Impact Evaluation of the "Geleceğe Adımlar" Social-Emotional Learning (GASEL) Intervention: A Pilot Study

Name and initials: Onur Akın

Student number: S5089441

E-mail address: o.akin.2@student.rug.nl

First assessor: René Veenstra

Second assessor: Namkje Koudenberg

Programme: Research Master Behavioural and Social Sciences

Theme: Understanding Societal Change

ECs: 30

Date: 25-6-2024

Word count:

	8	7	6	4

Are there deviations of the Master's thesis from the proposed plan?
☒No
☐Yes, please explain below the deviations

Abstract

The transition to middle school is a pivotal and challenging phase for early adolescents, highlighting the need to strengthen their social and emotional skills. Social and Emotional Learning (SEL) programs are designed to support positive development during this critical period. This study assesses the effectiveness of one such program, the "Geleceğe Adımlar" Social-Emotional Learning (GASEL) intervention, implemented in middle schools across Istanbul, Turkey. Conducted as a randomized controlled trial involving 540 students from economically disadvantaged areas, GASEL focused on enhancing competencies such as empathy, emotion regulation, and stress coping. Results show significant initial improvements in social-emotional skills, empathy, emotion regulation, problem-solving, and social support seeking immediately after the intervention. However, these gains were only sustained for social and emotional learning skills at the 10-week follow-up, indicating the necessity for continuous SEL education. This research provides early evidence of GASEL's efficacy in fostering essential social and emotional competencies among middle school students in a non-Western educational setting.

Keywords: Social-emotional learning, empathy, emotion regulation, intervention, middle school, early adolescence

Impact Evaluation of the "Geleceğe Adımlar" Social-Emotional Learning (GASEL) Intervention: A Pilot Study

Social-Emotional Learning

Although historically focused on improving cognitive skills, many schools are now prioritizing the social-emotional development of young children (Denham, 2006; Murano et al., 2020). Social-Emotional Learning (SEL) encompasses the acquisition of a wide range of social, emotional, and behavioral skills that help one form positive relationships with others, be aware of one's emotions, and make responsible decisions (Weissberg et al., 2015). Strengthening these skills has been shown to have positive long-term outcomes for children, such as reduced emotional distress, fewer behavioral problems, increased positive social behavior, and improved academic performance (Durlak et al., 2011; Payton et al., 2008; Zins et al., 2003).

The development of SEL competencies begins in preschool, but early adolescence is a critical period for strengthening these skills (Hurd & Deutsch, 2017), with documented positive effects of interventions focused on middle school students (Ayotte et al., 2003; Durlak et al., 2011; Green et al., 2021; Payton et al., 2008). Increased peer contact during this period makes it critical to learn skills such as empathy, conflict resolution, and emotion regulation (Rosen et al., 2022). This is of heightened importance for children from low socioeconomic backgrounds, as they tend to lag behind their higher SES peers in developmental milestones. Specifically, students growing up in economically disadvantaged families have more difficulty maintaining positive social relationships, engaging in perspective taking, and regulating their emotions (Cipriano et al., 2023). SEL interventions are particularly valuable in this context, as they can significantly benefit these children by tapping into their greater developmental potential (McClelland et al., 2017).

Schools provide an optimal environment for training SEL competencies through universal classroom-based interventions (Green et al., 2021). Evidence-based SEL interventions provide children with opportunities to practice skills and deepen their understanding through activities such as role-playing and discussions (Domitrovich et al., 2017). Most SEL interventions have been developed and implemented nationally in the United States, such as Second Step (Committee for Children, 2020), PATHS (Greenberg & Kusché, 1993), and RULER (Rivers & Brackett, 2010). These programs have also been successfully adapted to numerous cultures, including China (Kam et al., 2004), Nigeria (Ahmed et al., 2020), Norway (Holsen et al., 2008), and Spain (Castillo-Gualda et al., 2023). However, there is also evidence that interventions developed in the United States may not be successfully transferred to other countries if these programs do not meet the values and unique developmental needs of the adopting culture (Lendrum & Wigelsworth, 2013). For example, PATHS was implemented in a large-scale cluster randomized trial in the United Kingdom, which yielded mixed results and small effect sizes, suggesting a potential mismatch between the curriculum and the United Kingdom's educational framework (Humphrey et al., 2016).

The Turkish Context

The limited success of various adaptation efforts for US-based SEL interventions highlights the need to develop curricula that are tailored to the specific needs of students in their local contexts (Wigelsworth et al., 2013). Unfortunately, such interventions have rarely been developed in Turkey (Ağırkan & Ergene, 2022), and most of them feature sample sizes comprising fewer than 30 students (Martin, 2012). The few exceptions of studies conducted with samples over 150 students include the adaptation of the *PATHS* program with preschoolers (Bilir Seyhan et al., 2019), a conflict resolution training with high-schoolers (Turnuklu et al., 2010)

and with middle-schoolers (Koruklu et al., 2017). Consequently, the development of a comprehensive and evidence-based SEL curriculum for middle-schoolers remains an urgent need in Turkey.

The Turkish educational curriculum is strongly focused on the development of cognitive and academic skills, and the teaching of SEL skills is often overlooked in the classroom during early education (Özgünlü et al., 2022). As a result, many middle school students in Turkey struggle with skills such as emotion regulation, conflict resolution, and empathy (Öztürk et al., 2014). Due to the lack of focus on improving SEL skills, bullying also remains a serious problem in schools (Özer et al., 2011). In particular, physical bullying, and verbal bullying, such as name-calling are common in middle school (Özden, 2007), making this an important time to intervene.

Theoretical Framework

In response to the need for improved social-emotional learning in the Turkish educational curriculum, we developed the "Geleceğe Adımlar" Social-Emotional Learning (GASEL) program. GASEL is a week-long classroom-based intervention for middle school students based on the principles of the Social-Emotional Learning Theory (CASEL, 2012) and the Ability Model of Emotional Intelligence (Salovey & Mayer, 1990).

Social-emotional learning theory emphasizes five core competencies at the heart of SEL, each of which is associated with specific positive behaviors. Self-awareness involves recognizing emotions and their impact on thoughts and behaviors. Self-management involves regulating emotions and using stress management strategies. Social awareness focuses on empathy, perspective taking, and understanding the feelings of others. Relationship skills include communicating effectively, resolving conflict, and seeking support. Responsible decision-making emphasizes critical thinking, open-mindedness, and making constructive decisions based

on data and facts (CASEL, 2023). All of these competencies uniquely contribute to children's positive social development and allow them to acquire essential skills for their adult lives. However, this theory only describes these competencies and does not provide much guidance on how to acquire them. Therefore, GASEL incorporates the Ability Model of Emotional Intelligence as a means to achieve these skills and increase students' emotional literacy.

The Ability Model of Emotional Intelligence proposes that the ability to reason about and use emotions enhances thinking, problem solving, social relationships, and personal growth (Rivers & Brackett, 2010), all of which are linked to the five SEL competencies described in Social-Emotional Learning Theory (CASEL, 2012). This is made possible by gaining experience with emotion-related knowledge (Hagelskamp et al., 2013) by perceiving emotions, using emotions to facilitate thinking, understanding, and managing emotions (Mayer et al., 2016). In other words, GASEL aims to enhance children's SEL competencies by providing them with opportunities to master emotional literacy.

The GASEL Program

The GASEL program, created by volunteers of the Geleceğe Adımlar Association, was developed under the guidance of the first author, who is also the founder of the association (see Appendix A for more information about the association and the first author's role in this study).

The GASEL program consists of six main modules (emotion recognition, emotion regulation, empathy, nonviolent communication, critical thinking, and coping skills), which are built on the five key competencies of SEL programs (Weissberg & Cascarino, 2013). The Emotion Recognition module is designed to help students become more in touch with their emotions and recognize how their emotional states can influence their thoughts and behaviors. The Emotion Regulation module encompasses the ability to regulate one's emotions, thoughts,

and behaviors in pursuit of one's goals. The Empathy module focuses on taking the perspective of others and being aware of their feelings and experiences. The Nonviolent Communication module focuses on the ability to communicate one's needs in a healthy way, to listen actively, and to negotiate conflict. The Critical Thinking module provides students with new lenses through which to view problems and make constructive choices for themselves. Finally, the Coping Skills module encourages students to consider different ways of dealing with stressful situations by incorporating various methods such as mindfulness and problem-solving techniques. All modules include lectures, classroom discussions, and role-playing activities that provide children with the necessary experience to reflect on and practice the targeted skills as recommended by the Ability Model of Emotional Intelligence.

GASEL follows the SAFE (Sequenced, Active, Focused, Explicit) criteria established by Durlak et al. (2011), which contributes to its effectiveness, as interventions that follow these criteria have been shown to be more effective than those that do not (Payton et al., 2008). All activities and modules are sequential, as they follow a step-by-step learning process and the skills acquired build on each other. The program is active, as it includes role-playing and free discussion periods where students are encouraged to express their opinions and participate with agency. The program includes over 17 hours of activities with a special focus on building SEL skills through explicit learning objectives.

The Present Study

This study examined whether participation in the GASEL program improves children's social-emotional skills. Specifically, we tested the influence of the GASEL program on students' (i) social-emotional learning skills, (ii) emotion regulation skills, (iii) levels of empathy, (iv) critical thinking skills, and (v) coping skills.

In addition, we tested whether improving social-emotional skills would lead to a decrease in bullying victimization rates over time. While a decrease in the incidence of bullying is not a direct target of GASEL, research suggests that SEL curricula are a key component of bullying prevention (Smith & Low, 2013). Therefore, we hypothesized that a greater reduction in bullying victimization (vi) would be observed in intervention schools compared to control schools at follow-up (T3).

Methods

Participants and Design

The participants of the study were middle school students from four schools in the Sarıyer district of Istanbul, Turkey. Schools in this district were selected purposively because it is often classified as economically disadvantaged. This study targeted 5th and 6th grade students (10-12 years old), which corresponds to the first two years of middle school in the Turkish education system. This age group was chosen for two reasons. First, as 5th graders have just entered middle school, they often experience a period of orientation to a new school where they try to establish a strong social position for themselves (de Vries et al., 2021). Intervening early in this new experience is especially important as bullying and victimization peaks at the start of secondary school (Pellegrini & Long, 2002), alongside a decline in social-emotional skills such as emotion regulation (Kagitcibasi et al., 2020) and empathy (Van der Graaf et al., 2014). Second, providing social-emotional learning interventions at a younger age would potentially yield greater positive outcomes. The selected age group is young enough to still benefit from the intervention (Durlak et al., 2011), but old enough to understand and complete the questionnaires without much outside help.

The study was conducted as a cluster-randomized trial at the classroom level in 27 classes in four schools. Written informed consent was obtained from the parents of 603 students in 27 classes (6 classes from School A, 4 classes from School B, 12 classes from School C, and 6 classes from School D).

Procedure

The GASEL program ran for 5 days in classrooms, consisting of 25 lessons lasting 40 minutes each, totalling about 17 intervention hours. Each classroom was facilitated by two volunteers who received extensive training. Having multiple trainers per classroom was necessary for two reasons. First, a classroom of 30 students would be difficult for a single trainer to manage, and the presence of two trainers allowed them to share the responsibility of both leading the lessons and helping the children follow the activities. Second, the intervention has many activities that use role-playing, and two volunteers were needed to create an authentic role-playing scenario to demonstrate how the activity works.

The volunteers who delivered the intervention received several training sessions between December and February before data collection began. First, they received training on how to administer the questionnaires and collect the data. Second, the volunteers received information on the learning objectives of each module and activities within each module were demonstrated. Third, the volunteers received training on classroom management and had one-on-one sessions with trainers who had delivered the intervention in the past. Finally, each volunteer was provided with a step-by-step trainer's guide that detailed all activities of the intervention with examples and had the opportunity to refer to this guide during the intervention if needed.

Data were collected at three time points: pre-intervention, post-intervention, and follow-up. Pre-intervention data were collected in February 2024, just before the intervention began

(T1), and post-intervention data were collected 5 days later, after the intervention ended (T2). Follow-up data were collected approximately 10 weeks later, in April 2024 (T3). The first two waves of data were collected with tablet computers, while the third and final wave was collected with pen-paper because the tablets were not available anymore. The primary outcomes of the study were the skills directly targeted by the intervention, namely social emotional learning skills, emotion regulation, empathy, critical thinking, and coping. Because potential changes in bullying victimization cannot be measured in one week, it was considered a secondary outcome and was measured at T1 and T3.

Prior to the third wave of data collection and the analysis of the data, the study was preregistered on the Open Science Framework (OSF). For detailed information, please visit the following link: https://doi.org/10.17605/OSF.IO/QXAGC.

Measures

The GASEL intervention focuses on emotion regulation, empathy, critical thinking, and coping skills as the main target skills. Therefore, we decided to test the effectiveness of GASEL by assessing middle school students' improvements in these social skills, in addition to measuring social-emotional learning skills.

Social-Emotional Learning Skills

The Social and Emotional Learning Scale (Totan, 2018) was used to assess the five social-emotional competencies identified by CASEL (2012). This scale was developed in Turkish and has a total of 23 items and 5 subscales, each corresponding to one of the five SEL competencies. Each item was presented on a 5-point Likert scale (1 = *completely disagree*, 5 = *completely agree*), with higher scores indicating higher social emotional competence for each subscale. A mean score for social-emotional learning skills was calculated by averaging all 23

items. The scale had high reliability in the current sample, with Cronbach's alpha values of .82 at T1, .90 at T2, and .86 at T3.

Emotion Regulation

To assess students' emotion regulation skills, the Turkish adaptation (Harmancı & Aytar, 2023) of the Emotion Regulation Scale for Children (Rydell et al., 2007) was administered. The scale consists of 29 items on a 4-point Likert scale (1 = *completely disagree*, 4 = *completely agree*) and 4 subscales, each focusing on the regulation of one emotion. The anger subscale has 9 items, the exuberance subscale has 5 items, the fear subscale has 8 items, and the sadness subscale has 7 items. A mean score of emotion regulation ability was determined by calculating the average of all 29 items, with higher scores indicating higher emotion regulation ability. The scale was highly reliable in the current sample, with Cronbach's alpha values of .83 at T1, .88 at T2, and .86 at T3.

Empathy

The revised version of the Turkish adaptation (Topcu & Erdur-Baker, 2010) of the Basic Empathy Scale (Jolliffe & Farrington, 2006) was used to measure students' empathy levels. The scale consists of 14 items on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). A mean score of empathy ability was obtained by averaging all 14 items, with higher scores corresponding to a student's higher perception of their empathy ability. Reliability analysis revealed that two items (items 9 and 12) significantly reduced the reliability of the scale and were therefore removed. The remaining 12 items yielded acceptable Cronbach's alpha values of .74 at T1, .78 at T2, and .76 at T3.

Critical Thinking

To assess students' critical thinking abilities, the Turkish adaptation (Demircioglu, 2012) of the Emotional Intelligence Critical Thinking Disposition Scale (Ricketts & Rudd, 2005) was administered. The original scale consists of 26 items and 3 subscales, which are commitment, cognitive maturity, and innovativeness; however, only the 7 items of the cognitive maturity subscale were relevant to the study. The items are presented on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*), with higher scores indicating higher levels of critical thinking ability. The scale was reliable with Cronbach's alpha values of .68 at T1, .74 at T2, and .75 at T3.

Coping Skills

The Turkish adaptation (Eschenbeck et al., 2012) of the German Stress and Coping Questionnaire for Children and Adolescents (Lohaus et al., 2006) was used to assess students' coping skills. The shortened version of the scale includes 24 items and 6 subscales: seeking social support, problem solving, avoidant coping, palliative emotion regulation, anger-related emotion regulation, and media use. The media use subscale was not relevant to our study, so the remaining 5 subscales were used, for a total of 20 items. Each item was presented on a 5-point Likert scale (1 = *never*, 5 = *almost always*). Students were asked to imagine a stressful situation and indicate how they would cope with stress if they encountered such a situation. Because all 5 subscales measure different types of coping, means were calculated for each subscale, but not for the total scale.

Due to unexpected circumstances, the coping skills scale was not administered at follow-up (T3) as planned. Hence, the coping skill scores of students were only available at pre-test (T1) and post-test (T2). All subscales had acceptable reliability values at T1, ranging from .63 to .75. At T2, the reliability coefficients were still acceptable and higher, ranging from .73 to .78.

Bullying Victimization

Bullying victimization was measured using the Delaware School Survey Bullying Scale - Student version (Bear et al., 2014), which focuses on verbal, emotional/social, and physical bullying with 4 items per subscale for a total of 12 items. Students were asked to indicate the number of times each event had occurred to them in the past month on a 5-point scale, ranging from 0 times to 4 or more times. Mean scores for each subscale were calculated by averaging the 4 corresponding items. Bullying scales were only administered at the pre-test (T1) and follow-up (T3), as decrease in bullying victimization was interpreted as secondary (distal) outcome.

All three subscales had high reliability at T1, with Cronbach's alpha values of .81 for the verbal bullying subscale, .81 for the physical bullying subscale, and .86 for the emotional/social bullying subscale. At T3, the reliability coefficients were high as well, with .85 for verbal bullying, .81 for physical bullying, and .86 for emotional/social bullying.

Analytical Strategy

Independent samples t-tests for each outcome variable were conducted to compare the control and intervention groups on the main outcome variable scores at pre-test. Additionally, inter-correlations between the study variables were calculated to gain insight on the relationships between them.

For the primary analysis evaluating the effectiveness of the intervention, separate multilevel regression models were employed for each study variable as an outcome variable. Multilevel modeling using the MLwiN 3 software was preferred over the traditional repeated-measures ANOVA method because of the clustered structure of the dataset. Each model was estimated across three levels: time (level 1), student (level 2), and class (level 3). Three models were estimated for all outcome variables. Model 1 was a null model, Model 2 included gender,

condition (control vs. intervention), time, and condition and time interactions, and Model 3 added interactions between gender and condition, and gender, condition and time to Model 2. Chi-square tests were conducted to compare the models before interpretation. Interpretation of the results was made using the estimates produced by the best fitting model.

Results

Data Screening

Prior to analyzing the data, we screened participants' responses to identify students who may have completed the questionnaire randomly and should be excluded from the final analysis. Seven students from the intervention group and one student from the control group were excluded from the analysis due to randomly completing the questionnaires. A total of 37 (12 in the intervention condition and 25 in the control condition) out of the 603 students whose parents consented to participate were absent during the pretest, making it impossible to track changes in their outcome measures over time. These students were excluded from the final analysis. Finally, a total of 18 additional students (12 in the intervention condition and 6 in the control condition) were also excluded because they were present at the pre-test but absent at both the post-test and follow-up. Thus, a total of 540 students were included in the final analysis. A detailed flowchart of the participants can be found in Appendix B (see Figure 1B).

The final dataset included an almost equal number of male and female participants, with 265 male students and 275 female students participating (see Table 1). A chi-squared test revealed no significant differences in gender distribution among the 4 participating schools, $\chi 2 = 4.97$, $df = 3$, $n = 540$, $p = .17$.

Table 1

Assignment of Participants

	Intervention		Control	
	Male	Female	Male	Female
School A	24	37	28	33
School B	14	16	23	9
School C	89	64	44	69
School D	24	23	19	24
Total	151	140	114	135

In total, 27 classes in four schools were randomly assigned to receive the intervention or to be placed on a waiting list to receive the intervention after the study was completed (control group): 14 classes with 291 students were in the intervention condition, while 13 classes with 249 students were in the control condition. Although the proportion of male students was higher in the intervention condition (51.9%) than in the control condition (45.8%), this difference was not statistically significant, $\chi 2 = 2.0$, $df = 1$, $n = 540$, $p = .16$.

Demographics

As demographic information, students were asked to report their age and various indicators of their SES. The mean age for the students in our sample at baseline was 11.34 with the youngest student being 10 and the oldest student being 14. The indicators relating to socioeconomic status included paternal and maternal work status, and characteristics of their home (e.g., whether there is an internet connection, a computer, a tablet computer, and a bookshelf). A detailed comparison of these indicators across conditions are presented in Appendix B (see Table 1B). Students in the intervention and control groups differed only on the indicator of maternal work status, with a higher percentage of mothers being employed in the intervention condition ($\chi 2 = 8.78$, $df = 1$, $n = 537$, $p = .003$).

Descriptive Statistics

An overview of descriptive statistics of the outcome variables at pre-test including means, standard deviations, minimum and maximum values can be found in Appendix B (see

Table 2B). Intercorrelations between the study variables at pre-test are presented in Table 2. Four of the main outcome variables of the study (SEL skills, empathy, critical thinking, and emotion regulation) were all significantly and positively correlated. Interestingly, only SEL skills and emotion regulation were significantly negatively correlated with different forms of bullying victimization. In terms of coping skills, the two strategies that can be classified as negative ways of coping with stress (anger-related emotion regulation and avoidant coping) were significantly positively correlated with bullying victimization, and negatively correlated with SEL skills, empathy, critical thinking and emotion regulation. Seeking social support and problem-solving oriented coping were strongly and positively associated with each other as well as SEL skills, empathy, critical thinking and emotion regulation.

Table 2

Intercorrelations between Outcome Variables at Pre-test (T1)

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1. Social-emotional learning skills	-										
2. Empathy	.51**	-									
3. Critical thinking	.59**	.48**	-								
4. Emotion regulation	.54**	.29**	.47**	-							
5. Seeking social support	.27**	.16**	.26**	.21**	-						
6. Problem-solving	.54**	.35**	.56**	.38**	.29**	-					
7. Avoidant coping	-.21**	-.20**	-.03	-.12**	.01	-.06	-				
8. Palliative emotion regulation	.12**	.02	.17**	.15**	.27**	.23**	.20**	-			
9. Anger-related emotion regulation	-.28**	-.13**	-.10*	-.47**	.05	-.10*	.22**	.08	-		
10. Verbal bullying	-.12**	.02	.02	-.26**	.03	-.02	.11**	-.04	.31**	-	
11. Physical bullying	-.17**	-.04	-.03	-.24**	.10*	-.02	.14**	-.05	.32**	.70**	-
12. Emotional/social bullying	-.08	-.06	.03	-.22**	.11*	.01	.13**	-.01	.29**	.65**	.72**

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

Pre-intervention Comparisons

To provide a basis for comparing changes in the targeted skills after the intervention, the mean scores of students in the intervention and control conditions at T1 were compared using t-tests. There were no significant differences between the groups on any of the outcome variables. Detailed t-test results are presented in Appendix B (see Table 3B).

Multilevel Models for Intervention Effectiveness

The multilevel regression models tested for the effectiveness of GASEL while accounting for the nested nature of the data. In all models, the control group, pre-test (T1), and male students were taken as the reference category. Model 2 performed better than Model 1 for all primary outcome variables, but Model 3 did not significantly improve the model fit for any of them. Hence, interpretation of the results was made using the estimates produced by Model 2.

For the secondary (distal) outcome variables only physical bullying had a significant improvement for Model 2, while social/emotional and verbal bullying did not improve significantly when the predictors were inserted in Model 2.

i) Social-emotional Learning Skills

The GASEL intervention had positive effects on students' social and emotional learning skills both at the post-test and follow-up (see Table 3). At post-test, students in the GASEL intervention condition experienced a significant increase in their social and emotional skills (b= 0.20, $p < .01$) compared to the control students, for whom there was a non-significant decrease. A 0.16 increase (t = 5.74 $p < .001$) in overall SEL skill scores was achieved for intervention students. At follow-up, there was an overall decrease on SEL scores for all students (b= -0.14, p < .01), however, students in the GASEL intervention condition still scored significantly higher (b= 0.12, $p < .01$) compared to control students, compensating for the downward trend observed at follow-up. Overall, students who received the intervention experienced increases in their SEL

skills after a week, and their scores returned to baseline after 2 months, while students in the control condition experienced a strong decrease at follow-up despite scoring slightly higher than intervention students at the pre-test (see Figure 1). Girls scored higher than boys on social and emotional learning skills regardless of condition (b= 0.20, p < .01).

Additional multilevel regression models were run for each of the five SEL competency subscales to further explore the underlying factors that contribute to the positive results observed for the overall social and emotional learning scale. Results revealed that, at post-test, students participating in the GASEL intervention condition experienced a significant increase in self-awareness (b= 0.25, p < .001), social awareness (b= 0.28, p < .01), relationship skills (b= 0.19, p < .01), and responsible decision-making (b= 0.14, p < .05), but not in self-management (b= 0.08, p = .18) compared to the control group, whom did not experience increases in any of the subscale scores at post-test.

At follow-up, although a general downward trend was observed, GASEL significantly mitigated the decline in self-awareness (b= 0.13, p < .05), social awareness (b= 0.12, p < .05), and relationship skills (b= 0.13, p < .05) compared to the control students' scores, which decreased significantly on all five subscales. Detailed comparisons of intervention and control students' scores on the five subscales are presented in Appendix B (see Figure 2B-6B).

Table 3

Multilevel Regression Model Results for Social Emotional Learning Skills

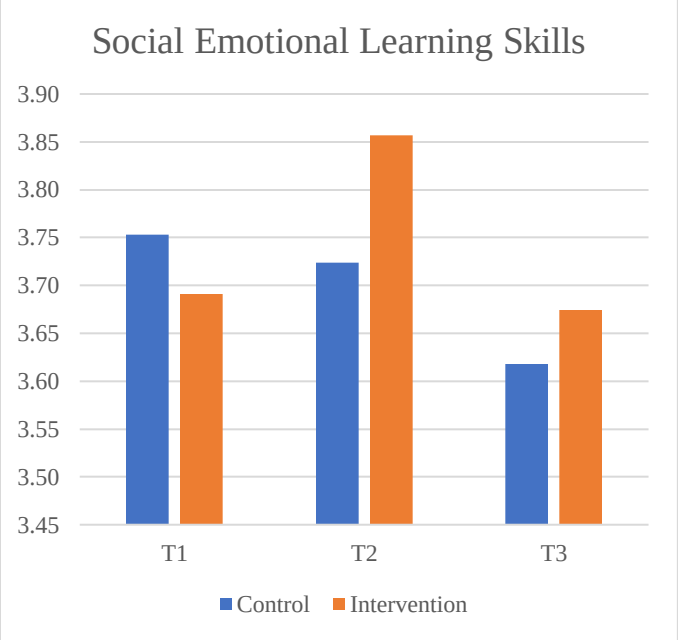
	Model 1 (Null Model)	**Model 2**	**Model 3**
	Estimate (SE)	***Estimate (SE)***	***Estimate (SE)***
(Intercept)	3.82 (0.03) **	3.75 (0.05) **	3.71 (0.05) **
Post-test (T2)		-0.03 (0.03)	-0.03 (0.03)
Follow-up (T3)		-0.14 (0.03) **	-0.14 (0.03) **
GASEL		-0.06 (0.06)	0.01 (0.07)
Post-test (T2) * GASEL		0.20 (0.04) **	0.23 (0.05) **

Follow-up (T3) * GASEL		0.12 (0.04) **	0.10 (0.05) *
Gender		0.20 (0.04) **	0.28 (0.06) **
GASEL * Gender			-0.14 (0.08)
Post-test (T2) * GASEL * Gender			-0.71 (0.05)
Follow-up (T3) * GASEL * Gender			0.04 (0.05)
N	540	540	540
Degrees of freedom	1, 538	7, 532	10, 529
Deviance	1792.7	1695.7	1688.1
Total Variance	0.29	0.27	0.27
Class level (L3)	0.01	0.01	0.01
Student level (L2)	0.18	0.17	0.17
Wave level (L1)	0.10	0.10	0.10

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

Figure 1

Social Emotional Learning Scores across Waves



ii) Emotion Regulation

The GASEL intervention had a positive effect on student's emotion regulation skills at post-test, but not at follow-up (see Table 4). At post-test, students in the GASEL intervention condition had significantly increased emotion regulation scores (b= 0.07, $p < .05$) compared to

control students who did not experience an increase. However, this effect was not sustained in the follow-up as both intervention and control group students scored around their baseline scores (see Figure 2). Girls and boys also did not differ in terms of their emotion regulation skills (*b*= 0.02, *p* = .47).

Table 4

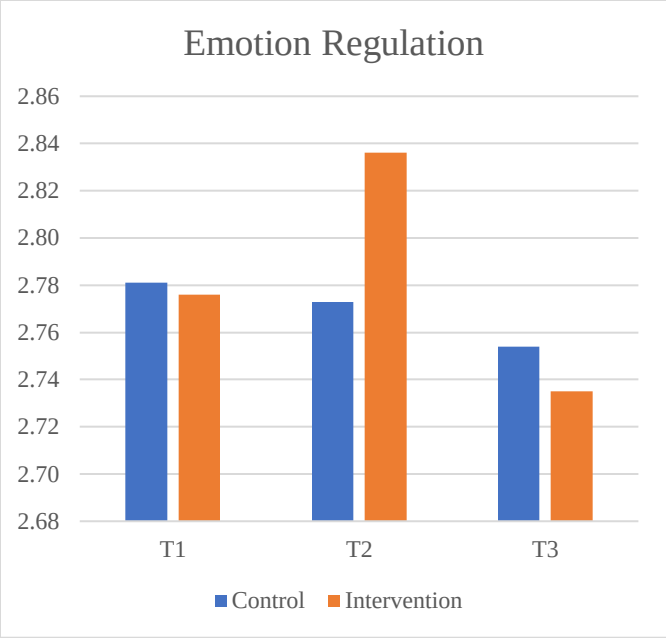
Multilevel Regression Model Results for Emotion Regulation

	Model 1 (Null Model)	Model 2	Model 3
	Estimate (SE)	*Estimate (SE)*	*Estimate (SE)*
(Intercept)	2.79 (0.02) **	2.78 (0.04) **	2.74 (0.04) **
Post-test (T2)		-0.01 (0.02)	-0.01 (0.02)
Follow-up (T3)		-0.03 (0.02)	-0.03 (0.02)
GASEL		-0.01 (0.04)	0.07 (0.06)
Post-test (T2) * GASEL		0.07 (0.03) *	0.07 (0.03) *
Follow-up (T3) * GASEL		-0.01 (0.03)	-0.04 (0.04)
Gender		0.02 (0.03)	0.10 (0.05) *
GASEL * Gender			-0.15 (0.07) *
Post-test (T2) * GASEL * Gender			0.00 (0.04)
Follow-up (T3) * GASEL * Gender			0.05 (0.04)
N	540	540	540
Degrees of freedom	1, 538	7, 532	10, 529
Deviance	970.3	944.5	938.8
Total Variance	0.18	0.18	0.18
Class level (L3)	0.00	0.00	0.00
Student level (L2)	0.13	0.13	0.13
Wave level (L1)	0.05	0.05	0.05

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

Figure 2

Emotion Regulation Scores across Waves



iii) Empathy

The GASEL intervention had a positive effect on student's empathy skills at post-test, but not at follow-up (see Table 5). Students in the GASEL intervention condition experienced a significant increase at the end of the program (b= 0.16, p < .01) compared to control students, who experienced a significant drop within the same time (b= -0.09, p < .05). The positive impact of the intervention disappeared at follow-up for the intervention students and their scores returned to baseline (see Figure 3). There was also a main effect of gender on empathy scores, with girls scoring significantly higher than boys (b= 0.30, p < .01).

Table 5

Multilevel Regression Model Results for Empathy

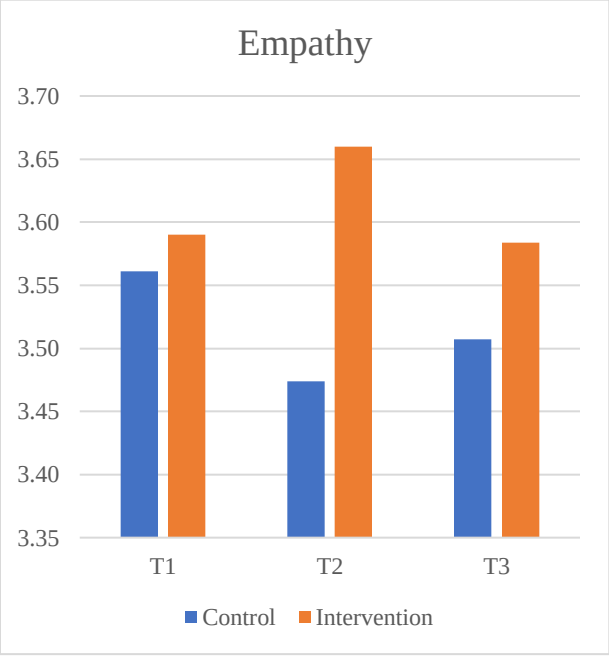
	Model 1 (Null Model)	Model 2	Model 3
	Estimate (SE)	*Estimate (SE)*	*Estimate (SE)*
(Intercept)	3.72 (0.02) **	3.56 (0.04) **	3.53 (0.05) **
Post-test (T2)		-0.09 (0.04) *	-0.09 (0.04) *
Follow-up (T3)		-0.05 (0.04)	-0.05 (0.04)
GASEL		0.03 (0.05)	0.13 (0.07)

Post-test (T2) * GASEL		0.16 (0.05) **	0.09 (0.06)
Follow-up (T3) * GASEL		0.05 (0.05)	-0.01 (0.06)
Gender		0.30 (0.04) **	0.36 (0.05) *
GASEL * Gender			-0.19 (0.09) *
Post-test (T2) * GASEL * Gender			0.15 (0.07) *
Follow-up (T3) * GASEL * Gender			0.11 (0.07)
N	540	540	540
Degrees of freedom	1, 538	7, 532	10, 529
Deviance	2323.4	2264	2257.1
Total Variance	0.38	0.35	0.35
Class level (L3)	0.01	0.00	0.00
Student level (L2)	0.21	0.19	0.19
Wave level (L1)	0.16	0.16	0.16

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

Figure 3

Empathy Scores across Waves



iv) Critical Thinking

The GASEL intervention did have a non-significant positive impact on students' post-test scores (*b*= 0.11, *p* = .06) compared to control students (*b*= 0.05, *p* = .27). Overall, intervention

students had a 0.16 points increase in their critical thinking scores (t= 3.77, p < .01) at post-test (see Figure 4). However, the positive intervention effect was not sustained at follow-up (see Table 6). In fact, there was a general trend of decrease for all students at T3 (b= -0.17, p < .01) and students in both groups ended up scoring lower than their baseline scores at follow-up (see Figure 4). The main effect of gender was significant for critical thinking scores, with girls scoring higher than boys (b= 0.17, p < .01).

Table 6

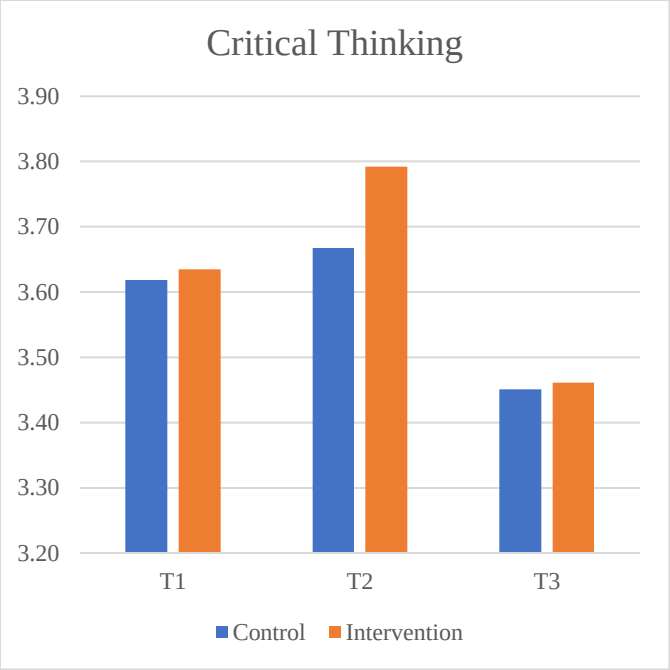
Multilevel Regression Model Results for Critical Thinking

	Model 1 (Null Model)	Model 2	Model 3
	Estimate (SE)	*Estimate (SE)*	*Estimate (SE)*
(Intercept)	3.70 (0.03) **	3.62 (0.04) **	3.60 (0.06) **
Post-test (T2)		0.05 (0.04)	0.05 (0.04)
Follow-up (T3)		-0.17 (0.05) **	-0.17 (0.05) **
GASEL		0.02 (0.06)	0.08 (0.08)
Post-test (T2) * GASEL		0.11 (0.06)	0.09 (0.07)
Follow-up (T3) * GASEL		-0.01 (0.06)	-0.08 (0.07)
Gender		0.17 (0.05) **	0.20 (0.07) **
GASEL * Gender			-0.12 (0.10)
Post-test (T2) * GASEL * Gender			0.04 (0.08)
Follow-up (T3) * GASEL * Gender			0.15 (0.08)
N	540	540	540
Degrees of freedom	1, 538	7, 532	10, 529
Deviance	2730.4	2637	2632.9
Total Variance	0.44	0.42	0.42
Class level (L3)	0.00	0.00	0.01
Student level (L2)	0.20	0.19	0.19
Wave level (L1)	0.24	0.22	0.22

** p < .01 * p < .05

Figure 4

Critical Thinking Scores across Waves

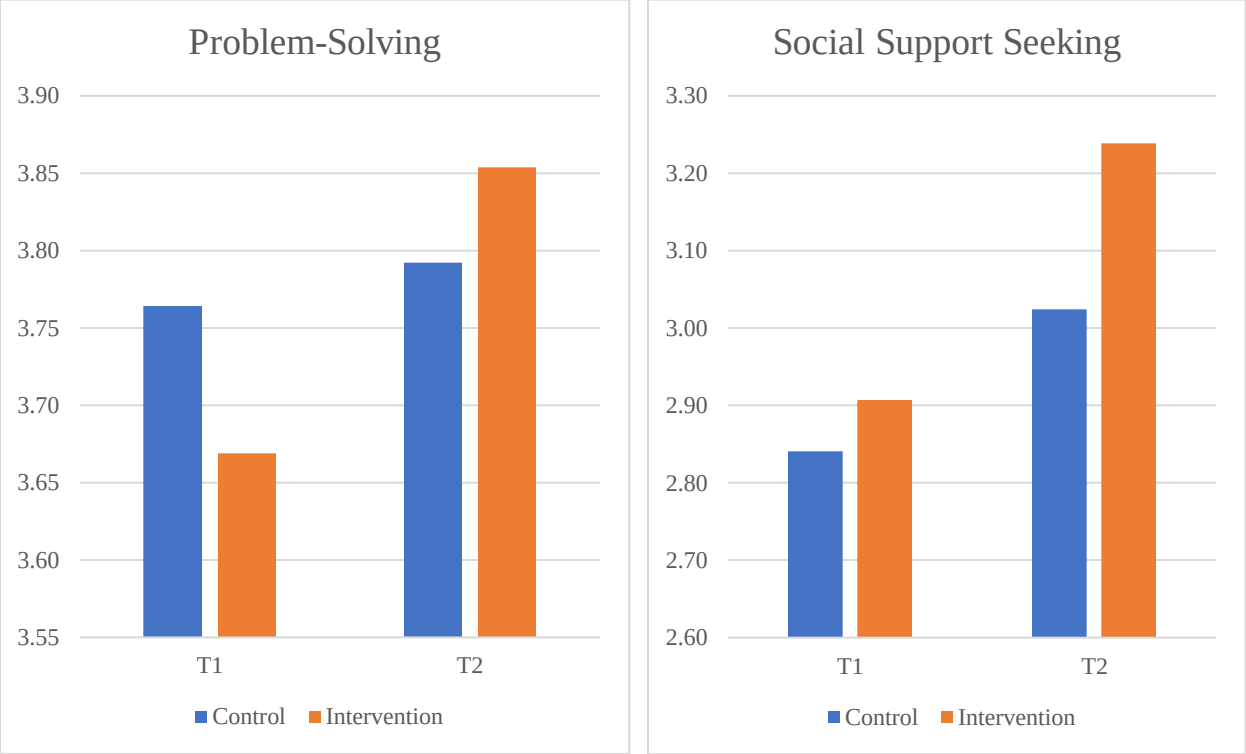


v) Coping Skills

To assess students' coping skills, five separate multilevel regression analyses were conducted. The coping skills scale was not administered at T3, so the models were estimated to investigate changes at post-test. First, there was an overall increase for all students in seeking social support as a coping strategy at post-test (b= 0.18, p < .01). The increase was stronger but not significant for students receiving the GASEL intervention (b= 0.15, p = .06), whose scores on seeking social support increased by over 0.3 points overall by the end of the week (see Figure 5). Similar to the positive intervention effects observed for seeking social support as a coping strategy, students receiving the GASEL program also experienced an increase in problem-solving oriented coping at post-test (b= 0.16, p < .05) compared to control students, and by 0.19 points compared to their pre-test scores. This result is noteworthy as the students in the intervention condition were 0.10 lower in problem-solving at pre-test, but still scored 0.06 higher than control students at post-test (see Figure 6).

Figure 5

Problem-solving (left panel) and Social Support Seeking (right panel) Scores across Waves



Contrary to our expectations, there were no significant decreases in avoidant coping for students receiving the GASEL intervention. At post-test, there was a significant increase of overall scores on avoidant coping (b= 0.14, p < .05), and while students receiving the GASEL intervention scored lower compared to the control students, this effect was not significant (b= -0.07, p = .41). A significant main effect of gender (b= -.37 , p < .001). was observed on avoidant coping scores with girls choosing to avoid conflict much more often than boys.

Finally, there were no significant changes for the control group or the intervention group at post-test on anger-related emotion regulation, and palliative emotion regulation as coping strategies.

vi) Bullying Victimization

The GASEL intervention did not have a decreasing effect on any form of bullying victimization. Furthermore, the only bullying victimization form where Model 2 was

significantly more informative than Model 1 was physical bullying. There was a significant decrease in physical bullying scores for both groups at follow-up (b= -0.17, p = .02), but the change in the GASEL intervention group did not significantly differ from the change for the control group. Additionally, girls reported much lower levels of physical bullying victimization compared to boys, regardless of condition (b= -0.24, p = .01).

The scores for social/emotional and verbal forms of bullying did not significantly differ across waves, gender, or condition. Levels of social/emotional bullying was already low at pre-test, with students reporting that this form of bullying victimization occurred once or not at all in the past month. On the other hand, students reported being subjected to verbal bullying more than any other bullying victimization form at both pre-test and follow-up, with an average score of 2.8. This score indicates that verbal forms of bullying were encountered two times on average in the past month.

Discussion

This study tested a novel social and emotional learning intervention that, if found to be effective, would be disseminated in different regions of Turkey. The results of the analysis showcased positive intervention effects of the GASEL program for social emotional learning skills, empathy, emotion regulation, seeking social support, and problem-solving oriented coping at post-test, which were sustained 10 weeks later at follow-up for social emotional learning skills.

Overall, we observed a general trend of decline for the main outcome variables from post-test to follow-up. Early adolescence is a period when students experience many changes and difficulties which impact their well-being (Kagitcibasi et al., 2020). During this period, increased incidence of bullying and decreases in social and emotional skills are common (Multisite

Violence Prevention Project, 2014), which could explain the decline in scores for all students regardless of the condition they were assigned to. Another possible explanation concerns the unexpected change in data collection method between pre/post-test and follow-up. While the data was collected with tablet computers in the first two waves, we had to use the traditional pen-paper method at follow-up as the research team didn't have access to the tablets anymore. Students might have been discouraged by having to fill up the questionnaires with pens, as they were expecting to use tablets for the data collection once again. However, this is unlikely to have caused significant differences between the control and intervention groups, as they used the same method in that wave.

While the decline in scores was steady and consistent in the control group across all three waves, students receiving the GASEL intervention experienced increases in most outcome variables at post-test before returning to baseline at follow-up. According to our previous developmental interpretation, GASEL could be seen as a preventative package that mitigated the decrease in social and emotional skills typically observed during middle school. Although students receiving the intervention did not sustain the heightened post-test scores at follow-up, they did not regress below their pre-test scores. In contrast, the control group's scores followed the expected downward trend of adolescence. Therefore, despite not maintaining the elevated post-test scores, students in the intervention group still benefited from the GASEL program.

It should also be noted that students participating in the study already scored high on most of the main outcome variables with scores nearing 4 on a 5-point Likert scale, which could have influenced the results. This is indeed something that is encountered in other studies where a ceiling effect is observed, and students score lower at post-test, despite still having high scores (Wallender et al., 2020 & Kagitcibasi et al., 2020).

Social and Emotional Learning

The most encouraging results achieved by the GASEL program were on students' social and emotional learning skills. Specifically, students in the intervention condition scored significantly higher at post-test in terms of their self-awareness, social awareness, relationship skills, and responsible decision-making ability. The positive intervention effect was sustained for all of these skills but responsible decision-making at follow-up. These findings suggest that the GASEL program helped students to learn about their own emotions, be able to understand the perspective of others better, and maintain healthy relationships with their peers. In contrast, the GASEL program did not significantly increase students' self-management skills at post-test or follow-up. We argue that being able to manage one's emotions and impulses, as well as making deliberate and logical decisions requires a longer time to master, as evidenced by the lack of positive results on the self-management and responsible decision-making subscales at post-test. These results mostly align with the lack of positive results at follow-up for emotion regulation and critical thinking, two skills that are closely connected to self-management and responsible decision-making respectively (West et. al, 2020 ; Positive Action Staff, 2023).

Emotion Regulation Skills

The GASEL program initially led to improvements in emotion regulation skills among intervention students, as evidenced by their post-test results. However, these gains were not sustained at the follow-up assessment. During the intervention, students learned problem-solving strategies and coping skills, which they likely applied throughout the week to better manage their emotions. The presence of trainers may have further motivated students to use these techniques and avoid impulsive behaviors. However, for these skills to become habits, students need to consistently perform them when faced with stressful situations. It appears that students gradually

stopped utilizing these strategies after the intervention ended, despite having the knowledge to do so.

Decreases in emotion regulation is common during adolescence, and this decline may not always be successfully prevented by intervention programs (Kagitcibasi et al., 2020). Nevertheless, emotion regulation remains to be a fundamental skill for positive youth development (Buckley & Saarni, 2014) as well as an effective target for reducing bullying victimization in classrooms (Cook et al., 2010; Smith & Low, 2013). Unsurprisingly, it is not only the bullies that lack emotion regulation skills, but also victims who react to bullying with aggressive behaviors, escalating the conflict (Mahady Wilton et al., 2000). This highlights the need for new interventions that specifically focus on teaching emotion regulation, as these could significantly reduce bullying situations.

Empathy

Positive intervention effects on empathy were observed at post-test but were not sustained at follow-up. These results somewhat mirror the results of the self-awareness and social awareness subscales of the SEL skills scale, two constructs that are closely connected to empathy (Malti et al., 2016). Students receiving the GASEL intervention significantly outscored control students at post-test, indicating that the program effectively taught key skills necessary for empathetic thinking, such as perspective-taking. However, at follow-up, the empathy scores for intervention students declined slightly, while control students showed a slight increase. This increase in control students' empathy scores could suggest a spillover effect. Unlike skills such as emotion regulation or critical thinking, which are more challenging to transfer indirectly, empathy can easily manifest through dyadic interactions. It is plausible that intervention students, having learned and practiced empathetic communication, interacted with control

students after the intervention concluded. Control students might have been influenced by these interactions, noticing and appreciating the non-violent communication and consideration of others' feelings displayed by their peers who participated in the GASEL program. This exposure could have inspired control students to adopt more empathetic behaviors themselves, leading to the slight increase of their scores at follow-up.

Critical Thinking

The GASEL program led to significant increases on critical thinking scores of students at post-test, however, there was an unexpected decline in scores for all students at follow-up. Previous studies established a strong relationship between social and emotional learning skills and critical thinking ability (Arslan & Demirtas, 2016), and this was also the case in our sample. It is therefore surprising to see a drastic decline in critical thinking ability, despite favorable effects on social emotional learning skills at follow-up. A closer inspection of the results revealed two items that significantly decreased at follow-up compared to pre-test, producing the low critical thinking scores. These items were "I get along well with people that have different opinions", and "I listen carefully to others' opinions, even when they have different opinions". The decrease in these scores indicates a shift in students' self-perceptions regarding their interactions with others holding different opinions. Early adolescence is a period when peer influence becomes even stronger, and different opinion camps may form in classes on many topics including views on lessons, teachers, and politics. The GASEL intervention attempted to highlight the importance of respecting others' standpoints in such cases of disagreement, but it appears that this goal was not reached at follow-up. Further investigation is required to understand the underlying factors contributing to this decline, and how it can be reversed in the future.

Coping Skills

The GASEL program was effective in increasing positive coping strategies of students at post-test. More specifically, students in the intervention condition reported to be using social support and problem-solving as coping strategies significantly more than control students. On the contrary, avoidant coping, anger-related emotion regulation, and palliative emotion regulation as coping strategies did not decrease as intended. These results indicate that while students benefited from the program in terms of equipping themselves with novel coping strategies, they still continue to utilize some less effective coping strategies when encountering a conflict.

Bullying Victimization

The GASEL program did not have a significant effect in decreasing bullying victimization in intervention classes compared to control classes. Nevertheless, there was a decrease in physical bullying for both control and intervention classes at follow-up. Additionally, an important finding replicated in our study is that boys are subjected to physical bullying more often than girls (Carbone-Lopez et al., 2010; Iossi Silva et al., 2013). This gender disparity underscores the need for targeted interventions addressing the specific experiences of boys in the context of physical bullying.

Given that the scores for social/emotional bullying were low at pre-test, it is not surprising that a decrease was not achieved at follow-up due to a floor effect (the minimum score for this scale was only one standard deviation away from the mean at pre-test). However, verbal bullying, the most common form of bullying in middle school (Özden, 2007), continued to be prevalent at follow-up for our sample as well. It is possible that many students do not consider name-calling as a form of bullying and might be unaware that this behavior could be hurtful towards others. Further bullying prevention interventions should focus on helping students

recognize all forms of bullying, including those that may not be perceived as severe as physical bullying.

Although GASEL was not built as a bullying victimization prevention program, previous studies link social and emotional skills such as emotion regulation (Cook et al., 2010), empathy (Kokkinos & Kipritsi, 2012), and social problem-solving (Smith & Low, 2013) with reductions in bullying victimization. Students who can control their emotions, communicate effectively, and empathize with their classmates are less likely to bully others. However, the results of our study indicate that the development of these skills is not enough on its own to combat bullying in schools. Factors such as school climate (Wang et al., 2013) and classroom norms (Tolmatcheff et al., 2022) should also be targeted in focused interventions alongside SEL curricula like GASEL for a sustainable reduction in bullying and a more positive overall school environment.

Further research should also consider the mediating role of SEL skills in reducing bullying in schools over a longer period. SEL curricula like GASEL may lead to decreases in bullying indirectly by enhancing students' social and emotional skills. We aimed to observe the direct effect of the program on bullying victimization over 10 weeks; however, it is possible that reductions in bullying could be more evident over a longer period, once the taught SEL skills have become more ingrained in students. Future studies exploring the impact of SEL programs on bullying should incorporate longitudinal studies to assess the lasting effects of enhanced social and emotional skills beyond immediate intervention periods.

Strengths and Implications

The present study has several notable strengths. First, the GASEL program provides a structured intervention built upon the five core SEL competencies identified by CASEL (2012) and aligns with the SAFE criteria outlined by Durlak and colleagues (2011). The clear

instructions and learning goals of each module provide implementors of the program with the necessary knowledge to deliver the program. This approach is likely to be a reason for the encouraging results at post-test, as implementation failure leads to null-results in many studies, despite their strong theoretical basis (Raudenbush, 2008). Interventions following a flexible and loose framework might be less likely to produce significant increases in the social and emotional skills of the participating students (Wigelsworth et al., 2013) due to lower fidelity in implementation (Wigelsworth et al., 2012). The GASEL program's consistency, and the extensive training that the implementors receive before delivering the intervention ensures that key components are delivered as intended, enhancing the validity of the outcomes.

Our study is also one of the largest-scale SEL intervention evaluations conducted in Turkey, providing valuable insights from a non-Western culture in a scientific landscape predominantly influenced by studies from the United States. Direct translation and implementation of SEL programs built in the United States might be unsuccessful due to a lack of cultural sensitivity and adaptation (Lendrum & Wigelsworth, 2013). While the GASEL program is grounded in the Social-Emotional Learning Theory (CASEL, 2012) and the Ability Model of Emotional Intelligence (Salovey & Mayer, 1990), highlighting its theoretical foundation, it is a newly-built intervention addressing the unique social and emotional needs of Turkish middle-schoolers. The insights gained from our study can be used to build new SEL curricula in Turkey, as well as in similar cultures.

Another strength of the study pertains it being a randomized controlled trial, which is considered a gold standard in educational studies (Torgerson & Torgerson, 2012). Many studies testing SEL programs do not have a comparison group, hence, are only able to test changes in the participants receiving the intervention. However, these findings mean little if they are not

compared to other participants who did not receive an intervention as changes could be due to causes unrelated to the program such as maturation. By using an RCT design, our study was able to compare changes between the intervention group and the control group, which ensure more robust findings.

Limitations and Future Directions

While the current study demonstrates strength in several aspects, it also faces certain limitations that need to be addressed. First, and perhaps most importantly, the GASEL program was implemented over 5 full school days, rather than the conventional 8–10-week format observed in most interventions. Although the total number of hours dedicated to teaching and practicing SEL skills was equal to, if not greater than, programs delivered over a longer period, the condensed format of the GASEL program might have felt like a "one-time" experience for some students. This may also explain why the increases in many outcome variables at post-test returned to baseline at follow-up.

The sustainability of these skills could require the delivery of the GASEL program in short intervals over a longer period of time to ensure that students are able to build onto their knowledge each week. This could necessitate the implementation of the program by teachers instead of trained volunteers of the Geleceğe Adımlar Association, and for GASEL activities to be a part of the educational curriculum. Further research should investigate whether GASEL would be received positively by school staff, and if they would be willing to undergo training to deliver it themselves throughout the school year. Achieving this would support the effectiveness of the program, because if positive outcomes are only observed in cases where program developers deliver the program with high fidelity, it is less likely to be fruitful in different contexts (Lendrum & Wigelsworth, 2013). Receiving the training would also have benefits for

teachers' own social and emotional competencies, which is a prerequisite for successful SEL program implementation (Jennings & Greenberg, 2009).

The self-report nature of data collection can also be considered a limitation. As the only source of information gathered from the study was through students' subjective perceptions of their own abilities, the validity of their answers could be questionable. It is possible that some students answered the questions in socially desirable ways, however, there is no reason for the intervention or control students to act in different ways than each other, so we think that even if there was an effect of social desirability, it was homogenous across the two groups. Nevertheless, we find it worthwhile for further studies to test the impact of the GASEL program by using several forms of data collection including behavioral measures, peer nominations, and teacher evaluations of students' skills.

A final limitation of the study concerns the violation of the normality assumption for the estimated models. Although the linearity and homoscedasticity assumptions were satisfied for the outcome variables in our study, the assumption relating to the normality of residuals was violated for all variables, potentially due to the high skewness in the outcome variables. However, for large sample sizes, even minor deviations from normality can yield significant results though such small deviations typically do not impact the outcomes of parametric tests (Öztuna et al., 2006). Hence, we believe that the results of our analysis can be interpreted as presented.

Conclusion

Early adolescence is a period of significant change for students, presenting a critical window of opportunity for growth in social and emotional skills (January et al., 2011). This transitional phase underscores the importance of effective SEL interventions. This study tested

the impact of one such intervention on various social and emotional skills of middle schoolers. Students participating in the GASEL program had enhanced social and emotional learning skills, empathy and emotion regulation scores at post-test, and they used positive coping strategies such as seeking social support and problem-solving more often compared to students that did not receive an intervention. The positive effects of the intervention were sustained for social emotional skills, more specifically the self-awareness, social awareness, and relationship skills competencies defined by CASEL (2012). Despite the small-to-medium effects observed in this study, universal classroom-based interventions can have significant practical implications for schools (Humphrey et al., 2013). Therefore, it is essential for evidence-based SEL programs such as GASEL to be developed and implemented in Turkish middle schools to foster an empathetic and emotionally competent youth.

References

Ağırkan, M., & Ergene, T. (2022). What does the social and emotional learning interventions (SEL) tell us? A meta-analysis. *Revista de Psicodidáctica (English ed.)*, *27*(2), 97-108.

Ahmed, I., Hamzah, A. B., & Abdullah, M. N. L. Y. B. (2020). Effect of Social and Emotional Learning Approach on Students' Social-Emotional Competence. *International Journal of Instruction*, 13(4), 663-676.

Arslan, S., & Demirtas, Z. (2016). Social emotional learning and critical thinking disposition. Studia Psychologica, 58(4), 276-285

Ayotte, V., Saucier, J.F., Bowen, F., Laurendeau, M.C., Fournier, M., & Blais, J.G. (2003). Teaching multiethnic urban adolescents how to enhance their competencies: Effects of a middle school primary prevention program on adaptation. *Journal of Primary Prevention*, 24, 7-23

Bear, G., Yang, C., Mantz, L., Pasipanodya, E., Hearn, S., & Boyer, D. (2014). Technical manual for Delaware School Survey: Scales of school climate, bullying victimization, student engagement, and positive, punitive, and social emotional learning techniques. *Delaware Positive Behavior Support (DE-PBS) and school climate transformation projects.* 202-203

Bilir Seyhan, G., Ocak Karabay, S., Arda Tuncdemir, T. B., Greenberg, M. T., & Domitrovich, C. (2019). The effects of Promoting Alternative Thinking Strategies Preschool Program on teacher–children relationships and children's social competence in Turkey. *International Journal of Psychology*, 54(1), 61-69.

Carbone-Lopez, K., Esbensen, F. A., & Brick, B. T. (2010). Correlates and consequences of peer victimization: Gender differences in direct and indirect forms of bullying. *Youth Violence and Juvenile Justice*, 8(4), 332-350.

Castillo-Gualda, R., Moraleda, Á., & Brackett, M. A. (2023). Preventive Initiatives to Promote Psychological Adjustment among Primary Students: Findings of RULER Approach in Spanish Public Schools. *International Journal of Educational Psychology*, 12(2), 206-232.

Cipriano, C., Strambler, M. J., Naples, L. H., Ha, C., Kirk, M., Wood, M., ... & Durlak, J. (2023). The state of evidence for social and emotional learning: A contemporary meta-analysis of universal school-based SEL interventions. *Child Development*, 94(5), 1181-1204.

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2012). *2013 CASEL guide: Effective social and emotional learning programs—Preschool and elementary school edition.* Chicago, IL: Author.

Collaborative for Academic, Social, and Emotional Learning. (2023). What Is the CASEL Framework? CASEL. https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/#responsible

Committee for Children. (2020). *Second step middle school*. https://www.secondstep.org/middle-school-curriculum

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly*, 25(2), 65.

Demircioğlu, E. (2012). Eleştirel düşünme eğilimi ölçeğinin uyarlama çalışması ve faktör yapısının farklı değişkenlere göre incelenmesi (Master's thesis, Eğitim Bilimleri Enstitüsü).

Denham, S. A. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it?. *Early Education and Development, 17*(1), 57-89.

de Vries, E., Kaufman, T. M., Veenstra, R., Laninga-Wijnen, L., & Huitsing, G. (2021). Bullying and victimization trajectories in the first years of secondary education: Implications for status and affection. *Journal of Youth and Adolescence, 50*, 1995-2006.

Domitrovich, C. E., Durlak, J. A., Staley, K. C., & Weissberg, R. P. (2017). Social-emotional competence: An essential factor for promoting positive adjustment and reducing risk in school children. *Child Development, 88*(2), 408-416.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405-432.

Eschenbeck, H., Heim-Dreger, U., Tasdaban, E., Lohaus, A., & Kohlmann, C. (2012). A Turkish adaptation of the coping scales from the German Stress and Coping Questionnaire for Children and Adolescents. *European Journal of Psychological Assessment*, 28, 32-40.

Green, A. L., Ferrante, S., Boaz, T. L., Kutash, K., & Wheeldon-Reece, B. (2021). Social and emotional learning during early adolescence: Effectiveness of a classroom-based SEL program for middle school students. *Psychology in the Schools*, *58*(6), 1056-1069.

Greenberg, M. T., & Kusché, C. A. (1993). Promoting social and emotional development in deaf children: *The PATHS project*. University of Washington Press.

Hagelskamp, C., Brackett, M. A., Rivers, S. E., & Salovey, P. (2013). Improving classroom quality with the RULER approach to social and emotional learning: Proximal and distal outcomes. *American Journal of Community Psychology*, 51, 530-543.

Harmancı, S. T., & Aytar, A. G. (2023). Çocuklar için Duygu Düzenleme Ölçeği Çocuk Formu (ÇDDÖ) ve Yetişkin Formunun (ÇDDÖ-YF) Türkçeye Uyarlanması. *Milli Eğitim Dergisi*, 52(237), 71-106.

Holsen, I., Smith, B. H., & Frey, K. S. (2008). Outcomes of the social competence program second step in Norwegian elementary schools. *School Psychology International*, 29(1), 71-88.

Humphrey, N., Barlow, A., Wigelsworth, M., Lendrum, A., Pert, K., Joyce, C., ... & Turner, A. (2016). A cluster randomized controlled trial of the Promoting Alternative Thinking Strategies (PATHS) curriculum. *Journal of School Psychology*, 58, 73-89.

Humphrey, N., Lendrum, A., & Wigelsworth, M. (2013). Making the most out of school-based prevention: Lessons from the social and emotional aspects of learning (SEAL) programme. *Emotional and Behavioural Difficulties*, *18*(3), 248-260.

Hurd, N., & Deutsch, N. (2017). SEL-focused after-school programs. *The Future of Children*, 95-115.

Iossi Silva, M. A., Pereira, B., Mendonça, D., Nunes, B., & Oliveira, W. A. D. (2013). The involvement of girls and boys with bullying: an analysis of gender differences. *International Journal of Environmental Research and Public Health*, 10(12), 6820-6831.

January, A. M., Casey, R. J., & Paulson, D. (2011). A meta-analysis of classroom-wide interventions to build social skills: Do they work?. *School Psychology Review*, 40(2), 242-256.

Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79(1), 491-525.

Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, 29(4), 589–611.

Kagitcibasi, C., Baydar, N., & Cemalcilar, Z. (2020). Supporting positive development in early adolescence: A school-based intervention in Turkey. *Applied Developmental Science*, 24(2), 170-192.

Kam, C. M., Greenberg, M. T., & Kusché, C. A. (2004). Sustained effects of the PATHS curriculum on the social and psychological adjustment of children in special education. *Journal of Emotional and Behavioral Disorders*, 12(2), 66-78.

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: Grades 4-6. *Child Development*, 82, 311–330.

Kokkinos, C. M., & Kipritsi, E. (2012). The relationship between bullying, victimization, trait emotional intelligence, self-efficacy and empathy among preadolescents. *Social Psychology of Education*, 15, 41-58.

Koruklu, N., Sağkal, A. S., Özdemir, Y., & Kuzucu, Y. (2017). Çatışma çözme ve akran arabuluculuk eğitimi programının sosyal duygusal öğrenme ve üstbiliş becerileri üzerindeki etkisi. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi*, 8(2), 66-80.

Lendrum, A., & Wigelsworth, M. (2013). The evaluation of school-based social and emotional learning interventions: Current issues and future directions. *The Psychology of Education Review*, 37(2), 70-76.

Lohaus, A., Eschenbeck, H., Kohlmann, C.-W., & Klein-Heßling, J. (2006). *Fragebogen zur Erhebung von Stress und Stressbewältigung im Kindes- und Jugendalter (SSKJ 3–8)* [Questionnaire for the Measurement of Stress and Coping in Children and Adolescents (SSKJ 3–8)]. Göttingen: Hogrefe. 131-142.

Mahady Wilton, M. M., Craig, W. M., & Pepler, D. J. (2000). Emotional regulation and display in classroom victims of bullying: Characteristic expressions of affect, coping styles and relevant contextual factors. *Social Development*, 9(2), 226-245.

Malti, T., Chaparro, M. P., Zuffianò, A., & Colasante, T. (2016). School-based interventions to promote empathy-related responding in children and adolescents: A developmental analysis. Journal of Clinical Child & Adolescent Psychology, 45(6), 718-731.

Martin, R. A. (2012). Social and emotional learning research: Intervention studies for supporting adolescents in Turkey. *Procedia-Social and Behavioral sciences*, 69, 1469-1476.

Mayer, J. D., Caruso, D. R., & Salovey, P. (2016). The ability model of emotional intelligence: Principles and updates. *Emotion Review*, 8(4), 290-300.

McClelland, M. M., Tominey, S. L., Schmitt, S. A., & Duncan, R. (2017). SEL interventions in early childhood. *The Future of Children*, 33-47.

Multisite Violence Prevention Project. (2014). Targeting high-risk, socially influential middle school students to reduce aggression: Universal versus selective preventive intervention effects. *Journal of Research on Adolescence*, 24(2), 364-382.

Murano, D., Sawyer, J. E., & Lipnevich, A. A. (2020). A meta-analytic review of preschool social and emotional learning interventions. *Review of Educational Research, 90*(2), 227-263.

Özden, T. (2007). The types of bullying in Turkish primary schools. *Education Sciences and Psychology*, (1), 12-18.

Özer, A., Totan, T., & Atik, G. (2011). Individual correlates of bullying behaviour in Turkish middle schools. *Journal of Psychologists and Counsellors in Schools*, 21(2), 186-202.

Özgünlü, M., Erbil, F., & Göl-Güven, M. (2022). Social and emotional learning (SEL): How it finds a place in an early childhood education curriculum in Turkey. *Journal of Childhood, Education & Society*, 3(2), 139-150.

Öztuna, D., Elhan, A. H., & Tüccar, E. (2006). Investigation of four different normality tests in terms of type 1 error rate and power under different distributions. Turkish Journal of Medical Sciences, 36(3), 171-176.

Öztürk, N., Atlı, A., & Kutlu, M. (2014). An investigation of bullying cases in middle school students in terms of some variables. *Inonu University Journal of The Faculty of Education*, 15(3), 43-63.

Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews (Technical Report). *Collaborative for Academic, Social, and Emotional Learning (NJ1).*

Pellegrini, A. D., & Long, J. D. (2002). A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *British Journal of Developmental Psychology*, 20(2), 259–280.

Positive Action Staff. (2023, September 13). Responsible decision making: An introductory guide. Responsible Decision Making: An Introductory Guide | Positive Action. https://www.positiveaction.net/blog/responsible-decision-making#

Raudenbush, S. (2008). Advancing educational policy by advancing research on instruction. *American Educational Research Journal*, 45, 206–230.

Ricketts, J. C. & Rudd, R. D. (2005). Critical thinking of selected youth leaders: The efficacy of critical thinking dispositions, leadership and academic performance. *Journal of Agricultural Education*, 46 (1), 33-44.

Rivers, S. E., & Brackett, M. A. (2010). Achieving standards in the English language arts (and more) using The RULER Approach to social and emotional learning. *Reading & Writing Quarterly*, 27(1-2), 75-100.

Rydell, A.-M., Thorell, L. B., & Bohlin, G. (2007). Emotion regulation in relation to social functioning: An investigation of child self-reports. *European Journal of Developmental Psychology*, 4(3), 293-313.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, 9(3), 185-211.

Smith, B. H., & Low, S. (2013). The role of social-emotional learning in bullying prevention efforts. *Theory Into Practice*, 52(4), 280-287.

Tolmatcheff, C., Galand, B., Roskam, I. & Veenstra, R. (2022). The effectiveness of moral disengagement and social norms as anti-bullying components: A randomized controlled trial. Child Development, 93(6), 1873-1888. https://doi.org/10.1111/cdev.13828

Topcu, Ç, & Erdur-Baker, Ö (2010). The revised cyber bullying inventory (RCBI): Validity and reliability studies. *Procedia - Social and Behavioral Sciences*, 5, 660–664.

Totan, T. (2018). Ergenlerde sosyal ve duygusal öğrenme ölçeğinin geliştirilmesi. Marmara Üniversitesi *Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*, 40(48). 41-58

Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: gender differences in developmental changes. *Developmental Psychology*, 50(3), 881-888.

Wallender, J., Hiebel, A. L., PeQueen, C. V., & Kain, M. A. (2020). Effects of an explicit curriculum on social-emotional competency in elementary and middle school students. *The Delta Kappa Gamma Bulletin: International Journal for Professional Educators*, 32–43.

Wang, C., Berry, B., & Swearer, S. M. (2013). The critical role of school climate in effective bullying prevention. Theory into practice, 52(4), 296-302.

Weissberg, R. P., & Cascarino, J. (2013). Academic learning+ social-emotional learning= national priority. *Phi Delta Kappan*, 95(2), 8-13.

Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and Practice* (pp. 3–19). New York, NY: Guilford Press.

West, M. R., Pier, L., Fricke, H., Hough, H., Loeb, S., Meyer, R. H., & Rice, A. B. (2020). Trends in student social-emotional learning: Evidence from the first large-scale panel student survey. *Educational Evaluation and Policy Analysis*, *42*(2), 279-303.

Wigelsworth, M., Humphrey, N., & Lendrum, A. (2012). A national evaluation of the impact of the secondary social and emotional aspects of learning (SEAL) programme. *Educational Psychology*, 32(2), 213-238.

Wigelsworth, M., Humphrey, N., & Lendrum, A. (2013). Evaluation of a school-wide preventive intervention for adolescents: The secondary social and emotional aspects of learning (SEAL) programme. *School Mental Health*, 5, 96-109.

Zins, J., Elias, M., & Greenberg, M. (2003). Facilitating success in school and in life through social and emotional learning. *Perspectives in Education*, 21(4), 55-67.

Appendix A

The Geleceğe Adımlar Association was founded in 2019 by the first author of this study (hereafter referred to as I) to promote educational equality in Turkey, with a specific focus on social and emotional development. An initial team of 12 university students built the first version of GASEL in 2020, which has since evolved into its current form through 18 different field studies. I have personally participated in 9 of these studies and had the privilege of working with children from every corner of Turkey.

Geleceğe Adımlar primarily works with middle school students aged 10-14 and has delivered the GASEL program to over 2,000 students across 10 cities in Turkey over the past five years. Recently, we have concentrated on reaching students impacted by the February 6th, 2023 earthquakes in southern Turkey. Our team currently consists of over 100 volunteers, many of whom are undergraduate students majoring in various fields. Notably, more than half of the volunteers have majored in psychology or educational science, equipping them with the essential theoretical knowledge to develop and deliver an SEL program.

One of the main goals of the Geleceğe Adımlar Association is to present GASEL to the Turkish Ministry of Education as a tool for fostering social and emotional development in Turkish middle schools. To achieve this goal, a scientific evaluation of GASEL's effectiveness was necessary, which is why I chose to conduct this study as my master’s thesis.

While I am pleased to have undertaken this project, the entire process presented numerous challenges worth mentioning. First, we needed to find four schools and over 500 students to conduct our RCT, requiring the approval of principals and parents to implement our program. Subsequently, we had to train over 40 volunteers to deliver the intervention for an entire week. Given that most of our volunteers are bachelor’s students, coordinating a week

when all could participate was difficult. Additionally, I led the process of obtaining ethical approval for the study from the Turkish Ministry of Education as well as Koç University, Istanbul.

I traveled to Turkey to take part in the data collection, which was a rigorous task involving the administration of surveys to over 500 students across three waves. In the final wave, we were unable to use tablet computers to collect data, making it necessary to manually enter hundreds of pages of survey answers into our dataset by our volunteers and me.

Despite all the difficulties, this project was an invaluable learning experience for me as a researcher. I encountered many problems that seemed unsolvable at times, worked under significant time pressure, and strived to deliver the best work possible as a representative of our association. In the end, I am proud that the Geleceğe Adımlar Association delivered GASEL to hundreds of middle schoolers while evaluating our program and is currently implementing it with students in the control classes. I hope this pilot study will pave the way for many more large-scale RCTs in Turkey, allowing Geleceğe Adımlar to continue pioneering social and emotional education.

Appendix B

Figure 1B

Participant flowchart

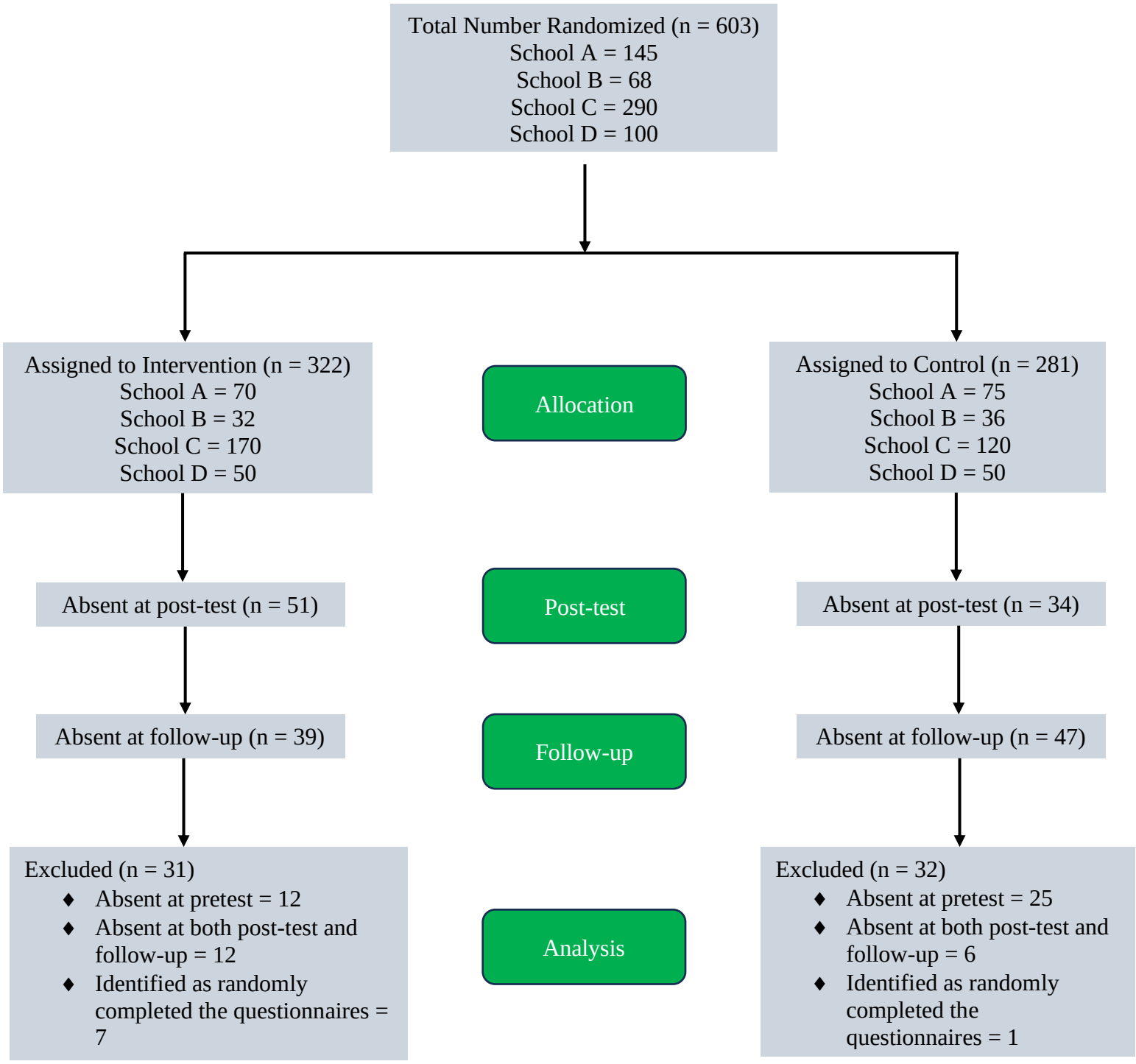


Figure 2B

Self-Management Scores across Waves

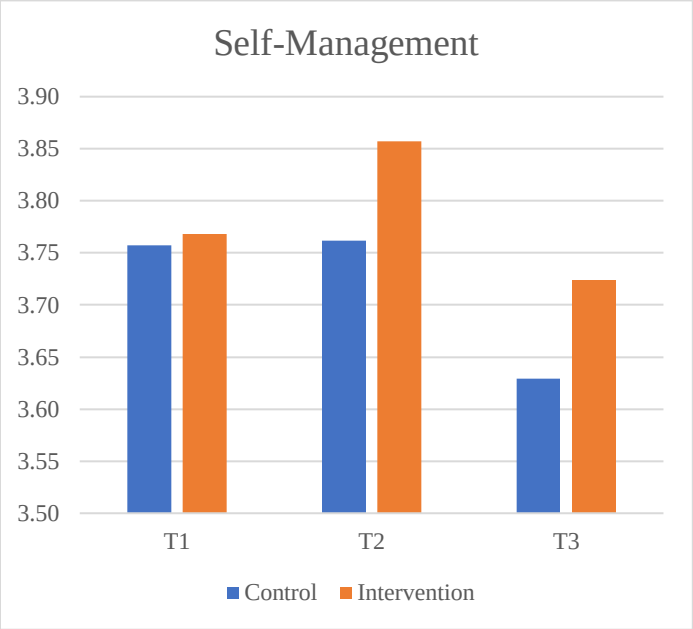


Figure 3B

Self-Awareness Scores across Waves

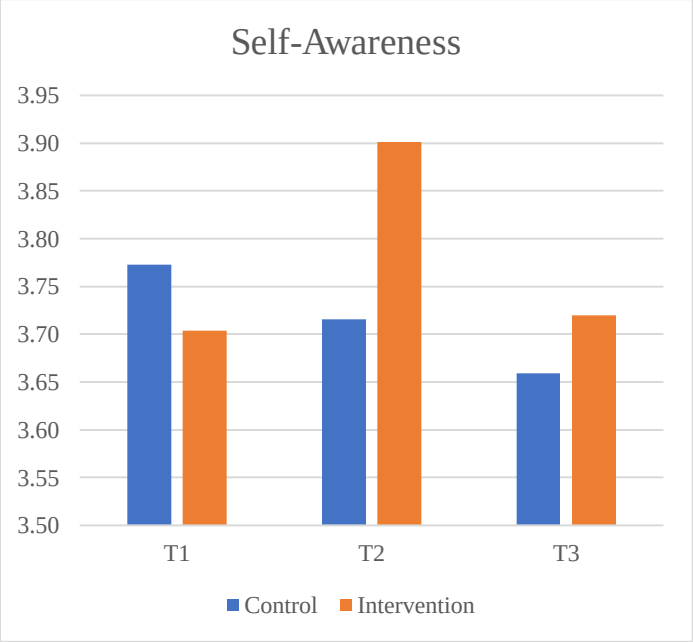


Figure 4B

Social Awareness Scores across Waves

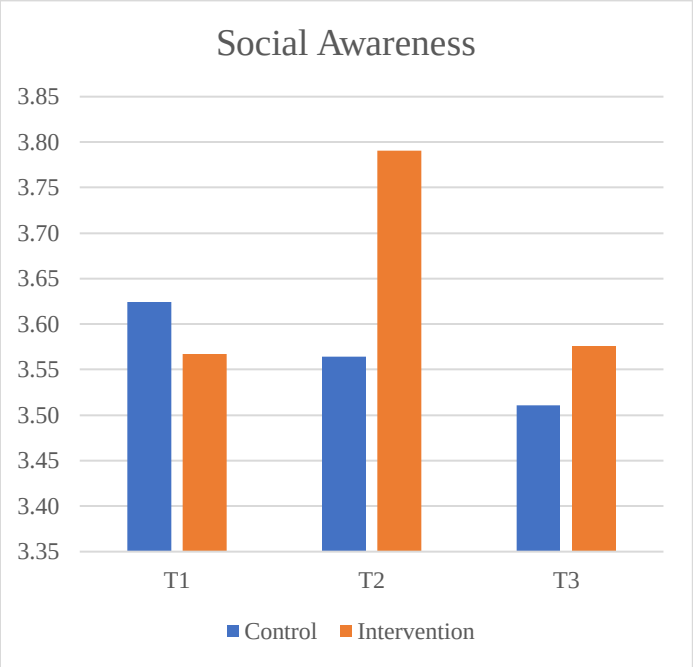


Figure 5B

Relationship Skills Scores across Waves

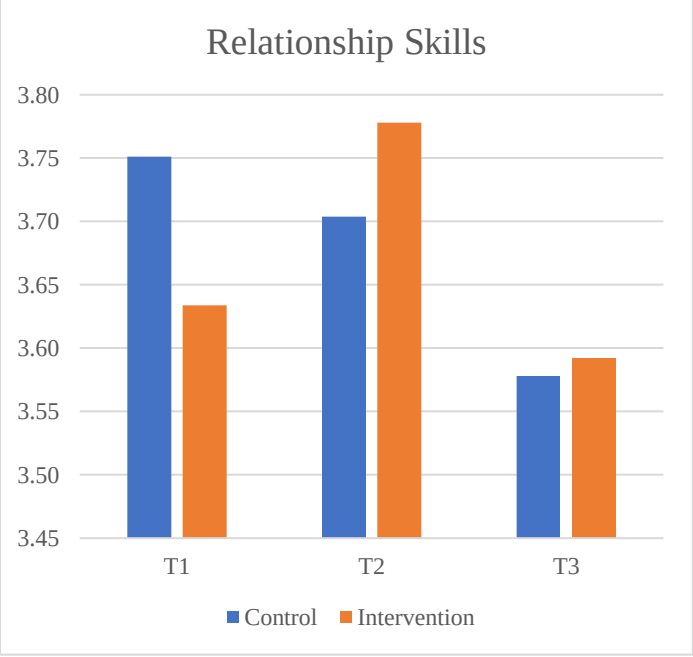


Figure 6B

Responsible Decision-Making Scores across Waves

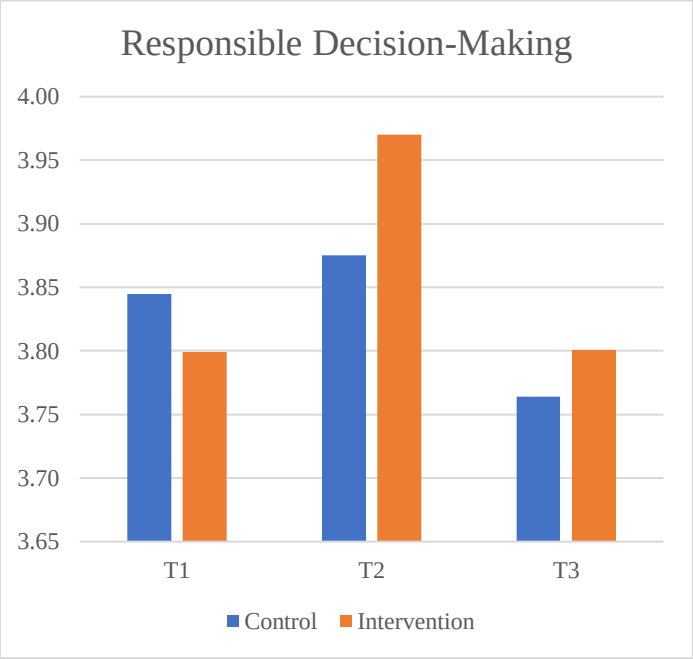


Table 1B

Demographics

	Intervention	Control	Results		
			χ^2	*N*	p-value
Computer at home	67%	66%	0.07	540	.79
Tablet computer at home	62%	64%	0.23	540	.63
Internet at home	97%	97%	0.02	540	.86
Bookshelf at home	80%	73%	2.9	540	.08
Mother employed	54%	41%	8.78	537	.003**
Father employed	95%	94%	0.23	537	.64

** $p < .01$ * $p < .05$. All tests had 1 degree of freedom.

Table 2B

Means, standard deviations, minimum and maximum values, at pre-test (T1)

	Mean	SD	Min	Max
Social-emotional learning skills	3.82	0.47	2.39	5
Empathy	3.73	0.57	1.17	5
Critical thinking	3.71	0.60	1.43	5

Emotion regulation	2.79	0.39	1.26	3.83
Seeking social support	2.81	0.86	1	5
Problem-solving	3.71	0.72	1	5
Avoidant coping	2.82	0.87	1	5
Palliative emotion regulation	3.43	0.83	1	5
Anger-related emotion regulation	2.91	1.00	1	5
Verbal bullying	2.81	1.29	1	5
Physical bullying	2.15	1.15	1	5
Emotional/social bullying	2.02	1.18	1	5

Table 3B

Pre-intervention comparison of outcome measures

	Intervention		**Control**		**Results**	
	Mean	**SD**	**Mean**	**SD**	**t-score**	**p-value**
Social-emotional learning skills	3.79	0.47	3.86	0.47	1.58	.12
Empathy	3.73	0.57	3.72	0.57	-0.23	.82
Critical thinking	3.72	0.57	3.71	0.63	-0.32	.75
Emotion regulation	2.79	0.38	2.79	0.41	0.07	.94
Seeking social support	2.78	0.83	2.84	0.90	0.83	.41
Problem-solving	3.66	0.70	3.76	0.75	1.52	.13
Avoidant coping	2.84	0.82	2.79	0.93	-0.72	.47
Palliative emotion regulation	3.43	0.85	3.43	0.80	0.47	.95
Anger-related emotion regulation	2.91	0.94	2.90	1.06	-0.32	.98
Verbal bullying	2.86	1.27	2.75	1.32	-0.96	.34
Physical bullying	2.14	1.14	2.16	1.15	0.16	.87
Emotional/social bullying	2.06	1.23	1.97	1.13	-0.88	.38