spontaneously. It is assumed that self-determination has direct influence on English learning outcome and also the relationship between self-determination and English learning outcome is mediated by learning engagement in some way.

IV. METHODOLOGY

To test the hypotheses, three research instruments were used in the study: a questionnaire to do with self-determination, a questionnaire to do with learning engagement, and academic records. The questionnaire of self-determination was a modification of the Motivation Scale-College Version (AMC-C28), while the questionnaire of leaning engagement was modified from the Student Course Engagement Questionnaire (SCEQ). AMC-C28 is a questionnaire developed by Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres in 1992 for measuring self-motivation; SCEQ is a questionnaire that was developed to measure college students' engagement in their learning. It has been established that these two research instruments are reliable (AMC-C28 Cronbach's $\alpha = .8$, SCEQ Cronbach's $\alpha = .94$) so they meet the research requirements of this study. The questionnaires were modified by six experts engaged in English teaching, statistics, and education. Then a pilot test was administered to form formal ones. The participants whose learning outcomes were assessed from their results in English classes during the 2015 academic year were general English class students in a junior college on the east coast of Taiwan. Their ages ranged from 16 to 18 years and they were all majoring in nursing. There were 115 participants in the pilot test and 110 valid questionnaires were collected. After the pilot test, the researcher identified and administered the formal questionnaires to six classes and when the questionnaires had been completed and collected, the researcher obtained their participants' academic records from their English teachers for data analysis. To meet the purpose of the study, 350 students were chosen as participants. The valid questionnaire number was 339, which refer to 96.81 percent response rate.

SPSS version 21.0 for Windows was used to perform the following analyses: First, descriptive statistics, including frequencies, mean, maximum, minimum and standard deviation, for the scale was estimated. Next, Correlation Analysis, Independent Sample t test, one way ANOVA, and Regression Analysis were performed to detect any significant differences among students' English learning outcome, self-determination motivators, and learning engagement. Finally, the PROCESS macro for SPSS, which was written by Andrew (2015), was conducted to analyze a *hypothesized mediation model to explore if there was any significant difference in the relationship between self-determination and English learning outcome.*

Academic integrity is important when the research involves people. Such integrity establishes that the researcher has obeyed regulations and/or met society's norms, making the study more reliable, influential and a contributor to social responsibility. In this study, all participants agreed to take part and signed the questionnaires confirming this, thus meeting the requirements of academic integrity. Any questionnaires that had not been signed were excluded.

V. RESULTS

After the data had been collected, there were 339 participants, 92 of whom were males and 247 females and the biggest group (36.28 percent) were in their second year of study. The next biggest group comprised first-year students (34.81 percent: 118 students). The summary of the descriptive statistics of the participants is given in Table 1.

Table 1. Summary of Participants' Descriptive Statistics

| | | Participants | Percentage | |
|---|--------|--------------|------------|--------|
| 1 | Gender | Male | 92 | 27.14 |
| | | Female | 247 | 72.86 |
| | | Total | 339 | 100.00 |
| 2 | Year | First | 118 | 34.81 |
| | | Second | 123 | 36.28 |
| | | Third | 98 | 28.91 |
| | | Total | 339 | 100.00 |

The self-motivation questionnaire had two parts: intrinsic motivation and extrinsic motivation – the mean was 3.583 for intrinsic motivation and 3.574 for extrinsic motivation. The learning engagement questionnaire had five parts: the highest mean was attitude (3.607), the second highest mean was emotion (3.251). The summary of the self-motivation and learning engagement's descriptive statistics is shown in Table 2.

Table 2. Summary of Self-Motivation and Learning Engagement's Descriptive Statistics

| Parts | M (SD) | Max. | Min. |
|---------------------|----------------|--------|--------|
| Self-Determination | 3.573(0.548) | 5.000 | 1.826 |
| | Intrinsic | 5.000 | 1.250 |
| | Extrinsic | 5.000 | 2.000 |
| Learning Engagement | 3.223(0.584) | 5.000 | 1.000 |
| | Skills | 5.000 | 1.000 |
| | Attitude | 5.000 | 1.333 |
| | Emotion | 5.000 | 1.000 |
| | Interaction | 5.000 | 1.000 |
| | Performance | 5.000 | 1.000 |
| Learning outcome | 62.651(13.117) | 95.500 | 24.110 |

N=339

The test of homogeneity of variance showed that the sample's significance was .150 ($>.05$) meaning there is no significant difference. The result was shown in Table 3.

Table 3. Test of Homogeneity of Variance

| Levene statistic | df 1 | df 2 | Sig. |
|------------------|------|------|------|
| 2.092 | 1 | 172 | .150 |

The relationship between self-determination, learning engagement, and learning outcome

There are three variables in the study. To know more about the relationship between these variables, a Pearson Product-Moment Correlation was used to examine its power of relation. The results are shown in Table 4.

Table 4. Correlations Summary

| | Intrinsic | Extrinsic | Learning engagement | Learning outcome |
|-----------|---------------|---------------|---------------------|------------------|
| | - | | | |
| Intrinsic | .950** | - | | |
| Extrinsic | .928** | .765** | - | |

| | | | | | |
|---------------------|---------------|---------------|---------------|---------------|---|
| Learning engagement | .345** | .301** | .352** | - | |
| Learning outcome | .133* | .148** | .098 | .252** | - |

** Correlation is significant at the 0.01 level; * Correlation is significant at the 0.05 level

It is apparent that extrinsic motivation is not relevant to learning outcome but, the other factors were significantly related to each other. Since self-determination, learning engagement, and learning outcome are significant related, linear regression analysis could be used to know the predictability. Two analysis models were built into the study. In model one, self-determination and learning engagement were the independent variables and learning outcome was the dependent variable. In model two, self-determination was the independent variable, and learning engagement was the dependent variable. The results are shown in Table 5.

Table 5. One-way ANOVA Summary

| | Sum of Square | df | Mean Square | F value | |
|---------------------|-----------------------------|------------|-------------------|----------------------------|----------------|
| Regression | 3822.378 | 2 | 1911.189 | 11.818** | |
| Residual | 54337.655 | 336 | 161.719 | | |
| Total | 58160.033 | 338 | | | |
| | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| Model 1 | .256 | .066 | .060 | 12.717 | |
| | Unstandardized Coefficients | | | Standardized Coefficients | t value |
| | B | Std. Error | β | | |
| (constant) | 41.246 | 5.161 | | | 7.992 |
| Self-Determination | 1.262 | 1.345 | .053 | | .938 |
| Learning Engagement | 5.242 | 1.262 | .233 | | 4.154* |
| | Sum of Square | df | Mean Square | F value | |
| Regression | 13.721 | 1 | 13.721 | 45.537** | |
| Residual | 101.540 | 337 | .301 | | |
| Total | 115.261 | 338 | | | |
| | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| Model 2 | .345 | .119 | .116 | .549 | |
| | Unstandardized Coefficients | | | Standardized Coefficients | t value |
| | B | Std. Error | β | | |
| (constant) | 1.909 | .197 | .345 | | 9.691 |
| Self-Determination | .368 | .054 | .345 | | 6.748** |

* p < 0.05 ** p < 0.01

As can be seen from Table 5, the standardized coefficient β of learning engagement was .233 ($p < .05$) in model one, while the standardized coefficient β of self-determination was .345 ($p < .05$) in model two, meaning that both were significant. In model one, however, the standardized coefficient β of self-determination, which was .053 ($p > .05$), was not significant, meaning the direct effect was not significant. In the other words, self-determination may be mediated by learning engagement and have a significant influence on learning outcome.

To clarify the uncertain mediators, learning engagement was tested as the mediator by using SPSS PROCESS model four, moving-block bootstrap method with 5,000 repetitions. The result showed that the total effect of self-determination on learning outcome was significant, as well as the indirect effect, meaning learning engagement was the mediator between self-determination and learning outcome. This is shown in Table 6.

Table 6. The mediated effect of self-determination on learning outcome

| Total Effect of X on Y | | | | | |
|---|------------|-------------|-------------|-------------|-------------|
| Coeff. | Std. Error | t value | p value | Lower bound | Upper bound |
| 2.705 | 1.453 | 1.861 | .064 | .155 | 5.564 |
| Direct Effect of X on Y | | | | | |
| Coeff. | Std. Error | t value | p value | Lower bound | Upper bound |
| .739 | 1.498 | .493 | .622 | -2.208 | 3.686 |
| Indirect Effect of X on Y | | | | | |
| Coeff. | Std. Error | Lower bound | Upper bound | | |
| 1.965 | .733 | .820 | 3.755 | | |
| Partially Standardized Indirect Effect of X on Y | | | | | |
| Coeff. | Std. Error | Lower bound | Upper bound | | |
| .152 | .056 | .064 | .284 | | |
| Completely Standardized Indirect Effect of X on Y | | | | | |
| Coeff. | Std. Error | Lower bound | Upper bound | | |
| .074 | .027 | .032 | .140 | | |

X: Self-Determination; Y: Learning Outcome

The mediated effects

To understand more about how learning engagement affects different self-determination motivators (intrinsic motivation and extrinsic motivation) with learning outcome as the mediator, the model was re-estimated, again using SPSS PROCESS model four, moving-block bootstrap method with 5,000 repetitions, but this time intrinsic motivation and extrinsic motivation were estimated separately as independent variables. The results showed that the total effect of intrinsic motivation on learning outcome was significant, as well as the total effect of extrinsic motivation. In addition, the indirect effects of intrinsic motivation and of extrinsic motivation on learning outcome were both significant, meaning learning engagement was the mediator between intrinsic /extrinsic motivation and learning outcome. The results are shown in Table 7.

Table 7. The mediated effects of different self-determination motivations on learning outcome

| Total Effect of X on Y | | | | | | |
|---|--------|------------|-------------|-------------|-------------|-------------|
| | Coeff. | Std. Error | t value | p value | Lower bound | Upper bound |
| X1 | 3.032 | 1.155 | 2.626 | .009 | .761 | 5.304 |
| X2 | 2.407 | 1.180 | 2.040 | .042 | .086 | 4.730 |
| Direct Effect of X on Y | | | | | | |
| | Coeff. | Std. Error | t value | p value | Lower bound | Upper bound |
| X1 | 1.637 | 1.186 | 1.380 | .169 | -.697 | 3.971 |
| X2 | .713 | 1.228 | .581 | .562 | -1.702 | 3.129 |
| Indirect Effect of X on Y | | | | | | |
| | Coeff. | Std. Error | Lower bound | Upper bound | | |
| X1 | 1.395 | .544 | .556 | 2.714 | | |
| X2 | 1.694 | .655 | .656 | 3.277 | | |
| Partially Standardized Indirect Effect of X on Y | | | | | | |
| | Coeff. | Std. Error | Lower bound | Upper bound | | |
| X1 | .108 | .041 | .043 | .206 | | |
| X2 | .131 | .050 | .051 | .246 | | |
| Completely Standardized Indirect Effect of X on Y | | | | | | |
| | Coeff. | Std. Error | Lower bound | Upper bound | | |
| X1 | .066 | .025 | .026 | .128 | | |
| X2 | .078 | .028 | .031 | .140 | | |

X: Self-Determination; Y: Learning Outcome; X1 intrinsic motivation; X2 extrinsic motivation

The mediator and its factors

As we have determined, learning engagement interacts with self-determination, intrinsic motivation and extrinsic motivation to influence learning outcome. In other words, learning engagement is the mediating factor in self-determination and learning outcome, as well as intrinsic motivation and extrinsic motivation. Five factors were included in learning engagement and it is necessary to know which factors have the greatest effect. To determine this, the five factors were each used as mediators by using SPSS PROCESS model four, moving-block bootstrap method with 5,000 repetitions. The results showed that only attitude has a significant, indirect effect of self-determination on learning outcome, as well as of intrinsic and extrinsic motivation. The other factors have no significant effect. The results are shown in Table 8.

Table 8. The effect of different mediated factors of self-determination motivation on learning outcome

| Total Effect of X on Y | | | | | | |
|---|--------|------------|------------|-------------|-------------|-------------|
| | Coeff. | Std. Error | t value | p value | Lower bound | Upper bound |
| X | 2.705 | 1.453 | 1.861 | .061 | .155 | 5.564 |
| X1 | 3.032 | 1.155 | 2.626 | .009 | .761 | 5.304 |
| X2 | 2.407 | 1.180 | 2.040 | .042 | .086 | 4.729 |
| Direct Effect of X on Y | | | | | | |
| | Coeff. | Std. Error | t value | p value | Lower bound | Upper bound |
| X | -.023 | 1.549 | -.015 | .988 | -3.070 | 3.025 |
| X1 | .983 | 1.242 | .792 | .429 | -1.460 | 3.426 |
| X2 | .145 | 1.266 | .115 | .909 | -2.345 | 2.635 |
| Indirect Effect of X on Y | | | | | | |
| | | Coeff. | Std. Error | Lower bound | Upper bound | |
| Total | X | 2.727 | .866 | 1.275 | 4.730 | |
| | X1 | 2.049 | .683 | .870 | 3.574 | |
| | X2 | 2.262 | .761 | 1.024 | 4.027 | |
| Attitude | X | 1.493 | .705 | .367 | 3.144 | |
| | X1 | 1.171 | .594 | .202 | 2.526 | |
| | X2 | 1.222 | .586 | .299 | 2.635 | |
| Skill-attitude | X | -2.040 | 1.046 | -4.666 | -.382 | |
| | X1 | -1.510 | .829 | -3.523 | -.184 | |
| | X2 | -1.711 | .899 | -3.925 | -.278 | |
| Partially Standardized Indirect Effect of X on Y | | | | | | |
| | | Coeff. | Std. Error | Lower bound | Upper bound | |
| Total | X | .211 | .069 | .099 | .360 | |
| | X1 | .158 | .052 | .068 | .272 | |
| | X2 | .175 | .058 | .080 | .305 | |
| Attitude | X | .115 | .054 | .028 | .239 | |
| | X1 | .091 | .046 | .016 | .194 | |
| | X2 | .095 | .045 | .023 | .200 | |
| Completely Standardized Indirect Effect of X on Y | | | | | | |
| | | Coeff. | Std. Error | Lower bound | Upper bound | |
| Total | X | .102 | .032 | .500 | .176 | |
| | X1 | .096 | .032 | .042 | .167 | |
| | X2 | .104 | .032 | .049 | .174 | |
| Attitude | X | .056 | .026 | .014 | .116 | |
| | X1 | .055 | .027 | .010 | .117 | |
| | X2 | .056 | .026 | .014 | .116 | |

X: Self-Determination; Y: Learning Outcome; X1 intrinsic motivation; X2 extrinsic motivation

According to the results, it could be said that English learners' self-determination motivation is highly related to English performance (i.e. academic score) when it comes to intrinsic or extrinsic motivations which is activated by students' good learning attitude and learning engagement. The relationship is given as Figure 4.

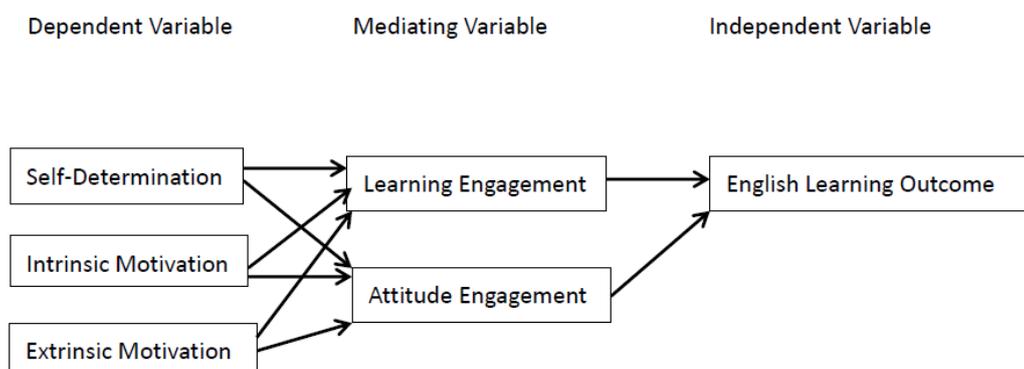


Figure 4. The relationship among self-determination motivators, English learning outcome and learning engagement

The four hypotheses for the research purpose are all positive based on the collected data and the results above. The results to the hypotheses are given as Table 9.

Table 9. The hypotheses and the results

| Hypotheses | Contents | Results |
|--------------|--|--------------------------|
| Hypothesis 1 | Taiwanese Junior College students' English learning outcome is positively related to their self-determination motivator and learning engagement. | positive |
| Hypothesis 2 | Taiwanese Junior College students' Self-Determination motivators are positively related to their learning engagement. | positive |
| Hypothesis 3 | Taiwanese Junior College students' self-determination motivators cause English learning outcome. | positive |
| Hypothesis 4 | The relationship between Taiwanese Junior College students' English learning outcome and their self-determination motivators is mediated by learning engagement. | positive, fully mediated |

VI. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

An analysis of the data established that self-determination, learning engagement and the outcomes of English learning are related. Learning engagement is the mediator between self-determination and the outcome of English learning. Self-determination can be divided into intrinsic motivation and extrinsic motivation each of which affect learning outcome through learning engagement. However, there is no significant direct connection between self-determination and the outcome of English learning. This means that whether students are intrinsically and/or extrinsically motivated, there will not be learning success without learning engagement. With regard to learning engagement, it was found that attitude was the only indicator to have a significant effect on the outcome of English learning. In the other words, students' attitude to English learning combined with self-determination would lead to a better outcome for English learning, regardless of any other means used to encourage learning. This is shown in Figure 4.

Attitude engagement is the most important dimension in English learning because English as a language is a tool to make a connection with the world. Having a good attitude in English learning is good for understanding

how the world works and experiencing the world so that it makes English learning more effective turning to a good learning outcome. The result meets the current situation of English learning of junior college students. Most of junior college students decide to quit learning English is simply due to the failure they met in the period of compulsory education. It is also one of the reasons why they chose to enter a vocational school. For them, English is too hard so that they have no enough confidence to challenge English learning. It turns out quitting. However, attitude is the key factor affecting English learning outcome and it is changeable. It can be conclude that a positive attitude toward English learning can bring a chance to success.

Therefore, it can be concluded that junior college students who have self-determination are more likely to gain better outcomes from their English learning if they engage in an English learning process. They will be even more successful in learning English if they work at developing a good attitude. Referring to the four hypotheses, the first hypothesis is confirmed that Taiwanese Junior College students' English learning outcome is positively related to their self-determination motivator and learning engagement. The second hypothesis is true that Taiwanese Junior College students' Self-Determination motivators are positively related to their learning engagement. The third hypothesis is positive that Taiwanese Junior College students' self-determination motivators cause English learning outcome. The last hypothesis tends to be positive that the relationship between Taiwanese Junior College students' English learning outcome and their self-determination motivators is fully mediated by learning engagement. The results of hypotheses testing are shown in Table 9.

Based on these conclusions, four suggestions are offered to both curriculum developers and students. First, because the three human needs are important in determining directions for life, when students encounter difficulties or feel helpless, their self-determination will be affected and their decision making may be affected. They may not be able to make good choices about what to learn or how to learn and they may make excuses and postpone their learning because of a denial of their self-worth. Curriculum developers, who may also be the course instructors, need to consider students' needs and do needs analysis of students before the course starts. If this is not possible, it is suggested that they keep informed about students' academic backgrounds and/or the level of English ability. They could at the very least offer more flexible, relevant programs before the course begins and allow students to take the courses they would like to. This would allow time to arrange better courses if they do it themselves. In the process, it is also suggested that students be given a variety of English activities to help them determine which one/ones offer them the best leaning methods.

Secondly, while it is not possible for curriculum developers to know how successful the students are, it is a reasonable assumption that low achievers will have experienced more failure than those who are successful. The teacher can help low achievers to believe that success will come from developing their strengths, focusing on their good performances, or sharing values. For the students who are self-motivated, they are already aware of the value of English learning outcome. In that case, the teacher can be helpful if he/she offer more learning opportunities for them.

Thirdly, attitudes can be changed with a change in what is regarded as valuable in life. If students feel supported when they engage in learning English, they will feel part of the English class and their sense of their own value will increase. A good outcome for learning English will eventually emerge. Attitude is the most important engagement so that students need to be positive in English learning even though those who are low achievers may blame on how poor their English is, there will be a turning point for them to change their attitude toward English learning. When the moment comes, they will feel valuable and learn things without thinking. Finally, English will become a part of life since once the value of English is established as being positive; it is difficult to change this attitude. Therefore, if students make a positive change in their attitude to learning English, there will be a good outcome.

There is a limit to the study. The limit is that the participants were from a junior college majoring in nursing due to all fourteen junior colleges in Taiwan are nursing college except one in Taidong. For further research, it is needed to invite different major students as participants to see if there is a significant different between nursing major students and other major students.

VII. REFERENCES

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