

Mediating the Effect of Cognitive Flexibility in the Relationship between Psychological Well-Being and Self-Confidence: A Study on Turkish University Students

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Abstract

This study examined the role of self-confidence and cognitive flexibility in psychological well-being. The study looked into whether cognitive flexibility mediates the relationship between self-confidence and psychological well-being. The study involved the participation of 284 university students (192 female and 92 male) enrolled in the Faculty of Education at a private university in Istanbul, Turkey. Data was collected via the Self-Confidence Scale, Flourishing Scale and Cognitive Flexibility Scale. The results of our multiple regression analysis revealed that self-confidence and cognitive flexibility statistically predict psychological well-being. Self-confidence and cognitive flexibility were found to explain 38% of the variance in psychological well-being. Furthermore, cognitive flexibility served as a mediator in the relationship between self-confidence and psychological well-being.

Keywords: Self-confidence, psychological well-being, cognitive flexibility, university students

1. Introduction

Due to changes that occur in the transition from high school to university, students might experience distress and have to deal with and overcome many challenges. These challenges – which can cause severe psychological distress – can have an adverse effect on the potential for students to achieve their educational goals. More bluntly, distress can interrupt and delay the various developmental and educational requirements that many young adults are obliged to deal with (Becker, Martin, Wajaeh, Ward and Shen, 2002; Dyson and Renk, 2006). Recent research has shown that there has been a considerable increase in the levels of stress experienced by college students in comparison to previous years. These increasing levels of stress may lead to students suffer further negative health behaviors (Gipson, 2004; Pritchard, Wilson and Yamnitz, 2007) and decrease their psychological well-being.

There has been an increasing interest in psychological well-being in all stages of educational life. This, especially in light of the various educational and psychological problems experienced by university student populations, in particular, necessitate further examination of positive factors related to students' psychological health (Burris, Brechting, Salsman and Carlson, 2009). To this end, self-confidence and cognitive flexibility have been examined in terms of their contribution to explaining psychological well-being.

1.1 Psychological Well-Being

Psychological well-being has fast become one of the mostly researched academic subjects of recent years and this renewed interest in individuals' well-being has subsequently had an impact on the study of education, especially with regard to the experience of learners (Diener, Suh, Lucas, and Smith, 1999; Keyes, Shmotkin, and Ryff, 2002; Ryff, 1989; Ryff, 1995; Seligman, 2011). According to the related literature, psychological well-being can be discussed from two perspectives – one, the hedonic tradition and the other, the *eudaimonic* tradition. From the former perspective, well-being is mostly associated with happiness, positive affect, low negative affect and satisfaction with life (Diener, 1984; Diener, Suh, Lucas and Smith, 1999; Lyubomirsky and Lepper, 1999). On the other hand, psychological well-being in the eudaimonic tradition emphasizes the role of positive psychological functioning and human development (Ryff, 1989; Ryff and Keyes, 1999). Ryff (1989) in defining psychological well-being as a concept comprising of autonomy, environmental mastery, positive relationships with others, such as purpose in life,

realization of potential and self-acceptance. Ryff and Keyes (1995) add that psychological well-being specifies to an individual's using his potential for personal development in a positive way and his ability to attain goals. In this study, psychological well-being has been analyzed in terms of flourishing. Flourishing – a combination of feeling good and functioning effectively – alludes to the experience of life going well. Flourishing is associated with a high level of mental well-being, as well as sound mental health (Keyes, 2002; Ryff and Singer, 1998).

Flourishing implies that factors such as searching for a meaningful and purposeful life, as well as building positive and quality relationships with others contributes to an individual's health and happiness. Research indicates that happiness both strengthens the immune system and boosts energy. Furthermore, happiness both provides the individuals with the feeling that they are preferred more in their social relations and increases efficiency at the workplace (Lyubomirsky, King, and Diener, 2005).

Researchers have studied psychological well-being in terms of cognitive, emotional and personality variables. The most highly emphasized cognitive variables include self-efficacy (Siddiqui, 2015), optimism (Scheier, Carver and Bridges, 2001), self-esteem (Paradise and Kernis, 2002), social support (Aydın, Kahraman and Hiçdurmaz, 2017), locus of control (VanderZee, Buunk and Sanderman, 1997). Regarding emotional functioning, positive emotions, positive life events (Fredrickson, 2001; Khatoon, 2015) mindfulness (Parto and Besharat, 2011), gratitude and forgiveness in terms of those found most likely to be associated with psychological well-being (Karremans, Van Lange, Ouwerkerk, and Kluwer, 2003; Toussaint and Friedman, 2008). As personality features, higher degrees of extraversion and lower neuroticism are also linked to well-being (Gomez, Allemand, and Grob, 2012; Grant, Langan-Fox and Anglim, 2009). In addition, Cheng and Furnham (2003) revealed that psychological well-being was predicted through attributional style and self-esteem. In another study by Zika and Chamberlain (1992), psychological well-being was even found to have a link with an overall sense of meaning in life – a significant predictors of teachers' psychological well-being.

1.2 Self-Confidence

It is assumed that a teachers' self-confidence is one of the significant factors that affects not only the success of learners but also their own professional development. With the changes that have occurred in educational practices in terms of aiming to gear the art of pedagogy to the needs of learners, self-confidence among teachers is an issue that has been significantly put under the spotlight in recent years. In a broad sense, confidence refers to one's trust in something or someone. Self-confidence may be defined as "the belief that a person has it in their ability to succeed at a task based on whether or not they have been able to perform that task in the past" (Adalikwu, 2012). Murray (2006), on the other hand, suggests that if one is confident about something, they do not worry about the outcome and, rather, just take it for granted that everything will turn out well. Similarly, self-confidence could be perceived as "a sense that has been present in every individual and that has two essential components: lovability and competence" (Mutluer, 2006). In Miyagawa (2010)'s view, self-confidence is rooted in what one has the capacity to succeed in based on their own efforts, as well as their skills and weaknesses. Based on these definitions, the characteristics of individuals with high self-confidence could be summarized as being ambitious, being goal oriented, being visionary, building good relationship with others, being more focused on success and progress, being ready to meet the challenges, and believing that they can overcome obstacles (Hale, 2004; Wright, 2008).

In the context of teaching and learning, research has focused on various aspects of self-confidence and its relation to other variables. A number of studies, for instance, have looked into the relevance self-confidence has to teaching and teacher development. In a study by Hativa (2000), low self-confidence was found to count as one of the more significant characteristics going against teachers, according to student evaluations. However, in the following weeks, teachers' self-confidence was found to increase as teachers changed the way they taught. Another study by Sadler (2013) looked into the role of self-confidence in learning to teach in higher education. This study specifically dealt with the effect of self-confidence on teachers' development over time. The findings of the study revealed that integrating teachers' reflections on self-confidence into teacher development programs is of great importance. In addition, Postareff and Lindblom-Ylänne (2011) found in their study that teachers who adopted a more learning-based teaching style enjoyed higher levels of self-confidence. In addition to variables such as personal development and teaching style, self-confidence was also found to correlate with psychological well-being in a number of studies (Carver and Scheier, 1999; McGregor and Little, 1998).

1.3 Cognitive Flexibility

Cognitive flexibility, which has seen a growing amount of interest in the context of learning, has been defined in various ways by different researchers and scholars. In Deak's perspective, "cognitive flexibility is dynamic modification, construction, and activation of cognitive processes based on linguistic and nonlinguistic environmental

data in response to changing task demands. While changing situational factors, cognitive system can adjust to new contexts through shifting attention, choosing relevant data to select forthcoming answers, making plans and creating novel activation conditions to feed back into the situation” (Saffarin and Fatemi, 2015). Similarly, Elen, Stahl, Bromme, and Clarebout (2011) define cognitive flexibility as “the disposition to consider diverse information elements while deciding on how to solve a problem or to execute a learning-related task in a variety of domains”. Cognitive flexibility can also be defined as the individual’s ability to select the most appropriate strategy for a problem (Spiro, Feltovich, Jacobson and Coulson, 1992). In line with an alternative perspective, Martin and Anderson (1998) emphasize the importance of considering all the options before deciding on the most effective choice. This definition of cognitive flexibility puts the emphasis on evaluating all possible options before reaching the best alternative. Individuals with cognitive flexibility are confident in their own capacity and behave accordingly (Bandura, 1977), willing to adapt to new situations (Martin and Anderson, 1998), possess an awareness of alternative choices and options (Martin and Anderson, 1998; Martin and Rubin, 1995), can use information and cognition flexibly and can apply this information in different ways according to context (Karadeniz, 2008), are capable of making decisions on their own and with high self-esteem, are able to look at events from different angles, can instill internal control, are less depressed and are more optimistic (Sapmaz and Doğan, 2013).

Researchers have also looked into cognitive flexibility and its effects on a number of variables relevant to the educational context. One study by Edmunds (2007) investigated the correlation between cognitive flexibility and teachers’ sense of self-efficacy. The findings of the study came to conclude that adopting cognitive flexibility theory-based instructional tools did not have a great effect on improving student teachers’ sense of self-efficacy. In further study by Gunduz (2013), cognitive flexibility was found to correlate with emotional intelligence and psychological symptoms in teacher candidates. Cognitive flexibility was also studied in the context of foreign language teaching. Saffarin and Fatemi (2015) investigated the correlation between EFL teachers’ cognitive flexibility and EFL learners’ attitudes towards learning English. The results of the study indicated the need to integrate cognitive flexibility into foreign language teaching. In a study carried out in the Turkish educational context, Kılıç and Demir (2012) looked at teaching candidates’ perceptions about creating teaching and learning environments based on cognitive flexibility and cognitive coaching. Their study revealed that teacher candidates had a positive attitude towards creating a classroom atmosphere based on cognitive flexibility and cognitive coaching.

1.4 Participants and Procedure

A total of 284 university students participated in the study. Of the participants, 192 were female and 92 were male. All the participants were enrolled at the Faculty of Education at a private university in Istanbul, Turkey. The data for the present study were collected from three departments: English Language Teaching, Counseling and Guidance and Special Education. The participants’ ages ranged between 18 and 42, with an average of 21.26.

Before the data for the present study were collected, all the participants were informed about the purpose of the study by the researcher. The participants filled out the questionnaires in their regular classroom hour. There was no time limitation for the completion of the questionnaires.

1.5 Research Questions

The aim of this study was to specifically examine the role of cognitive flexibility in the relation between self-confidence and psychological well-being. The following research questions were posed:

1. What are the relationships among self-confidence, psychological well-being and cognitive flexibility?
2. Are self-confidence and cognitive flexibility good predictors of psychological well-being?
3. Does cognitive flexibility mediate the relationship between self-confidence and psychological well-being?

2. Method

2.2 Measures

2.2.1 Cognitive Flexibility Scale

Cognitive flexibility of the participants was measured using “Cognitive Flexibility Scale” developed by Martin and Rubin (1995) and adapted to Turkish by Altunkol (2011). The scale consists of 12 items which were designed to measure the level of participants’ cognitive flexibility. The items in the scale were rated on a 6-point Likert scale. The Cronbach alpha coefficient for the scale was measured .79 in the current study.

2.2.2 Psychological Well-Being Scale

In order to measure participants’ psychological well-being, the “Psychological Well-being Scale” developed by

Diener et al. (2010) and adapted to Turkish by Telef (2013) was utilized in the current study. This contained 8 items on the scale rated on a 7- point Likert Scale. The Cronbach alpha coefficient for the scale was measured .88 in the current study.

2.2.3 Self-Confidence Scale

In the measurement of participants’ self-confidence, the Self-Confidence Scale developed by Akin (2007) was used. The scale consists of 33 items which are rated on a 5-point Likert scale. The Cronbach alpha coefficient for the scale was measured at .93 in the current study.

3. Results

The data analysis section is presented step by step, by restating each research question and presenting the related analysis.

1. What are the relationships between self-confidence, psychological well-being and cognitive flexibility?

To address this question, the Pearson correlation was used. Table 1 shows the results of these correlations.

Table 1. Correlations Between, Self-confidence, Psychological Well-being and Cognitive Flexibility

		Self-confidence	Cognitive flexibility
Psychological Well-Being	Pearson Correlation	.569*	.451*
	Sig. (2-tailed)	.000	.000
	N	284	284
Self-confidence	Pearson Correlation	1	.655*
	Sig. (2-tailed)		.000
	N		284

*p< .001

The results of the correlations represented in Table 1 indicate that all three coefficients calculated for the relationships can be considered significant at a level of p < .001. Self-confidence is found to have a positive relationship with cognitive flexibility (r=.655), and with psychological well-being (r=.569). The relationship between cognitive flexibility and psychological well-being is also positive (r=.451).

2. Are self-confidence and cognitive flexibility good predictors of psychological well-being?

3.1 Regression Analysis

A regression analysis was conducted following the successful conclusion of a preliminary analysis. The results of this latter test are shown in Table 2.

Table 2. Regression Analysis Results Regarding Psychological Well-Being According to Self- Confidence and Cognitive Flexibility.

Variables	Unstandardized Coefficients		Standardized Coefficients		R ²	F
	B	Std. Error	β	t		
Psychological Well-Being						
Constant	5.278	3.071		1.719		
Self-Confidence	.229	.028	.492	8.113**	.38	84.627**
Cognitive Flexibility	.195	.070	.170	2.803*		

* p<.01 **p<.001

As shown in Table 2, self-confidence and cognitive flexibility were able to account for 38% of the variability in psychological well-being. The overall model has been effective in predicting the participants’ psychological well-being as a result of self-confidence and cognitive flexibility F [(2,282) = 84.627; p<.001]. With the significant

p value of .001, it is clear that the model has a considerable prediction power. Evidently, self-confidence has contributed hugely (around 49%) to the prediction of psychological well-being while the contribution of cognitive flexibility has been much less (17%). However, both of these contributions are substantial in statistical terms. Apparently, self-confidence ($\beta=.492$; $p<.001$) and cognitive flexibility ($\beta=.170$; $p<.01$) both have been able to significantly predict the participants' psychological well-being.

3. Does cognitive flexibility mediate the relationship between self-confidence and psychological well-being?

To answer the above question, a mediation analysis was calculated in AMOS. When the mediation is mentioned, two ways are conceptualized by which the exogenous or antecedent variable influences the outcome or consequent variable; one direct and the other indirect via the mediator variable (Hayes, 2013). The path diagram which addresses this question is represented below.

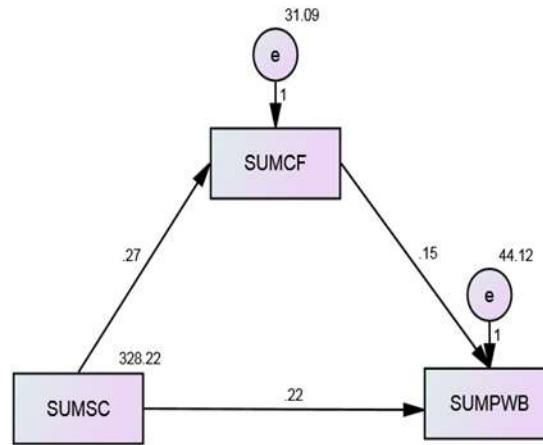


Figure 1. Path diagram showing the direct and indirect effects

The indirect and direct effects were added up in order to find out as to what extent total effect self-confidence exerts upon psychological well-being. As such, .27 (a) was multiplied by .15 (b) and .22 was added to find the total effect. The result was found to be .26. It is evident that both indirect and direct effects have been significant at $p < .001$ and $p < .05$ levels, respectively. This result suggests that cognitive flexibility mediates the effect of self-efficacy on psychological well-being. Table 3 shows that the model was a saturated one and no fit indices were generated.

Table 3. Total, Direct and Indirect Effects of the Default Model (Regression Weights)

			Estimate	S.E.	C.R.	P
SUMCF	<---	SUMSC	.267	.018	14.568	***
SUMPWB	<---	SUMCF	.151	.071	2.131	.033
SUMPWB	<---	SUMSC	.215	.029	7.472	***

4. Discussion

The current study was set out to examine as to what extent self-confidence and cognitive flexibility correlate with self-reported psychological well-being. Firstly, it was examined whether self-confidence and cognitive flexibility are good predictors of psychological well-being. Furthermore, the mediating role of cognitive flexibility in the relationship between self-confidence and psychological well-being was assessed. Statistically significant relationships were found among the study variables. A regression analysis revealed that self-confidence and cognitive flexibility served as good predictors for young adults' self-reported psychological well-being. Individuals with high self-confidence and cognitive flexibility tended to report more psychological well-being. In addition, cognitive flexibility served as partial mediator in the relationship between self-confidence and psychological well-being.

Self-confidence relies upon self-respect and the courage one has to realize the truth about who they are, what they like, and what they believe (Rufus, 2014 cited in Peterson, 2017). In other words, it relates to knowing one's strengths and weaknesses. Because high self-confidence refers to having positive feelings and a realistic assessment of oneself and the world, it may be said that self-confidence is covered under the concept of self-esteem. Self-esteem

is defined as a positive or negative orientation toward oneself, an overall evaluation of one's worth or value.

Various studies have examined the link between self-esteem and psychological well-being during adolescence and young adulthood (Cheng and Furnham, 2003; Ciarrochi, Heaven and Davies, 2007; Paradise and Kernis, 2002; Roberts and Bengtson, 1993) in terms of questions of self-confidence. Paradise and Kernis (2002) indicated that high self-esteem was associated with greater psychological well-being than was low self-esteem in undergraduates. Similarly, Sato and Yuki (2014) found that there was an association between self-esteem and happiness, and that this was stronger for first-year students than for the second-year students. In addition to these, Cheng and Furnham (2003) reported that self-esteem and one's relationship with their parents had a direct predictive power on happiness.

This study found that cognitive flexibility was a good predictor of psychological well-being. This finding falls in line with the conclusions of existing literature. A meta-analysis conducted by Hayes, Luoma, Bond, Masuda, and Lillis (2006) indicated that there was a moderate relationship between flexibility and various measures of psychological outcomes. Likewise, many studies denoted that cognitive flexibility has been connected to psychological well-being (Cardom, 2016); healthy mental functioning (Hartkamp and Thornton, 2017; Moore and Malinowski, 2009) self-compassion and emotional distress (Marshall and Brockman, 2016).

Last but not least, cognitive flexibility was also found to play a role as a mediator in the relationship between self-confidence and psychological well-being. When cognitive flexibility served as a mediator, the level of psychological well-being increased much further than before. Existing studies have already pointed out that cognitive flexibility can serve as a mediator in various contexts (Cardom, 2016; Dağ and Gülüm, 2013; Koesten, Schrodt and Ford, 2009; Zarei, Momeni and Mohammadkhani, 2018).

The results of this study are of great importance for several reasons. The study emphasizes the importance of cognitive flexibility in the relation between self-confidence and psychological well-being. Factors influencing psychological well-being have attracted considerable attention over the last ten years (Huppert, 2009; Kim, 2005; Nirmala, Valarmathi, Venkataraman, Kanniammal, and Arulappan, 2018; Tomo & De Simone, 2017). Thanks to a better understanding of the factors affecting psychological well-being and developing a comprehensive program, such as cognitive and psychological flexibility, self-confidence, self-compassion, such findings may be integrated to various assistance programs aimed at enhancing psychological well-being.

Furthermore, as a result of greater understanding surrounding this issue, preventative or training programs may be developed with the aim of enhancing psychological well-being through the promotion of cognitive flexibility in school settings. Such programs have already been found effective in protecting the mental health of students (Fava, 1999; Ruini, Belaise, Brombin, Caffo, and Fava, 2006; Ruini, Ottolini, Tomba et al., 2009). Within this context, efforts to develop psycho-educational programs to increase psychological well-being among undergraduate students accommodating for factors such as self-confidence, self-esteem and cognitive flexibility, are of critical importance in the promotion of a good state of mental health among learners.

The study has a number of implications both for prospective teachers, trainers and counselors. Firstly, it would be beneficial to integrate awareness-raising activities and an effectively-designed training/intervention program that stresses concepts such as self-confidence, cognitive flexibility and psychological well-being both into the curriculum and group works. By means of such training, prospective teachers and counselors may become aware of the significance of these concepts and learn about the strategies about gaining cognitive flexibility and self-confidence in their professional life. This is also worthy of note for students' prospective life such as career development, special life and interpersonal relationships.

Several limitations to the present study are worth mentioning. The first, is that our sample was limited in size and diversity. The sample could be extended by obtaining data from students in other faculties. The second, is that the cross-sectional, correlational design restrained the amount of conclusions that could be drawn about the direction and nature of the relationships. Thus, with a longitudinal study, the impact of self-confidence and cognitive flexibility on psychological well-being can be seen more effectively. In addition, other methods, such as observation and interviews, could be used to enhance the effectiveness of the study.

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