The effectiveness of mindfulness based thriving program on level of mindfulness and thriving

Bilinçli farkındalık programının üniversite öğrencilerinin kendini yetiştirme ve farkındalık düzeylerine etkisi

Neslihan Arıcı Özcan[1], Safiye Şahin[2]
[1]Assist. Prof., Department of Social Work, Istanbul Medeniyet University, Istanbul, Turkey https://orcid.org/0000-0002-6169-1445
[2]Assist. Prof., Department of Health Management, Istanbul Medeniyet University, Istanbul, Turkey https://orcid.org/0000-0003-1734-9586

SUMMARY

Objective: This experimental research examined the effects of the Mindfulness-Based Thriving Program (MTP) on university students' mindfulness and thriving levels. **Method:** The study was conducted with randomly assigned 19 female students attending to a public university in Turkey. The inclusion criteria were to have low scores on Mindfulness Attention Awareness Scale and Thriving Scale in pre-test assessment. Experimental group (n=10) received a 6-session MTP intervention developed by the first researcher while control group (n=9) received no intervention. To determine the immediate and long-term effects of the MTP, all participants completed post-tests two months after the program. Data were analyzed by using two-way ANOVA test. To determine the significant differences between subgroups, the Tukey (HSD) test was performed. **Results:** Post-test and follow-up results of experimental group for MAAS and Thriving Scale were found to be higher than their pre-test results, while there were no statistically significant changes in results of control group. Results revealed that six-session MTP for university students was significantly effective in increasing mindfulness and thriving levels. **Discussion:** Research results highlight the potential contribution of eclectic mindfulness practices during adolescence. Although, there are many studies supporting the positive effect of mindfulness-based interventions on students, empirical evidence about MTP's effect on thriving is very scarce. In this respect, this study is expected to contribute the current literature by examining the MTP's effect on mindfulness and thriving.

Key Words: Mindfulness, thriving, mindfulness-based thriving program, university students.

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ÖZET

Amaç: Bu deneysel araştırma, Bilinçli Farkındalık Temelli Kendini Yetiştirme Programının (BFTKYP) üniversite öğrencilerinin bilinçli farkındalık ve kendini yetiştirme düzeyleri üzerindeki etkilerini incelemiştir. **Yöntem:** Araştırma, Türkiye'de bir devlet üniversitesinde öğrenim gören ve rastgele seçilen 19 kız öğrenci ile yapılmıştır. Araştırmaya dâhil olma kriteri, Bilinçli Farkındalık Ölçeği ve Kendini Yetiştirme Ölçeğinden ön-test değerlendirmesinde düşük puanlara sahip olmak olarak belirlendi. Deney grubuna (n = 10) ilk yazar tarafından geliştirilen 6 oturumluk BFTKYP müdahalesi uygulanırken, kontrol grubuna (n = 9) herhangi bir müdahale yapılmadı. BFTKYP'nin anlık ve uzun vadeli etkilerini belirlemek için, tüm katılımcılar programdan iki ay sonra son-testlerini tamamladılar. Veriler ANOVA testi kullanılarak analiz edildi. Alt gruplar arasındaki farklılıkları belirlemek için Tukey (HSD) testi yapıldı. **Bulgular:** Deney grubunun Bilinçli Farkındalık Ölçeği ve Kendini Yetiştirme Ölçeğine ait son-test ve takip sonuçları ön-test sonuçlarına göre daha yüksek bulunurken, kontrol grubu sonuçlarında anlamlı bir değişiklik görülmedi. Araştırma sonuçları, BFTKYP'nin üniversite öğrencilerinin bilinçli farkındalık ve kendini yetiştirme düzeylerini artırmada etkili olduğunu ortaya koydu. **Sonuç:** Araştırma sonuçları, ergenlik döneminde eklektik farkındalık uygulamalarının potansiyel katkısını vurgulamaktadır. Farkındalık temelli uygulamaların öğrenciler üzerindeki olumlu etkisini destekleyen birçok çalışma olmasına rağmen, BFTKYP'nin kendini yetiştirme üzerindeki etkisine dair ampirik kanıtlar çok azdır. Bu yönden bu çalışmanın mevcut literatüre katkıda bulunması beklenmektedir.

Anahtar Sözcükler: Bilinçli farkındalık, kendini yetiştirme, bilinçli farkındalık temelli kendini yetiştirme programı, üniversite öğrencileri.

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INTRODUCTION

University life offers students a variety of advantages such as self-development and realization of their potential. Along with these advantages, it also brings some problems causing stress factors (1,2). University students including Turkish students (1,3) face various problems in three main areas: personal, social, and academic (4,5). During education period, students try to cope with these problems, on the other hand, they try to be in a healthy mood and academically successful.

Various training programs such as mindfulness-based interventions (MBIs) (6) are implemented to help university students to cope with these problems and maintain positive mood (7,8). The most widely used mindfulness-based interventions are reported as mindfulness-based stress reduction (MBSR; 9) and mindfulness-based cognitive therapy (MBCT; 10) (11). The main purpose of MBIs are to increase the awareness of individuals' thought, emotion and behaviors patterns (12). These programs lead to an increase in the awareness by developing the ability of individuals to interpret the present moment without automatically reacting to events happening in their environment and to accept them nonjudgmentally (7,13). MBIs have many health benefits such as reducing students' stress and anxiety levels and increasing relaxation, empathy, and awareness (8,14,15).

The first positive outcome of MBIs is the increase in students' mindfulness levels (14,16). MBIs enhance mindfulness as a state and trait levels (17). Mindfulness is defined as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (9, p. 145). Students with a high level of mindfulness are more attentive to what is happening around them and are aware of their automatic reactions (18). This awareness also enables students to control their emotions, thoughts, and behaviors by preventing them from reacting spontaneously and automatically to events (13,17). Thus, mindfulness is related to several positive factors, and thriving is one of them (19,20).

Thriving, emerging as a positive psychological concept, emphasizing personal growth and health (21), has begun to be considered due to its nature and important role in students' participation in academic activities (22). In this study, we draw on Porath et al.'s (23) thriving conceptualization. Based on this, thriving has two sub-dimensions, namely vitality and learning and it constitutes the joint connection of these two sub-dimensions (23,24). In other words, thriving will occur if both sub-dimensions are present. Vitality is defined as "sense of feeling energized and alive" while learning refers to "sense that individuals are continually improving and getting better at what they do" (23).

As part of positive psychology (25), positive youth development (PYD) encourages researchers to focus on young people's strength, health and adaptive personal traits instead of their weaknesses, illnesses, and maladaptive ones (26). Hence, with PYD perspective, researchers have focused on positive development of adolescents, such as thriving (26). According to Lerner et al. (26), university students are part of "resources to be developed". Hence, interventions promoting adolescent well-being and growth are becoming a prominent issue at university. Although, MBIs programs are known to affect a variety of positive psychology variables (e.g. mindfulness, self-efficacy, well-being, and engagement), there is still scarce of these studies (11).

First, we have known little about the effect of mindfulness-based training program on student thriving. In the present study, we aim to fill this gap by examining the effects of MBIs on students' thriving based on self-regulation in self-determination theory (SDT; 27). SDT focuses on autonomously motivated behavior, defined as self-endorsed and volitional (13). This kind of autonomously motivated behavior is found to be related to healthy behavioral regulation, of which SDT argues that awareness is the key component (28). Therefore, MBIs can promote self-regulation of healthy behaviors by enhancing awareness. In line with self-regulation and SDT, students with increased awareness will be inherently active, curious, and growth-oriented (28), which leads their thriving at university.

Second, the effectiveness of MBIs can differ according to the scope of university students (8). In our study, with selective approaches, MTP targeted students whose levels of mindfulness and thriving were lower than average. Therefore, the current study is expected to contribute to the literature with its selective approach of MTP and by examining the effect of MTP on students' mindfulness and thriving.

This study aimed to examine the effects of mindfulness-based thriving program on university students' mindfulness and thriving levels. By designing the current study with randomized control group and follow-up measures, we tested the following hypotheses to achieve these aims.

Hypotheses

H1: MTP will be significantly more effective in increasing mindfulness levels of university students in experimental group than control group; and this effect will be sustained in measurements to be conducted in two months following the completion of the program.

H2: MTP will be significantly more effective in increasing thriving levels of university students in experimental group than control group; and this effect will be sustained in measurements to be conducted in two months following the completion of the program.

METHOD

Research Design

This study examined the effects of MTP on university students' mindfulness and thriving levels. As presented in Table 1, the first factor shows the independent functional groups (experimental and control), while the other factor shows the repeated measurements (pre-test, post-test, follow-up test) in different conditions according to the dependent variable (29).

Participants

Ethical permission was acquired from Istanbul Medeniyet University Social Ethics Committee. Participants were selected among university students in Faculty of Health in Istanbul Medeniyet University (36.8% audiology, 26.3% social work, 21.1% health management, 15.8% nutrition, and dietetic) during 2019-2020 fall academic year. Following the consent taken from the students, 119 university students completed Mindfulness Attention Awareness and Thriving Scales. A total of 55 students who received higher than average scores in MAAS (X=37.50 Sd=7.28) and TS (X=31.99, Sd=4.22) were selected. 19 out of 55 students volunteered to participate in this study. All participants were female. Later, these nineteen students were randomly assigned to the experimental and control groups. The mean age of the experimental group was 20 (Sd = .81), the control group had a mean age of 19.88 (Sd = .91).

Data Collection Instruments

Mindfulness Attention Awareness Scale (MAAS; 30). It is a 14-item self-report questionnaire with a 6-Likert type scale. The internal consistency indicators of Cronbach alpha and test-retest reliability were 0.82 and 0.79, respectively (30). Turkish version was adapted by Aydın-Sünbül and Yerin Güneri (31). The Cronbach alpha of the Turkish version of the scale was 0.81. The results of a confirmatory factor analysis supported the single factor structure of MAAS-A ($\chi 2=162.5$, df = 75, $\chi 2/df = 2.17$; GFI=0.94, CFI=0.92; TLI=.90; RMSEA = 0.06). In this study, the Cronbach's alpha coefficient for the entire scale was 81.4.

Thriving Scale (TS; 23). Thriving scale, composed

Table 1. Research pattern

Groups	Pre-Test	Intervention	Post-test	Follow Up Test
Experimental	MAAS TS	(MTP)	MAAS TS	MAAS TS
Control	MAAS TS	No intervention	MAAS TS	MAAS TS

MAAS: Mindfulness Attention Awareness Scale, TS: Thriving Scale; MTP: Mindfulness-Based Thriving Program

Table 2. Mindfulness based thriving program in university students

Session		
1st	§	Meeting, group cohesion
	§	Being in the place with conscious
	§	Determining group rules and group purpose
2nd	§	Focusing on the body with conscious, monitoring and finding bodily resources
	§	Explaining daily problems with consciousness
	§	Being aware of their body sensations when talking about the daily problems
	§	Using bodily resources when talking about daily problems
3rd	§	Focusing on the feelings with conscious monitoring and finding feeling resources
	§	Being aware of their feelings when speaking about problems
	§	Monitoring and handling with these emotions when speaking about a problem
	§	Using feeling resources when talking about a problem
4th	§	Focusing on the thoughts with conscious monitoring and finding thought resources
	§	Being aware of their thoughts when speaking about a problem
	§	Monitoring and handling with these thoughts when talking about a problem
	§	Using resources of thoughts when talking about any problem
5th	§	Focusing on the behaviors with conscious monitoring and finding behavior resources
	§	Being aware of their behavior when talking about any problem
	§	Seeing the borders that protect themselves against a problem
	§	Using behavioral resources when talking about a problem
6th	§	Observing their integrity here and now
	§	Reviewing what they have learnt during the sessions
	§	Finishing the program with positive group feedback

of 10 items on a 6-point Likert-type scale, was adapted into Turkish by Arici-Ozcan et al. (32) to measure the level of thriving. It has two factors referring to vitality and learning. The scale's overall internal consistency was 0.92 for young adult sample and 0.88 for young professional sample (23). The model of thriving with two-dimensions, namely learning and vitality, fit the data well at T1 ($\chi 2$=214,928 df=133, CFI=0.981, IFI=.0982, RMSEA= 0.077, SRMR=0.046). The Cronbach's alpha coefficient for this scale was .70 and the test-retest reliability coefficient for a 6-week interval has reached to .77. The Cronbach alpha's coefficient for this study was .76.

The Scope of MTP in University Students

The psychological group program was developed to increase mindfulness and thriving levels of university students. In the beginning, the researcher examined literature in terms of the theoretical definitions of mindfulness and thriving (20,33,34) additionally to the intervention programs based on these two concepts (26,35,36,37). Many studies emphasized that these two concepts were based on self-regulation (24,38). In line with these researches, the researcher developed the mindfulness-based thriving program according to the self-regulation theory (39). Self-regulation is the capability to consciously observe and control the person's own thoughts, behaviors, emotions, and bodily sensations, and can be improved through attention practices (39). Therefore, the mindfulness-based thriving program contains awareness of bodily sensations, emotions, thoughts, behaviors, and their regulation, sequentially.

The Content of MTP

MTP in university students is a six-week psychological intervention group program consisted of 90-minute sessions once a week. Each session has three activities (warming up, a mindfulness-based thriving, and a closure activity) with approximately 20-minute duration. One of the sample activities for warming up is "Tracking Strengths Places in Body". In this activity, the participants focus attention on and monitor their body sensation, track, and find strength places in their body here and now. An example of the mindfulness based thriving activities is called "Changing Balls". Participants think about a stressful event they experienced during the previous week, pick a ball representing this stress among colored shrinking balls and observe their senses and feelings while holding the ball in their hands. The same procedure is applied for remembrance of the positive events, as well. Later, the activity ends with the group members' experience sharing. A closure activity example is named as "Container". Participants are asked to close their eyes and put their uncomfortable feelings and thoughts into the container which is far away from them. Table 2 summarizes the topics in each of the sessions.

Table 3. Arithmetic average and standard deviation values of experimental and control groups

	Measurement	Pre-Test		Post-Test		Follow-up Test	
		Ss		*Ss*		*Ss*	
Mindfulness Attention Awareness Scale	Experiment (N=10)	36.00	2.05	76.30	7.08	77.10	2.16
	Control (N=9)	36.33	2.44	35.88	3.2	35.44	4.09
Thriving Scale	Experiment (N=10)	28.90	2.28	43.50	5.08	46.30	6.21
	Control (N=9)	30.00	2.69	32.11	5.68	32.11	4.01

Data Analysis

Firstly, preliminary analysis was done using the pre-test scores of the MAAS and TS collected from the participants in the experimental and control groups to determine the test type (parametric or non-parametric) for the main analysis of the data. According to the results of preliminary analysis, the data was homogeneous and normally distributed. A two-way ANOVA for repeated measurements with a 2 x 3 design was used to show the statistical significance of the change in pre-test, post-test, and follow-up tests as this is a more appropriate method for split-plot (mixed) designs (29). Later, the Tukey (HSD) test was used to identify the mean scores that are significantly different from each other. All statistical analyses were analyzed using IBM SPSS Statistics 23 and computed at $p \leq .05$ and $p \leq .01$.

RESULTS

Results on Preliminary Analysis

Before the statistical analyses, data was tested for the homogeneity and normality. According to the parametric test results of the pre-test measurements, there were no significant differences between the mean scores of MAAS ($F(1\text{-}18)= .929$, $p>.05$) and TS($F(1\text{-}18)=.104$ $p>.05$). Furthermore, the Kolmogorov-Smirnov tests of the MAAS (.484, $p > .05$) and TS (.290, $p > .05$) were larger than (p) .05 (29). Moreover, the skewness and kurtosis levels collected from the scores of both experimental and control groups in pre-test measurements on each of the three scales were between +1 and -1, which indicates a normal distribution.

Descriptive Statistics for Experimental and Control Groups

The arithmetic mean scores and standard deviations for all scales of both experimental and control group were presented in Table 3.

As seen in Table 3, the pre-test averages for the experimental and control groups were observed to be equivalent, while there were differences between the post-tests and follow up tests of either group in all the scales.

Given the differences revealed in the descriptive statistics, all hypotheses were tested using a two-step procedure. First, a series of two-way repeated measures ANOVA were conducted on MAAS and TS scores to determine the differences between the experimental and control groups at the end of the intervention process. Following the ANOVA results, Tukey's test was performed for each scale to make comparisons among the mean scores for significant F values.

Results on Hypothesis on Increasing Mindfulness

MAAS scores were analyzed with two (Group: Experiment vs. Control)x3 (Measurement: Pre-test, Post-test, Follow-up test) repeated measures ANOVA, as displayed in Table 4.

Table 4. Variance analysis results of two factors on MAAS scores of experimental and control groups

Source	Sum of Squares	Sd	Average of Squares	*F*	P	Eta Square
Between groups	139339.902	17				
Group (E/C)	10547.902	1	10547.902	318.89	.000	.996
Error	562.133	18	33.067			
Within groups		18				
Measurement (pre-post- follow up)	5061.356	1	2530.67	179.265	.000	.913
Group*Measurement	5407.461	1	2703.730	191.52	.000	.918
Error	479.978	18	14.11			

Table 5. Variance analysis results of two factors on TS scores of experimental and control groups

Source	**Sum of Squares**	Sd	Average of Squares	*F*	*P*	Eta Square
Between groups	71582.957	18				
Group (E//C)	946.045	1	946.045	30.31	.000	.993
Error	530.552	17	31.209			
Within groups		18				
Measurement (pre-post- follow up)	1054.397	1	2530.678	33.027	.000	.760
Group*Measurement	627.730	1	313.807	19.66	.000	.736
Error	542.726	18	15.96			

The main effect of the group on the MAAS scores were significant (F(1-17)=318.89, p<.01). Without discriminating between the pre-test, post-test, and follow up-test scores, a significant difference between the MAAS average scores of the experimental and control groups could be observed. Similarly, the main effect of the measurement was also significant (F(2-17)=179.265, p<.01). Regardless of the group type, the MAAS score of each individual were changing over the course of the measurement process. Furthermore, interaction effect (group*measurement) appeared to be significant (F(2-17)=191.52 p< .01). This showed that the change in the MAAS scores over the measurement process (pre-test, post-test, follow-up test) vary according to group type (experimental or control).

Following the significant interaction effect, a Tukey test was used to test the significant pairwise comparisons. Tukey post hoc comparisons showed that while scores for the control group did not display a significant change during the pre-test, post-test, and follow up test (p > .05), there was a significant increase in the average scores of the MAAS over the experimental process for the experimental group. The pre-test mean scores of the individuals in the experimental group were 40.3 points lower than their post-test average scores (p< .01) and 41.10 points lower than their average follow-up test scores (p < .01). Furthermore, post-hoc comparisons using the Tukey HSD test showed that the post-test mean scores of the individuals in the experimental group were 40.42 points higher than their post-test average scores in control group (p < .01) and the follow up test mean scores of the individuals in the experimental group were 41.66 points higher than their follow up test average scores in control group (p < .01). As in line with the second hypothesis, MTP was significantly efficient in increasing the mindfulness levels of the experimental group compared to control group.

Results on Hypotheses on Increasing Thriving Level

TS scores were analyzed with 2 (Group: Experiment vs. Control) x 3 (Measurement: Pre-test, Post-test, Follow-up test) repeated measures ANOVA, as presented in Table 5.

The results revealed that the group effect on TS scores was significant (F(1-17) = 30.31, p < .01). Irrespective of the measurement type, significant differences emerged between the experimental and control groups' average scores on the TS. Likewise, the effect of the measurement was also significant (F(2-19) = 33.02, p < .01) indicating the significant difference between pre-test, post-test and follow-up test for TS scores. Furthermore, there was a significant group by measurement interaction for thriving measured by total TS scores (F(2-19)= 19.66, p <.01). In other words, the difference between the average scores of the experimental and control groups changed depending on the measurement process.

Following the significant ANOVA results, a Tukey test was performed to display the significant pairwise comparisons. Tukey post hoc comparisons indicated that the pre-test mean scores of the individuals in the experimental group were 14.6 points lower than their post-test average scores (p < .01) and 17.4 points lower than their average follow-up test scores (p < .01), verifying the third hypothesis of the study. Furthermore, post-hoc comparisons using the Tukey HSD test showed that the post-test mean scores of the individuals in the experimental group were 11.39 points higher than their post-test

average scores in control group ($p < .01$) and the follow up- test mean scores of the individuals in the experimental group were 14.19 points higher than their follow up-test average scores in control group ($p < .01$). However, the mean differences between the pre-test, post-test, and follow up test scores for the control group were not significant ($p > .05$). In other words, MTP was significantly efficient in increasing thriving levels of the experimental group compared to control group.

DISCUSSION

This study has revealed many significant findings, showing that the MTP enhanced the mindfulness and thriving in a non-clinical sample, consisting of university students. Results of this study indicated the feasibility of MTP by supporting the two hypotheses of this research. More specifically, scores of self-reported mindfulness and thriving scales in experimental group was found to be significantly higher than in control group.

The effect of MBIs on mindfulness has been well documented (40,41). Therefore, the effect of MTP on mindfulness was not proved before. With this study, as we expected, our results indicated that MTP led to an increase in mindfulness levels of university students, as other MBIs. Drawing on PYP and self-regulation theory, in our study MTP was designed for helping students to be aware of their thoughts, emotions, and body signs. Participants of MTP was encouraged to observe their inner and outer signs, realize, and accept them without any judgment before deciding to respond them in different ways (i.e. stopping the automatic brain; 42). Therefore, we can infer that MTP enhanced participants' control on their feeling and behavior by leading to an increase in their awareness.

The main and specific purpose of this study was to increase thriving levels of university students by MTP. Our results demonstrated that MTP is an effective way to improve thriving on university students. Consistent with our study, Bóo et al. (43) indicate that MBIs may have a positive impact on learning by improving regulation of attention, awareness of thought process, and enabling students to better calibrate their comprehension and memory. In their qualitative study, students attending MBIs reported that MBIs supported energy and stamina for study (43), which provides support with the effect of MTP on thriving in our study. In another qualitative study on university students, mindfulness interventions were reported to be helpful for improving awareness and academic success (44,45). Goretzki and Zysk (46) also reported that MBIs improved students learning and well-being based on a 3-year data. Furthermore, according to previous literature, self-regulating of emotions has been a key factor for improving cognition (47). In our study, MTP enabled self-regulation of emotions for students and so could have positive impact on students' thriving, in terms of vitality and learning.

Many studies have showed empirical evidence that MBIs reduce stress, anxiety, depression, and promote well-being (48,49). Yet, the empirical evidence about the effect of MBIs on thriving is limited. Only, Seppälä et al. (15) have studied the effect of MBSR on psychological thriving in university students. However, they conceptualized thriving in a different way compared to our study. In their study, thriving conceptualized as a pair of well-known constructs, consisting of psychological well-being, positive-negative effect, self-companion, etc. without learning. Moreover, they reported that MBSR had no significant effect on psychological thriving in university students (15).

Due to the lack of studies about the benefits of MBIs on students' thriving, our study extends the current literature by examining the MTP and its effect on mindfulness and thriving. Our study also responded the calling of studies on positive youth development, which emphasize the strengthening of young people and aim to help them for their growth (26,50). Moreover, our study also provides empirical results with its design, which was randomized-control group and follow-up measurement, suggested for reliable results by previous studies (51). The other strength of our study is the design of MTP with selective approach. MTP was developed for university students with low scores of mindfulness and thriving. Seppälä et al. (15) tested the effects of three well-being interventions on students' psychological thriving. They reported that

the two programs which were specifically developed for university students were found to be more effective while one program designed for general participants was not. Therefore, our study is one of the first to examine the effect of MTP with its randomized-control group, follow-up design and selective approach on mindfulness and thriving.

In conclusion, due to the increasing stress and its negative effect on university students, students need interventions boosting their resources to cope with these stressors and enabling their personal growth. This is because universities have limited resources, it is important to develop cost-effective and purposive interventions targeting students. In line with this, MTP may help to improve students' mindfulness and thriving by non-clinical and cost-effective way.

Limitations

As well its strengths, this study has many limitations. First limitation is about the lack of a placebo group in study design. Since placebo group may have provided the additional evidence to the reliability of the results. Second one is the lack of the comparison of MTP with other training programs. To demonstrate the effectiveness of MTP on students' thriving, other training programs can be applied, enabling to compare the effectiveness of these programs. Although we had opportunity to compare MTP's effectiveness with general MBIs in the previous study, we recommend the future researchers to investigate and compare the effectiveness of these programs by applying in their studies. Last limitation is about the period of the study. We only had a follow-up measurement one month after the MTP, which limited to evaluate the long-term effects of MTB. Therefore, we recommend researchers to analyze the effects of MTP on students' thriving, academic performance, and other positive outcomes with a longitudinal design.

Correspondence address: Assist. Prof., Department of Social Work, Istanbul Medeniyet University, Istanbul, Turkey
neslihan.ozcan@medeniyet.edu.tr

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