

*The Relationships between Learning Experiences, Psychological Capital, and Student Engagement in Taiwan's College Freshmen*

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**Abstract**

The main purpose of this study is to investigate the relationships between learning experiences, psychological capital, and student engagement. This study adopts the database management system about learning process and performance. Participants were 873 freshmen from a college in Taiwan. The data were analyzed by descriptive statistics, ANOVA, and multiple regressions. And the findings are summarized as follows: (1) the best predicting effect of student engagement on college freshmen is internal learning experiences in high school, (2) the internal learning experiences in high school, psychological capital, hope, and external learning experiences in high school can predict student engagement for explained variation of 56.3% (3) Freshmen who are more confident had higher mean scores in learning experiences during high school, psychological capital, and student engagement than the less confident ones.

Keywords: learning experiences, psychological capital, student engagement

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## Introduction

Past research indicates that the most important period in college is the first year because previous school problems and habits of freshmen tend to affect their learning engagement. Education authorities should emphasize on knowledge and economy as goals of personnel training (Chen, 2010). Our freshmen enrolled through different ways, including school recommendation, individual applications (and general characteristics of the group), general examinations, foreign-born science, refresher courses bachelor, etc. They include those who showed poor performance before they enter college, recruited during high school who had excellent academic performance, and those from other countries (such as Malaysia and Macau) who face difficulty in attending a Taiwanese high-quality university. Because of the population diversity of freshmen, the researchers found that students from abroad (mainly for overseas students) differ in terms of preferred learning process and academic achievement performance when compared with local students. However, the observation must depend on the analysis of school data for verification. This study's variables refer to the Institutional Research (IR) regarding on the relationship between high school students' learning experience, learning engagement and psychological capital.

Researchers often reflect why students enrolled in different ways had different learning experiences. Are local students and foreign students in the past having different learning experience? It triggered researchers' curiosity. It is worthy to analyze and discuss whether students who obtained experience from actual school life had a better learning experience, whether it can improve the state of psychological capital, and had better learning engagement as a result.

Learning experience refers to the interaction between the learner and the external environmental conditions. It means that student reactions to the environment may have interesting roles (Tsai & Huang, 1999). The more effort they put on learning engagement (including academic and non-academic), the more it becomes valuable for campus sophisticate. And it can improve students' learning engagement. This conclusion has been repeatedly confirmed by subsequent studies (Gonyea, Kish, Kuh, Muthiah, & Thomas, 2003). University's learning model nowadays is different from the past education stages. Teaching mode in universities pay more attention to students' learning experience and understanding their past learning experience, which can help teachers in the curriculum design.

Luthans, Luthans, and Luthans (2004) combined positive psychology and positive organizational behavior for the theoretical framework. After analyzing the characteristics of the traditional economic capital, human capital and social capital, they put forward the "psychological capital" concept to people as the core power of positive psychology. Luthans and colleagues believe that psychological capital is beyond the traditional definition of capital. It can be developed to increase an individual's competitive advantage. Psychological capital is a positive psychological individual state of development when it has a positive psychological construction. It has the following characteristics: possess confidence to take responsibility and effort for something challenging, do a positive attribution to achieve present and future success, follow this belief to persevere and achieve goals, ability to restart the target and direction when necessary, maintain or exceed current situation, and grasp the concept of success (Luthans, 2002; Luthans, Youssef, & Avolio, 2007).

Recently, domestic and foreign research pointed out that “learning engagement” can view student learning results for important variables. This means that students continued to perform behavioral and psychological involvement in the learning process with the positive emotions, showing the learning result (Li & Sun, 2010). Learning engagement plays an important role in the students' learning process (Lin & Huang, 2012). Kuh (2003, 2009) believes that the “learning engagement” means the behavior of individual students in learning, feeling and thinking course. The most important indicator is when the student devotes time and effort to activities as educational objectives. Students must interact with other people in order to make these educational activities meaningful (Zhang, 2012). For students, the height of individual engagement in the learning process is not only beneficial to their learning result but to enhance the effectiveness of teachers. Therefore, it is important to pay attention to the student’s input conditions and then determine how to help them more in their studies (Lin & Huang, 2012).

College students have more psychological capital. Can we improve their learning engagement? First, we should note that psychological capital for their individual dimensions (optimism, hope, self-efficacy and resilience) and learning engagement is not suitable to separate instructions, and we value the overall effect of psychological capital. Secondly, based on the past psychological development of students, if college students actively participate in various communities (like community or volunteer groups), their participation in the process of sharing and interactive course will promote the different dimensions of psychological and social development. This is good for training individuals to face setbacks and challenges (Lu, 2004; Huang, 2002; Chickering & Reisser, 1993). Students at this stage face with the interaction between self-demand and social requirements. The ensuing crisis of development and the need to learn will complement each other for students with a better psychological capital state, encouraging active involvement in learning (Zhang, 1996).

Because of the above background and motivation, this study aims to use Institutional Research data provided by the responsible authority to submit information and to release an application for a freshman in high school learning experience. Learning and psychological capital investment relations were analyzed to identify the protective factors that affect freshman.

This study aims to:

1. Explore the high school learning experience of freshmen, their psychological capital, learning engagement and investment in the current situation.
2. Discuss the relationship between a freshman’s high school learning experience, psychological capital, and learning engagement.
3. Analyze and forecast the school learning experience, psychological capital, and learning engagement of freshmen.

### **The meaning and capacities of learning experience**

Dewey thinks that real education comes from experience but not all are equipped with educational value or bring growth (Dewey, 1938: 13). Some experiences are nothing but daily awareness. In fact, some have the wrong educational value, twisted growth, and hinder depth study of experience. It is difficult to determine whether learning experience can help in growth. Because experience is a dynamic force, Dewey

emphasized the experience of continuity and interaction. Continuity refers to the transition from the past experiences and events to the current event, and then transition to future events. Interaction refers to the experience produced by the current event and situation that can be communicated and interacted. These are the important foundation for experiential learning. The focus here is how we make it easy to lead learning situations. A possible approach is to create a pleasant and comfortable atmosphere, provide appropriate materials, and connect the past and future experiences with learners and other textbooks (Merriam & Caffarella, 1999). This study suggests that learning experience is holistic, which means that learning experience and learning ability of students in a self-assessment study during high school level are effective.

### **The meaning and capacities of psychological capital**

After analyzing the traditional human capital, social capital, and other traditional investment in human resources development characteristics, Luthans and colleagues (Luthans, Luthans, & Luthans, 2004; Luthans & Youssef, 2004) proposed the psychological capital in the concept of positive organizational behavior which is affected by positive psychology. It focuses on the individual positive strengths and mental ability driver which is not discussed from the traditional concept of organizational behavior (Hui Zeng, Limin Zhao, 2007). Luthans et al. believe that under the current environment to hypercompetitive, the status of human capital or social capital has been insufficient to obtain and maintain the long-term competitive advantage and should have the development and “psychological capital” (Luthans, et al., 2004). Researchers of positive organizational behavior attributed the studies of Luthans et al. (Luthans, 2002; Luthans & Youssef, 2007; Luthans et al, 2007.) and proposed that psychological capital contains four factors, which are “self-efficacy”, “hope”, “optimism”, and “resilience.” Other four factors combination is a unique, measurable, and trainable mental state of development. Therefore, Luthans et al. (2007) combined these four theories, collectively referred to as “psychological capital”. In fact, from the angle of measured in terms of psychological capital is a concept of latent variable and consists of four explicit combinations of variables, like Li Xinmin (2009) mentioned. It is an academic community consensus built to be defined by a measurable facet. It’s an essential meaning as the addition of facets and change. Psychological capital is a formative measurement model. Luthans et al. suggest that each facet should be merged to calculate the score. This measurement is mostly measured by the subject’s self-assessment of psychological capital state as a reference index for follow-up group in an intervention program.

### **The meaning and capacities of student engagement**

Recently, learning engagement becomes increasingly popular. There are many researchers who are interested in learning engagement developed many theories to support its used and measure student learning outcome and achievement (Trowler & Trowler, 2010, 9Zepke & Leach 2010a). Some researchers believe that learning engagement is a multi-faceted structure, complex and multivariate. It aims to promote the reason for student success (Fredricks, Blumenfeld & Paris, 2004).

The earliest use of the term of engagement is by Natriello (1984) who proposed that student learning engagement refers to the participation of students in the school

curriculum activities. The definition of learning engagement includes student's behavior, experience, and reflection in the course of learning. But the most important thing is the students' level of effort required to have educational goals, the amount of time spent on activities, and interaction with others make educational activities more meaningful (Kuh, 2003, 2009). Chapman (2003) also indicated that learning engagement can also be a voluntary participation of students in school activities, including attendance so that they can accept the assignments and comply with their teachers.

Learning engagement involves high level of participation, effort, persistence, focus, and happiness to allow students to have a positive progress and good performance (Jingyuan Zhang, 1997). In contrast, those who have lower engagement have low learning time, easily give up and get distracted, sad and feel anxiety which is also associated with a high degree of dropouts (YuLing Chen, 2003). It can also reflect the degree of behavior and emotion of individual students and the degree of their academic performance and persistence (Yimei Li, Song Xian Sun, 2010). Xuemei Chang (1999) pointed that positive campus engagement, cognitive learning, and self-development have a significant positive correlation. Kuh's (2003) research also found that fewer college students invest more time in different activities than those who have a higher value of self-affirmation. In summary, learning engagement not only promotes academic performance positively but also develops positive value. Therefore, the dependent variable of this study is learning engagement and it aims to better understand it. Students have different kinds of school activities. This study is intended to learning engagement and focuses on students' academic learning situation. The concept of learning engagement in the study is the basic definition of Glanville and Wildhagen (2007). They suggest that students should have a curriculum, behavioral and psychological involvement, and learning engagement can significantly affect the educational result.

### **Learning experiences, psychological capital, and student engagement**

Pascarella and Terenzini (1991) pointed that the most important factor for students to learn in the university is the school experience itself, which includes interactive teaching quality of teachers, interaction between students and teachers, students and peers, the effect of student affairs programs, the strength of academic experience, and the overall standard of school activities. Students' learning does not only involve on the efforts of educators but also student participation. Astin (1993) believes college students' experiences of participating in campus activities will influence their learning results. In the learning process, learning engagement is needed to actively participate in learning activities.

Hope, resilience, self-efficacy, and other psychological factors can significantly predict learning engagement (Huang, 2012). Yi Ding and Yueming Chang (2014) found that psychological capital for learning engagement of Chinese students has a significant predictive effect. Although the students' psychological capital level is above average due to the psychological capital state, categories, and features, this is a relatively stable and can develop a mental state and improve student learning engagement through the involved program of psychological capital.

## **Method**

### **Data source**

This study used data from Institutional Research (IR). The application has been proposed for the data which was released by a responsible authority, the administrative units of the audit, based on research ethics to protect the subjects.

### **Measures**

#### **1. Learning Experience Scale**

Learning experience contains continuity (such as questions in class, trying to find answers to questions, understand and explain to others, the idea of classroom applies to other courses or activities), interaction (such as exploring the theme of self-interest even if the request is not in the classroom in order to discuss the logic to support their idea, the need to integrate different information or opinions in thematic implementation), and integrity (such as learning outcomes, learning experience, and learning ability). The results of this study show the model to achieve a good adaptation ( $\chi^2 = 124.27$ ,  $df = 24$ ,  $GFI = .97$ ,  $CFI = .98$ ,  $NFI = .96$ ,  $RMSEA = .065$ ,  $SRMR = .044$ ) and the standardization of all topics factor loadings above .50 was reached.

#### **2. Psychological capital scale**

Psychological capital refers to psychological resources owned by individuals, including the four factors, “self-efficacy”, “hope”, “optimism”, “resilience,” and etc. Researchers used the models of Yu, Chen & Tang (2012) to prepare the Psychological Capital Scale as a measuring tool. Scale content is determined in reference to the studies of Luthans et al. who constructed the psychological capital connotations (self-efficacy, hope, optimism, and resilience) as measurement dimensions. There was a total scale of 12 questions, each 3 questions for each subscale. Its evaluation is based on a Likert-type 5-point scale, where 1 means “very consistent with” while 5 means “very much in line.” The scores for each of the questions were added to determine the higher degree of students’ psychological capital.

The psychological capital scale includes 12 questions in four factors. Self-efficacy Cronbach's  $\alpha$  was .84, hope Cronbach's  $\alpha$  was .81, resilience Cronbach's  $\alpha$  was .82, and optimism Cronbach's  $\alpha$  was .86. Various factors showed a good reliability. The results of this study show the model to achieve a good adaptation ( $\chi^2 = 245.49$ ,  $df = 48$ ,  $GFI = .96$ ,  $CFI = .97$ ,  $TLI = .96$ ,  $NFI = .96$ ,  $RMSEA = .064$ ,  $SRMR = .033$ ). The standardized factor loadings of all topics were .50 or more.

#### **3. Learning Engagement Scale**

In recent years, “engagement” becomes an important variable to understand student learning results. This means students’ ongoing performance needs behavior and psychological learning involvement, and positive emotion to improve learning outcomes.

Learning engagement, students are committed to educational activities inside and outside of the classroom and learning experience that require time and energy (Astin, 1984, 1985; Kun, 2003). The Learning Engagement Scale used by Lin and Huang (2012) is divided into five subscales, which include skills (4 items), emotional (5 questions), performance (4 questions), attitude (4 items) and interactive (3 items) subscale. Learning engagement often becomes a predictor of low academic achievement and dropout (Fredricks, Blumenfeld, & Paris, 2004; Skinner & Belmont, 1993). Questions about “skills” refer to the ability of college students to remember the teaching materials and curriculums while questions about “emotion” refer to the relationship of college students with classmates and teachers. Questions about “performance” include the attention of college students in class or lack thereof. “Attitude” questions refer to items on how college students deal with their courses. “Interactions” questions involve the interaction of college students with classmates and teachers in the classroom. This scale has a total of 16 questions in the measurement process and has a five-point evaluation. 1 means “very incompatible”, 5 means “strongly agree”, and so on. The scores for each of the questions were added. Those with higher scores represent higher degree in learning engagement.

Learning Engagement Scale is divided into five factors with a total of 15 questions, Cronbach's  $\alpha$  in skills is .76, Cronbach's  $\alpha$  in performance was .68. Cronbach's  $\alpha$  value of attitude is .88, emotional Cronbach's  $\alpha$  is .73, while interactive Cronbach's  $\alpha$  is .91. Measurement mode analysis showed that the model of this study achieved a good adaptation ( $\chi^2 = 309.71$ ,  $df = 80$ ,  $GFI = .96$ ,  $CFI = .97$ ,  $TLI = .96$ ,  $NFI = .95$ ,  $RMSEA = .054$ ,  $SRMR = .047$ ), except for “I rarely late.” The standardized factor loadings for all topics were .50 or more.

### **Data Collection Procedure**

The descriptive statistics and correlation analysis used in this study is SPSS version 21, the advanced analysis using structure equation modeling (SEM) to test the combination of the measurement tools in terms of reliability and average variance extracted amount. It also used the Path Method to test the theoretical relationship between the respective latent variables and mediation effect and the software AMOS version 21. The parameter in SEM used the maximum likelihood estimation (MLE). To verify the mediation effect of using bootstrap method and in accordance with Byrne (1994), Hu and Bentler (1999) suggest GFI, CFI, NFI (above indicators must be greater than .90), RMSEA (must be less than .08), and other four indicators as the judge model to fit the prospective basis.

### **Results**

#### **Preliminary Analyses**

Means, standard deviations, and zero-order correlations for the 11 measured variables are shown in Table 1. All means of observed variables range 2.72-3.69, and SD ranges at 0.45-0.86. Multivariate normality test was used to examine whether the data met the normality assumptions underlying the maximum-likelihood procedure used to test the models in the present study. The results of the multivariate normality test indicated that the data were multivariate normal, with multivariate kurtosis of  $< 3$ . Therefore, the maximum-likelihood method was appropriate.

## Measurement Model

Before a structural model is tested, Anderson and Gerbing (1988) suggested conducting a confirmatory factor analysis to examine whether the measurement model provides an acceptable fit to the data. Once an acceptable measurement model is developed, the structural model can be tested.

As suggested by Tucker and Lewis (1973), Byrne (1994), Hu and Bentler (1999), five-fit indices were used to assess the goodness of fit for the models: the goodness of fit index (GFI value of  $>.90$  indicates a good fit), the comparative fit index (CFI value of  $>.90$  indicates a good fit), the Tucker-Lewis Index (TLI value of  $>.90$  indicates a good fit), the non-normed fit index (NFI value of  $>.90$  indicates a good fit), and the root-mean-square error of approximation (RMSEA values of  $<.10$  indicates a mediocre fit).

A test of the measurement model resulted in a relatively good fit to the data ( $\chi^2 = 371.95$ ,  $df = 41$ ,  $GFI = .93$ ,  $CFI = .97$ ,  $NFI = .97$ , and  $RMSEA = .09$ ). All of the standardized loadings of the measured variables on the latent variables were greater than  $.33$  and statistically significant ( $p < .001$ , see Table 2). CR of latent variables range is  $.71-.88$ , AVE range is  $.45-.65$ , both CR and AVE fit to the standard suggested by Fornell and Larcker (1981) and Hair et al. (2010). Therefore, all of the latent variables appear to have been adequately operationalized by their respective indicators. In addition, correlations among the independent latent variables, the mediator latent variable, and dependent latent variables were all statistically significant ( $p < .001$ , see Table 3).

Table 1

Means, standard deviations, and zero-order correlations matrix (all sample,  $n = 873$ )

| Observed variable | Mean | S<br>D | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12 |
|-------------------|------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 1. Continuity     | 2.75 | .59    | 1   |     |     |     |     |     |     |     |     |     |     |    |
| 2. Interaction    | 2.60 | .61    | .46 | 1   |     |     |     |     |     |     |     |     |     |    |
| 3. Integrity      | 2.72 | .61    | .45 | .46 | 1   |     |     |     |     |     |     |     |     |    |
| 4. Self-Efficacy  | 2.88 | .46    | .42 | .31 | .48 | 1   |     |     |     |     |     |     |     |    |
| 5. Hope           | 3.14 | .46    | .36 | .32 | .38 | .58 | 1   |     |     |     |     |     |     |    |
| 6. Optimism       | 3.03 | .45    | .33 | .29 | .36 | .61 | .67 | 1   |     |     |     |     |     |    |
| 7. Resilience     | 3.06 | .51    | .30 | .24 | .37 | .58 | .70 | .71 | 1   |     |     |     |     |    |
| 8. Skills         | 3.69 | .64    | .37 | .45 | .43 | .41 | .44 | .37 | .35 | 1   |     |     |     |    |
| 9. Emotional      | 3.34 | .64    | .37 | .41 | .40 | .40 | .38 | .33 | .32 | .48 | 1   |     |     |    |
| 10. Performance   | 3.65 | .73    | .48 | .46 | .42 | .46 | .49 | .43 | .38 | .66 | .48 | 1   |     |    |
| 11. Attitude      | 3.57 | .65    | .29 | .22 | .28 | .38 | .44 | .39 | .46 | .41 | .42 | .39 | 1   |    |
| 12. Interactive   | 2.85 | .86    | .59 | .41 | .40 | .45 | .40 | .39 | .38 | .40 | .54 | .45 | .46 | 1  |

Note: All values of correlation are significant ( $p < .001$ ).

Table 2  
Model Fit Indices

| Indices  | structural model | criteria |
|----------|------------------|----------|
| N        | 873              |          |
| $\chi^2$ | 371.95           |          |
| df       | 41               |          |
| GFI      | .93              | >.90     |
| CFI      | .97              | >.90     |
| NFI      | .97              | >.90     |
| RMSEA    | .09              | <.10     |

Table 3  
Factor Loadings for the measurement model (n = 873)

| Factor & Item                     | Standardized factor loading | SE  | t     | AVE | CR  |
|-----------------------------------|-----------------------------|-----|-------|-----|-----|
| <b>Learning Experience (LEx)</b>  |                             |     |       | .45 | .71 |
| Continuity                        | .69                         | .44 | 21.05 |     |     |
| Interaction                       | .66                         | .48 | 19.92 |     |     |
| Integrity                         | .67                         | .45 | 22.07 |     |     |
| <b>Psychological Capital (PC)</b> |                             |     |       | .65 | .88 |
| Self-Efficacy                     | .73                         | .53 | ---   |     |     |
| Hope                              | .83                         | .68 | 23.40 |     |     |
| Optimism                          | .83                         | .69 | 23.47 |     |     |
| Resilience                        | .83                         | .69 | 23.47 |     |     |
| <b>Learning Engagement (LE)</b>   |                             |     |       |     |     |
| Skills                            | .72                         | .52 | ---   | .47 | .82 |
| Emotional                         | .67                         | .45 | 18.43 |     |     |
| Performance                       | .76                         | .58 | 20.68 |     |     |
| Attitude                          | .58                         | .33 | 15.79 |     |     |
| Interactive                       | .69                         | .48 | 18.87 |     |     |

Note: All standardized factor loading are significant ( $p < .001$ ).

Table 4  
Correlations matrix for the measurement model (n = 873)

| Latent Variables              | 1      | 2      | 3 |
|-------------------------------|--------|--------|---|
| 1. Learning Experience (LEx)  | 1      |        |   |
| 2. Psychological Capital (PC) | .51*** | 1      |   |
| 3. Learning Engagement (LE)   | .67*** | .62*** | 1 |

\*\*\*  $p < .001$

## Structural Model for Testing Mediated Effects

The results showed a good fit of the model to the data ( $\chi^2 = 371.95$ ,  $df = 41$ ,  $GFI = .93$ ,  $CFI = .97$ ,  $NFI = .97$ ,  $RMSEA = .09$ ). Path effect is frequently referred to as the direct effect. All the effect size of structural paths were medium ( $\gamma_{11} = .62$ ,  $\beta_1 = .27$ ) and significant ( $p < .001$ , see Table 2).

MacKinnon, Lockwood, Hoffmann, West, and Sheets (2002) assessed many approaches to examine mediation to consider the Type I error and the statistical power. They found that the most often used strategy is one by Baron and Kenny (1986) which has the least power (both  $\gamma_{11}$  and  $\beta_1$  have to be significant). Then, many studies using this approach have relied on the Sobel test (1982) to examine the significance of the mediation effect ( $\gamma_{11} * \beta_1$  have to be significant). However, there is an evidence that the distribution of the mediation effect is not normal (Bollen & Stine, 1990; MacKinnon & Dwyer, 1993; Stone & Sobel, 1990) and the utilization of a significance test, such as the Sobel test which assumes a normal distribution when examining the mediation effect, is not appropriate. Most recently, Shrout and Bolger (2002) suggest the bootstrap method as a better way to examine the mediation. The bootstrap method acquires 95% confidence intervals (CI) for the indirect effect by the resampling procedure. Based on the central limit theorem, bootstrap method is robust even the distribution of mediation effect is not normal.

As Shrout and Bolger suggested, if the 95% CI for the estimates of the indirect effects based on these 5,000 indirect effect estimates does not include zero, then it can be concluded that the indirect effect is statistically significant at the .05 level. Therefore, after the structural models were examined through the AMOS 20 program, the bootstrap procedure was used to test whether or not the indirect effects were statistically significant.

The mediation effect, which is frequently referred to as indirect effect ( $\gamma_{11} * \beta_1$ ), was .17. The 95% CI for the estimates of the indirect effects ranging .12-.22 does not include zero. It can be concluded that the indirect effect is statistically significant at the .05 level as shown in Table 5. For residential college students, PC plays a role as the mediator between LEx and LE. The results of the structure model show that the theory model can explain the psychological outcome gains well for residential college students. Both hypotheses were supported. In addition, our model is a partial mediation based on the theory of Baron and Kenny (1986) that the direct effect is still significant. Other effective mediators can be taken into consideration in the future.

Table 5  
Bootstrap Analysis of Structural Model (n = 873)

| Direct effect |           | Indirect effect |                         |          |
|---------------|-----------|-----------------|-------------------------|----------|
| $\gamma_{11}$ | $\beta_1$ | $\gamma_{21}$   | $\gamma_{11} * \beta_1$ | 95% CI   |
| .62***        | .27***    | .17             | .17                     | .12~ .22 |

Note: \*\*\*  $p < .001$

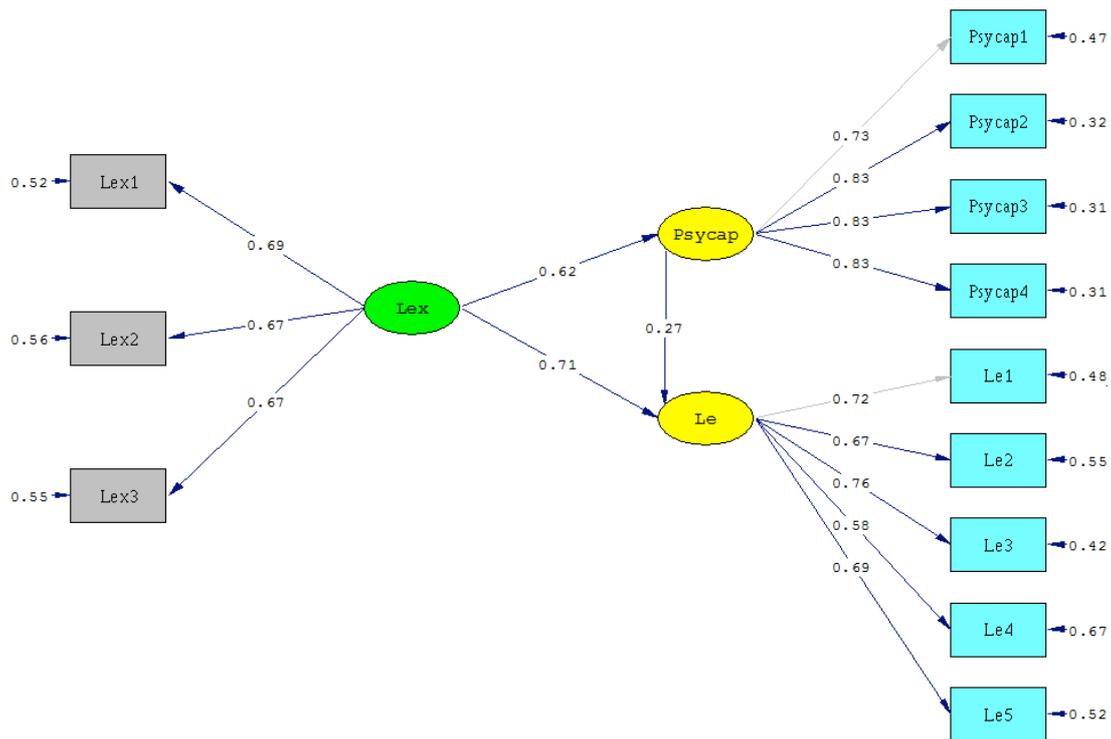


Figure 2  
Full model

## Discussion

This study used the convenience sampling and investigated the relationship between learning experiences, psychological capital, and student engagement. Investigating the effective psychological capital has important implications for an increase of learning experiences and student engagement.

The main focus of this study was to determine whether psychological capital has a mediation effect on the relationship between learning experiences and student engagement. The findings indicate that psychological capital and learning experiences are interrelated and psychological capital does act as a mediation variable. Through psychological capital, the learning experience in student engagement can be a better predictor. It proposes to increase the students' psychological capital during class, including self-efficacy, hope, optimism and resilience, which can improve engagement results.

Because this study used data from IR and the age sample were college freshmen, it did not generalize to other age groups. It recommends that future studies increase the diversity of the sample to improve the validity. These results suggest that the quality of student engagement could be enhanced if institutional research focused closely on engagement at sub-institutional levels such as courses.

Furthermore, the Learning Experience Scale developed by the current research still has room for improvement. It is recommended for future researches to change some item's wording, or choose survey participants more carefully in order to improve the structural problems in the survey model.

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