**An Intervention Program Based on the SDM Model: Increasing Teachers’ Self-Efficacy in SEL, in Traditional Learning versus Hybrid Learning**

‘What the training mainly changed for me is my self-efficacy and ability to dare to try things that I had been afraid to try until today. To focus classroom interventions and to take action holistically and not be afraid of intervention being out of place.’

- From a reflection by a teacher in the study

# Abstract

Keywords: Social-emotional Learning (SEL), teacher professional development, hybrid learning, traditional learning, teacher efficacy

# Introduction

This study examines the effectiveness of a social-emotional learning (SEL) intervention program for elementary school teachers. The program is based on the SDM Model, which comprises three approaches: strategy, dimensions, and mediation.

The power of this model lies in its combination of three approaches, a combination aimed at fostering self-efficacy among teachers for using SEL intervention in their classrooms:

1. The strategic approach (Bailey et al. 2019), based on providing teachers with structured, implementable SEL practices and autonomy in applying them.
2. The three-dimensional approach of SEL (Schonert-Reichl 2017) that advocates working with teachers along three concurrent dimensions: the learning context – developing a safe classroom climate; SEL of students – teaching SEL directly to students; and SEL of teachers – the teacher as a role model.
3. The mediation approach (Feuerstein, Feuerstein, and Falik 2015), which presupposes that, with the appropriate mediation, people can change. Teachers have the potential to be significant mediators for their students.

Today there is consensus that teachers have a significant role in SEL, with the potential to lead students towards proper integration into society, school, and, in the future, society and the labor market (Jones et al. 2017). Although the literature proposes various methods and tools, the optimal formula for training teachers in SEL has yet to be found. The aim of the SDM Model is to outline an educational approach for imparting SEL skills. The SDM Model presented here was applied in two learning environments – traditional and hybrid – and its impact on teachers’ SEL efficacy was examined in relation to a comparison group.

# Theoretical background

In recent years SEL has received widespread attention in the research literature. The growing interest in SEL is understandable given the cultural, social, and economic changes taking place around the world, and in light of the realization that these skills have a dramatic impact on children’s experience and their present and future success in various fields (Mahoney, Durlak, and Weissberg 2018). There are various definitions for social-emotional skills. This study relies on the CASEL definition (2016), which refers to five core competencies: self-awareness, social awareness, relationship skills, self-management, and responsible decision-making. Worldwide, there exist many diverse intervention programs.

## *Teacher efficacy in SEL*

Self-efficacy refers to the range of individuals’ perceptions and feelings regarding their capabilities to perform at events and engage in activities in specific areas. This is a circular process: individuals who believe that they are capable of conducting activities generate appropriate expectations and perform in accordance with them. Subsequently, they observe their performance, draw conclusions about their efficacy, generate expectations and operate accordingly, and the process repeats (Schunk and Pajares 2009). A teacher’s self-efficacy is critical because it affects performance and has repercussions for students’ progress, achievements, and emotional well-being (Barouch Gilbert, Adesope, and Schroeder 2014).

Bandura (2006) argues that teachers’ self-efficacy is affected by four sources: mastery experiences, social modeling, verbal persuasion, and physiological and affective states. Teachers with a strong sense of self-efficacy are more inclined to use social-emotional gestures towards their students and create a positive classroom atmosphere (Klassen and Chiu 2010).

Although teachers are present in real time in social interactions and have the ability to mediate on the spot while presenting a desirable social norm (Taylor et al. 2017), many teachers feel they lack the efficacy to deal with the social-emotional sphere of their students’ lives (Schonert-Reichl 2017) and refrain from intervening. The reasons vary: lack of knowledge or strategy for social-emotional intervention (Taylor et al. 2017), lack of backing from the administration or supervising body for engaging in the field, or their heavy workload and the imperative of meeting pedagogical objectives (Schonert-Reichl 2017). Sometimes the issue seems to lack importance or relevance to learning (Hart et al. 2020), and some refrain because the content of SEL intervention programs is sometimes irrelevant to the lives of their students (Bailey et al. 2019).

The social-emotional efficacy of the teachers themselves plays a decisive part in promoting social-emotional learning. For example, Jones and Bouffard (2012) of Harvard University built a model that demonstrates how, alongside teachers’ pedagogical skills and background characteristics, their social-emotional efficacy itself has both short- and long-term impacts on the school, the classroom, and students’ achievements. Teachers’ social-emotional efficacy was found to be linked to their psychological well-being. Teachers who can overcome social-emotional challenges feel more effective, and teaching becomes more enjoyable and rewarding for them.

SEL intervention programs for teachers were found to benefit both teachers and students, improve the quality of their interaction, and increase the number of lessons on the subject (Durlak 2016; Jennings et al. 2017).

Notably, most studies on SEL intervention programs focus on students rather than the teachers who were trained to conduct them (Maureen et al. 2018). To the best of our knowledge, there is no systematic, structured, agreed-upon program for training teachers to promote SEL in the classroom (Durlak 2018).

## *Learning environment: traditional, distance, and hybrid*

Traditional learning is the basic format in which a teacher engages in direct dialogue, with almost no online means (Ross and Macleod 2013) and almost no student activity or responsibility (Lin and Tsai 2011). The increasing use of technology has led to the development of distance learning, which uses technological means (Alario-Hoyos et al. 2018).

Distance learning has advantages: the knowledge is available, varied, and accessible to diverse populations around the world, and the method encourages students to take initiative and responsibility. A significant disadvantage of distance learning is the absence of direct intervention among students and between students and teachers. Students feel isolated and lack the social setting that fosters learning (Criollo-C, Luján-Mora, and Jaramillo-Alcázar 2018).

Technological developments and the spread of Covid-19 in 2020 increased online communication between people but reduced direct communication, despite the great importance of face-to-face social-emotional skills and the need for them in the labor market (Deming 2017). The teacher’s role varies as circumstances change, and it is therefore important to examine the effectiveness of training for traditional learning versus hybrid learning, specifically in the context of SEL.

Hybrid learning has developed over time, combining traditional learning and distance learning, and is now accepted as very effective (Jones and Sharma 2017; Raes et al. 2020) because it combines the advantages of traditional learning and distance learning generally, and in the social context specifically, allowing for interaction between peers and the teacher (Fu and Hwang 2018).

Along the broad spectrum of SEL activity over recent decades, one finds two main foci of work with students. The first calls for direct teaching with a clear SEL strategy (Bailey et al. 2019), and the second calls for the creation of a social-emotional climate, with emphasis on appropriate modeling by the teacher (Schonert-Reichl 2017). The SDM Model presented here combines these approaches, and its impact on teachers has not previously been examined. In addition, to the best of our knowledge, the impact of SEL intervention programs for teachers on various learning environments has not previously been examined. This study examined the impact of intervention programs using the SDM Model for teachers in relation to their degree of efficacy in SEL in various learning environments.

# Research questions

1. What is the impact of intervention programs using the SDM Model on teachers’ self-efficacy in SEL, in a comparison involving a traditional learning environment, a hybrid learning environment, and a comparison group?
2. In the context of a comparison between traditional and hybrid learning, what do teachers who participated in an SEL intervention program regard as the significant factors for increasing self-efficacy?

# Research hypotheses

The first research question will be examined using the following two hypotheses, while the second will be examined using a directed content analysis of teachers’ written reflections.

1. Teachers who completed an intervention program using the SDM Model will experience increased self-efficacy in SEL compared with teachers who did not complete an intervention program.
2. Teachers who completed an intervention program using the SDM Model in a hybrid learning environment will experience increased self-efficacy in SEL compared with teachers who completed the intervention program in a traditional learning environment.

# The study population

The study’s participants comprised elementary school teachers who took part in intervention programs during 2018-2019. Seventeen intervention programs of two types were conducted: Twelve schools chose this intervention program for their staff and implemented it as part of their school’s professional development process. Five additional intervention programs were conducted at a teacher training college as part of its professional development for teachers; participants in these programs enrolled for their personal edification. All programs received Ministry of Education approval for teacher compensation. The study’s comparison group was formed by individually approaching principals of elementary schools not participating in the programs and requesting that questionnaires be disseminated among teachers. A total of 472 teachers from 88 schools in Israel participated in the study.

To identify the effect of 𝜼2p =.04 with 80% power for a repeated measures analysis of covariance (ANCOVA, three groups, α =.05), the G\*Power program recommended using 80 subjects for each group (N = 240). For the purpose of the study, 638 teachers were sampled. The participants were Jews from various education systems: state, state-religious, and ultra-orthodox. Of the respondents, 178 were disqualified for non-completion or partial completion of the questionnaires. In addition, 12 participants with extreme values for the outcome variable were screened out (the offset criterion was defined as more than or less than 3.3 standard deviations from the mean). The teachers were required to submit a final paper that included a reflection on the program. The control group did not submit a paper, which accounts for the gap between the number of questionnaires and reflections. In addition, a few teachers did not submit a final paper.

The study’s participants comprised 472 teachers from 88 schools throughout Israel, 407 women (86.2%) and 55 men (11.7%), most with an academic education: bachelor’s degree (N=275, 58.3%), master’s degree (N=197, 41.7%). In terms of professional distribution, about 60% of the participants were homeroom teachers (N= 274, 58.1%), and the remaining were subject teachers (N= 176, 37.3%). Seniority (teaching experience) ranged from 1 to 43 years, with a mean value of 15.8 years and a standard deviation of 9.5 years.

# Research tools

The study included two quantitative questionnaires and a reflection that was analyzed using qualitative analysis.

A *quantitative questionnaire on personal and professional background* was used to gather data on gender, education, seniority, and the teacher’s position.

A *quantitative questionnaire examining teacher efficacy* has been developed by Gibson and Dembo (1984) and later adapted to SEL by Rich, Lev, and Fischer (1996). The adapted questionnaire includes 18 items. The teachers were asked to indicate their response to a statement on a Likert scale of 1-6, with 1 = Strongly disagree, and 6 = Strongly agree. The higher the score, the higher the self-efficacy. Seven items on the questionnaire were formulated in the negative, such that a high score reflects low self-efficacy. In the course of statistical processing, the scoring was reversed for these items.

For the present study, the questionnaire was further adapted to the social-emotional sphere by changing the formulation of nine of the 18 statements. Subsequently, a content validation of the questionnaire was performed through an external review by three experts who approved the changes (Chin and Siew 2015).

The measure of reliability for the questionnaire as a whole (Cronbach's α) was α=.85 (Rich, Lev, and Fischer 1996). In the present study, the reliability of the questionnaire was examined by measuring it on two occasions, and internal consistency was found to be good (α=.76 for the first measurement; α=.79 for the second measurement).

In addition to the questionnaires, as noted, we examined the impact of the program through *qualitative analysis*. Upon conclusion of the intervention program, 314 participants submitted a written personal reflection, which was analyzed qualitatively.

This is an experimental mixed-methods study in which the quantitative component is dominant. The first stage entailed examining and comparing a questionnaire on teacher efficacy before and after the intervention program. In the second stage, participants’ reflections were analyzed using directed qualitative content analysis, which involved systematic classification by coding and identifying issues, with special attention to the context in which they emerged, so as to identify the issues and generate interpretations from the data (Roller 2019). Combining research methods reinforces the study’s findings and prevents bias, including in the area of SEL (Sold 2019).

# Overview of the intervention program

The intervention program included ten three-hour sessions, for a total of thirty hours. The aim of the program was to imbue teachers with a sense of efficacy in SEL. The program combines three approaches: a strategic approach (Bailey et al. 2019), an approach based on three dimensions (Schonert-Reichl 2017), and an approach involving mediation (Feuerstein, Feuerstein, and Falik 2015).

Figure 1. The SDM Model for SEL teacher training



* *Structure of the program meetings*: Every session included concrete experience, reflection, conceptualization, relation to theory, and the imparting of practice is to implement in class, following the Kolb (1975) learning model.
* *Program content*: SEL definitions, mediating SEL for students, classroom social-emotional mapping, play as an SEL key, building a personal work plan for the student, dealing with bullying, and the teacher as a model for SEL (see Appendix 1).
* *The program’s strategies*: The program taught strategies for social-emotional mapping, play, and a model for coping with bullying and violence. Participants received supporting material developed specifically for the program: an Excel file for mapping, instructional videos, and two booklets: lesson plans and games (see Appendix 1).

The intervention program was conducted in two learning environments: *traditional*, with the participation of 123 teachers and ten face-to-face meetings; and *hybrid*, with the participation of 194 teachers, seven face-to-face meetings, and three e-meetings. The *comparison group* included 155 teachers from schools that did not undergo this training.

The subject matter was identical for both learning environments. The difference between the programs lay in three sessions that took place in a classroom encounter in the traditional learning environment, as opposed to asynchronous distance learning in the hybrid learning environment (see Appendix 1).

The intervention program was about six months long and took place during the school year (November-June). Participants were required to attend at least 80% of the sessions, apply two practical tools in the classroom, read two articles, and submit three assignments during the course as well as a concluding assignment.

At the start of the intervention, program participants received a background information questionnaire and a questionnaire on teacher efficacy in SEL. At the conclusion, an SEL efficacy questionnaire was redistributed. The comparison group received the same questionnaires respectively. The questionnaires were anonymous and completed manually. Participants were asked to write down the last four digits of their identification numbers so that pre- and post-program questionnaires could be paired. Each questionnaire took about 15 minutes to complete.

# Ethics

The study was conducted with the consent of the teachers and principals. Participation in the study was not presented as a condition for participating in the program, but rather as a gesture in support of research. The teachers’ confidentiality and anonymity with respect to the questionnaires and reflections were meticulously maintained. Participants had the option of withdrawing from the study at any stage. The database was preserved and secured with attention to confidentiality. The data were used solely for research and have not been shared with any external body.

# Findings

## *Quantitative findings*

### *Descriptive data*

A review of the baseline data presented in Table 1 indicates that the average efficacy values were relatively high among the three groups at the start of the intervention program and that the distribution of data was very homogeneous.

### *Potential intervention of background variables*

*Baseline balance between the research groups***.** A review of Table 1 reveals a lack of gender balance between the research groups: in the traditional learning environment there were only five men, compared with 118 women. In addition, we did not find a satisfactory baseline balance for seniority – this finding emerged from the use of seniority as a categorical measure. The differences stemmed from the fact that participants in the traditional learning environment included 11 teachers with low seniority (1-5 years) – about 6% below the average – and the hybrid learning environment included 26 teachers with high seniority (26+ years) – about 5% below the average. As a measurement of continuity, a Bonferroni post hoc analysis found that participants in the traditional learning environment had more seniority than those in the hybrid learning environment (p=.029). No differences were found between the groups in terms of teachers’ education (χ2 (4, n=472)=7.46, p=.113) or in terms of professional position (χ2(4, n=472)=2.84, p=.584).

Table 1: Demographic distribution data, by research group

|  |  |  |
| --- | --- | --- |
|  | **n** | Statistical comparison |
| Background variables | Hybrid learning environment(n=194) | Traditional learning environment(n=123) | Comparisongroup(n=153) |  |
| Gender: N (%) |  |  |  |  |  |  |  |
| Women | 169 | (87.1) | 118 | (95.9) | 130 | (83.7) | χ 2(2, n=470)=10.39, p=.006  |
| Men | 25 | (12.9) | 5 | (4.1) | 25 | (16.3) |  |
| Education |  |  |  |  |  |  |  |
| Bachelor’s degree | 116 | (59.8) | 81 | (65.9) | 77 | (50.3) | χ 2(4, n=470)=7.44, p=.115  |
| Master’s degree | 71 | (36.6) | 39 | (31.7) | 68 | (44.4) |  |
| Not reported | 7 | (3.6) | 3 | (2.4) | 8 | (5.2) |  |
| Teaching seniority N (%) |  |  |  |  |  |  |  |
| 1-5 | 35 | (18.0) | 11 | 8.9)) | 23 | (15.0) | χ2(8, n=470)=14.61, p=.067  |
| 6-15 | 74 | (38.1) | 47 | (38.2) | 55 | (35.9) |  |
| 16-25 | 49 | (25.3) | 39 | (31.7) | 36 | (23.5) |  |
| 26+ | 26 | (13.4) | 25 | (20.3) | 34 | (22.2) |  |
| Not reported | *10* | *(5.2)* | *1* | *(0.8)* | *5* | *(3.3)* |  |
| Average teaching seniority (M SD) | 14.4a | *(8.98)* | *a17.2* | *(9.53)* | *16.4* | *(10.81)* | *F(2,467)=3.90, p=.021* |
| Position |  |  |  |  |  |  |  |
| Homeroom teacher | *112* | *(57.7)* | *69* | *(56.1)* | *93* | *(60.8)* | χ 2(4, n=470)=3.15, p=.534  |
| Subject teacher | *71* | *(36.6)*  | *51* | *(41.5)* | *52* | *(34.0)* |  |
| Not reported | *11* | *(5.7)* | *3* | *(2.4)* | *8* | *(5.2)* |  |

*Relationship between background variables and the research variable.* The first measurement (baseline) found significant differences in teachers’ self-efficacy in relation to seniority (F(4,465)=4.57, *p=*.001). A Bonferroni post hoc analysis revealed that teachers with low or mid-level seniority (6-15y; M=4.19, SD=0.46) had lower levels of efficacy than teachers very high degrees of seniority (26y+; M=4.43, SD=0.46). No differences were found in self-efficacy in relation to teacher seniority after the intervention program (F(4,465)=0.37, *p=.*831). Because the gender distribution was unequal in the present sample, there was no statistical justification for examining gender differences in relation to the study’s variables. No differences were found in self-efficacy in relation to teachers’ education – neither at the baseline level (*t*(450)=-0.95, *p*=.342) nor upon conclusion of the intervention program (*t*(450)=0.06, *p*=.954). Likewise, no differences were found in self-efficacy in relation to position (homeroom or subject teacher) – neither at the baseline level (*t*(446)=1.56, *p*=.120) nor upon conclusion of the intervention program (*t*(446)=0.35, *p*=.726).

In light of this, we controlled for teacher seniority. The analysis below reports on controlled as well as uncontrolled models, in line with the standard program evaluation practice (see Angrist and Pischke 2014), in order to assess the extent to which the controlled variables might lead to biased results.

### *Preliminary analyses*

*Baseline measurement of self-efficacy differences, by research group*. Before testing the research hypotheses, we examined whether there were differences between the research groups in terms of self-efficacy at the time of the first measurement while controlling for teachers’ seniority (one-way ANCOVA). No significant differences were found (F(2,466)=2.37, p=.10).

### *Testing the research hypotheses: changes in teachers’ level of efficacy in relation to time of measurement, by research group*

The study posits two hypotheses: The first is that teachers who completed an SEL intervention program will experience increased self-efficacy relative to teachers who did not complete an intervention program. The second is that participants in the hybrid learning environment will experience increased self-efficacy relative to participants in a traditional learning environment and to the comparison group.

*First hypothesis: effectiveness of the intervention program*. To assess the research hypothesis, a mixed-design ANCOVA was conducted while controlling for teacher seniority. Table 2 presents the descriptive data for the research variables by time of measurement and by research group.

Table 2: Mean, standard deviation, and standardized mean of teacher’s efficacy by time of measurement and by research group

|  |  |  |
| --- | --- | --- |
|  |  | Research groups |
|  |  | Hybrid learning environment | Traditional learning environment | Comparison group | Total |
|  |  | **PRE** | **POST** | **PRE** | **POST** | **PRE** | **POST** | **PRE** | **POST** |
| Teacher efficacy | M | 4.22 | 4.44 | 4.26 | 4.47 | 4.34 | 4.13 | *4.27* | *4.35* |
| SD | 0.40 | 0.45 | 0.49 | 0.43 | 0.48 | 0.46 | *0.45* | *0.46* |

A significant interaction effect was found between time of measurement and research group (F(2,466)=38.93, p<.001; Eta2=0.14) (see Figure 2). To understand the nature of the interaction, we conducted a series of repeated measures ANCOVA tests separately by research group. These analyses revealed a significant difference in self-efficacy between the times of measurement for participants in a hybrid learning environment (F(1,192)=33.11, p<.001; Eta2= 0.15) – that is, a higher degree of self-efficacy was recorded after the intervention program. A similar effect was indicated among participants in a traditional learning environment (F(1,121)=23.77, p<.001; Eta2= 0.16) – that is, a higher degree of self-efficacy was recorded after the intervention program. Moreover, significant differences between times of measurement were also found among participants in the comparison group (F(1,151)=37.04, p<.001; Eta2=0.20) – with the second measurement indicating a decrease in self-efficacy.

In addition, a significant main effect for the research groups was found between times of measurement (F(2,466)=5.20, p=.006; Eta2= 0.02). A Bonferroni post hoc analysis revealed that participants in a hybrid learning environment (Adj. M = 4.34, SE = 0.03) and participants in a traditional learning environment (Adj. M = 4.36, SE = 0.03) were found to have a higher degree of self-efficacy than those in the comparison group (Adj. M = 4.23, SE = 0.03) (p =.045 and p =.041, respectively).

Furthermore, a main within-subject effect was found for time of measurement beyond the intervention program and control variable (F(1,466)=13.78, p<.001; Eta2= 0.03) – with the second measurement (Adj. M = 4.35, SE = 0.02) indicating a higher level of self-efficacy than the first measurement (Adj. M = 4.27, SE = 0.02). However, according to the data described, an averaging of the comparison group data with the hybrid and traditional groups revealed opposing trends among the intervention program participants (increased self-efficacy) relative to the comparison group participants (decreased self-efficacy).

The statistical analyses indicate that the first hypothesis was confirmed. The intervention program indeed contributed to increased self-efficacy in SEL, both among participants in a hybrid learning environment and among those in a traditional learning environment, relative to the comparison group. It should be noted that all the findings were consistent and were reproduced even without controlling for teacher seniority.

Figure 2: Effect of interaction between the intervention program and time of measurement on self-efficacy

*Second hypothesis: effectiveness of hybrid versus traditional learning*. The second research hypothesis posited that the change in SEL self-efficacy among participants in a hybrid environment would be greater than that among participants in a traditional environment, as well as in relation to the comparison group. To test this hypothesis an indicator of change in self-efficacy was calculated (subtracting the first measurement from the second measurement that such that a positive value indicates increased self-efficacy). A one-way ANCOVA controlling for teacher seniority revealed significant differences between the groups (F(1,466)=38.93, p<.001; Eta2=0.14). A Bonferroni post hoc test revealed significant differences between participants in a hybrid environment and the comparison group, as well as between participants in a traditional environment and the comparison group (*p*<.001). No differences were found between participants in a hybrid environment and participants in traditional environment (*p*=1.00). Thus, the second research hypothesis was not confirmed, meaning that the intervention program is equally effective in traditional and hybrid learning environments.

## *Qualitative findings*

For an in depth examination of the effect of the intervention program on the participants’ self-efficacy, and to determine what they regarded as the program’s significant qualities, we analyzed the reflections they submitted upon conclusion of the course. Participants received the following instruction: ‘Summarize the program from a personal point of view. Please refer to content, relevance, degree of implementation, and how this program affected you.’ Participants were asked to write their reflections in a space of seven lines, and many provided longer answers.

A total of 314 reflections were submitted, 187 from participants in a hybrid learning environment, and 127 from participants in a traditional learning environment. The reflections were analyzed using directed content analysis in the following stages (Roller 2019): First, a directed coding scheme was formulated by reading every reflection holistically; some of the themes were predetermined by the theory and related to the research questions, while others were identified as recurring issues (Hsieh and Shannon 2005). Next, we divided these into overarching themes and subthemes. Finally, for each theme and subtheme we grouped together statements that illustrate the point, then quantified the statements and compared the quantity of quotes for a hybrid learning environment with that of a traditional environment. A diagram of the links between categories then emerged. Two external evaluators analyzed the reflections, and their analyses of the statements were compared. Any disagreement over the analysis of statements was discussed, and only when agreement was reached was the statement included in the analysis. If a participant mentioned a theme in several different ways it was counted as only one theme. The three initial themes refer to the three dimensions of the intervention program – knowledge, tools, and mode of learning – which in turn lead to the fourth theme, namely, increased self-efficacy in SEL.

Figure 3: The three dimensions of the training that were found to influence teachers’ self-efficacy in SEL and three expressions of self-efficacy

**Tools**

**Mode of Learning**

**Knowledge**

**Teacher’s self-efficacy in SEL**

1. Conceptual change in the professional sphere
2. Development of social-emotional awareness of self and other
3. Implementation of SEL in class

The following table presents the findings of the reflections classified by the four themes and the subthemes.

Table 3: Issues in learning and change, by theme, compared across groups

|  |  |  |
| --- | --- | --- |
|  | Traditional N=127 | Hybrid N=187 |
|  | Number of subjects who mentioned the issue | Percentage | Number of subjects who mentioned the issue | Percentage |
| **Knowledge dimension** |  |  |  |  |
| Mention of creating a new language, exposure to theories and studies | 78 | 62.4% | 96 | 52.17% |
| **Mode of learning dimension** |  |  |  |  |
| Mention of intervention program as significant | 93 | 73.6% | 150 | 80% |
| Mention of personal practical experience | 34 | 26.8% | 30 | 16.3% |
| Mention of the facilitator’s modeling | 44 | 35% | 30 | 16.3% |
| **Tools acquisition dimension** |  |  |  |  |
| Tools as significant for the process | 77 | 60.65% | 135 | 72% |
| Play | 71 | 56% | 136 | 73% |
| Modes of coping with harassment, bullying, and ostracism | 24 | 19.2% | 34 | 18.47% |
| **Personal and professional efficacy dimension** |  |  |  |  |
| Conceptual change in the professional sphere | 77 | 60.8% | 103 | 54.89% |
| Development of social-emotional awareness of self and other | 50 | 39% | 42 | 22.3% |
| Implementation of SEL in class | 62 | 48.8% | 103 | 55.3% |

Below are the themes and subthemes that emerged. The quotes are presented verbatim, alongside an indication of the participant’s learning environment.

*1. The knowledge dimension*: Participants stated that they gained familiarity with the theories and concepts of SEL and acquired a new ‘language’.

*1.1 Creation of a new language, exposure to theories and studies*

Participants stated that they were exposed to a new world of knowledge in the field of SEL and acquired a ‘social-emotional language’ that expresses a new world of concepts, including theories and studies that help deepen their understanding of the social-emotional classroom reality:

I personally felt a thirst for knowledge of how to handle certain situations, for validation that what I’m doing is right. For the knowledge that what happens in my classroom happens in most classes. (Traditional)

I was exposed to a new language that I didn’t know previously, a new perspective that for me enhanced the understanding and the importance of developing and cultivating social-emotional relations in class…. I learned that studies show that those people who suffered from difficult social problems in childhood later developed emotional and psychological problems, and therefore it is very important to try to help them at an early stage of their childhood. (Hybrid)

The knowledge, according to participants, sharpened their understanding of the repercussions of social-emotional difficulties in later development. The knowledge was experienced as surprising, interesting, and validating action. The sense that participants acquired theories and learned about studies was comparable across learning environments (traditional 62.4%, hybrid 52.17%).

*2. The learning dimension:* Participants noted that their learning was significant thanks to the personal practical experience, examples, and facilitator’s modeling.

*2.1 The intervention program is significant for participants*

I entered and got burned; I came back openmouthed. Every session charges me with so much energy. I [would] come out with abilities and understanding and insights for many cases in the complicated class I taught. (Traditional)

The training is, in my view, a must for every teacher and person! Learning at such hours makes it very difficult to concentrate and it was simply interesting to come each time and hear again…. The issue is important [and] most of the time as teachers we do not address it… because pedagogy takes first place. (Hybrid)

The participants experienced the learning as significant, with content that they usually do not address because schools prioritize pedagogy over SEL. Participants in both learning environments noted that participation in the intervention program is essential for professional development as a teacher and person (traditional 73.6%, hybrid 80%).

*2.2 Personal practical experience*

I felt that, personally, I too was going through a process thanks to the practical experiences, and could interpret classroom situations insightfully. And one more little thing – whatever we ourselves played was immediately introduced in the classroom. (Hybrid)

I discovered for myself how much social play also helps me personally to let go, to lose the fixation. (Traditional)

The practical experience was significant for the participants. It helped them internalize the messages and understand social-emotional processes, and it had a direct impact on the extent of classroom implementation. There was a marked gap in practical experience in favor of traditional learning (traditional 26.8%, hybrid 16.3%).

*2.3 Modeling by facilitator*

The facilitator provides modeling, in the sense of ‘talking the talk *and* walking the walk’ – a bright smile, warmth, punctuality, a warm learning atmosphere… all of it! (Hybrid)

The facilitator’s welcoming attitude, respect and admiration for the points we raised, even if they were critical… was for me a living example of how a teacher should behave with students in the classroom. (Traditional)

For the participants, the facilitator’s modeling provided an example of proper teacher conduct. This theme yielded the greatest discrepancy between the two learning environments, in favor of the traditional (traditional 35%, hybrid 16.3%).

*3. The tools dimension:* Participants stated that the strategy of doing practical work in the classroom made the theory applicable and feasible.

The course provided practical tools for how to work. Practice… from theory to action. And this is the most important part in my view. So often we identify a problem but do not know what to do with this information…. The lesson plans I used were fascinating; the steps were very clear…. This year I felt that the social-emotional aspect of my classroom improved greatly. (Traditional)

I received practical tools and instructions for classroom work based on an understanding of how to operate…. Thanks to the tools I acquired, I improved my work with the students…. I realized that there are different dimensions of action… and implemented [them]; it’s a real pleasure! I learned to map the class, to build a social intervention program for a student, which is no less important than the curriculum. (Hybrid)

The tools acquired were described as implementable, creating a sense of effectiveness and clarity in their application in the educational field. Some mentioned the social mapping, the lesson plan booklets, the format for creating a personal student work plan, and practical matters for coping with bullying and ostracism as significant tools for them. Many participants linked the enjoyment and significance of the training to the tools they received. This aspect received slightly more mention in the hybrid training (traditional 60.65%, hybrid 70%).

*3.1 Classroom play*

I saw that by playing games it was possible to reach every student in a better way, and also to cultivate the students’ acceptance of difference…. The games became very popular in my class and are among the important tools I acquired. (Traditional)

I really enjoyed playing with the students and continue to do so…. Play creates a pleasant and more open atmosphere among the students. (Hybrid)

As part of the training assignments, participants were asked to play with their students and document this. Participants experienced playing as effective, enjoyable, and impactful for them and their students. Playing was perceived as a tool that can be used to promote SEL at the class and individual levels. There was more reference to the importance of play in the hybrid learning environment (traditional 56%, hybrid 73%).

*3.2 Modes of coping with harassment, bullying, and ostracism*

We learned ways of coping with extreme situations that are hard to handle; the training presented and revealed… practices… for coping with excluded students and cases of ostracism that we find so hard to resolve. (Hybrid)

The section on ostracism really affected me, and not only because of the issue, but because of the hope I felt growing inside me. (Traditional)

Harassment and bullying were experienced by the participants as a harsh reality that they find difficult to handle as teachers, and they believed that the practices they learned were effective and gave them hope (traditional 19.2%, hybrid 18.47%).

The three dimensions – knowledge, learning, and tools – led to the fourth dimension, namely, increased self-efficacy in SEL. Participants reported that after the intervention program they have a strong sense of efficacy, as reflected in three areas: a conceptual change in the professional sphere, greater awareness of self and other, and implementation of SEL in the classroom.

*4. Teacher efficacy in teaching SEL:* Participants stated that after the intervention program their self-efficacy in SEL increased.

*4.1 Conceptual change in the professional area*

I realized that as a teacher I have a significant role… and SEL can be taught in an experiential way through play, and just as we teach learning strategies… so too social codes should be taught. (Traditional)

The training reinforced my sense of a mission and responsibility to develop and acquire social-emotional skills for my students and my children. (Hybrid)

Participants attested to the teacher’s potential to promote SEL and noted that they had been exposed to a systematic method that offered hope. In addition, they felt the magnitude of the responsibility and mission placed on the teacher’s shoulders, in terms of both the social climate in the classroom and development of a personalized SEL program for students. The conceptual change was evident in both learning environments (traditional 60.8%, hybrid 54.89%).

*4.2 Development of social-emotional awareness of self and other*

The program touched me at three levels. (A) At the personal level, my family and myself. (B) At the interpersonal level, I as a teacher on a staff with work colleagues. (C) At the professional level, I as a teacher with my students. (Traditional)

The training opened my eyes to my and my children’s place in society, how concerned I was with how I had been as a girl…. I realized the role of the teacher in the classroom is much more significant. There are certain patterns that a teacher practices that are passed on to students without noticing, and if I change them in myself, the change will be transmitted to the students and they will see how it affects them. (Hybrid)

Participants reported that the program affected them at the personal and professional levels, both in terms of understanding that the social-emotional skills they demonstrate in the classroom affect their students, and in translating this into their lives as parents and family members. In this aspect a discrepancy was evident between the traditional environment, where the personal contribution was frequently mentioned, and the hybrid environment (traditional 39%, hybrid 22.3%).

*4.3 SEL implementation in the classroom*

Participants stated that after the intervention program they feel more capable of applying SEL. They noted that they identify problems among the students, dare to conduct interventions that they avoided in the past, overcome their fear, and conduct interventions differently from the past:

What the training mainly changed for me is my self-efficacy and ability to dare… to want very much to influence, and to have the tools for doing so…. I try to initiate social events/games regularly and I see a big change in the social fabric of the classroom. (Traditional)

Personally, this process gave me a lot. In the past, when a lesson didn’t succeed, I would mainly sink into self-pity or feelings of failure. Through the processing involved in play, I succeeded in shifting the center of gravity to action and learning from what happened in the classroom, and this imbued me with determination to initiate another attempt based on belief in the process and in the girls who are partners in this process, without judging myself or my abilities. (Hybrid)

The improved sense of ability to implement SEL in the classroom was comparable across both learning environments (traditional 48.8%, hybrid 55.43%).

These three subthemes, which emerged from the participants’ statements, express the dimension of efficacy in *teaching* based on SEL, as attested to by the participants. The teachers implement SEL principles along three dimensions: initiating strategically directed activities to promote SEL, building SEL programs for students, and providing a personal example.

An examination of the four themes did not reveal a substantial difference between the two learning environments, with the exception of marked differences in three subthemes: the facilitator’s modeling (traditional 35%, hybrid 16.3%) and the development of social-emotional awareness of self and others (traditional 39%, hybrid 22.3%), which were more frequently mentioned for a traditional learning environment; conversely, the theme of play received more frequent mention for the hybrid learning environment than for the traditional one (traditional 56%, hybrid 73%). These discrepancies will be discussed in the next section.

# Discussion and conclusions

This study addresses an intervention program for teachers using SEL. Although the teacher has a significant role in SEL (Jones et al. 2017), many of the teachers avoided engaging in the field (Schonert-Reichl 2017), as an analysis of the reflections revealed. The study’s findings indicate that teacher efficacy in SEL increases following the intervention program. These findings are significant because teachers’ self-efficacy affects their functioning and has an impact on their students’ advancement, achievement, and psychological well-being in SEL (Barouch Gilbert, Adesope, and Schroeder 2014).

The findings of the quantitative research point to increased self-efficacy in SEL among teachers who participated in the intervention program, and are consistent with the qualitative research findings, which also point to increased self-efficacy, thus reinforcing their validity. The study’s findings are consistent with studies that indicate a positive effect of SEL intervention programs for teachers (Jennings et al. 2017; Durlak 2016).

This study is unique in its focus on an SEL-based intervention program for teachers and its use of a comparison group, which usually does not feature in studies on intervention programs for teachers (Hill, Beisiegel, and Jacob 2013). The comparison group did not demonstrate increased self-efficacy. On the contrary, self-efficacy was found to decrease over the year. This decrease may be attributable to the burnout that occurs among teachers during the school year.

The baseline self-efficacy measurements were high for all the research groups (4 out of 6). A possible explanation is that the definitions of social-emotional skills are many and fluid, and all teachers feel that, by virtue of their position, they behave in a social-emotional manner even without SEL training. This is evident in the qualitative findings showing that teachers were surprised to discover a new language and a new form of social-emotional conduct in the classroom.

The quantitative research findings attesting to increased self-efficacy are further validated by the reflections from both learning environments. Participants attested that they were exposed to a new language, that SEL was personally and professionally significant for them, and that they acquired new tools, which they implemented in their classes. These themes, relating to knowledge and tools, explain the increased self-efficacy, as knowledge and tools have been found to increase teachers’ self-efficacy in the social sphere (Gresham et al. 2011). Studies on teachers in the United States found that teachers who appreciate and believe in the importance and significance of SEL work optimally to implement SEL intervention programs, as the reflections also indicated (Poulou 2015). The reflections were found to contain direct expressions of increased self-efficacy in SEL: a changed conception of teaching; in the personal dimension – the development of social-emotional awareness of self and other; and in the implementation of SEL at the class and student levels.

Another explanation for the increased self-efficacy emerges from the qualitative findings: teachers attested that the practical experience of assignments facilitated classroom implementation, and that they found the exposure to theoretical and practical models exciting and they sensed the responsibility and importance of engaging in the issue. These findings are consistent with a study by Bandura (2006) showing that teacher efficacy is affected by four sources: mastery experiences, social modeling, verbal persuasion, and physiological and affective states.

An analysis and comparison of the quantitative findings revealed significant discrepancies in the three subthemes. In the traditional learning environment, participants’ social-emotional self-awareness developed more fully and they experienced the facilitator’s modeling as more significant. Conversely, play as a tool for promoting SEL in the classroom was implemented and experienced as more significant in the hybrid learning environment. These discrepancies may be attributable to the fact that the development of self-awareness and observation of the facilitator as a model were a stronger part of the traditional environment, where social-emotional relations are more present because there is more face-to-face learning time, whereas distance learning involves less interpersonal interaction (Deming 2017). On the other hand, the practice of play was experienced as more significant in hybrid learning. Distance learning places less emphasis on interpersonal relations and more emphasis on practice and implementation. Conceivably, in distance learning, practice becomes more salient at the expense of introspection. This explanation is consistent with research findings indicating that distance learning is more comprehensive and wide-ranging, and less in depth, than traditional learning (Stodel, Thompson, and MacDonald 2006).

The potential of an intervention program to increase teachers’ self-efficacy through the SDM Model offers an innovative combination of approaches, which is being researched for the first time. Participants’ testimonies reinforce the elements of the SDM Model.

The element of strategy (Bailey et al. 2019) was found to be a significant anchor for self-efficacy in SEL. Participants noted that the practices they acquired throughout the course were valuable. The implication of this finding is that intervention programs for teachers should entail applicable practices. At each session a practice was imparted.

The three-dimensional element (Schonert-Reichl 2017) – working on classroom atmosphere, imparting SEL to students, and the facilitator’s modeling – emerged from the participants’ reflections as an organizing axis for thought and action in the class. This finding implies that strategies should be imparted along three dimensions: climate, students, and modeling.

The third element, mediation, received mention in the reflections and was present throughout the process, beginning with excitement over the ability to influence and promote SEL among students, to the realization that it is possible to systematically mediate SEL, a field that teachers indicate is difficult to impart (Taylor et al. 2017).

The study’s findings offer a twofold contribution: 1. They contribute to SEL by constructing an organizing model (the SDM Model) for an intervention program to increase teachers’ self-efficacy in SEL; 2. The assessment of the effectiveness of traditional and hybrid learning environments for teachers in SEL found that their self-efficacy increased comparably across both environments. These findings differ from those of a prominent study that found that hybrid learning is more effective than traditional learning (Raes et al. 2020). The findings are important in light of the Covid-19 crisis, with its concrete repercussions for different modes of learning, and the consequent need to assess the effectiveness of various learning environments.

The study’s limitations include its exclusive reliance on teachers’ reports, without examining implementation in the educational field. A recommendation for further research, therefore, is to use the SDM Model to examine the impact of teachers’ intervention programs on the social-emotional skills of participants’ students.

In addition, some of the teachers participated in the intervention program as part of a teaching staff, alongside their colleagues, following a decision by their administration, whereas other teachers participated independently. The different impacts of the intervention program on participants who arrived as part of a staff, rather than by personal decision, versus participants who completed it by choice, rather than as part of a staff, should be examined in depth.

Furthermore, the Covid-19 pandemic has brought about many changes, including in modes of learning and communication through technological and online means. Intervention programs for teachers were conducted by distance learning, and teachers gained in depth familiarity with online learning. This lends added significance to a comparison of learning environments. The different impacts of intervention programs through distance learning versus hybrid learning deserve further examination.

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# Appendix 1

Table 1. Description of intervention program for teachers – SDM Model

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Session number | Traditional learning environment**Session topic and manner of implementation** | Hybrid learning environment**Session topic and manner of implementation** | **Strategy**(practical tools) | **Mediation**(concepts mediated) | **Dimensions**(SEL of students and teachers, The learning context) |
| Session 1 | What are SEL skills?How are SEL skills mediated in class?The teacher as a social-emotional model | Identical to traditional learning | Distribution of booklets with lesson plans for imparting SEL to students | Social-emotional skills | SEL of students and teachers |
| Session 2 | Mapping SEL in the class, its goal, importance, and implementation in the fieldAssignment – to map the class | Identical to traditional learning | A procedure for conducting the mapping in the classInstructional video for conducting a classroom mapping | The significance and importance of measurable social mappingEffects of mapping on the students | SEL of studentsThe learning context |
| Session 3 | SEL mapping:Presentation and discussion of the mapping results | Distance learning: Mapping SELAnalysis and discussion of the mapping resultsTook place on the intervention program’s website | A digitized file for quantifying the classroom mapping data was provided | Reading the mapping data: identifying socially-emotionally at-risk students, analysis of class climate | SEL of studentsThe learning context |
| Session 4 | Play as a tool to create SEL climate in classAssignment – to play with the class 6 times | Identical to traditional learning | Distribution of booklets on social games to the class | How to mediate SEL skills through play | SEL of studentsThe learning context |
| Session 5 | Discussion and analysis of the implementation of social play in the classRoom was provided to discuss successes and difficulties | Distance learning: teachers upload reflections on the classroom play to a forum on the program’s website. A discussion and analysis of the implementation of play in class took place on the forum | Implementation of play in the class | Types of opposition to play and ways of coping with them | SEL of students and teachersThe learning context |
| Session 6 | Building a personalized plan for students with difficulty in SEL | Identical to traditional learning | Distribution of an outline for building a personalized SEL plan | Adaptation of the intervention program to the type of SEL difficulty  | SEL of students and teachersThe learning context |
| Session 7 | Coping with harassment and bullying in class | Identical to traditional learning | Article to read: ostracism protocol – coping with ostracism and bullying | Stages of social development of elementary-school-aged children, group dynamics of bullying behavior | The learning context |
| Session 8 | Simulations – teacher intervention in ostracizing and bullying behavior | Identical to traditional learning | Descriptions of cases, their presentation and analysis | Group dynamics of bullying behavior | The learning contextSEL of students and teachers |
| Session 9 | Reading and discussion of article on teachers’ potential to impart SEL | Distance learning: Reading and discussion of article on teachers’ potential to impart SELThe discussion took place on a forum of the program’s website | Article to read: teachers’ potential to impart SELThe article includes case descriptions | Mediating social-emotional skills | The learning contextSEL of students |
| Session 10 | Teachers learn how to work cooperatively with parents on SELConclusion and summary | Identical to traditional learning | Presentation of model for SEL work with parents  | Cooperating with parents on the SEL workplan | SEL of students and teachers |