# Factors influencing Students' Academic Success:
# the Mediating Role of Study Engagement

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The purposes of this study were to (1) investigate how purpose in life, peer support, and satisfaction with teaching quality are related to students' academic success; and (2) to examine whether study engagement mediates the effects of purpose in life, peer support, and satisfaction with teaching quality on academic success. Using anonymous questionnaire survey, the research sample was comprised of 802 undergraduate university students of a public university in the north of Thailand. Structural Equation Modelling with SPSS Amos 21 was used to test all hypotheses. As predicted, purpose in life, peer support, satisfaction with teaching quality are related to study engagement as its antecedents. The main contribution of this study pertains to the results of the path model, which indicate that study engagement not only has direct relationships to academic success, but also it fully mediates the effects of purpose in life, peer support, and satisfaction with teaching quality on academic success.

*Keywords*: academic success, study engagement, purpose in life, peer support, satisfaction with teaching quality

Although academic achievement is not the only road to success in the real world, much effort is made to encourage the progress of students in universities. It is also believed that good academic results will provide more career opportunities and job security. Research indicates that students with higher college GPA's tended to have more rewarding lives, whereas those with lower GPA's were more at risk for substance abuse (Heradstveit, Skogen, Hetland, & Hysing, 2017), unemployment, and suicide (Downey, Lomas, Billings, Hansen, & Stough, 2014). The study of factors influencing academic performance therefore is very important, since knowledge of these factors has crucial implications for learning and education, in terms of curricula design and improvement of teaching techniques.

Research have found that several factors jointly account for student achievement, including: cognitive ability (Ackerman & Heggestad, 1997), personality traits (Trapmann, Hell, Hirn, & Schuler, 2007), mental curiosity (Von Stumm, Hell, & Chamorro-Premuzic, 2011), commitment to university (Tinto, 1975), satisfaction with university (Rickinson & Rutherford, 1996), and socio-economic status (McKenzie & Schweitzer, 2001). Richardson, Abraham, and Bond (2012) conducted a comprehensive meta-analysis on university students' academic performance and concluded that academic self-efficacy and effort regulation are important correlates of students' GPA. In sum, previous research indicates that personal, social, and university-related factors jointly contribute to students' academic achievement.

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Despite the growing body of literature focusing on factors contributing to academic success, unfortunately, most studies were conducted in western context. It is still not clear whether similar antecedents of academic success can be observed in Asian context. Thus, the present study extends previous research in three ways. First, this study investigates three types of factors considered to have joint influences on students' academic performance. The present study proposes that students' characteristics (i.e., purpose in life), students' social factor (i.e., peer support), and university-related factor (i.e., teaching quality) are particularly relevant to understand students' academic success. Second, the present study investigates the mediating role of study engagement which reflects a psychological process connecting these three factors with academic success. Third, the present study examines the pattern of relationships between these antecedents and academic success in Thai context. The findings will have implications for non-western academic institutions in terms of student development, teaching design, and social environment improvement in order to improve students' academic performance.

## Hypothesized Relationships

### Purpose in Life and Academic Success

Frankl (1959) is considered to be the most renowned names in the theory of purpose in life. He theorized that having a purpose in life was needed to achieve meaningful life goals and live a fulfilling and worthwhile life. Individuals who fail to find purpose in life will exhibit symptoms of boredom, emptiness, and distress (Frankl, 1959). Thus, purpose in life is an individual's life aim that organizes and stimulates goals, governs behaviors, and endows a sense of meaning (McKnight & Kashdan, 2009). A purpose in life acts like a compass, guiding individuals' lives in positive directions (Damon, 2008).

McKnight and Kashdan (2009) proposed that purpose in life provides mechanisms for achieving life goals. First, purpose stimulates behavioral consistency; it motivates individuals to focus on the goal and overcome difficulties. Second, it generates target motivated behaviors. Third, purpose stimulates psychological flexibility which leads individuals to be more flexible when facing changing situations. Forth, purpose promotes efficient resource allocation and leads to more productive activities. Fifth, purpose provides a higher-level cognitive processing.

Research has found that possession of purpose in life is positively correlated with greater happiness (Steger, Frazier, Oishi, & Kaler, 2006); higher self-esteem, and self-efficacy (DeWitz, Woolsey, & Walsh, 2009); work satisfaction and engagement (Steger & Dik, 2010); and life satisfaction (Bronk, Hill, Lapsley, Talib, & Finch, 2009). Research conducted among young people have found that purpose in life is positively associated with goal-directed thinking, and emotional wellbeing (Bronk et al., 2009; Kiang & Fuligni, 2010). Awareness of purpose in life is also positively related to a well-integrated personality (Mariano & Vaillant, 2012), hope (Feldman & Snyder, 2005), and encourages a more flexible sense of personal planning and agency (Schwartz, Cote, & Arnett, 2005). In addition, purpose in life has direct effect on academic engagement, while has indirect effect on academic success (Greenway, 2006). In contrast, research found that the problem students (i.e., who are irregular in class attendance, non-attentive to class lectures, etc.) had lower levels of purpose in life compared to those of normal students (Rahman & Khaleque, 1996). The present study, therefore, hypothesizes that:

Hypothesis 1: Purpose in life will be positively related to and predict academic success.

**Peer Support and Academic Success**

Social support is "an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (Shumaker & Brownell, 1984, p.17). Young people support their peers by providing basic needs, especially needs for relatedness and acceptance (Brown, 2004). In other words, peer support provides students with a sense that they can rely on others (Hamm & Faircloth, 2005). High-quality peer relationships support positive outcomes in several ways. They promote social, emotional, and academic development and healthy functioning (Martin & Dowson, 2009). They also give individuals opportunities to learn how to perform effectively in particular contexts (Wentzel, 1999).

Research indicates that high quality relationships with peers are associated with both academic and non-academic outcomes including adaptive goals for learning (Martin & Dowson, 2009), engagement and perceived academic competence (Buhs, 2005), and social self-concept (Verschueren, Doumen, & Buyse, 2012). Academic support from peers such as providing information, and clarifying teacher directions, foster motivation and engagement (Hamm & Faircloth, 2005). Researchers have found that peer support is critical to student success, when looking at GPA among college students (e.g., Dennis, Phinney, & Chuateco, 2005). Peer emotional support has also positive impacts on academic and social outcomes (Patrick, Ryan, & Kaplan, 2007). In addition, longitudinal studies have found that positive peer relationships are associated with perceived academic competence (Guay, Boivin, & Hodges, 1999), and academic engagement (Wang & Eccles, 2013). These positive relationships between peer support and academic outcomes occurs because high quality peer relationships can provide emotional support, resources, assistance, and modeling (Wentzel, 2009). Conversely, rejection from peers can create unfavorable experiences that hinder academic engagement and adjustment (Juvonen, Espinoza, & Knifsend, 2012). Thus, the present study hypothesizes that:

Hypothesis 2: Peer support will be positively related to and predict academic success.

**Satisfaction of Teaching Quality and Academic Success**

The role of the teacher is facilitating student learning. Teaching quality, therefore, is a critical factor in education as it can enhance academic engagement and achievement. A key question is what effective instructors/teachers do in the classroom to provide high-quality teaching. Research indicates that teaching behaviors that promote academic achievement including organizing intensive and activating teaching, differentiating instruction and learning strategies, providing clear and structured instruction, creating a safe and stimulating educational climate, and monitoring students' achievements (Muijs & Reynolds, 2011; Wright, Horn, & Sanders, 1997). In addition, a qualitative study found that positive factors affecting student satisfaction with teaching quality including high level of teachers professional training, application of efficient teaching strategies, ways of conducting courses involving students in teaching, implementation of practical activities, efficient communication, respect for students, fair assessment and friendly attitude of the teacher (Roman, 2014). Previous research has shown that about 15-25% of the differences in students' achievement might be contributed to the quality of teaching (Aaronson, Barrow, & Sander, 2007; Houtveen, Van de Grift, & Brokamp, 2014). Students who received high-quality of teaching achieve 10-25% more learning gains (Aaronson et al., 2007; Hanushek & Rivkin, 2010). The present study, therefore, hypothesizes that:

Hypothesis 3: Satisfaction of teaching quality will be positively related to and predict academic success.

## Study Engagement and Academic Success

In work context, work engagement is defined as "…a positive, fulfilling, and work-related state of mind that is characterized by vigor, dedication and absorption" (Schaufeli & Bakker 2004, p. 295). Salanova, Schaufeli, Martínez, and Bresó (2010) suggested that students' core activities can also be considered as work. Like employees in organizations, students are required to perform many structured activities (e.g., studying, doing homework, etc.) that are designed to achieve certain goals (e.g., completing a course, getting a degree). Hence, students could engage or not engage in their studies. Study engagement therefore is conceptualized as a positive, fulfilling state of mind comprising vigor, dedication, and absorption in studying.

Study engagement includes metacognitive strategies students use as well as management of time and study environments (e.g., Credé & Kuncel, 2008; Greene, 2015). Research found that enthusiastic and dedicated students are more likely to adopt mastery approaches, and report higher self-control (Howell, 2009). It is also found that study engagement is critical to students' academic success including GPA (e.g., Lee & Shute, 2010; Salanova et al., 2010; Schlenker, Schlenker, & Schlenker, 2013).

Hypothesis 4: Study engagement will be positively related to and predict academic success.

## Study Engagement and its Antecedents

Kahn (1990) suggested that there are some conditions associated with work engagement. One of these conditions is meaningfulness which is an individual's feeling that one's work is worthwhile, useful and valuable. Thus, students with higher levels of purpose in life should be more likely to experience psychological meaningfulness in their study. Thus, this study hypothesized that purpose in life should be positively correlated with work engagement.

Hypothesis 5: Purpose in life will be positively related to and predict study engagement.

According to the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007), job resources such as social support from colleagues and supervisors leads individuals to engage in their work. The model suggests that job resources will reduce job demands and stimulate personal growth, learning, and development. The JD-R model of work engagement also suggests that job resources act as an extrinsic motivator, because aspects of the job that provide numerous resources will encourage individuals to dedicate ones' efforts and abilities to their work (Bakker & Demerouti, 2007). Previous research has also shown that job resources are positively associated with work engagement (Bakker & Demerouti, 2007; Schaufeli & Salanova, 2007). In educational setting, Wentzel, Battle, Russell, and Looney (2010) found that peer support predicts student interest in classroom activities. Hence, it is logical to predict that students who receive high levels of peer support will be more engaged in their study than students who receive low levels of peer support.

Hypothesis 6: Peer support will be positively related to and predict study engagement.

Literature has suggested that teaching and teachers are critical factors of engagement (Zepke & Leach, 2010). If students perceive that teachers are approachable, well prepared and sensitive to student needs, students will commit to work harder and get more out of the learning session (Russell & Slater, 2011). Bryson and Hand (2007) also concluded that students are more likely to engage if teachers create appealing learning environments, and are available to discuss

academic progress. In addition, research indicated that about 12% of the differences in engagement between students was related to the learning environment in which teachers are helpful and promote active learning (Opdenakker & Minnaert, 2011). Thus, it is logical to expect that if students are satisfied with the teaching and learning environments, they will be more engaged in their study.

Hypothesis 7: Satisfaction with teaching quality will be positively related to and predict study engagement.

## The Mediating Role of Study Engagement

The general hypothesis of this paper is that three types of factors (i.e., purpose in life, peer support, satisfaction with teaching quality) influence academic performance through study engagement. That is, purpose in life, peer support, and satisfaction with teaching quality influence students' engagement, in turn, this engagement leads to academic success. The literature reviewed above shows that the mediation conditions apply to this study: (a) purpose in life, peer support, and satisfaction with teaching quality are valid predictors of academic success, (b) purpose in life, peer support, and satisfaction with teaching quality are related to study engagement, and (c) study engagement is related to academic success. Previous research has also shown that study engagement is a mediator between facilitators (i.e., personal, social, and organizational) and future academic performance (Salanova et al., 2010). That is, personal facilitators (e.g., responsibility, optimism, mental flexibility), social facilitators (e.g., support from family and friends), and organizational facilitators (e.g., getting immediate performance feedback) associate positively with study engagement, in turn, positively affect future academic performance. Thus, it is plausible to expect that study engagement mediate the effects of purpose in life, peer support, and satisfaction with teaching quality on academic success.

Hypothesis 8: Study engagement will mediate the effects of purpose in life, peer support, and satisfaction with teaching quality on academic success.

## Method
### Sample

The research sample consisted of 802 undergraduate students of a large public university in the north of Thailand. The present study selected only one university to be studied because there might be incompatibility of grading systems among Thai universities. Of the participants, 37.7% were health science students, while 33.2% were science and technology students, and the remaining 29.20% were humanities and social science students. Five-hundred and ten students (63.6%) the sample were female.

### Measures

The research instruments of the present study consisted of 6 questionnaires.

**Academic success**. The participants' academic success was obtained from their Grade Point Average (GPA), which is a common measure of academic performance used in most universities.

**Purpose in life.** Students' purpose in life was measured by a scale adapted from the short 4-item version of the Purpose in Life test (Schulenberg, Schnetzer, & Buchanan, 2010). Respondents were asked to rate each item on a 5-point scale ranging from 1 (strongly disagree)

to 5 (strongly agree). Sample items are: "In life, I have clear goals and aims" and "I have discovered a satisfying life purpose". Internal consistency reliability of the scale was .85.

**Peer support.** A 7-item scale developed by the authors was used to measure students' perception of social support from their peer. Respondents were asked to rate each item on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items are: "When I feel distress, my friends give me encouragement" and "My friends help, advise, and share information and knowledge which are beneficial to my study". Internal consistency reliability of the scale was .86.

**Satisfaction with teaching quality**. A 3-item scale developed by the authors was used to measure students' perception of teaching quality. Respondents were asked to rate each item on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items are: "Instructors are able to connect and apply knowledge to the real-life context" and "Instructors use teaching methods which effectively develop students' professional skills". Internal consistency reliability of the scale was .77.

**Study engagement.** The Utrecht Work Engagement Scale, Student Version (UWES-S) developed by Schaufeli and Bakker (2003) was used to measure study engagement. The scale consists of 9 items measuring three subscales that reflect the underlying dimensions of engagement; i.e., vigor, dedication, and absorption. All of the items were scored on a 7-point scale ranging from 1 (never) to 7 (every day). Sample items are: "When I'm doing my work as a student, I feel bursting with energy" and "I am enthusiastic about my studies". Internal consistency reliability of the scale was .90.

**Background questionnaire**. Participants answered questions about their academic background including gender, area of study, etc.

## Results

### Descriptive Statistics

Means, standard deviations, and correlations among study variables are reported in Table 1. Cronbach's $\alpha$ for each scale of questionnaire is acceptable with all values. According to Hair, Anderson, Tatham, and Black (1998), all scales had good reliabilities ($\alpha \geq .70$).

### Measurement Validation

To establish the convergent and discriminant validity of the studies constructs, we performed a confirmatory factor analysis (CFA) using AMOS 21. Because academic success is one-indicator constructs (i.e., measured by using GPA), its measurement errors could not be estimated from the data and therefore had to be dropped from the measurement model testing. The CFA indicated that one item from the study engagement measure, and two items from the purpose in life measure should be deleted due to low standardized loading estimates. The remaining items were then used for reliability and validity analyses. The results show that Cronbach's alphas ($\alpha$) of all constructs are greater than .70, and the composite reliability (CR) values are greater than .80, indicating adequate internal consistency for the constructs. The average variance extracted (AVE) values of the constructs are greater than the cutoff value of .50 (Hair, Hult, Ringle, & Sarstedt, 2017) providing convergent validity of the measurement model (Table 2).

Table 1

*Means, standard deviations, intercorrelations and Cronbach's α values for all study variables*

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| (1) Academic success | 2.94 | .48 | (†) | | | | |
| (2) Purpose in life | 3.46 | .62 | .14 | (.71) | | | |
| (3) Peer support | 3.92 | .53 | .10 | .26 | (.86) | | |
| (4) Satisfaction of teaching quality | 3.97 | .58 | .10 | .25 | .44 | (.71) | |
| (5) Study engagement | 4.33 | .98 | .27 | .36 | .29 | .27 | (.88) |

*Note:* All correlations are significant at $p < .01$; Reliabilities of scales were in parentheses along diagonals; † No Cronbach's α value was calculated for academic success (GPA); n = 802.

Table 2

*Measurement model evaluation results*

| Construct/ indicator | Loading | CR | AVE | $\sqrt{AVE}$ | Construct/ indicator | Loading | CR | AVE | $\sqrt{AVE}$ |
|---|---|---|---|---|---|---|---|---|---|
| *Study engagement* | | .92 | .59 | .77 | *Peer support* | | .89 | .54 | .73 |
| EN_1 | .68 | | | | PEER_1 | .64 | | | |
| EN_2 | .84 | | | | PEER_2 | .62 | | | |
| EN_3 | .86 | | | | PEER_3 | .77 | | | |
| EN_4 | .76 | | | | PEER_4 | .73 | | | |
| EN_5 | .69 | | | | PEER_5 | .67 | | | |
| EN_6 | .71 | | | | PEER_6 | .80 | | | |
| EN_7 | .63 | | | | PEER_7 | .54 | | | |
| EN_8 | .67 | | | | | | | | |
| *Purpose in life* | | .93 | .86 | .93 | *Satisfaction with teaching quality* | | .86 | .68 | .82 |
| PIL_1 | .91 | | | | TEACH_1 | .68 | | | |
| PIL_2 | .81 | | | | TEACH_2 | .71 | | | |
| | | | | | TEACH_3 | .77 | | | |

*Note:* CR = Composite reliability, AVE = average variance extracted, $\sqrt{AVE}$ = square root of the average variance extracted

Discriminant validity of the constructs was assessed by using two approaches. First, the indicators' cross loadings were examined, the result revealed that no indicator loaded higher on any opposing construct. Second, Fornell and Larcker's (1981) criterion was applied by examining the square root of the AVEs and latent variable correlations. Both analyses clearly indicate that all constructs exhibit discriminant validity. In addition, the measurement model provided a good fit to the data based on a number of fit statistics ($\chi^2 = 489.82$, *df* = 164; $\chi^2/df$ = 2.98; CFI = .96; GFI = .94; NFI = .94; RMSEA = .05). The magnitudes of the standardized loading estimates ranged from .54 to .91 and their *t*-values were significant. In sum, the measurement model assessment substantiates that all the construct measures are reliable and valid. Thus, the next step is to evaluate the structural model focusing on the hypothesized relationship between the constructs.

**Structural Model**

Prior to assessing the hypothesized model, we assessed the fit of the model. The fit statistics indicate that the hypothesized model yields a good fit to the data ($\chi^2$ = 470.24, $df$ = 161; $\chi^2/df$ = 2.92; CFI = .96; GFI = .94; NFI = .93; RMSEA = .05). As the structural model of this study manifested a relatively good fit of the data, the proposed hypotheses were tested.
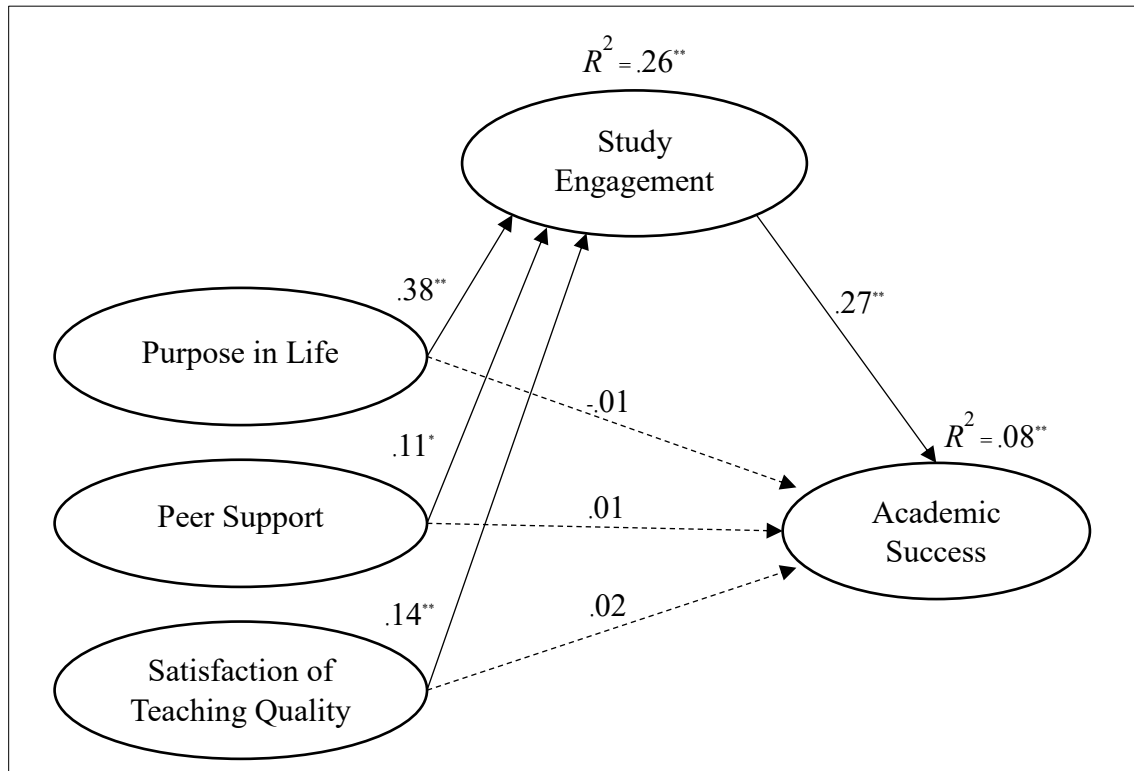


*Figure 1.* Estimated results of the structural model. ($_*$ $p$ < .05, $^{**}$ $p$ < .01; $n$ = 802.)

Figure 1 presents the results of the structural model analysis. We find the expected positive relationships between study engagement and academic success ($\beta$ = .27, $p$ < .001), however, the direct effects of purpose in life, peer support, and satisfaction of teaching quality on academic success were not significant ($\beta$ = -.01, .01, and .02, $p$ > .05 respectively). Thus, hypothesis 4 was supported and hypotheses 1, 2, and 3 were not supported. In addition, this model also showed that the purpose in life, peer support, and satisfaction of teaching quality were positively related to study engagement ($\beta$ = .38, .11, .14, $p$ < .05, respectively). These results supported hypotheses 5, 6, 7.

To investigate the mediation effect of study engagement (hypothesis 8), bootstrap method was used since it offers multiple advantages over traditional mediation analysis approaches. All variables in the structural model were based on N = 2000 bias-corrected bootstrap samples in Amos 21 and estimated 90% confidence intervals (CI), which correspond to a two-tailed test with $\alpha$ = 5% (Preacher et al., 2010). In our mediation analysis we report on the indirect effects because the recent literature on mediation assumes that a significant total effect is not necessarily a prerequisite for investigating mediation relationships (Rucker et al., 2011). The indirect effects of purpose in life ($\beta$ = .10, $p$< .01), peer support ($\beta$ = .03, $p$< .05), and satisfaction of teaching quality ($\beta$ = .04, $p$< .01) on academic success as outcome through study engagement were significant (Table 3). Thus, our results support a full-mediation model and hypothesis 8. In sum, purpose in life, peer support, and satisfaction of teaching quality

explain 26% of the variance of study engagement. All variables explain 8% of the variance of academic success directly and/or indirectly (Figure 1).

Table 3

*Indirect effects on academic success as outcome*

| Mediating effect of study engagement | $\beta$ | 95% Confidence interval | |
| --- | --- | --- | --- |
| | | Lower end | Upper end |
| PIL ⟶ Engagement ⟶ Academic success | .10[**] | .07 | .15 |
| PS ⟶ Engagement ⟶ Academic success | .03[*] | .01 | .06 |
| STQ ⟶ Engagement ⟶ Academic success | .04[**] | .01 | .07 |

*Note:* PIL = purpose in life, PS = peer support, STQ = satisfaction of teaching quality; Engagement = study engagement, [*] $p < .05$, [**] $p < .01$; $n = 802$.

## Discussion

The purpose of this study was to show how students' characteristics (i.e., purpose in life), students' social factor (i.e., peer support), and university-related factor (i.e., teaching quality) are related to students' academic success. This study also examined whether study engagement act as a mediator between three types of antecedents and academic success. The results offered support for this mediating argument. The main contribution of this study pertains to the result of the mediation analysis, which indicate that study engagement not only has direct relationships to academic success, but also it fully mediates the effects of purpose in life, peer support, and satisfaction with teaching quality on academic success. In other words, students with high levels of purpose in life, peer support, and satisfaction with teaching quality were highly engage in their study, which in turn were significantly predictive of higher grades.

These findings demonstrate that purpose in life, peer support, and satisfaction with teaching quality influences academic performance because these three antecedents influence students' willingness to engage in their studies. Students who have purposes in life engage in their study because they experience meaningfulness in their studies. As a result, they tend to feel worthwhile, useful, valuable, and able to give themselves to their role (Kahn, 1990). Peer support, according to the JD-R model, acts as job resources that reduce job demands and stimulate personal growth, learning, and development. Peer support also acts as an extrinsic motivator which encourage students to dedicate their efforts and abilities to their studies (Bakker & Demerouti, 2007). Satisfaction with teaching quality influences study engagement because it leads students to experience positive emotions during class attendance including joy and interest. These positive emotions, in turn, increase students' personal resources (Ouweneel, Le Blanc, & Schaufeli, 2011). In other words, joy increases resources by enhancing creativity, while interest encourages students to explore and learn new information (Bakker, 2009).

It is possible that study engagement leads to academic success because engaged students are likely to use their full mental and physical resources in studying, and in turn enhances academic performance. In addition, engaged individuals often experience positive emotions which enable individuals to produce a broad and flexible cognitive organization as well as the ability to integrate diverse material (Bakker, 2009). In sum, our results confirm the assumption of the JD-R model that engagement mediates the relationship between personal and job resources and performance (Bakker & Demerouti, 2007). In addition, our results agree with recent studies on how positive personal and environmental factors enhance engagement which,

in turn, increases positive behaviors and future performance (Salanova et al., 2010; Schlenker, et al., 2013).

Findings of the present study have practical implications for academic institutions. Our findings suggest that academic institutions should find ways to increase study engagement since it is a critical factor of academic performance. This engagement could be enhanced if students are aware of their purposes in life, have peer support, and receive high-quality of teaching. Thus, universities should encourage students to realize their life purposes. The programs aim to create peer support in universities should be widely implemented. In addition, universities should have training and development programs aim to enhance teachers' skills in teaching and learning environment management.

The present study focused on university students in the Thai context where collectivism is more valued than individualism (Hofstede, 2001). It is therefore possible that compared to individualistic societies (e.g., western countries), social support (family and friends) would play a more important role in collectivist societies such as Thailand. Thus, future researchers should conduct cross-cultural studies to examine the differential effects of personal, social, and environmental factors on study engagement. Future research could also investigate older adults in different settings (e.g., in continuing education system) in order to arrive at a comprehensive understanding of study engagement patterns. Comparative studies to find differences between young and older learners can contribute to expanding our understanding of study engagement in general. Furthermore, future studies would benefit from conducting a longitudinal study on the dynamic reciprocal nature of personal resources and study engagement. For example, study engagement may also increase the levels of personal characteristics such as self-efficacy and optimism.

Although the aforementioned findings are meaningful and important, the present study also have some limitations. First, since this study used a sample of university students from a large public university in Thailand, the generalizability of the results may be limited. Second, self-assessed questionnaire survey is subject to social desirability effect, in which respondents may give socially desirable responses even though the anonymity is guaranteed. Having said that, researchers argued that, compared to its counterparts, self-reported answers are relatively reliable (Facteau & Craig, 2001).

## References

Aaronson, D., Barrow, L., & Sander, W. (2007). Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics, 25*, 95-135. doi:10.1086/508733

Ackerman, P. L., & Heggestad, E. D. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin, 121*(2), 219-245. doi:10.1037/0033-2909.121.2.219

Bakker, A. B. (2009). Building engagement in the workplace. In R. J. Burke & C.L. Cooper (Eds.), *The peak performing organization* (pp. 50-72). Oxon, UK: Routledge.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology, 22*, 309-328. doi:10.1108/02683940710733115

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 6, 1173-1182. doi:10.1037/0022-3514.51.6.1173

Bronk, K., Hill, P. L., Lapsley, D. K., Talib, T. L., & Finch, H. (2009). Purpose, hope, and life satisfaction in three age groups. *The Journal of Positive Psychology, 4*(6), 500-510. doi:10.1080/17439760903271439

Brown, B. B. (2004). Adolescents' relationships with peers. In R. M. Lerner & L. Steinberg (Eds), *Handbook of Adolescent Psychology* (2nd ed) (pp. 363-394). Hoboken, NJ: John Wiley & Sons.

Bryson, C., & Hand, L. (2007). The role of engagement in inspiring teaching and learning. *Innovations in Education and Teaching International, 44*(4), 349-362. doi:10.1080/14703290701602748

Buhs, E. S. (2005). Peer rejection, negative peer treatment, and school adjustment: Self-concept and classroom engagement as mediating processes. *Journal of School Psychology, 43*(5), 407-424. doi:10.1016/j.jsp.2005.09.001

Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science, 3*(6), 425-453. doi:10.1111/j.1745-6924.2008.00089.x

Damon, W. (2008). *The path to purpose: How young people find their calling in life.* New York, NY: Free Press.

Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The Role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development, 46*(3), 223-236. doi:10.1353/csd.2005.0023

DeWitz, S. J., Woolsey, M. L., & Walsh, W. B. (2009). College student retention: An exploration of the relationship between self-efficacy beliefs and purpose in life among college students. *Journal of College Student Development, 50*(1), 19-34. doi:10.1353/csd.0.0049

Downey, L. A., Lomas, J., Billings, C., Hansen, K., & Stough, C. (2014). Scholastic success: Fluid intelligence, personality, and emotional intelligence. *Canadian Journal of School Psychology, 2*9, 40-53. doi: 10.1177/0829573513505411

Facteau, J. D., & Craig, S. B. (2001). Are performance appraisal ratings from different rating sources comparable? *Journal of Applied Psychology, 86,* 215-227. doi:10.1037/0021-9010.86.2.215

Feldman, D. B., & Snyder, C. R. (2005). Hope and the meaningful life: Theoretical and empirical associations between goal-directed thinking and life meaning. *Journal of Social and Clinical Psychology, 24*(3), 401-421. doi:10.1521/jscp.24.3.401.65616

Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*, 39-50.

Frankl, V. E. (1959). *Man's search for meaning*. Boston: Beacon Press.

Greene, B. A. (2015). Measuring cognitive engagement with self-report scales: reflections over 20 years of research. *Educational Psychologist, 50*, 14-30. doi:10.1080/00461520.2014.989230

Greenway, K. (2006). The role of spirituality in purpose in life and academic engagement. *Journal of College & Character, 7*(6), 1-5. doi:10.2202/1940-1639.1212

Guay, F., Boivin, M., & Hodges, E. V. E. (1999). Social comparison processes and academic achievement: The dependence of the development of self-evaluations on friends' performance. *Journal of Educational Psychology, 91*, 564-568. doi: 10.1037/0022-0663.91.3.564

Hair, Jr., J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Englewood Cliffs, NJ: Prentice-Hall.

Hair, Jr., J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Thousand Oaks, CA: Sage.

Hamm, J. V., & Faircloth, B. S. (2005). Peer context of mathematics classroom belonging in early adolescence. *The Journal of Early Adolescence, 25*(3), 345-366. doi:10.1177/0272431605276932

Hanushek, E. A., & Rivkin, S. G. (2010). Generalizations about using value-added measures of teacher quality. *American Economic Review, 100*(2), 267-271. doi:10.1257/aer.100.2.267

Heradstveit, O., Skogen, J. C., Hetland, J., & Hysing, M. (2017). Alcohol and illicit drug use are important factors for school-related problems among adolescents. *Frontiers in Psychology, 8*, 1023. doi: 10.3389/fpsyg.2017.01023

Hofstede, G. H. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations.* Thousand Oaks, CA: Sage.

Houtveen, A. A. M., Van de Grift, W. J. C. M., & Brokamp, S. K. (2014). Fluent reading in special elementary education. *School Effectiveness and School Improvement, 25*, 555–569. doi:10.1080/09243453.2013.856798

Howell, A. J. (2009). Flourishing: Achievement-related correlates of students' well-being. The *Journal of Positive Psychology, 4*(1), 1-13. doi:10.1080/17439760802043459

Juvonen, J., Espinoza, G., & Knifsend, C. (2012). The role of peer relationships in student academic and extracurricular engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of Research on Student Engagement* (pp. 387-401). NY: Springer.

Kahn, W. A. (1990). The psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692-724. doi:10.2307/256287

Kiang, L., & Fuligni, A. J. (2010). Meaning in life as a mediator of ethnic identity and adjustment among adolescents from Latin, Asian, and European American backgrounds. *Journal of Youth and Adolescence, 39,* 1253-1264. doi:10.1007/s10964-009-9475-z

Lee, J., & Shute, V. J. (2010). Personal and social-contextual factors in K-12 academic performance: An integrative perspective on student learning. *Educational Psychologist, 45*, 185-202. doi:10.1080/00461520.2010.493471

McKenzie, K., & Schweitzer, R. (2001). Who succeeds at university? Factors predicting academic performance in first year Australian university students. *Higher Education Research and Development, 20*(1), 21-33. doi:10.1080/07924360120043621

McKnight, P. E., & Kashdan, T. B. (2009). Purpose in life as a system that creates and sustains health and well-being: An integrative, testable theory. *Review of General Psychology, 13*(3), 242-251. doi:10.1037/a0017152

Mariano, J. M., & Vaillant, G. E. (2012). Youth purpose among the 'greatest generation'. *Journal of Positive Psychology, 7*, 281-293. doi:10.1080/17439760.2012.686624

Martin, A. J., & Dowson, M. (2009). Interpersonal relationships, motivation, engagement, and achievement: Yields for theory, current issues, and educational practice. *Review of Educational Research, 79*, 327-365. doi: 10.3102/0034654308325583

Muijs, D., & Reynolds, D. (2011). *Effective teaching: Evidence and practice* (3rd ed.). London: Sage.

Opdenakker, M. C., & Minnaert, A. (2011). Relationship between learning environment characteristics and academic engagement. *Psychological Reports, 109*(1), 259-284. doi:10.2466/09.10.11.pr0.109.4.259-284

Ouweneel, E., Le Blanc, P. M., & Schaufeli, W. B. (2011). Flourishing students: A longitudinal study on positive emotions, personal resources, and study engagement. *The Journal of Positive Psychology, 6*(2), 142-153. doi:10.1080/17439760.2011.558847

Patrick, H., Ryan, A. M., & Kaplan, A. (2007). Early adolescents' perceptions of the classroom social environment, motivational beliefs, and engagement. *Journal of Educational Psychology, 99*, 83-98. doi:10.1037/0022-0663.99.1.83.

Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Method, 15*, 209-33. doi:10.1037/ a0020141

Rahman, T., & Khaleque, A. (1996). The purpose in life and academic behaviour of problem students in Bangladesh. *Social Indicators Research, 39*(1), 59-64. doi:10.1007/ bf00300832

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin, 138*(2), 353-387. doi: 10.1037/a0026838

Rickinson, B. & Rutherford, D. (1996). Systematic monitoring of the adjustment to university of undergraduates: A strategy for reducing withdrawal rates. *British Journal of Guidance and Counselling, 24*(2), 213-225. doi:10.1080/03069889600760191

Roman, I. (2014). Qualitative methods for determining students' satisfaction with teaching quality. *Procedia-Social and Behavioral Sciences, 149*, 825-830. doi:10.1016/j.sbspro. 2014.08.320

Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology compass, 5*(6), 359-71. doi:10.1111/j.1751-9004.2011.00355.x

Russell, B., & Slater, G. R. L. (2011). Factors that encourage student engagement: Insights from a case study of "first time" students in a New Zealand university. *Journal of University Teaching and Learning Practice, 8*(1), 1-15.

Salanova, M., Schaufeli, W., Martínez, I., & Bresó, E. (2010). How obstacles and facilitators predict academic performance: the mediating role of study burnout and engagement. *Anxiety, Stress & Coping, 23*(1), 53-70. doi:10.1080/10615800802609965

Schaufeli, W. B., & Bakker, A. B. (2003). *UWES – Utrecht Work Engagement Scale: Test manual.* Utrecht University, Department of Psychology.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293-315. doi:10.1002/job.248

Schlenker, B. R., Schlenker, P. A., & Schlenker, K. A. (2013). Antecedents of academic engagement and the implications for college grades. *Learning and Individual Differences, 27,* 75-81. doi: 10.1016/j.lindif.2013.06.014

Schulenberg, S. E., Schnetzer, L. W., & Buchanan, E. M. (2010). The Purpose in Life Test-Short Form: Development and psychometric support. *Journal of Happiness Studies, 12*(5), 861-876. doi:10.1007/s10902-010-9231-9

Schwartz, S. J., Côté, J. E., & Arnett, J. J. (2005). Identity and agency in emerging adulthood: Two developmental routes in the individualization process. *Youth and Society, 37*, 201-229. doi:10.1177/0044118x05275965

Shumaker, S. A., & Brownell, A. (1984). Toward a theory of social support: Closing conceptual gaps. *Journal of Social Issues, 40*(4), 11-36. doi:10.1111/j.1540-4560.1984.tb01105.x

Steger, M. F., & Dik, B. J. (2010). Work as meaning: Individual and organizational benefits of engaging in meaningful work. In P. A. Linley, S. Harrington & N. Garcea (Eds.), *Oxford handbook of positive psychology and work* (pp. 131-142). NY: Oxford University Press.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology, 53,* 80-93. doi:10.1037/0022-0167.53.1.80

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125. doi:10.2307/1170024

Trapmann, S., Hell, B., Hirn, J. W., & Schuler, H. (2007). Meta-analysis of the relationship between the big five and academic success at university. *Journal of Psychology, 215*, 132-151. doi: 10.1027/0044-3409.215.2.132

Verschueren, K., Doumen, S., & Buyse, E. (2012). Relationships with mother, teacher, and peers: Unique and joint effects on young children's self-concept. *Attachment & Human Development, 14,* 233-248. doi: 10.1080/14616734.2012.672263

Von Stumm, S., Hell, B., & Chamorro-Premuzic, T. (2011). The hungry mind. *Perspectives on Psychological Science, 6*(6), 574-588. doi:10.1177/1745691611421204.

Wang, M.-T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and Instruction, 28,* 12-23. doi:10.1016/j.learninstruc.2013.04.002

Wentzel, K. R. (1999). Social-motivational process and interpersonal relationships: Implications for understanding motivation at school. *Journal of Educational Psychology, 9,* 76-97. doi:10.1037/0022-0663.91.1.76

Wentzel, K. R. (2009). Peers and academic functioning. In K. H. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups: Social emotional and personality development in context* (pp. 531-547). New York: Guilford Press.

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology, 35*(3), 193-202. doi:10.1016/j.cedpsych.2010.03.002

Wright, S. P., Horn, S. P., & Sanders, W. L. (1997). Teacher and classroom context effects on student achievement: implications for teacher evaluation. *Journal of Personnel Evaluation in Education, 11*, 57-67. doi:10.1023/a:1007999204543

Zepke, N., & Leach, L. (2010). Improving student engagement: Ten proposals for action. *Active Learning in Higher Education, 11*(3), 167-177. doi:10.1177/1469787410379680