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Exploring the Relationship between Personality Traits and Self-Efficacy

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ABSTRACT

Self-efficacy has been shown related to academic performance in college students. It has been proposed that domain specific self-efficacy is important for successful performance in various programs and disciplines. Identifying the self-efficacy characteristics of students with different personality traits can be valuable to students as well as academic instructors. If self-efficacy is an important aspect of successful academic performance, enhancing self-efficacy among college students might be desirably needed. The present study asked if there are differences in levels of self-efficacy among students with different personality traits. The study also examined student self-perceptions of effort. Various relationships that link the personality traits and self-efficacy among the 314 college students were examined.

Correlation methods and multivariate statistical applications were used in the analyses. It was revealed that self-efficacy measures were significantly related to 'Big Five' personality traits. The results indicated that there were no differences of self-efficacy between genders.

Keywords: self-efficacy, Big Five personality traits, and academic performance

1. INTRODUCTION

There is increased interest among academicians on how to curb the high dropout rate among students and to develop methods to motivate students to perform better academically. Self-efficacy has been proven relating to academic performance in college students. It has been proposed that self-efficacy is important for successful training outcome and academic performance.

Self-efficacy is applied on people who believe about their own ability that motivate themselves to successfully complete a task or a series of tasks to achieve a specific goal (Bandura, 1997). Numerous studies are explored on the importance of self-efficacy in relation to motivation and academic behavior. Among the examples are self-efficacy that can enhance performance & persistency of students in college (Gore, 2006). Besides, students are found putting in extra efforts and achieving better outcomes with the presence of self-efficacy as a mediator (Bong & Clark, 1999). As demonstrated in various works, self-efficacy is a valid predictor of learning outcome of students especially in the performance & achievement (Bong & Skaalvik, 2003). It will enable students to make their own judgments based on their capabilities to organize courses of action required to attain designated types of performances.

In the field of psychology, personality is widely recognized as the most fascinating and elusive concepts that fail to derive a single, and universal definition. However, along the years, researchers have made the attempts to relate personality with academic success (Ackerman & Heggestad, 1997; Busato et al., 2000). Since personality traits are found to relate directly with psychological behavior as well as academic performance (De Fruyt & Mervielde, 1996). Clearly, it is possible to include both the personality traits and self-efficacy as part of behavioral demonstration.

Personality has had proven relationship with behavioral demonstration. Since both self-efficacy and personality traits affect the performance outcome, it is important to examine whether there is any relationship

between self-efficacy and personality traits. Although research seems to be approaching a consensus on the identification of the personality traits that may account for a significant proportion of variance in self-efficacy, such research on this subject seems very much lacking. Therefore, the general questions examined by the present study asked if there are differences in level of self-efficacy among students from different colleges pursuing different majors, and the relationships between self-efficacy and personality traits among them.

Hence the importance of this study, which will further examine (i) whether and to what extent the 'Big Five' personality traits of agreeableness, openness to experience, conscientiousness, neuroticism and extraversion can predict self-efficacy among college students, (ii) which, among the five traits, are the most significant correlates and predictor of self-efficacy, and (iii) whether the prediction of self-efficacy by personality can be more accurate at the five trait level. This study will therefore attempt to explore the relation between self-efficacy and personality.

2. LITERATURE REVIEW

2.1 Relationship of the Big Five Personality Traits to Self-Efficacy

Before discussing the relationship of the Big Five traits to self-efficacy, one must first stipulate what one means by self-efficacy. Self-efficacy represents a person's evaluation of his or her ability or competency to reach a goal or overcome an obstacle (Bandura, 1997). Self-efficacy is one of the most commonly investigated motivation theories in the field of psychology. The three major theories discussed in the area of motivation are goal-setting theory, expectancy theory and self-efficacy theory. It is an acknowledgment of the presumed influence of individuals' self-perceptions of competence on motivation and on behavior that these judgments form the core component of various expectancy theories and are a key component of most other motivation theories. Self-efficacy and other expectancy beliefs have in common that they are beliefs about one's perceived capability. While outcome expectancies refer to the perception of the possible consequences of one's action, self-efficacy expectancies refer to personal action control. A person who believes in being able to

cause an event can conduct a more active and self-determined life course. This "can-do"- cognition mirrors a sense of control over one's environment. It reflects the belief of being able to control challenging environmental demands by applying adaptive action. It can be regarded as a self-confident view of one's capability to deal with stressful encounters in life.

According to theory and research (Bandura, 1995), self-efficacy makes a difference in how people feel, think and act. In terms of feeling, a low sense of self-efficacy is associated with depression, anxiety, and helplessness. Such individuals also have low self-esteem and harbor pessimistic thoughts about their accomplishments and personal development. In terms of thinking, a strong sense of competence facilitates cognitive processes and performance in a variety of settings, including quality of decision-making and academic achievement. When it comes to preparing action, self-related cognitions are a major ingredient of the motivation process. Self-efficacy levels can enhance or impede motivation. People with high self-efficacy choose to perform more challenging tasks (Bandura, 1995). They set themselves higher goals and stick to them. Actions are pre-shaped in thought, and people anticipate either optimistic or pessimistic scenarios in line with their level of self-efficacy. Once an action has been taken, high self-efficacious persons invest more effort and persist longer than those who are low in self-efficacy. When problems occur, they recover more quickly and maintain the commitment to their goals. Self-efficacy also allows people to select challenging settings, explore their environments, or create new environments.

In recent years, students' personality traits have been heavily researched in both the fields of psychology and education. A common assumption in this work is that students' personality traits are a key to understanding their actions. Much of this research has been aimed at elucidating learners' personality traits and their influence on academic performance.

Neuroticism, often labeled by the positive pole of the trait Emotional Stability, is the tendency to show poor emotional adjustment in the form of stress, anxiety, and depression. Extraversion represents the tendency to

be sociable, dominant, and positive (Watson & Clark, 1997). Individuals who score high on Openness to Experience are creative, flexible, curious, and unconventional (McCrae, 1996). Agreeableness consists of tendencies to be kind, gentle, trusting and trustworthy and warm. Finally, conscientious individuals are achievement-oriented and dependable (Barrick & Mount, 1991), as well as orderly and deliberate (Costa & McCrae, 1992).

Because the purpose of this study is to explore the relationship between the five-factor model of personality and the self-efficacy, hypotheses are not provided. Nevertheless, there is reason to believe that relationships exist with respect to several Big five traits. Barrick & Mount (1991) linked five personality traits with performance. With respect to this, it is possible to link personality traits with self-efficacy that give rise to performance. The relationship of the Big Five traits to self-efficacy is less clear. But evidently, people with strong extraversion traits are those that like to be in charge, their dominant behavior will lead them to get ahead and compete with others. This trait will likely induce higher level of self-efficacy. Kanfer and Heggstad (1997) have discovered people with high anxiety (emotional unstable) are experiencing poor self-regulation that lead to lacking of self-confidence. Therefore, trait anxiety is closely related to poor self-efficacy. People with conscientious trait are characterized as willing to work hard and put in extra effort to accomplish goals to achieve success. This trait is well related with self-efficacy. There was no recorded literature that included an explicit discussion of the effects of other traits on self-efficacy.

There are several personality traits that have been shown to relate to academic performance. Openness to experience (also known as intellect) has been associated with academic success (De Fruyt & Mervielde, 1996). Individuals who score high on Openness to experience are creative, flexible, curious, and unconventional (McCrae, 1996). Their strong willingness to learn and adapt new things may help them to increase their self-efficacy to set new course of action. Being active, sociable, and open to new experiences may lead individual to be more involved in training and, consequently, learn more things (Mount and Barrick, 1998) and this will give rise to one's self-efficacy.

Some have argued that this association can be explained in terms of the correlation between crystallized intelligence and the Openness to Experience trait (Brand, 1994). Since Openness has also shown to have high correlation with Typical Intellectual Engagement (Goff & Ackerman, 1992), a trait that refers to one's typical efforts to invest in intellectual activities. However both Openness to Experience and Typical Intellectual Engagement have not always demonstrated predictive validity with regard to academic achievement (Busato et al., 2000).

The next personality factor, emotional stability captures the negative aspects of personality that indicates poor emotional adjustment in the form of stress, anxiety, and depression. People who are emotional unstable usually feel anxious, depressed, angry, embarrassed, worried, and insecure (Barrick and Mount, 1991). On the other hand, a well-adjusted person is generally calm, displays an even mood, and is not overly distraught by stressful situation. This person is likely to think clearly and maintain composure and rationality in situation of actual or perceived stress (Hough, 1992).

Emotionally stable people are generally more relaxed and less anxious. Early studies have attributed the relationship between neuroticism (level of anxiety) with academic performance (Furnham & Medhurst, 1995). This suggests that emotional stability may have negative relation with achievement as well as self-efficacy.

Perhaps the personality factor more consistently associated with academic performance is Conscientiousness (Busato et al., 2000; De Raad & Schouwenburg, 1996). Conscientiousness is the personality attribute of an ideal student who carries traits such as careful, thorough, responsible, organized, and is a planner (Barrick and Mount, 1991). A student who is careful may apply discretion in their school works. This helps minimize careless mistakes made that may contribute to confidence that they will perform better. Conscientious students make plans and organized in their tasks (Hough, 1992). Therefore, they are likely to be responsible in getting the job done in a thorough manner.

Those individuals who exhibit conscientiousness tend to be dependable and have significant achievements (Bobko et al., 1999). The fact that a dependable person tends to be a higher performer on virtually any job because of his or her disciplined character that prefers order before acting in any situation (Mount and Barrick, 1998; Hough, 1992). Individuals high in conscientiousness are well organized, dependable, purposeful, determined, cautious, and tend to perceive themselves as being capable and effective (Costa and McCrae, 1992). Thus, it can be posited that there is a positive relationship between conscientiousness and self-efficacy.

The fourth factor, agreeableness, mainly assesses how well someone works and gets along with each other. Agreeableness consists of tendencies to be kind, gentle, trusting and trustworthy, and warm. It can be measured by "being courteous, flexible, trusting, good-natured, cooperative, forgiving, soft hearted and tolerant" (Barrick and Mount, 1991, p.4). If a person is flexible, he or she will be easy to work with. A courteous person will listen to others for ideas and work cooperatively with others in groups. The quality of trustworthiness and tolerance will determine how well a person is getting along with others under different conditions. However, there is no evidence stating the relationship between agreeableness and self-efficacy. In other words, someone who scores highly on agreeableness may not demonstrate a high level of self-efficacy. This prediction is based on the lack of existing evidence for the significant relation between agreeableness and academic performance on one hand, and agreeableness and intelligence on the other (Zeidner & Matthews, 2000).

Extraversion is the last attribute of Big Five personality that addresses the way people interact with others. Behaviors associated with extraversion are "being social, gregarious, assertive, talkative, and active" (Barrick and Mount, 1993, p.3). This character of being sociable, dominant and positive may contribute to self-efficacy. Evidence of extraversion is found among those people who take initiative to seek information and find ways to solve problems. Earlier studies have shown teachers with high efficacy tend to experiment with methods of instruction and seek improved teaching methods (Allinder, 1994). Further, previous research suggested that self-confidence associated with extraversion that means self-efficacy would be positively associated with extraversion (Furnham et al., 2001). Therefore, extraverts are generally active in whatever things they engage, and will look for things to keep them busy

rather than wait to be told to do something. Extraverted people are more likely to think for themselves and make good decisions that will improve their belief on capabilities and confidence. It is believed the character of extraversion will have positive relationship with self-efficacy.

3. METHODOLOGY

3.1 Participants

Three hundred and fourteen college students (135 females: 178 males), taken from 23 private colleges and public universities in Malaysia . A non-probability sampling strategy was used in order to draw a mixed gender, mixed ability, and a wide sample of college students from local private colleges and public universities. All students had opportunity to complete the questionnaires during the semester.

3.2 Procedure

The administration of the survey was conducted by the researcher. In order to familiarize the students with the rating scale practice, items were presented and the rating scale explained to the whole class by the researcher. There was no time limit for completion of the self-efficacy questionnaires but students were given 20 minutes to complete the questionnaire. The measures were administered in the order:

- *Questionnaire 1* which included 30 questions to measure self-efficacy
- *Questionnaire 2* which included 25 questions to cover the five personality traits
- *Demographic section* which included the students' personal data

4. ANALYSIS

Scores for the self-efficacy measures and personality traits were taken directly from the students' questionnaires. The data were analyzed using standard descriptive statistics, Pearson correlations, t tests and multiple regression with the assistance of SPSS. Missing data for the items in each data set were replaced with the mean value of that item and no more than four percent of the values for any of the data sets needed replacement.

4.1 Self-Efficacy Measures

The Morgan-Jinks Student Efficacy Scale (MJSES), which included 30 questions, were scored using a 5 point Likert scale ranging from 1= strongly disagree to 5= strongly agree. Cronbach's alpha was used to assess the internal consistency of the five self-efficacy instruments. The measures proved to be reliable with coefficients of 0.70 (in Table 1 below) and indicated that the questions within each self-efficacy scale do measure the same construct.

4.2 Personality Traits Measures

The Oliver John's Big Five Inventory (BFI) is a well-established 25-item questionnaire and measures the 'Big Five' personality factors, i.e. Emotional stability (Neuroticism), Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Items involve questions about typical behaviors or reactions that are answered on a five-point Likert scale, ranging from 'extremely not like me' to 'extremely like me'. There is a great deal of empirical literature over the past decade providing evidence of its concurrent, construct, convergent, divergent incremental, and predictive validity.

The data was found to contain a good amount of variability by examining the range and the standard deviation (SD) reported in the Table 1 below. The shape of the distribution of the scores on the self-efficacy instruments were found to be negatively skewed, indicating that there exist low frequency, extreme low scores but no corresponding low frequency, high scores. The skewness coefficients were between -1.0 and +1.0 and were therefore considered not to be extreme and the kurtosis values were considered normal except for the self-efficacy dimension.

Table 1: Overall mean scores for self-efficacy scales and personality traits (N = 314)

<i>Dimensions</i>	<i>Cronbach's Alpha</i>	<i>No. Items</i>	<i>M (SD)</i>	<i>Skew</i>	<i>Kurtosis</i>
Self-efficacy	.70	30	3.0745 (.4001)	1.491	7.386
Neuroticism/ Adjustment	.59	5	3.4178 (.64342)	-.281	-.018
Agreeableness	.51	5	3.6554 (.58358)	-.036	-.277
Openness to experience	.42	5	3.4318 (.53647)	-.035	.579
Conscientiousness	.67	5	3.4121 (.58215)	-.126	.108
Extraversion/ Surgency	.63	5	3.3783 (.67206)	-.089	-.406

4.3 Analysis of Individual Item Scores for Personality traits

The means and standard deviations for each item across the five personality measures are presented in Table 1. Analysis of the personality measure showed that students rated their highest scores for Agreeableness (M = 3.6554) and lowest for Extraversion (M = 3.3783).

4.4 Self-Efficacy Measure

Analysis of the scores on the self-efficacy survey showed that the mean score was 3.1162 (*SD* .70825), the median 3.00 and the mode 3.00. Confirmation of this distributional shape was found by examining the frequency distribution together with the skewness coefficient of 0.10 that indicated the distribution was normally distributed.

The validity coefficient of $r = .70$ (significant at the 0.01 level) demonstrates that the self-efficacy instrument was a good measure of actual scoring. Additionally, the internal consistency reliability coefficient of 0.70 shows the questions string together well.

4.5 Self-Efficacy and Personality Traits

The scatter diagrams revealed that high scores on the self-efficacy instruments tended to be paired with personality measures. This pattern occurred across the self-efficacy measures and showed a linear relationship. Establishment of a linear relationship between personality traits and self-efficacy allowed for Pearson product moment correlations to be calculated. The Pearson correlations, shown in Table 2, in all cases were positive, indicating that those students with the certain personality traits tend to have positive relationship with self-efficacy scores.

Table 2: Relationship between self-efficacy and five personality traits

	N Items	Pearson's r N= 314	% of variance accounted for
Extraversion	5	0.375**	14%
Emotional stability	5	0.405**	16%
Conscientiousness	5	0.344**	11%
Openness to experience	5	0.275**	7%
Agreeableness	5	0.267**	7%

** Significant to the 0.01 level

It can be seen from Table 2 that all the five correlations reached statistical significance at the 0.01 level. All the personality traits measures were weakly correlated with self-efficacy, the lowest being the Agreeableness measure ($r = 0.267$) and the highest was emotional stability measure ($r = 0.405$). Indeed, emotional stability accounted for 16% ($r = .405$) of variability in self-efficacy whereas the Agreeableness accounted for only 7% ($r = 0.267$).

On the other hand, a paired samples t-test was used to establish statistical significance. Unfortunately, Self-efficacy for female was not significantly different from male ($t = -.695$, $df = 304.946$, $p = > .05$). The result was not supported by the gender differences that have been reported in previous self-efficacy research. For example, Jinks & Morgan (1999) reported that females had both higher self-efficacy and performance than males.

In order to test the contribution of each of the personality traits in the prediction of self-efficacy, the scores of self-efficacy were regressed onto the Big Five. It should be noted that due to the low variation between the self-efficacy, only the totaled (averaged) score was discussed as the outcome variable and indicator of self-efficacy in the regression. It was believed that this would both further reduce type I error rate as well as representing the most reliable measure of self-efficacy. Table 3 presents the standardized β coefficients and t value for the multiple regression. Conscientiousness was the only significant predictors of self-efficacy, whereas Personality traits accounted for 44.9% of the variance in overall totaled self-efficacy.

Table 3: Regression Results – Dependent Variable: self-efficacy

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	T-test	Sig.
	Beta	Std. Error	Beta		
(Constant)	1.188	.305		3.902	.000
Extraversion	.010	.070	.009	.141	.888
Agreeableness	.009	.078	.008	.121	.903
Neuroticism	-.006	.076	-.005	-.076	.939
Openness to experience	.013	.083	.010	.152	.879
Conscientiousness	.538	.076	.442	7.062	.000
R ²			.449		
F-statistics			15.529***		

ΔR^2			.201		
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Notes: *p <0.05; **p <0.01; ***p<0.001; n=314

The trait perspective is somewhat of an obscure in self-efficacy research. Personality variables do not play a prominent role in most self-efficacy theories. For example, the core tenets of self-efficacy theory do not include personal dispositional traits. Trait variables have been investigated in these theories, however, many dubious and problematic outcomes generated in previous work (Kanfer & Heggstad, 1997).

Results from the quantitative review presented herein suggest a fairly consistent pattern of results. Emotional stability was positively related to self-efficacy. Similarly, Extraversion was positively related to self-efficacy. The other Big Five traits: Conscientiousness, Openness to Experience, and Agreeableness – generally displayed weaker correlations with self-efficacy criteria. These results, as well as the multiple correlations between the traits and self-efficacy, suggest important support for the traits perspective in self-efficacy research.

The discussion presented here will endeavor to address each of the three research questions in turn.

Research Question 1

Is it possible to develop valid, reliable self-efficacy measures for tertiary education among university students in Malaysia?

The present study employed Morgan-Jinks Student Efficacy Scale (MJSES) in the context of tertiary education. The results indicated that the instruments used to measure self-efficacy were both valid and reliable. The internal consistency reliability coefficient was .70. The data were found to be normally distributed and to contain a good amount of variability. Thus, the self-efficacy scales appeared to be constructed well enough to form the basis of further research and in particular for comparison with the performance measures.

Research Question 2

Is the relationship between personality traits and self-efficacy demonstrated in the tertiary education among university students in Malaysia, and if so, to what extent?

Correlation analysis showed that personality traits were weakly related to self-efficacy with correlations ranging from 0.26 to 0.40. The findings of this study correspond partially to those found by other researchers earlier. On return to the questions posed using correlation techniques one can see that:

- There is a relationship
- The direction of the relationship is such that high scores on certain personality traits measure are paired with high scores on the self-efficacy.
- The magnitude of the relationship is rather weak.

It must be noted that the existence of a relationship between variables does not mean that one causes the other. Issues of causality cannot be ascertained through correlation studies. However, relationships of the magnitude found in the current study are not a chance occurrence. The relationships were all significant to the 0.01 level which indicate that students with a high score in certain personality traits tend to have higher self-efficacy. Self-belief in one's capabilities to perform certain tasks therefore seems to be connected to some personality traits.

This is an important finding since it indicates that Emotional stability was the strongest and most consistent correlates of self-efficacy motivation. As shown earlier, the relationship of the Big Five traits to self-efficacy is less clear. Although no causal connection can be made on the basis of this study, understanding the different personality traits may help him or her to improve the level of self-efficacy, to persist longer on school work, to be more motivated and to choose not to avoid certain tasks. These attributes have the potential to raise the students' self-efficacy level. In applying self-efficacy theory to education it is logical to predict that students with a high sense of personal efficacy would demonstrate superior performance on a task than those with low self-efficacy. Bandura (1997) forwards a number of ways in which a strong sense of efficacy enhances human accomplishment and personal well-being. In contrast to individuals who doubt their capabilities, people with high self-efficacy approach difficult tasks as challenges rather than threats, they set challenging goals for themselves and maintain commitment to achieving these goals, they sustain effort even when faced with failure and quickly recover after setbacks, they develop an intrinsic interest in activities, and they attribute failure to factors which are adaptable e.g. insufficient effort or skills. If lecturers could develop a strong understanding about the different personalities among students, it is easy to see how these attributes would contribute to self-efficacy. Indeed Bandura (1997 p. 214) maintains that

"The major goal of formal education should be to equip students with the intellectual tools, efficacy beliefs and intrinsic interests to educate themselves in a variety of pursuits throughout their lifetime."

Research Question 3

To what extent, if any, do there exist gender differences in self-efficacy?

The females in the sample didn't show significantly different than the males on all the measures of self-efficacy and personality traits. Although gender differences have been found by other self-efficacy researchers. For example, Pajares, Britner, and Valiante (2001) reported a similar pattern with females having both higher self-efficacy beliefs and higher performance in science than males with their sample of 262 7th grade students. This pattern has also been reported in domains other than science. For example, Pajares, and Johnson (1996) investigated gender differences and self-efficacy for writing and reported that girls had a stronger self-efficacy for self-regulated learning coupled with higher writing performance.

Many reasons have been suggested to explain no gender differences in self efficacy such as similar learning styles, similar assessment styles, identical cultural issues which all of them happen to be Malaysians. Thus, further research that encompasses diversified demographic data is needed in this area.

4.6. Summary of main findings

Having addressed all three research questions, it can be seen that the current study has shown the following:

- ❑ That it is possible to develop valid, reliable self-efficacy measures in the tertiary education among university students in Malaysia.
- ❑ That the moderate relationship between self-efficacy and personality traits demonstrated among university students in Malaysia.
- ❑ That different personalities differ in their relationship with self-efficacy.
- ❑ That gender differences in self-efficacy do not exist in this study.

5. CONCLUSIONS

The ways in which educationalists can help to promote their students self-efficacy will be the focus of this discussion. However it is worth noting that self-efficacy theory is potentially a useful explanatory construct that can be applied to many educational issues.

"Why are they so different?" is probably the most commonly asked question when lecturers are in classrooms with some students being more eager than others to learn.

Research clearly shows a positive correlation between motivation and achievement (Wang, 1996). However simply acknowledging the importance of learner motivation and how motivation relates to learners' actions does not allow us to understand fully how students develop their beliefs about their capabilities and about reasons for success and failure. Therefore, in order to understand and explain learners' motivation to a broader extent, knowledge of the individual personality differences that facilitate motivation to learn and achieve is critical. As a result, researchers and educators have turned to exploring why some individuals are more motivated than others to learn and how students develop their beliefs about completing a particular task.

A personality type plays an important role in a student's learning motivation, as assessed by standard measures of students' motivation, and has major implications for teaching. Personality traits are expressed in learning styles, which are - in turn - reflected in learning strategies and eventually produce a learning outcome (De Raad & Schouwenburg, 1996). Thus, an understanding of the students' personality traits becomes an important pedagogical tool. Understanding the ways and manners in which emotionally stable and extravert students gather and process information can lead to more effective pedagogics that will benefit both students and lecturers in tertiary education.

The results revealed that students' emotional stability and extraversion contribute to their self-efficacy. Student needs to feel emotionally calm and secure to achieve high self-efficacy. Additionally, someone who is sociable and energetic will likely to achieve higher self-efficacy than those who are unsociable and passive. As a result, universities should invest resources that enhance students' self-efficacy by providing a healthy psychological state using counseling programs that relate to the control of anxiety. In addition, counseling activities, such as workshops

and interventions that promote healthy psychological states in universities, could be an effective way to enhance well-being and interaction among students. Therefore, more university counseling programs should be developed to improve students' psychological states and, thereby, to enhance their self-efficacy.

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