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# Teachers' mindfulness following a social, emotional and intercultural learning intervention as a support mechanism for dealing with emotional problems

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## ABSTRACT

The challenges faced by teachers are adding to the frequency and intensity of their emotional problems. In this study, the authors argue not only that social, emotional and intercultural (SEI) learning interventions are associated with an increase in mindfulness and fewer teachers' emotional problems, but also that the change in teachers' mindfulness following an SEI learning intervention is associated with a change in reported teachers' emotional problems. The study uses a randomised control group experimental design evaluating the HAND IN HAND intervention for teachers. This intervention focuses on teachers' SEI competencies, self-awareness, self-management, social awareness, relationship skills, responsible decision-making and intercultural competencies, in a six-day intervention. In the study, a sample of teachers from Slovenia ( $N = 97$ ; 85.9% female,  $M_{\text{age}} = 44.5$  years) was used. The findings indicate the importance of mindful awareness when preventing emotional problems of teachers.

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Teachers; mindfulness; emotional problems; social; emotional and intercultural competencies

## Introduction

Teaching is an emotional process. In this process, pleasant feelings, such as pride and excitement, but also unpleasant ones, such as anxiety, guilt, uncertainty and frustration, are frequent and part of the everyday teaching experience (Malm 2009). In addition, teachers face a multitude of challenges associated with the characteristics of their profession (e.g. new skill requirements and rapid technological developments), challenges associated with their teaching and classroom interactions (e.g. discipline and increasing social and cultural diversity) and challenges related to the COVID-19 pandemic, which have intensified the existing emotional problems in recent years (Collie 2021; Council of the EU 2014). The challenges faced by teachers are adding to the frequency and intensity of their emotional problems (Malm 2009). Therefore, teachers' resilience (e.g.

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Beltman, Mansfield, and Price 2011) and well-being (e.g. Parsons and Vaughn 2016) need support.

One mechanism for supporting teachers lies in promoting their social, emotional and intercultural (SEI) competencies. Possessing and developing teachers' SEI competencies has proven to be extremely important, both for the teachers themselves and for those with whom they are in close contact (i.e. students). There are numerous pieces of research evidence about the importance of the teacher's role in fostering these competencies in students (Durlak 2016; Durlak and DuPre 2008), but there has been less investigation into the effects on teachers, especially as regards their well-being and the frequency and intensity of the emotional problems they experience.

Emotional competencies are intertwined with social competencies and are commonly outlined in five interrelated dimensions: self-awareness, self-management, social awareness, relationship skills and responsible decision-making (Collaborative for Academic, Social and Emotional Learning 2013). Self-awareness is the ability to recognise one's own emotions and thoughts and their influence on behaviour. Self-management is the ability to regulate one's emotions, thoughts and behaviour effectively in various situations. This includes dealing with stress, controlling impulses, self-motivation, and setting and achieving goals. Social awareness is the ability to understand others, to take the perspective of those with different backgrounds and cultures and to act with empathy and compassion. Relationship skills are defined as the ability to communicate clearly, negotiate and seek help when needed. Responsible decision-making requires the knowledge, skills and attitudes needed to make constructive choices about personal behaviour and social interactions (Durlak 2015). Social and emotional competencies (especially self-awareness and social awareness) are often referred to as crucial parts of intercultural competencies (Stier 2003). Besides these socioemotional aspects, intercultural competencies also refer to essential knowledge-based elements such as knowledge about one's own and others' cultures, discrimination and cultural conflict (Deardorff 2006). In the light of the increase in the social and diversity challenges in classrooms (which are present, for example, because of greater migration), intercultural competencies are vital to equip teachers to deal with the everyday challenges of diverse classrooms.

A review of SEI learning interventions for teachers (Nielsen et al. 2019) showed that SEI competencies are conceptualised in different research traditions and that, despite the large number of interventions, evaluation of the effects is often missing. The review also highlighted the importance of the agency of school staff during interventions, the need to consider a balance between adaptation and fidelity in the process of implementation, and the importance of addressing teachers' beliefs, emotions and abilities to navigate in the complexity of classrooms. The review was based on the catalogue of SEI interventions for teachers (Nielsen et al. 2017) that led to the development of an SEI learning intervention, formed in the framework of an EU project, HAND in HAND (Kozina 2020), which ran from 2017 to 2020 in five European countries: Croatia, Denmark, Germany, Slovenia and Sweden. The project aimed to design and test a whole-school approach for supporting the SEI competencies of everyone in schools (students, teachers, counsellors and principals). The intervention intertwined three types of activities: activities with a focus on oneself, activities focusing on the other person and activities that support the group. Self-awareness and self-management (the focus on oneself) were targeted with mindfulness-

based inner and bodily exercises. Social awareness, relationship skills and responsible decision-making (the focus on the other) were targeted with dialogue exercises. Intercultural competencies (the focus on the group) were targeted with a set of activities triggering reflections on prejudice, social justice and equality.

In the current study, we focus on self-awareness. We understand self-awareness to be a stepping stone for promoting other aspects of SEI competencies, and it was also given more attention in the HAND in HAND intervention, i.e. being included in every activity. One of the most common ways to increase self-awareness is by cultivating mindfulness (Brown and Ryan 2003). Mindfulness is defined as present moment awareness and the non-judgemental acceptance of moment-to-moment experience, and within individuals it can vary across time and situations (Brown and Ryan 2003). It is a two-dimensional construct (Bishop et al. 2004) with the dimensions of self-regulation of attention (mindful awareness) and orientation to experience (mindful acceptance). Self-regulation of attention involves the observation and awareness of thoughts, sensations and feelings from moment to moment. The second dimension represents the orientation towards one's present-moment experience, based on curiosity, openness and the non-judgement, or acceptance, of any sensations, thoughts or feelings that arise. Mindfulness techniques most frequently focus on the awareness of breathing or physical sensations in the body (e.g. body scan), through so-called inner or meditation-based exercises, and sometimes on the awareness of the body in movement (e.g. yoga, walking meditation) (Kabat-Zinn 1990), through so-called body or yoga-based exercises.

Through body exercises, physical activity on its own can have a positive effect on emotional competencies (Kangasniemi et al. 2014; Valois et al. 2008), which is also reflected in strong support (Kabat-Zinn 1990) for the argument that mindfulness is positively associated with emotional competencies and negatively with emotional problems. Furthermore, the studies reviewed in a meta-analysis (Vøllestad, Nielsen, and Nielsen 2012) indicated the important role of mindfulness in increasing mental well-being and decreasing emotional problems (Hölzel et al. 2011; Kabat-Zinn 2003). Emotional problems such as anxiety, depression and frustration affect not only the well-being of teachers (Melchior et al. 2007) but also their relationships with students in the classroom (Harding et al. 2019; Jennings and Greenberg 2009). For instance, there is a significant association between teachers' mental well-being, more specifically depression, and students' well-being (Harding et al. 2019). Since teachers are at increased risk of mental health issues when compared to other professions (Kidger et al. 2016), it is crucial to explore possible support mechanisms, such as SEI competencies and especially mindfulness.

## Current study

The study addresses three research questions:

1. Is there a change in teachers' self-reported mindfulness after the HAND in HAND SEI learning programme, when comparing the control and the intervention groups?

Since one of the aims of the activities included in the HAND in HAND SEI learning intervention was support for self-awareness, we expect an increase in mindfulness in the intervention group. As mindfulness is multidimensional (Blanke and Brose 2017), it makes

sense to investigate the possible differential increase in mindfulness components following an SEI learning programme.

2. Is there a change in teachers' self-reported emotional problems after the HAND in HAND SEI learning programme when comparing the control and the intervention groups?

The positive effects of mindfulness interventions are well documented, and benefits in emotional regulation skills (Chambers, Gullone, and Allen 2009; Robins et al. 2012), reflected in better acceptance of all emotions, both positive and negative, and more variety in coping mechanisms, are reported. We therefore expect a decrease in emotional problems in the intervention group.

3. Is the change in teachers' self-reported mindfulness associated with the change in teachers' self-reported emotional problems after the HAND in HAND SEI learning programme, when comparing the control and the intervention groups?

We argue not only that SEI learning interventions are associated with an increase in mindfulness and fewer emotional problems, but also that the change in mindfulness following an SEI learning intervention is associated with a change in reported emotional problems.

## Method

### *Research design*

This study is a part of the European Erasmus KA3+ project 'HAND in HAND: Social and Emotional Skills for Tolerant and Non-discriminative Societies', which aimed to increase the SEI competencies of students and school staff (see more in Kozina 2020). We used the randomised control group experimental design in three of the countries (Croatia, Slovenia and Sweden) that were participating in a field trial experiment of the project. Twelve schools per country that had higher proportions of at-risk students (e.g. migrants, refugees and students with low socio-economic status) participated through one class of eighth-grade students (aged 13–14 years old), their teachers and other school staff (school counsellors and principals). The principals were automatically selected with the recruitment of the schools, while school counsellors and eighth-grade teachers were recruited on a voluntary basis. Three programmes were developed: one for students, one for teachers and one for other school staff (the principal, counsellors, etc.). The programme is open-access available (HAND in HAND programme for school staff 2020), HAND in HAND programme for students 2020). The schools were randomly assigned to one of the four conditions (three schools per condition per country): (A) the control condition, completing none of the programmes; (B) completing only the programme for students; (C) completing only the programme for school staff and teachers; and (D) completing the programme for school staff, teachers and students. The assessment of programme effectiveness was conducted at three points in time: pre- and post-programme implementation, and six months after the programmes had been completed. In this study, we focused on the teachers from Slovenia and divided them into two groups, based on the participation in the programme for teachers (A+B = control group (no teacher programme); C+D = intervention group (participated in the teacher programme)) and on their pre- and post-measurements.

## Participants

The sample comprised 97 teachers from 12 Slovenian lower secondary schools. The teachers were mostly female (85.9%) and were aged from 25 to 63 ( $M = 44.5$  years,  $SD = 9.8$ ). Among them, 41 participated in the HAND in HAND programme (intervention group) and 57 did not (control group). The control group were mostly female teachers (73.1%), aged from 25 to 63 ( $M = 43.5$  years,  $SD = 9.5$ ), with 16.4 years ( $SD = 11.8$ ) of teaching experience. Likewise, the intervention group were mostly female teachers (95.1%), aged from 26 to 60 ( $M = 45.8$  years,  $SD = 10.2$ ), with 20.5 years ( $SD = 12.0$ ) of teaching experience. Only the teachers participating in both the pre- and post-measurements were included in the data analysis (14% drop-out rate; 1 teacher in the intervention group and 15 in the control group).

## Instruments

The measurement battery comprised questionnaires tapping the SEI competencies of the teachers. We also collected their demographic characteristics and inquired about their classroom activities and classroom climate. For the purposes of this study, we only present data for the selected measures. The original scales were translated into Slovenian in a double-blind translation process.

*The Kentucky Inventory of Mindfulness Skills* (KIMS) is a multidimensional self-reported inventory that assesses four mindfulness skills: Observe, Describe, Act with awareness and Accept without judgement (Baer et al. 2004). The participants reported the extent to which the statements described their behaviour, on a 5-point Likert scale (1 – *Never or rarely ever true*, 5 – *Very often or always true*). Observe measures the inclination to be vigilant towards internal and external sensations. Describe assesses the ability to communicate experiences. Act with awareness includes the ability to be fully present in the moment and engage in activities. Accept without judgement assesses the ability to perceive things without further analysis or judgement. The reliability and validity of the original instrument have been well documented (Galla et al. 2012). After the pilot study (see more in Vieluf, Rožman, and Roczen 2020), we shortened two of the scales used in the field trials: those for Describe (from 8 to 7 items) and Observe (from 12 to 7 items). Cronbach's alphas in our study ranged from .81 to .90 in the pre-test and from .80 to .90 in the post-test.

*The Strengths and Difficulties Questionnaire* (SDQ; Goodman, Meltzer, and Bailey 1998) is used to measure, for adolescents of 11 years and above, self-reported problems with conduct, emotions, peer relations, prosocial behaviours and hyperactivity. Of the questionnaire's 25 attributes, 10 are classified as strengths, 14 as difficulties, and one statement is deemed neutral. From the five subscales, we used the emotional problems scale (with statements such as 'I am often unhappy, depressed or tearful'), which consists of 7 items. The original response categories were on a 3-point scale (0 – *Not true*, 2 – *Certainly true*). We asked the teachers to assess the extent to which they agreed with the statements on a 5-point Likert scale (1 – *Strongly disagree*, 5 – *Strongly agree*). The reliability and validity of the original instrument have been well documented (Roy, Betty, and Clench-Aas 2008). Cronbach's alpha in our study was .90 in the pre- and post-test.

*HAND in HAND intervention for school staff* is a programme for teachers (Jensen et al. 2020) consisting of a set of learning activities that aim to increase the SEI competencies and the relational competence of teachers. The activities present a combination of self-focused activities, other-focused activities and group activities. The programme has four modules: two modules lasting two days and two modules each lasting one day (six days altogether).

### Procedure

In Slovenia, the *HAND in HAND intervention for school staff* was delivered over the course of four months in 2018, two days in August (module 1), two days in October (module 2), one day in November (module 3) and one day in December (module 4), by two researchers with previous experience in working with teachers. The intervention leaders both underwent the training in delivering the programme in the framework of the HAND in HAND project. The intervention took place outside school hours (in the afternoons, on weekends and in the period before the beginning of the school year), and on out-of-school locations. In August 2018 (pre-test) and December 2018 (post-test), the teachers, principals and school counsellors completed an online version of the questionnaire. The pre-test took place a week before the start of the HAND in HAND intervention and the post-test took place a week after the finalisation of the HAND in HAND intervention. The participants received a link via email to the questionnaire (platform: 1 ka) from the school coordinator, who also took care of the research codes assigned to all participants. The research design and data collection followed the ethical guidelines of the Slovenian Psychological Association. Informed consent of all included participants was obtained after getting the school's consent to participate in the study. All participants were informed about the voluntary nature and their right to end their participation at any time. Personal information was not collected at any stage. The schools in the control group were invited for the shorter version of the HAND in HAND intervention after the finalisation of the project in January 2020.

### Data analysis

The data have a multilevel structure with teachers being nested within schools. This is important to consider in the analysis, because teachers within the same school share unobserved characteristics that might influence our results. Because of the small sample sizes at the school level, it was impossible to use multilevel modelling. According to Maas and Hox (2005), multilevel modelling requires at least 20 cases on the highest level, but we only had 12 schools in all groups. Therefore, we just analysed the effects at the individual level, while accounting for the multilevel structure of the data by correcting the standard errors for clustering at the school level. Accordingly, we used linear regression analyses of the teacher data to allow us to predict changes in the outcome variables with treatment assignments at the individual level. We used linear regressions of the following form:

$$\Delta Emotional Problems_i = \beta_0 + \beta_1 * exp_i + \beta_2 * \Delta Mindfulness_i + \beta_3 * exp_i * \Delta Mindfulness_i + u_i$$



where  $\Delta EmotionalProblems_i$  and  $\Delta Mindfulness_i$  are teacher  $i$ 's changes in  $EmotionalProblems_i$  and  $Mindfulness_i$  between the two time points (pre- and post-test).  $EmotionalProblems_i$  captures the scale score for teacher  $i$  at a point in time, computed as the arithmetic mean of the responses of teacher  $i$  to the items measuring this construct. Similarly,  $Mindfulness_i$  captures the scale score for teacher  $i$  at a point in time, computed as the arithmetic mean of the response of teacher  $i$  to the items measuring one of the following constructs: Observe, Describe, Act with awareness and Accept without judgement.  $EmotionalProblems_i$  and  $Mindfulness_i$  were only computed for teachers with valid responses for at least half of the items on the scale. Further,  $\Delta EmotionalProblems_i$  and  $\Delta Mindfulness_i$  represent the difference in the score for teacher  $i$  in a certain outcome variable before and after the intervention (i.e. scale score T2 – scale score T1). These differences were used as the dependent and independent variables in the regression analysis. Another independent variable was an indicator to reflect the experimental condition:  $exp_i$  indicates whether teacher  $i$  was participating in the HAND in HAND intervention. The baseline or the comparison group was the control group. All statistical analyses – the descriptive analysis and the analyses used for scale construction – were carried out with IBM SPSS Statistics Version 22 for Windows (IBM Corporation 2013). We performed all regression analyses using the R statistical programming environment (RStudio Team 2015) and corrected the standard errors for clustering in all analyses.

## Results

In the study, we address three research questions. We begin this section by presenting descriptive statistics of the variables used. We present the results for the first and the second research questions and, finally, the results from analysis focusing on the third research question.

In Table 1, we present the mean and standard deviation of the scale scores for the emotional problems and mindfulness scales, separately for the experimental and control groups by time point. The highest scale score in both groups in T1 and T2 was found for Mindfulness: Observe scale and the lowest for the scale Emotional Problems.

In Table 2, we present the mean, standard deviation, minimum and maximum value, skewness and kurtosis of the difference scores for the emotional problems and mindfulness scales, separately for the experimental and control groups. A positive value of the

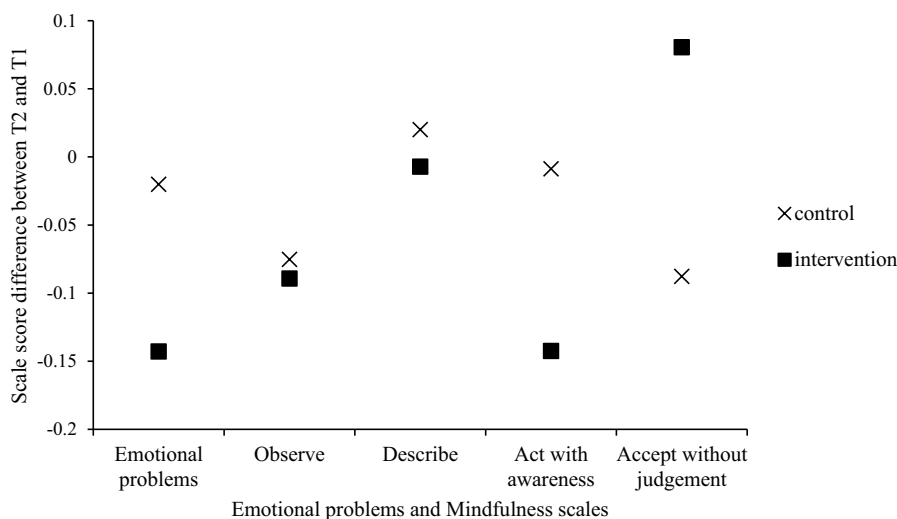
**Table 1.** Descriptive statistics of the scale scores for the emotional problems and mindfulness scales in both groups (intervention and control) for both time points.

Scale	$M_{t1}$	$SD_{t1}$	$M_{t2}$	$SD_{t2}$
Experimental (N = 40)				
Mindfulness: Observe	3.91	0.66	3.83	0.57
Mindfulness: Describe	3.58	0.64	3.57	0.59
Mindfulness: Accept without judgement	3.18	0.72	3.26	0.71
Mindfulness: Act with awareness	3.34	0.52	3.20	0.54
Emotional Problems	2.70	0.81	2.56	0.74
Control (N = 57)				
Mindfulness: Observe	3.80	0.62	3.73	0.69
Mindfulness: Describe	3.69	0.64	3.71	0.59
Mindfulness: Accept without judgement	3.63	0.66	3.54	0.70
Mindfulness: Act with awareness	3.45	0.42	3.44	0.44
Emotional Problems	2.29	0.68	2.27	0.79



**Table 2.** Descriptive statistics of the difference scores for the emotional problems and mindfulness scales in both groups (intervention and control).

Scale	Min	Max	<i>M</i>	<i>SD</i>	Skew	Kurt
Intervention group ( <i>N</i> = 40)						
Δ Mindfulness: Observe	−1.29	0.86	−0.09	0.45	−0.21	0.30
Δ Mindfulness: Describe	−1.43	1.43	−0.01	0.60	0.07	0.07
Δ Mindfulness: Accept without judgement	−1.89	1.44	0.08	0.62	−0.37	1.86
Δ Mindfulness: Act with awareness	−1.70	1.30	−0.14	0.52	−0.58	2.31
Δ Emotional problems	−1.14	2.43	−0.14	0.63	1.77	6.43
Control group ( <i>N</i> = 57)						
Δ Mindfulness: Observe	−2.14	1.29	−0.08	0.63	−0.33	1.26
Δ Mindfulness: Describe	−1.43	1.14	0.02	0.53	−0.04	0.10
Δ Mindfulness: Accept without judgement	−1.22	0.89	−0.09	0.51	−0.39	−0.45
Δ Mindfulness: Act with awareness	−1.10	0.90	−0.01	0.38	−0.40	1.20
Δ Emotional problems	−1.00	1.29	−0.02	0.45	0.32	0.41

**Figure 1.** Average scale score difference between post-test measurement and pre-test measurement per group for mindfulness scales and emotional problems.

difference score represents an increase in the scale score at T2 compared to T1 and a negative value represents a decrease. In the experimental group, the smallest change is observed for Mindfulness: Describe and the largest decreases are observed for Mindfulness: Act with awareness and Emotional problems. In the control group, the change is the smallest for the Mindfulness scales Describe and Act with awareness. The largest decreases are observed for the Mindfulness scales Observe and Accept without judgement.

The first and second research questions deal with the change in teachers' self-reported Mindfulness and Emotional problems after the HAND in HAND SEI learning programme. In Figure 1, we present the mean differences between the two time points for the variables of interest by intervention status (i.e. whether or not the teachers participated in the HAND in HAND intervention). The greatest average change between the control group and the experimental group is observed for Emotional problems and the Mindfulness scales Act with awareness and Accept without judgement. While the perceived Emotional

problems did not change in the control group, the teachers from the intervention group report fewer Emotional problems in T2 compared to T1. Further, Mindfulness: Act with awareness did not change in the control group, but we observe a decrease in the intervention group. For Mindfulness: Accept without judgement, we observe a decrease in the control group and an increase in the intervention group. However, the differences between the control and intervention groups are not significant for any construct (Emotional problems:  $t = -1.09$ ;  $p = 0.28$ ; Observe:  $t = -0.16$ ;  $p = 0.88$ ; Describe:  $t = -0.23$ ;  $p = 0.82$ ; Act with awareness:  $t = -1.88$ ;  $p = 0.06$ ; Accept without judgement:  $t = 1.64$ ;  $p = 0.10$ ).

In the third research question, we aim to investigate whether a change in teachers' self-reported Mindfulness is associated with a change in teachers' reported Emotional problems after the HAND in HAND SEI learning programme. The aim of the intervention was to support the mindfulness dimensions. As we have already seen, an increase in one mindfulness dimension, namely Accept without judgement, was found in the intervention group. In addition, the teachers from the intervention group reported a decrease in Emotional problems. We wanted to investigate, additionally, whether these two changes are connected and can be interpreted as being a result of the intervention.

In Table 3, we present the results from separate regressions, each of which uses a different component of mindfulness as the independent variable. The results for the mindfulness scales Observe and Describe suggest no significant association between the change in Emotional problems and the change in Observe and Describe in any of the groups. The change in Observe and Describe is similar for teachers in both groups. These results reflect the unconditional mean differences presented in Figure 1, from which we can see that these do not differ between the intervention and the control groups. Although the differences between the treatment groups for the mindfulness scales Act with awareness and Accept without judgement were not significant, we can observe some differences in the

**Table 3.** Results from regression analyses: the predictive value of emotional problems for mindfulness scales.

	Estimate	SE	<i>t</i>	Pr(>  <i>t</i>  )	
Mindfulness: Observe					
Intercept	-0.02	0.06	-0.34	0.733	
Exp	-0.13	0.12	-1.09	0.280	
Δ Mindfulness: Observe	-0.03	0.11	-0.23	0.816	
Exp*Δ Mindfulness: Observe	-0.04	0.17	-0.26	0.792	
Mindfulness: Describe					
Intercept	-0.02	0.06	-0.3	0.763	
Exp	-0.12	0.12	-1.03	0.304	
Δ Mindfulness: Describe	-0.03	0.15	-0.24	0.814	
Exp*Δ Mindfulness: Describe	-0.10	0.22	-0.46	0.646	
Mindfulness: Act with awareness					
Intercept	-0.03	0.05	-0.46	0.643	
Exp	-0.22	0.07	-2.94	0.004	**
Δ Mindfulness: Act with awareness	-0.57	0.08	-7.1	0.000	***
Exp*Δ Mindfulness: Act with awareness	-0.12	0.25	-0.49	0.623	
Mindfulness: Accept without judgement					
Intercept	-0.01	0.06	-0.22	0.826	
Exp	-0.09	0.11	-0.86	0.392	
Δ Mindfulness: Accept without judgement	0.07	0.08	0.87	0.386	
Exp*Δ Mindfulness: Accept without judgement	-0.54	0.14	-3.83	0.000	***

unconditional means (see [Figure 1](#)). The difference in Accept without judgement goes in the expected direction: in the intervention group, the scale score difference is positive, indicating an improvement in the construct. From the regression results presented in [Table 3](#), we can see that the effect of Accept without judgement on Emotional problems is significantly different for the intervention group in comparison to the control group ( $t = -3.83$ ,  $p = 0.00$ ). From the coefficient and its direction, we can see that a positive change in Accept without judgement is associated with a negative change in Emotional problems. In other words, in the intervention group, an increase in Accept without judgement is associated with a decrease in Emotional problems.

From the regression analysis presented in [Table 3](#), we can also see that there was a significant change in Act with awareness for the control group, conditional on the other included variables ( $t = -7.10$ ,  $p = 0.00$ ). In addition, we can see that a positive change in this variable is associated with a negative change in the outcome of interest for the control group. This effect is not significantly different in the intervention group ( $t = -0.49$ ,  $p = 0.62$ ). We can therefore conclude that an increase in Act with awareness was associated with a decrease in Emotional problems, but that this effect did not differ between the control group and the intervention group.

## Discussion

In the study, we focused on the change in mindfulness and emotional problems in teachers who were part of the HAND in HAND project (Kozina 2020), in either the intervention or the control condition, with the assumption that mindfulness would increase and emotional problems would decrease in the intervention group compared to the control group and that these two changes would be significantly associated.

In the first research question, we investigated the change in teachers' self-reported mindfulness components after the intervention, when comparing the intervention and the control groups. Contrary to our expectations, the results show that the pre- and post-measurement changes do not vary significantly between the control and the intervention groups. Mindfulness-based activities were included in each of the modules of the intervention as a combination of inner and body-based activities. One of the reasons for not detecting a significant difference in the changes in the teachers' self-reported mindfulness between the groups could be the length of the intervention. It was in fact a six-day intervention, but self-awareness was only one of the focuses, albeit a strong one; self-awareness did not receive as much attention as it would have done in an intervention more explicitly based on mindfulness. In fact, mindfulness-based research shows promising effects, but the interventions in the research solely targeted mindfulness (Virgili 2015). The mindfulness interventions are usually standard eight-week interventions (mindfulness-based stress reduction, Kabat-Zinn 1990), even though the shorter versions also report significant improvement in mindfulness and the duration does not seem to play a significant role (Virgili 2015). We do, however, see ([Figure 1](#)) that the difference between the groups is largest in Act with awareness and Accept without judgement. Act with awareness decreased after the intervention in both groups, more evidently in the intervention group. One could guess that the decrease was due to higher self-awareness, such as a more precise evaluation of one's behaviour, feelings and thoughts, after the

intervention. Accept without judgement did, however, increase more in the intervention group than in the control group, indicating the expected increase in mindfulness after the intervention. The findings are only indicative and would need to be replicated in larger samples and with more focus on an intervention that was based on mindfulness. It is, however, unusual for two different components of mindfulness to behave differently after a social, emotional and intercultural intervention, implying possible different mechanisms underlying these two dimensions.

Similarly, in the second research question, we were looking into a change in teachers' self-reported emotional problems after the social, emotional and intercultural learning intervention, when comparing the intervention and the control groups. Again, contrary to our expectations, we found that the pre- and post-measurement changes do not differ significantly between the control and the intervention groups. Despite the evidence from the literature (Harding et al. 2019; Jennings and Greenberg 2009) on the positive effects of social and emotional interventions on reported emotional problems, these effects were not supported in our study. Emotional problems decreased in both groups, with a stronger decrease in the intervention group, but this did not reach the level of statistical significance. In addition to the possibility of the intervention not being effective enough (e.g. regarding its length or its content) there could also be the effect of the school year (e.g. the changes in classroom climate through the school year) or, possibly, similar activities going on in the control groups (e.g. the control groups were involved in their regular school life, which could also have included similar programmes of which we were not aware). Additionally, one of the reasons for non-significant effects can be the measurement. For instance, Nielsen et al. (2019), in their review of SEI interventions focusing on teachers, pointed out methodological concerns, especially in regard to the psychometric measures not being sensitive enough to catch the subtle changes related to the SEI competencies of teachers. Nevertheless, the added value of the current methodology is a multidimensional assessment of mindfulness, even though other measures show better measurement properties. The difficulties reported in the literature (Trapnell and Campbell 1999; Watkins and Teasdale 2004) mostly concern the Observe scale, and more specifically that it measures both constructive self-observation (experiential self-focus) and non-constructive self-observation (analytical self-focus) and may be dependent on experience in meditation (for example, the effects of the intervention could be different for someone who is experiencing meditation for the first time and someone who is already experienced in meditation (Baer et al. 2004)). The effect of meditation experience is worth exploring in future studies in combination with the use of mindfulness scales improved in other ways.

Further, we were interested in whether the change in mindfulness was associated with the change in emotional problems in both groups. We hypothesised that an increase in mindfulness would be associated with decreased levels of reported emotional problems. We took a look at all the components of mindfulness separately. There was a significant association in the expected direction between the change in one mindfulness component and a change in emotional problems, when comparing the intervention and the control groups. The increase in Accept without judgement was significantly associated with lower levels of emotional problems in the intervention group. Even though we did not find the significant effects separately for mindfulness and emotional problems when comparing the intervention and the control groups, we can see a significant association between an

increase in Accept without judgement and a decrease in emotional problems. The teachers who reported an improvement in their skill of accepting their feelings and thoughts without judgement also reported having fewer emotional problems. The same also works in the other direction: the teachers who reported a decrease in their skill of accepting also reported more emotional problems. Here, we can see how important this specific mindfulness skill is for experiencing emotional problems. The mechanism underlying this association that is worth exploring further is rumination. Rumination is a tendency to engage in sustained, repetitive thinking about negative topics, usually past negative events (Mandell et al. 2014), and it plays an important role in depressive and anxious feelings (Nolen-Hoeksema 2000). Rumination should be lowered when mindfulness (i.e. the acceptance of all feelings) is practised (Campbell et al. 2012). The first step in emotional regulation is being aware, as well as accepting all varieties of emotions, pleasant and unpleasant (Gross and Muñoz 1995). When looking at the dimensional level of mindfulness, Accept without judgement falls into orientation to experience (mindful acceptance), which represents orientation towards one's present-moment experience based on curiosity, openness and non-judgement or acceptance of any sensations, thoughts or feelings that arise (Bishop et al. 2004). The activities in the HAND in HAND intervention that promote acceptance are (a) self-focused activities (inner and body-based mindfulness techniques) and (b) other-focused activities (the dialogues). While the self-focused activities supported awareness, recognition and acceptance, acceptance was further enhanced in the dialogues. For instance, the themes reflected upon in the dialogues were the challenges and difficult emotions faced in specific professional situations. These situations helped to normalise the variety of emotions felt, and also the possible ways to recognise and regulate them.

Another component of mindfulness for which the difference was significantly associated with a change in Emotional problems was Act with awareness. There was a significant association between Emotional problems and the Act with awareness component, but this was found in both groups, intervention and control, and so cannot be interpreted as an effect of the intervention. However, it does indicate the importance of mindful awareness when preventing emotional problems. We did, however, expect to find a significant association between an increase in all components of mindfulness and a decrease in emotional problems. Research, for instance, shows that mindful description, acting with awareness and non-judgemental acceptance are associated with less social anxiety and less distress contagion (Dekeyser et al. 2008). Nevertheless, our findings point to the importance of addressing mindfulness at component level, which we will also consider in future studies.

Several challenges limit our findings. Even though the study was carefully planned and designed, the intervention used a small sample size per country, which limits our conclusions and does not allow multilevel analyses. The small sample size can be a reason why significant effects of the intervention were not detected. Additionally, we need to point out that the changes targeted with a social, emotional and intercultural intervention are very subtle and often very difficult to measure (for more information, see Nielsen et al. 2019). For instance, in the focus group interviews used in the evaluation of the HAND in HAND intervention, the teachers listed many positive effects experienced during and after the intervention (Vieluf, Rožman, and Roczen 2020). Based on our experiences, we would stress that the holistic approach to designing an intervention that targets social, emotional and intercultural

competencies is an added value that also presents a challenge on how to measure its effects. The open question remains, too, about whether sufficient time was devoted to every competence, such as, in the case of the current study, how to deal with emotional problems.

Even with these limitations, our findings support the need to invest in promoting social, emotional and intercultural interventions for teachers. When trying to address the emotional problems facing teachers, our study found that mindful acceptance seems to be especially important. In future intervention studies, we would advise that the measurement instruments be carefully selected, and that extra care is taken about activities in the control schools in order to detect the potential difference due to the intervention. Larger and more representative samples should also be included. This could be a way forward to create classroom environments in which all teachers and students feel safe.

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## Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## References

- Baer, R., A. Gregory, T. Smith, and B. A. Kristin. 2004. "Assessment of Mindfulness by Self-Report: The Kentucky Inventory of Mindfulness Skills." *Assessment* 11 (3): 191–206. <https://doi.org/10.1177/1073191104268029>.
- Beltman, S., C. Mansfield, and A. Price. 2011. "Thriving Not Just Surviving: A Review of Research on Teacher Resilience." *Educational Research Review* 6 (3): 185–207. <https://doi.org/10.1016/j.edurev.2011.09.001>.
- Bishop, S. R., M. Lau, S. Shapiro, L. Carlson, N. D. Anderson, J. Carmody, Z. V. Segal, et al. 2004. "Mindfulness: A Proposed Operational Definition." *Clinical Psychology Science & Practice* 11 (3): 230–241. <https://doi.org/10.1093/clipsy.bph077>.
- Blanke, E. S., and A. Brose. 2017. "Mindfulness in Daily Life: A Multidimensional Approach." *Mindfulness* 8 (3): 737–750. <https://doi.org/10.1007/s12671-016-0651-4>.
- Brown, K. W., and R. M. Ryan. 2003. "The Benefits of Being Present: Mindfulness and its Role in Psychological Well-Being." *Journal of Personality & Social Psychology* 84 (4): 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>.
- Campbell, T. S., L. E. Labelle, S. L. Bacon, P. Faris, and L. E. Carlson. 2012. "Impact of Mindfulness-Based Stress Reduction (MBSR) on Attention, Rumination and Resting Blood Pressure in Women with Cancer: A Aitlist-Controlled Study." *Journal of Behavioral Medicine* 35 (3): 262–271. <https://doi.org/10.1007/s10865-011-9357-1>.
- Chambers, R., E. Gullone, and N. B. Allen. 2009. "Mindful Emotion Regulation: An Integrative Review." *Clinical Psychology Review* 29 (6): 560–572. <https://doi.org/10.1016/j.cpr.2009.06.005>.
- Collaborative for Academic, Social and Emotional Learning. 2013. *The 2013 CASEL Guide: Effective Social and Emotional Learning Programs – Preschool and Elementary School Edition*. Chicago: Collaborative for Academic, Social and Emotional Learning.
- Collie, R. J. 2021. "COVID-19 and Teachers' Somatic Burden, Stress, and Emotional Exhaustion: Examining the Role of Principal Leadership and Workplace Buoyancy." *AERA Open* 7:2332858420986187. <https://doi.org/10.1177/2332858420986187>.
- Council of the EU. 2014. "Council Conclusions of 20 May 2014 on Effective Teacher Education. (2014/ C 183/05)."
- Deardorff, D. K. 2006. "Identification and Assessment of Intercultural Competence as a Student Outcome of Internationalization." *Journal of Studies in International Education* 10 (3): 241–266. <https://doi.org/10.1177/1028315306287002>.
- Dekeyser, M., R. Filip, M. Leijssen, S. Leysen, and D. Dewulf. 2008. "Mindfulness Skills and Interpersonal Behaviour." *Personality & Individual Differences* 44 (5): 1235–1245. <https://doi.org/10.1016/j.paid.2007.11.018>.
- Durlak, J. A., ed. 2015. *Handbook of Social and Emotional Learning: Research and Practice*. New York: Guilford Publications.
- Durlak, J. A. 2016. "Programme Implementation in Social and Emotional Learning: Basic Issues and Research Findings." *Cambridge Journal of Education* 46 (3): 333–345. <https://doi.org/10.1080/0305764X.2016.1142504>.
- Durlak, J. A., and E. P. DuPre. 2008. "Implementation Matters: A Review of Research on the Influence of Implementation on Program Outcomes and the Factors Affecting Implementation." *American Journal of Community Psychology* 41 (3–4): 327–350. <https://doi.org/10.1007/s10464-008-9165-0>.
- Galla, B. M., S. T. Hale, A. Shrestha, S. K. Loo, and S. L. Smalley. 2012. "The Disciplined Mind: Associations Between the Kentucky Inventory of Mindfulness Skills and Attention Control." *Mindfulness* 3 (2): 95–103. <https://doi.org/10.1007/s12671-011-0083-0>.



- Goodman, R., H. Meltzer, and V. Bailey. 1998. "The Strengths and Difficulties Questionnaire: A Pilot Study on the Validity of the Self-Report Version." *International Review of Psychiatry* 15 (1–2): 173–177. <https://doi.org/10.1080/0954026021000046137>.
- Gross, J. J., and R. F. Muñoz. 1995. "Emotion Regulation and Mental Health." *Clinical Psychology Science & Practice* 2 (2): 151–164. <https://doi.org/10.1111/j.1468-2850.1995.tb00036.x>.
- HAND in HAND programme for school staff. 2020. <https://2017-20.handinhand.si/programme-school-staff/>.
- HAND in HAND programme for students. 2020. <https://2017-20.handinhand.si/programme-students/>.
- Harding, S., R. Morris, D. Gunnell, T. J. Ford, W. Hollingworth, K. Tilling, R. Evans, et al. 2019. "Is Teachers' Mental Health and Wellbeing Associated with Students' Mental Health and Wellbeing?" *Journal of Affective Disorders* 242:180–187. <https://doi.org/10.1016/j.jad.2018.08.080>.
- Hölzel, B. K., S. W. Lazar, T. Gard, Z. Schuman-Olivier, D. R. Vago, and U. Ott. 2011. "How Does Mindfulness Meditation Work? Proposing Mechanisms of Action From a Conceptual and Neural Perspective." *Perspectives on Psychological Science* 6 (6): 537–559. <https://doi.org/10.1177/1745691611419671>.
- IBM Corporation. 2013. "IBM SPSS Statistics for Windows, Version 22.0." IBM Corp.
- Jennings, P. A., and M. T. Greenberg. 2009. "The Prosocial Classroom: Teacher Social and Emotional Competence in Relation to Student and Classroom Outcomes." *Review of Educational Research* 79 (1): 491–525. <https://doi.org/10.3102/0034654308325693>.
- Jensen, H., K. Gøtzsche, L. Andersen Réol, H. Dyrborg Laursen, B. Lund Nielsen, A. Denk, A. Kozina, et al. 2020. "School Staff Training – Teachers: Hand in Hand." [http://handinhand.si/wp-content/uploads/2020/01/Manual\\_school\\_staff\\_teachers.pdf](http://handinhand.si/wp-content/uploads/2020/01/Manual_school_staff_teachers.pdf).
- Kabat-Zinn, J. 1990. *Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness*. New York: Bantam Doubleday Dell.
- Kabat-Zinn, J. 2003. "Mindfulness-Based Interventions in Context: Past, Present, and Future." *Clinical Psychology Science & Practice* 10 (2): 144–156. <https://doi.org/10.1093/clipsy/bpg016>.
- Kangasniemi, A., R. Lappalainen, A. Kankaanpää, and T. Tammelin. 2014. "Mindfulness Skills, Psychological Flexibility, and Psychological Symptoms Among Physically Less Active and Active Adults." *Mental Health and Physical Activity* 7 (3): 121–127. <https://doi.org/10.1016/j.mhpa.2014.06.005>.
- Kidger, J., R. Brockman, K. Tilling, R. Campbell, T. Ford, R. Araya, M. King, and D. Gunnell. 2016. "Teachers' Wellbeing and Depressive Symptoms, and Associated Risk Factors: A Large Cross Sectional Study in English Secondary Schools." *Journal of Affective Disorders* 192:76–82. <https://doi.org/10.1016/j.jad.2015.11.054>.
- Kozina, A. 2020. *Social, Emotional, and Intercultural Competencies for Inclusive School Environments Across Europe: Relationships Matter*. Verlag Dr. Kovač. <https://www.verlagdrkovac.de/volltexte/978-3-339-11406-8.htm>.
- Maas, C. J. M., and J. Hox. 2005. "Sufficient Sample Sizes for Multilevel Modeling." *Methodology* 1 (3): 86–92. <https://doi.org/10.1027/1614-2241.1.3.86>.
- Malm, B. 2009. "Towards a New Professionalism: Enhancing Personal and Professional Development in Teacher Education." *Journal of Education for Teaching* 35 (1): 77–91. <https://doi.org/10.1080/02607470802587160>.
- Mandell, D., G. J. Siegle, L. Shutt, J. Feldmiller, and M. E. Thase. 2014. "Neural Substrates of Trait Ruminations in Depression." *Journal of Abnormal Psychology* 123 (1): 35. <https://doi.org/10.1037/a0035834>.
- Melchior, M., A. Caspi, B. J. Milne, A. Danese, R. Poulton, and T. E. Moffitt. 2007. "Work Stress Precipitates Depression and Anxiety in Young, Working Women and Men." *Psychological Medicine* 37 (8): 1119–1129. <https://doi.org/10.1017/S0033291707000414>.
- Nielsen, B. L., L. R. Andersen, H. L. Dyrborg, A. Kozina, T. Vršnik Perše, C. Sälzer, M. Oskarsson, et al. 2017. "SEI Programmes for School Staff: A Review Catalogue: Hand in Hand." [http://handinhand.si/wp-content/uploads/2018/01/D11\\_HAND\\_SEI-programmes-for-school-staff\\_CATALOGUE.pdf](http://handinhand.si/wp-content/uploads/2018/01/D11_HAND_SEI-programmes-for-school-staff_CATALOGUE.pdf).
- Nielsen, B. L., H. D. Laursen, L. A. Reol, H. Jensen, A. Kozina, M. Vidmar, M. Rassmuson, et al. 2019. "Social, Emotional and Intercultural Competencies: A Literature Review with a Particular Focus on

- the School Staff." *European Journal of Teacher Education* 42 (3): 410–428. <https://doi.org/10.1080/02619768.2019.1604670>.
- Nolen-Hoeksema, S. 2000. "The Role of Rumination in Depressive Disorders and Mixed Anxiety/Depressive Symptoms." *Journal of Abnormal Psychology* 109 (3): 504–511. <https://doi.org/10.1037/0021-843X.109.3.504>.
- Parsons, S. A., and M. Vaughn. 2016. "Toward Adaptability: Where to From Here?" *Theory into Practice* 55 (3): 267–274. <https://doi.org/10.1080/00405841.2016.1173998>.
- Robins, C. J., S.-L. Keng, A. G. Ekblad, and J. G. Brantley. 2012. "Effects of Mindfulness-Based Stress Reduction on Emotional Experience and Expression: A Randomized Controlled Trial." *Journal of Clinical Psychology* 68 (1): 117–131. <https://doi.org/10.1002/jclp.20857>.
- Roy, V., M. V. Betty, and J. Clench-Aas. 2008. "Construct Validity of the Five-Factor Strengths and Difficulties Questionnaire (SDQ) in Pre-, Early, and Late Adolescence." *Journal of Child Psychology and Psychiatry* 49 (12): 1304–1312. <https://doi.org/10.1111/j.1469-7610.2008.01942.x>.
- RStudio Team. 2015. "RStudio: Integrated Development for R." RStudio, Inc. <http://www.rstudio.com/>.
- Stier, J. 2003. "Internationalisation, Ethnic Diversity and the Acquisition of Intercultural Competencies." *Intercultural Education* 14 (1): 77–91. <https://doi.org/10.1080/1467598032000044674>.
- Trapnell, P. D., and J. D. Campbell. 1999. "Private Self-Consciousness and the Five-Factor Model of Personality: Distinguishing Rumination From Reflection." *Journal of Personality & Social Psychology* 76 (2): 284–304. <https://doi.org/10.1037/0022-3514.76.2.284>.
- Valois, R. F., R. M. Umstattd, K. J. Zullig, and R. J. Paxton. 2008. "Physical Activity Behaviors and Emotional Self-Efficacy: Is there a Relationship for Adolescents?" *The Journal of School Health* 78 (6): 321–327. <https://doi.org/10.1111/j.1746-1561.2008.00309.x>.
- Vieluf, S., M. Rožman, and N. Roczen. 2020. *The HAND in HAND Programme Evaluation Report*. [http://handinhand.si/wpcontent/uploads/2020/06/EVALUATION\\_REPORT\\_final\\_version.pdf](http://handinhand.si/wpcontent/uploads/2020/06/EVALUATION_REPORT_final_version.pdf).
- Virgili, M. 2015. "Mindfulness-Based Interventions Reduce Psychological Distress in Working Adults: A Meta-Analysis of Intervention Studies." *Mindfulness* 6 (2): 326–337. <https://doi.org/10.1007/s12671-013-0264-0>.
- Vøllestad, J., M. B. Nielsen, and G. Nielsen. 2012. "Mindfulness- and Acceptance-Based Interventions for Anxiety Disorders: A Systematic Review and Meta-Analysis." *British Journal of Clinical Psychology* 51 (3): 239–260. <https://doi.org/10.1111/j.2044-8260.2011.02024.x>.
- Watkins, E., and J. D. Teasdale. 2004. "Adaptive and Maladaptive Self-Focus in Depression." *Journal of Affective Disorders* 82 (1): 1–8. <https://doi.org/10.1016/j.jad.2003.10.006>.