



The validity and reliability of thriving scale in academic context: Mindfulness, GPA, and entrepreneurial intention among university students

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Abstract

This study aims to adapt the thriving scale into Turkish by considering its academic context and to examine the mediating role of thriving in the relationship between mindfulness, GPA scores, and entrepreneurial intention. The sample of the study has involved the participation of 134 students from five different departments of Istanbul Medeniyet University in Turkey, using data collected at three-time points in the spring semester of 2019. At the first and second time points, students filled out an online survey made up of questions regarding demographics, mindfulness, entrepreneurship, and thriving; while at the third time point, researchers obtained the students' GPA scores from a software-based university information system. The construct validity of the scales was tested via an Exploratory Factor Analysis and Confirmatory Factor Analysis. The Cronbach's Alpha coefficients were analyzed to test the internal consistency, while the intra-class correlation coefficient (ICC) was used to analyze the test-retest reliability. Finally, a structural equation analysis was used to test the research model. The findings have been discussed in line with literature relevant to the issue, with recommendations on their possible application given in the conclusion of the study.

Keywords Thriving · Mindfulness · Entrepreneurial intention · GPA

Introduction

The human experience is generally centered on growth and self-development (Ryan & Deci, 2002). The efficacy of one's self-development-especially in late adolescence and early adulthood, between the ages of 18 and 25- necessitates one to achieve a sense of realization and perspective in regard to a whole array of developmental subjects (personal values, academic problems and decision-making skills, independence from the family, etc.) and to cope with these subjects (Arnett, 2000, 2001, 2007; Jekielek & Brown, 2005). In overcoming such developmental subjects, young adults can thrive vigorously (Benson et al., 2006; Soanes & Stevenson, 2005),

whereas failure to do so can provoke stress and lead to risky behaviors (Arnett, 2005; Kwan et al., 2012; Steinberg, 2004). Therefore, thriving that emphasizes positive human functioning, rather than pathology, plays an important role in late adolescence (Seligman & Csikszentmihalyi, 2000).

The concept of thriving has been utilized in positive psychology and economics since the beginning of the twenty-first century and has a multifaceted breadth of definitions according its samples and context (Brown et al., 2017). In the developmental domain, the term is taken to indicate development and growth (Benson & Scales, 2009; Lerner et al., 2003), while in terms of performance it is understood as a sense of success Bakker et al., 2010; Jackson et al., 2011). However, the simplest definition in the performance-oriented domain comes from Spreitzer et al. (2005) in that the term refers to a psychological state whereby one can experience both learning and vitality in one. Vitality refers to "one's having the energy to conduct a certain action" (Nix et al., 1999) and gets a zest for what they do (Miller & Stiver, 1997). Learning refers to "gaining the knowledge and skills to do something in a confident way" (Carver, 1998; Spreitzer et al., 2005). Both dimensions pertain to the affective and cognitive psychological aspects of personal growth (Porath et al., 2012) and reinforce each other's (Ren et al., 2015). And both dimensions are the

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core elements in academic context (Schreiner, 2010) defined. In the academic context, Schreiner (2010) defines thriving as a state in which university students' function at an optimum level while enjoying academic, social and psychological well-being. This definition is also based on a performance-oriented context. In parallel to this, there have been many empirical studies on thriving in terms of academia and academic success (Kinzie, 2018; Schreiner, 2010; 2012; 2014). Thus, thriving can be considered in terms of academic performance (GPA). To this end, it is fair to assess GPA scores as one of various contextual outcomes of thriving. In this study, the definition of thriving as under by Spreitzer is that which has been taken into account, as this is matched by a readily applicable measurement, as developed by Porath et al. (2012). In this study, both the definition and measure were taken in academic context.

Moreover, both developmental domains and performance domains perspectives have various commonalities in terms of their conceptualization. This common conceptualization is based on adaptive developmental self-regulation (Brandstädter, 2006; Lerner, 2002, 2006; Spreitzer et al., 2012). Adaptive developmental self-regulation is the individual's ability to navigate and regulate autonomously their own internal sources and behaviors according to their basic psychological needs and contextual features (Deci & Ryan 2000; Spreitzer et al., 2005; Wallace et al., 2016; Deci & Ryan, 2008). To navigate and regulate autonomously one's own internal sources and behaviors according to one's basic psychological needs and contextual features, the individual can increase awareness of how they act, comprehend, and evaluate the process as a whole. In such a context, thriving may be understood in terms of its relationship with mindfulness. In this study, we have conceptualized mindfulness as one of many individual antecedents of thriving. In line with this study, thriving has thus been linked to mindfulness (Brown et al., 2007; Glomb et al., 2011).

In terms of GPA, entrepreneurial intention is also conceptualized as one of the contextual outcomes of thriving. It is increasingly apparent that students either become self-employed or are expected to work in entrepreneurial environments at some stage in their career (Hassan & Bakri, 2016; Martinez et al., 2007). In order to manage and excel in an unpredictable, dynamic, and ambiguous environment, students benefit from the formulation of the skills required for entrepreneurship. The growing demand of entrepreneurship indicates that students require energy, are open to innovation, and are eager to learn in the midst of today's competitive environment. After gaining the required entrepreneurial skills and abilities, students' attitudes have been shown to change, becoming more geared towards entrepreneurship. Students, who thrive at school are more engaged in learning activities (Spreitzer et al., 2005), and thus thriving enables entrepreneurship. Thriving and entrepreneurship may be explained by

adaptive developmental self-regulation. Self-regulation is critical for thriving (Gestsdóttir et al., 2011). In particular, entrepreneurship demands adaptive, agency control over interactions with its context, and there is a strong relationship between entrepreneurial intention and self-regulation. This relationship is well established in the literature (Busenitz et al., 2003; Damon & Lerner, 2008; Geldhof, Porter, et al., 2014a; Geldhof, Weiner, et al., 2014b). However, the relationship between thriving and entrepreneurial intention has not yet been adequately evaluated. With this in mind, we hypothesize that thriving is related to entrepreneurial intention.

The Mediation Role of Thriving in the Relationship between Mindfulness and GPA

Mindfulness is generally defined as a psychological state of being attentive to and non-judgmentally being aware of the present moment (Bishop et al., 2004; Brown & Ryan, 2003; Dane, 2011; Kabat-Zinn, 1994) and accepting inner subjective mental experiences such as feelings, thoughts, sensations, perceptions, hopes, dreams, beliefs, and attitudes (Germer, 2005).

Moreover, mindful experience of an individual regulates autonomously their behaviors according to their chosen interests and values (Brown & Ryan, 2003). Mindful regulation provides the individual with vitality and energy (Allen & Kiburz, 2012; Baer & Lykins, 2011; Brown & Ryan, 2003). By experiencing what is happening in the present moment without judgment or expectation, the individual learns to be open and engaged (Siegel, 2007). Thus, the experience of mindfulness facilitates vitality and learning via non-judgmental awareness and acceptance. In this regard, mindfulness may be associated with thriving. That is to say that mindfulness may also be considered an antecedent of thriving.

Furthermore, academic performance can be associated with one's psychological well-being (Baker, 2004; Esteve, 2008). In addition to this, there have been many empirical studies (Bishop et al., 2004; Davidson et al., 2003; Siegel & Siegel, 2014; Weinstein et al., 2009) indicating the protective role played by mindfulness in terms of mental health issues and well-being. The literature contains a considerable amount of studies (Arslan & Asıcı, 2021; Charoensukmongkol, 2014; Beauchemin et al., 2008; Galante et al., 2018; Mrazek et al., 2013; Zhang et al., 2013; Zubai, Kamal & Artemeva, 2018) about effective role mindfulness plays in academic setting by reducing stress and anxiety and increasing academic performance as judged in terms of measures such as GPA scores. This can be explained by the fact that mindfulness with its regulation enhance students' attention to related academic material instead of unrelated academic materials. And also mindfulness provide students developing objective self-perception about their efficacy (Gärtner, 2013; Glomb et al., 2011). Thus,

mindfulness ought to be considered in terms of its link to academic performance.

The regulation of mindfulness, when joined with vitality and learning, may reduce stress and increase one's academic performance. Thriving is the psychological state whereby one can experience both learning and vitality in one, and both dimensions represent core elements in terms of academics (Schreiner, 2010). In the academic context, Schreiner (2010) pointed to as a state in which university students could function at an optimum level and carry out academic, social and psychological well-being. This definition is also relevant in terms of performance. In line with this, much empirical research places thriving in the academic context, linking the concept with academic success (Kinzie, 2018; Schreiner, 2010; 2012; 2014). We have therefore conceptualized GPA as one of the contextual outcomes of thriving.

The Mediating Role of Thriving in the Relationship between Mindfulness and Entrepreneurial Intention

As a part of today's globalized world, in a remarkable amount of country, even university graduates may have difficulty in finding and maintaining a job due to the competition (Postigo et al., 2006; Seet & Seet, 2006). While this is the case, entrepreneurship has become a common goal of many studies (Gürol & Atsan, 2006; Lee et al., 2005). The concept of entrepreneurship is the process by which an entrepreneur takes opportunities, considers risks and dangers, and creates values by leading the way with an innovative idea. However, there are relatively several definitions of entrepreneurship in the literature. Some of the definitions in this field are as follows:

Schumpeter (1978), who is considered as the founder of contemporary entrepreneurship, has defined entrepreneurship as the creation of new compositions and he argued that this is the basis of economic development. Carrier (1996) defined entrepreneurship as the process of creating new jobs with the existing firms in order to increase corporate profitability and increase the competitiveness of the enterprise. According to Dinçer and Fidan (2000), entrepreneurs are simply those who make investments in order to produce products or services and activate the production factors that are essential for such investments to become effective. Entrepreneurs connect their activities and businesses to capitals and start being expectant of profits. As they are able run their enterprise effectively, entrepreneurs commonly make way for a competent professional manager to administer on their behalf. To this end, many university students take some form of training in order to acquire entrepreneurial skills through university courses aimed at giving them pointers in the right direction (Henry, 2003; Kuratko & Hodgetts, 2004).

The most important skill in terms of entrepreneurship is being able to spot opportunities (Krueger, 2003; Plummer et al., 2007). The ability to spot opportunities is affected by various intrapersonal and contextual factors (Frese, 2009; Lichtenstein et al., 2007). To see opportunities, individuals must be aware of what they are engaged with. In this respect, entrepreneurship can be related with mindfulness as one intra-personal feature.

Mindfulness allows individuals to be open to new things and to be sensitive to their environment whilst retaining an awareness of their present environment. This sensitivity to environment may lead individuals to become aware of the present moment and thus to better spot opportunities and to regulate how they respond to given situations. In entrepreneurship, both seeing opportunities and taking an action for profits are crucial behavioral trends. Mindfulness can enable individuals to see opportunities and engage more in entrepreneurship activities by increasing awareness and attention to the present moment. In the previous literature, there are a few studies showing the positive effect of mindfulness on entrepreneurship. For example, Chinchilla and Garcia (2017) found mindfulness as a significant indicator of social entrepreneurship intention. According to the authors, Dees (1998) defines four characteristics of social entrepreneurship which are "focus on the dual mission of creating economic and social value and becoming change agents", "recognition of new opportunities based on the mission", "continuous innovation", and "acting boldly while remaining accountable". All these characteristics of social entrepreneurship are positively related to mindfulness as mindfulness may raise the awareness of the intention to achieve goals, may enable better recognition of opportunities and cognitive-information processing framework characterized by innovation and dealing with complexity (Chinchilla & Garcia, 2017). Similar with Chinchilla and Garcia (2017), Kelly and Dorian (2017) claim that opportunity recognition and evaluation process are the most important features of entrepreneurship. They have developed propositional hypothesis about the positive relationship between mindfulness and entrepreneurial opportunity recognition and evaluation. In addition to Kelly and Dorian's (2017) theoretical study, Van Gelderen et al. (2018) conducted a longitudinal study to test the significant effect of dispositional mindfulness on taking entrepreneurial action. They found that the mindfulness had a positive effect on taking entrepreneurial action and having prior start-up experience strengthened this effect (Van Gelderen et al., 2018). Lastly, the studies of Charoensukmongkol (2019, 2020) support the results of these studies. In the study of Charoensukmongkol (2019), the relationship between mindfulness and entrepreneurs' improvisational behavior was found to be positive and significant. Charoensukmongkol (2019) stated that this result may contribute our understanding how mindfulness help people perform efficiently in unpredictable circumstances, which is the one of main characteristic of

entrepreneurship. Charoensukmongkol (2020) also indicated that cultural intelligence was positively related to adaptive selling behaviors and this relationship was stronger in employees with higher level of trait mindfulness than lower level of trait mindfulness. This result shows that mindfulness enables cultural intelligence, which also critical for entrepreneurship. Since, cultural intelligence means that the people's in-depth experience and knowledge of the cultural context in which they are (Charoensukmongkol, 2020). Drawn on previous literature about entrepreneurship, we can infer that the entrepreneurship will be also positively related to cultural intelligence. In line with these studies, mindfulness has been heavily linked to entrepreneurial intention as an antecedent in many respects (Caliendo et al., 2014; Capel, 2014; Frese & Gielnik, 2014; Van Gelderen et al., 2018). However, more empirical evidence is needed to show the role of mindfulness in entrepreneurial intention (Chinchilla & Garcia, 2017; Kelly & Dorian, 2017).

According to the adaptive developmental self-regulation model, a certain number of individual and contextual features facilitate the process of thriving. These individual features include attitudes and behaviors such as maintaining a positive perspective (Sarkar & Fletcher, 2014), a proactive personality (Sumsion, 2004), motivation (see, e.g., Benson & Scales, 2009), knowledge and learning (Niessen et al., 2012), psychological resilience (Gan et al., 2013), and social competencies (see, e.g., Tedeschi & Calhoun, 1996). The contextual features include a challenging environment (O'Leary & Ickovics, 1995), attachment and trust (Carmeli & Spreitzer, 2009), family support (Weine et al., 2013), and colleague/employer support (Paterson et al., 2014). In this study, entrepreneurship is taken as an individual and social competency with features that can facilitate thriving. The most important step on the road to successful entrepreneurialism relies on securing finances from a variety of sources, whether family members or acquaintances, banks, the state, investments etc. (Yıldız, 2007). This requires an eagerness to learn, and thus a number of have shown the relationship between thriving and entrepreneurship particularly in the context of work (Devarajan et al., 2003; Eggers, 2010).

With these features, the individual has an improved likelihood of achieving progressive outcomes in physical (healthy), psychological (well-being, learning adaptive strategies), social (establishing friendship, or assertive behaviors) and academic contexts (high GPA scores). Furthermore, thriving is more of a state than a disposition; it cannot be considered as a categorical (dichotomous) process, as it varies according to experience and is highly subjective, depending on both environmental and individual factors and thus can be measured differently according to a given day (Ryan et al., 2010). This being the case, thriving was measured twice in this study.

The aforementioned studies highlight the links and presumed theoretical connections between mindfulness, entrepreneurship, thriving, and academic performance (GPA);

however, our study aims to explain mindfulness in terms of how it relates to thriving as a potential factor for predicting academic performance and entrepreneurial intention.

The study aims to contribute to the literature and practice in three ways. First, this study provides for the adaptation of the thriving scale into Turkish by considering it in an academic context. Second, the study contributes to the understanding of mindfulness at university by introducing thriving as an important mechanism through which mindfulness can be linked to academic performance. Third, in an academic setting, entrepreneurship is also vital. Therefore, this study contributes to an understanding of mindfulness at university by introducing thriving as an important mechanism through which it relates to entrepreneurship. Thus, the current study examines academic settings. In this respect, it has three aims: To adapt to the adaptation of the thriving scale into Turkish in consideration of its academic context; to examine the mediating role of thriving in the relationship between and mindfulness and academic performance; and to examine the mediating role of thriving in the relationship between mindfulness and entrepreneurial intention. The hypotheses of the research are indicated below.

Hypothesis 1: Mindfulness has a positive effect on thriving.

Hypothesis 2: Thriving has a positive effect on GPA.

Hypothesis 3: Thriving has a positive effect on entrepreneurial intention.

Hypothesis 4: Thriving mediates the relationship between mindfulness and GPA.

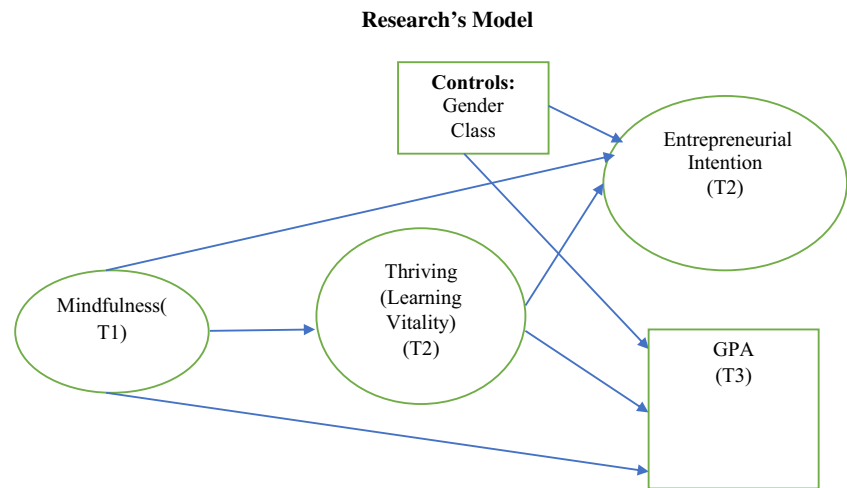
Hypothesis 5: Thriving mediates the relationship between mindfulness and entrepreneurial intention.

The study model can be seen in Fig. 1.

Method

In order to conduct the study, we first adapted the thriving scale which was developed by Porath et al. (2012) into Turkish before testing its reliability and construct validity. Then, in order to demonstrate the predictive validity of thriving, we tested the proposed research model (shown in Fig. 1) based on a longitudinal data to minimize the effect of common method biases (Podsakoff et al., 2012). Podsakoff et al. (2012) recommend several ways to the researchers in order to mitigate the effect of common method variance. Two of them are collecting the data in different time points and collecting the data from different sources. First, we collected data at different time points, which prevent the negative consequences of cross-sectional studies. In cross-sectional studies, participants exhibit a psychological tendency to respond consistently to the questionnaire items, which can lead to artificial correlation

Fig. 1 Research's Model



between independent and dependent variables. This problem, called common method variance, can be mitigated by longitudinal data collection. The participants will not tend to give consistent answers at different time points, because they may not remember their previous responses (Baumgartner and Steenkamp, 2001). We considered the time lag between Time 1 and Time 2, which allowed participants not to remember their responses at Time 1. Secondly, we measured GPA scores from the student information system which is an organizational source of data. Data obtained from a different source can diminish the effects of consistency motifs and social desirability tendencies, which also reduce the effect of common method variance (Podsakoff et al., 2012).

Participants and Procedure

Researchers collected data from undergraduate students enrolled in five different departments of Istanbul Medeniyet University, a newly founded state university in Turkey, during the spring semester of 2019. One of the researchers taught a course at business administration department (103 students), while another delivered a course at social services department (160 students) and audiology (34 students), and a latter gave a course at health management department (65 students) and nutrition-dietitian department (39 students). The researchers introduced their respective students to the purpose of the study, ensuring the responses would be confidential, and received informed consent from the students that they were willing to take part in the study. Students were also told that their involvement in the study was strictly voluntary. Ethical approval for the study was received from Ethical Committee of Istanbul Medeniyet University.

After this process, the researchers conducted online surveys over a semester, collecting data at two time points. The participants were asked to write their names to match the data at T1 and T2 on the online surveys. At the beginning of the semester the first online survey was completed in 2 weeks,

while the follow-up survey was administered and completed in 2 weeks following the mid-term exams. At Time 1 (T1), students filled out the online survey which included questions about demographics, mindfulness, entrepreneurship, and thriving. At Time 2 (T2), students filled out the same online survey once again. At both times, the students gave a self-report response (T1 and T2). At T1, a total of 401 questionnaires were distributed, of which 249 came back, resulting in a response rate of 63%. At T2, only 145 participants of the 249 who answered at T1, responded to the questionnaires. The participants' data at T1 and T2 were matched and incomplete surveys were eliminated. As a result, the overall sample consisted of 134 students with a response rate of 33,4%. Finally, after all exam results were announced and spring semester was complete, at Time 3 (T3) researchers acquired the GPA scores of 134 students from the student information system, a web-based software system used at Istanbul Medeniyet University.

Participants constituted students from five different departments; namely, business administration ($n = 14$; 10,4%), audiology ($n = 32$; 23,9%), social services ($n = 53$; 39,6%), nutrition-dietitian ($n = 25$; 18,7%), and health management ($n = 10$; 7,5%). Of the participants, 85,1% were female and 14,9% were male. Meanwhile, 109 respondents (81,3%) were freshmen and 25 respondents (18,7%) were in their second year. The average age of our participants was 19,4 (SD = 0,96).

Measures

Thriving The scale developed by Porath et al. (2012) was used to measure the thriving. The thriving scale has two sub-dimensions, namely vitality and learning, and each sub-dimension has 5 items. "I feel alive and vital" is one of the sample items for vitality, and "I find myself learning often" is one of the sample items for learning. Porath et al. (2012) reported that the scale's overall internal consistency was 0.92 for young adult samples, and 0.88 for young professional samples. In this

study, we adapted this scale into Turkish (see in Appendix) following Brislin et al.'s (1973) five stepwise technique.

Mindfulness The Mindful Attention Awareness Scale (MAAS), developed by Brown and Ryan (2003), was used to measure students' level of mindfulness. This uni-dimensional scale was a 6-point Likert scale from 1 (almost always) to 6 (almost never) and consisted of 15 items (e.g. "I find it difficult to stay focused on what's happening in the present"). Brown and Ryan (2003, p. 827) reported that the Cronbach's alpha coefficient of this scale was 0.82 for student sample, and 0.87 for general adult sample. This scale was adapted into Turkish by Özyeşil et al. (2011) and reported by Özyeşil et al. (2011) that this scale's Cronbach alpha coefficient was 0.80.

Entrepreneurial Intention We used the scale originally developed in Turkish by Cambaz, Çankır, and Çevik (2013) to measure entrepreneurial intention. This scale has 9 items (e.g. "I prefer to be an entrepreneur rather than to be an employee in a company"). Participants rated their answers on a 6-point Likert scale from 1 (almost always) to 6 (almost never).

GPA At the end of the spring semester in 2019, after all grades were declared by lecturers, we obtained the students' GPA scores from the student information system. These data are not self-reported and were obtained from the university, thus constituting organizational data from a different source.

Control Variables We included gender and class as control variables. In the previous literature, studies have shown that gender has an impact on entrepreneurial intention (e.g. Liguori et al., 2018; Liñán et al., 2011) and GPA (e.g. Duckworth & Seligman, 2006; Rahafar et al., 2016).

Data Analysis

First, we examined the skewness and kurtosis of each indicators of latent factors to check the normality. While the skewness values ranged from -1.451 to 1.150, the kurtosis values ranged from -1.180 to 2.498. According to Kline (2015), we observed fairly normal distributions for our indicators of latent factors in terms of skewness and kurtosis. Then, we tested construct validity of scales by Confirmatory Factor Analysis (CFA). To do this, we used SPSS 22 and AMOS 22 software programs.

Finally, a structural equation analysis was used to test the study model. The Root Mean Square Residuals (RMSEA), Standardized Root Mean Square Residuals (SRMR), the Comparative Fit Index (CFI), and Incremental Fit Index (IFI) were used as fit indices. While values below 0.08 for RMSEA and below 0.10 for SRMR are indicative of a good fit with data, values above 0.90 for other fit indices are also

indicative of a good fit with data (Kline, 2015). Bootstrap analyzes were performed to test the mediation model (Preacher & Hayes, 2004, 2008). The reason for applying the bootstrapping method is the serious criticism levelled against Baron and Kenny's (1986) method, which is widely used in the analysis of mediation models. Instead of this traditional method, Preacher and Hayes (2004, 2008) proposed Bootstrap analysis which provides more valid and reliable results in mediation models. In the Bootstrap analysis, whereby if the indirect effect of the independent variable on the dependent variable is significant, the mediation model is considered as validated. In this study, a 2000 sample size was used while performing the Bootstrap analysis. We reported bias corrected and accelerated bootstrap confidence intervals (BCA CI) (Preacher & Hayes, 2004, 2008).

Results

Construct Validity

We confirmed all the factors by using the AMOS for both times, separately. The conceptual definition of thriving by Spreitzer et al. (2005) and Porath et al. (2012), thriving is a joint connection of learning and vitality. Thus, initially, the second order of the CFA analysis was performed for thriving. One item was excluded due to lower factor loading. Then, the final model of thriving with two-dimensions, namely learning and vitality, fit the data well at T1 ($\chi^2/df = 1.616$, CFI = 0.981, IFI = 982, RMSEA = 0.077, SRMR = 0.046) and T2 ($\chi^2/df = 1.778$, CFI = 0.978, IFI = 978, RMSEA = 0.068, SRMR = 0.049). All factor loadings were significant ($p < 0.01$). Then, a four-factor model (mindfulness, learning, vitality, and contextual performance) was tested with a first order CFA analysis. Results indicated that the four-factor model (mindfulness, learning, vitality and entrepreneurial intention) fit the data well at T1 ($\chi^2/df = 1.547$, CFI = 0.912, IFI = 914, RMSEA = 0.064, SRMR = 0.080) and T2 ($\chi^2/df = 1.608$, CFI = 0.914, IFI = 915, RMSEA = 0.068, SRMR = 0.079). These results may prove convergent validity by indicating significant relationships between indicators and constructs (Hair et al., 2014). In order to ensure the discriminant validity of the measurement model, the correlations between variables should be less than 0.85 (Kline, 2015). The correlation coefficients between the variables in the measurement model were below 0.37 for T1 and 0.33 for T2 (Table 2). Thus, the results proved discriminant validity.

Reliability

The Cronbach's Alpha coefficients were analyzed to test the internal consistency and intra-class correlation coefficient (ICC) was used to analyze the test-retest reliability. The ICC

reflects both the degree of correlation and the agreement between the test and retest measurements. However, Pearson’s correlation coefficient is only a measure of correlation and is therefore not an ideal measure of reliability (Koo & Li, 2016). A two-way random effects model and 95% confidence interval was used in calculating the ICC. The ICC can vary from 0 to 1.0, where an ICC of 0 shows no reliability, while an ICC of 1.0 shows perfect reliability (Weir, 2005). Table 1 shows results of intra-class correlation analysis. According to Table 1, ICC coefficient between T1 and T2 for thriving was 0.775 (95% CI; 0.69–0.83), for mindfulness was 0.753 (95% CI; 0.66–0.81), and for entrepreneurship was 0.659 (95% CI; 0.55–0.74).

Table 2 shows the means, standard deviations, Cronbach’s Alphas, and intercorrelations between the variables. The Cronbach’s Alphas for all variables came to above 0.70. Thus this result supports the internal consistency of our study constructs. There was also a minimal mean change over time for all variables (Table 2). These results demonstrate internal consistency of thriving and our other study variables.

Predictive Validity and Mediation Analyses

Thriving has been linked to mindfulness (Şahin et al., 2020) and academic success (Benson & Scales, 2009; Tomasik et al., 2019). To demonstrate the predictive validity of thriving scale, we tested the structural model in Fig. 1. The structural model fit the data well ($\chi^2/df = 1.345$, CFI = 0.941, IFI = 942, RMSEA = 0.051, SRMR = 0.072). The results of the mediation analysis are shown in Table 3. Our control variables had no significant effect on GPA or entrepreneurial intention. Mindfulness had a positive effect on thriving ($\beta = 0.264$, $p < 0.01$), which indicates that Hypothesis 1 can be supported. Similarly, thriving had a positive effect on GPA ($\beta = 0.32$, $p < 0.01$) and entrepreneurial intention ($\beta = 0.254$, $p < 0.01$), thus supporting Hypothesis 2 and Hypothesis 3. Thriving mediated the effects of mindfulness on the GPA (0.115, 95% CI = [0.044–0.231]) and entrepreneurial intention (0.082, 95% CI = [0.026–0.19]), which supported Hypotheses 4 and 5. These results also provided support with predictive validity of thriving (Fig. 2).

Discussion and Conclusion

In this study, the thriving scale developed by Porath et al. (2012) was adapted into Turkish. To test the validity of this scale, a confirmatory factor analysis was performed. The results of the confirmatory factor analyses showed that the emerged model fit indices supported the two-factor structure of the scale as original form in the sample of Turkish university students. Moreover, the Cronbach’s Alpha coefficients and intra-class correlation coefficients may go to prove the scale’s reliability. The scale is composed of two sub-dimensions, consistent with original scale developed by Porath et al. (2012). These are learning and vitality.

In order to demonstrate the predictive validity of thriving, this study has examined the mediating role of thriving in the relationship between mindfulness and GPA. The emerged model has proved to be statistically significant. Considerable studies (Allen & Kiburz, 2012; Baer & Lykins, 2011; Brown & Ryan, 2003; Şahin et al., 2020; Siegel, 2007) have indicated the relationship between mindfulness and thriving. The ability to be mindful autonomously regulates one’s behaviors and experience of what is happening in the present moment without judgment or expectation, providing the individuals with vitality and energy. This regulation with vitality and learning may reduce stress and anxiety and increase academic performance in terms of GPA. Various studies have similarly emphasized the relationship between mindfulness and GPA (Arslan & Asıcı, 2021, Beauchemin et al., 2008, Charoensukmongkol, 2014, Galante et al., 2018, Mrazek et al., 2013, Zhang et al., 2013, Zubair et al., 2018).

However, the mediating role of thriving in the relationship between mindfulness and GPA has not been stated in previous studies. Mindfulness regulation, together with vitality and learning, thus may decrease stress and anxiety and increase academic performance in terms of GPA. Vitality and learning pertain to the affective and cognitive psychological aspects of personal growth (Porath et al., 2012) that are defined as the essential element in the context of academia (Schreiner, 2010). In line with this, many studies stated the relationship between thriving in academic context and academic success (Kinzie, 2018; Schreiner, 2010; 2012; 2014). Thus, thriving may be considered when one thinks of academic success in

Table 1 Results of Intra-Class Correlation Analysis (N = 134)

Variables	ICC	95% CI		F	df1	df2	p
		Lower	Upper				
Thriving (T1 and T2)	0.775	0.698	0.835	7.899	133	133	0.000
Mindfulness (T1 and T2)	0.753	0.669	0.818	7.091	133	133	0.000
Entrepreneuership (T1 and T2)	0.659	0.552	0.745	4.869	133	133	0.000

Note: ICC = intra-class correlation; C. I. = confidence interval; F = F values; DF = degrees of freedom; p = significance; T1 = Time 1; T2 = Time 2

Table 2 Means, Standard Deviations, Coefficients Alphas, and Correlations Between Study Variables (N = 134)

Variables	M	SD	Class	Gender	GPA	M-T1	M-T2	T-T1	T-T2	E-T1	E-T2
1.Class (1=freshman)	0.80	0.40									
2.Gender (1=Male)	0.15	0.36	.054								
3.GPA	2.60	0.51	.007	-.107							
4.Mindfulness (M-T1)	2.61	0.96	.005	-.018	.119	(.903)					
5.Mindfulness (M-T2)	2.80	0.97	.006	-.113	.074	.753**	(.896)				
6.Thriving (T-T1)	3.62	0.85	-.106	-.005	.142	-.364**	-.346**	(.877)			
7.Thriving (T-T2)	3.65	0.98	-.146	.034	.256**	-.264**	-.323**	.784**	(.917)		
8. Entrepreneurial Intention (E-T1)	4.75	0.81	.038	-.054	-.211*	-.236**	-.110	.278**	.148	(.772)	
9. Entrepreneurial Intention (E-T2)	4.73	0.87	.053	.003	-.080	-.166	-.171*	.245**	.267**	.661**	(.818)

* $p < .05$, ** $p < .01$

Coefficients alphas are along the diagonal in the parenthesis

M: Mean, SD: Standard Deviation, GPA: Grade Point Average, T1: Time 1, T2: Time 2

terms of GPA. All these studies have been supported by the results of this study, where the mediating role of thriving has been indicated in terms of the relationship between mindfulness and GPA. Thus, the present study demonstrates the underlying mechanism in the relationship between mindfulness and GPA may be thriving.

Furthermore, this study has shown the predictive validity of thriving and examined the mediator role of thriving in the relationship between mindfulness and entrepreneurial intention. Many studies have shown that mindfulness is related

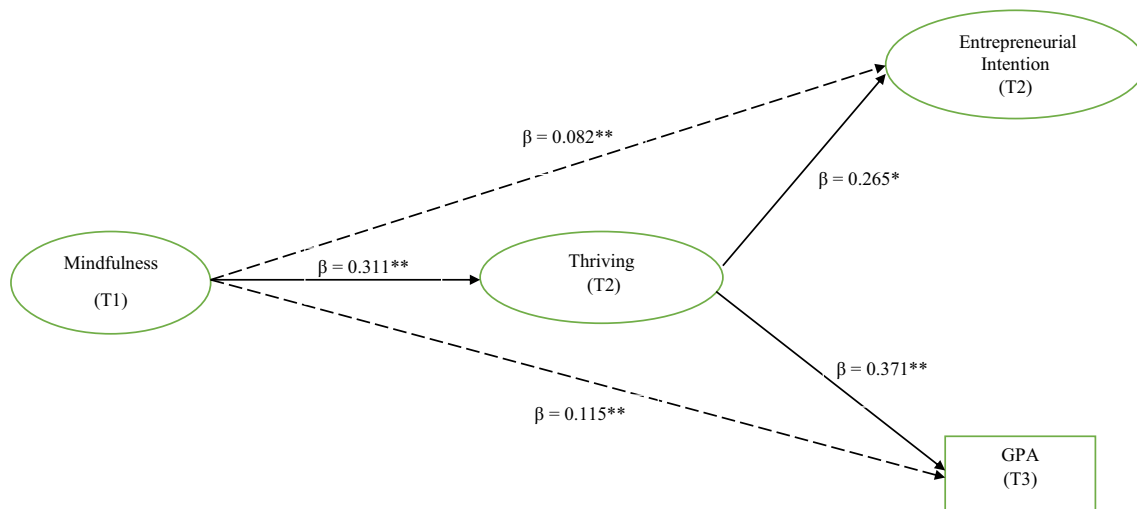
with the entrepreneurship (Caliendo et al., 2014; Capel, 2014; Frese & Gielnik, 2014; Van Gelderen et al., 2018) and this is because mindful people are sensitive to their environment and open new experiences; a key aspect of entrepreneurship. Therefore, mindfulness can be considered an antecedent of entrepreneurship. However, the underlying mechanism in the relationship between mindfulness and entrepreneurship has not been stated in previous studies, though it might be explained in terms of thriving. Yıldız (2007) has indicated that the most crucial condition for entrepreneurs is to start new

Table 3 Results of mediation analysis predicting GPA and Entrepreneurial Intention from mindfulness via thriving (N = 134)

	Standardized	Unstandardized	Unstandardized	p	Standardized		
	β	β	SE		Lower	Upper	p
Controls (Direct effects)							
Gender → GPA (T3)	-0.113	-0.163	0.118	>0.05	-0.277	0.043	>0.05
Class → GPA (T3)	0.044	0.056	0.104	>0.05	-0.081	0.164	>0.05
Gender → Entrepreneurial Intention (T2)	-0.013	-0.025	0.173	>0.05	-0.162	0.117	>0.05
Class → Entrepreneurial Intention (T2)	0.085	0.149	0.155	>0.05	-0.069	0.242	>0.05
Direct effects							
Mindfulness (T1) → Thriving (T2)	0.311	0.363	0.137	<0.01	0.14	0.483	<0.01
Thriving (T2) → GPA (T3)	0.371	0.234	0.066	<0.01	0.169	0.559	<0.01
Mindfulness (T1) → GPA (T3)	-0.186	-0.137	0.07	<0.10	-0.337	-0.042	<0.05
Thriving (T2) → Entrepreneurial Intention (T2)	0.265	0.23	0.099	<0.05	0.103	0.455	<0.05
Mindfulness (T1) → Entrepreneurial Intention (T2)	0.111	0.112	0.101	>0.05	-0.067	0.289	>0.05
Indirect effects							
Mindfulness (T1) → Thriving (T2) → GPA (T3)	0.115	0.085	0.045		0.044	0.231	<0.01
Mindfulness (T1) → Thriving (T2) → Entrepreneurial Intention (T2)	0.082	0.083	0.053		0.026	0.19	<0.01

Note: β : Beta, SE: Standard Error, CI: Confidence Interval, p: significance, T1: Time 1, T2: Time 2

Standardized significant paths of the Research's Model



Note: ** $p < 0.01$, * $p < 0.05$, straight line shows direct effect, dashed line shows indirect effect.

Fig. 2 Standardized significant paths of the Research's Model. Note: ** $p < 0.01$, * $p < 0.05$, straight line shows direct effect, dashed line shows indirect effect

investments and to get finances from a variety of sources, such as most notably family members or acquaintances, banks, the state, capital etc. To start new investments and to get finances from variety of sources, individuals can be shown as eager to learn and be vital to do. In line with this, a number of studies (Devarajan et al., 2003; Eggers, 2010) have stated a relationship between thriving and entrepreneurship, particularly in job context. Henceforth, all these studies have been supported by the result of the study of the mediator role of thriving in the relationship between mindfulness and entrepreneurial intention.

This study undoubtedly has several limitations. Firstly, social desirability may be seen due to self-report measures which may have negatively affect the reliability of the results. Second, there were more female participants compared to male participants. However, in order to control the gender effect, we included the gender as a control variable in the study model. Likewise, we included the class as a control variable and found that there was no significant effect on research's model for gender and class.

Despite all the aforementioned limitations, the present study makes several contributions. First, thriving at school scale was adapted into Turkish and validated in our Turkish sample. This scale can now be used by researchers and practitioners to measure the level of thriving in Turkish context. Second, we tested two mediational model based on longitudinal data. We collected data at two-time points to reduce common method variance (Podsakoff et al., 2012). Furthermore, we collected data from different sources (e.g. GPA from student information system) to mitigate the effect of mono-method bias (Brannick et al., 2010). We believe that our research contributes substantially to the current literature, since

it tested two mediation models for examining how mindfulness affects GPA and entrepreneurial intention via thriving.

Declarations

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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