The Effects of Mindfulness on Teachers' Self-Efficacy in Primary Education

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Abstract

There is accumulating evidence that teachers' sense of self-efficacy affects students on various levels, such as their well-being, motivation and own self-efficacy. Looking, therefore, at ways to increase teachers' self-efficacy is one possible way to counteract the growing stress levels among teachers and their students. Mindfulness has been shown to affect well-being and emotion regulation strategies, which both in turn affect self-efficacy. Therefore, this study investigates the association between mindfulness, well-being, emotion-regulation, and teachers' self-efficacy, and whether mindfulness directly affects teachers' sense of self-efficacy. A cross-sectional online questionnaire was employed to a sample of 22 Dutch primary school teachers. Correlations between mindfulness and teachers' sense of self-efficacy showed no statistically significant association (r (20) = -.005, p = .491). Multiple Regression Analysis sustained the correlational results with F (4, 17) = 3.380, p <.05). Not met assumptions, low power, and insufficient data regarding the well-being questionnaire call for caution regarding the generalizability of the results. Conclusively, the cultivation of mindfulness alone is not sufficient for enhancing teacher's sense of self-efficacy. A more holistic approach could be investigated by further research to help to find adequate strategies for enhancing the sense of self-efficacy among primary school teachers.

Keywords: Teachers Sense of Self-Efficacy, Mindfulness, Emotion Regulation, Well-Being

Content

Introduction

Influences of Teachers on their Students

Teachers impact their students on various levels within the interaction in the classroom, one of these being the overall well-being. According to Keyes and Waterman (2003), individuals' well-being includes the experience of positive feelings and the subsequent emotional well-being, positive functioning and psychological well-being, and social well-being. Jennings and colleagues (2019) have found that poor well-being amongst teachers leads to poor well-being in their students due to their shared interaction. Knowing that teaching is a highly stressful occupation where the consequences can be burnout, physical and emotional distress (Mearns & Cain, 2003), insights should be gained into what reduces stress among teachers and their students, therefore attention must be paid to potential coping strategies for teachers and their students.

Through former research, it has been shown that teachers significantly impact their students, their well-being, and their academic achievements (Jennings et al., 2019). However, to positively impact their students', teachers require self-efficacy in teaching itself, amongst other important factors (Ashton & Webb, 1986; Midgley et al.,1989; Moore & Esselman, 1992; Ross, 1992). Therefore, it is essential to investigate the underlying mechanism to enhance self-efficacy among teachers to have a positive impact on their students.

Teachers' self-efficacy has been shown to affect students' self-efficacy and attitudes (Anderson et al., 1988; Cheung & Cheng, 1997), their motivation, and academic achievement (Ashton & Webb, 1986; Midgley et al.,1989; Moore & Esselman, 1992; Ross, 1992), teachers' goals and aspirations (Muijs & Reynolds, 2002) and their attitudes towards innovation and change (Fuchs, & Bishop, 1992; Guskey, 1988) in secondary schools. A

teachers' self-efficacy is composed of the belief that they are capable of teaching students in such a manner that the desired outcomes are accomplished through the students' engagement and learning, including those students who are problematic and or unmotivated (Armor et al., 1976; Bandura, 1977). Looking, therefore, at ways to increase teachers' self-efficacy is one possible way to counteract the growing stress levels among teachers and their students.

Benefits of Mindfulness

Mindfulness has shown to be a powerful coping strategy, especially regarding stress and the subsequent mental health problems (Bergsma et al., 2012). Even the enrichment of well-being and emotion regulation often goes hand in hand with mindfulness practice (Jennings et al., 2019). Emotion regulation is the capacity to control one's own emotions and carry different strategies to influence which emotions one has and when to have them (Gross, 1998). Two of these strategies are cognitive reappraisal, defined as a strategy where present or future situations are reappraised so that the emotional impact is changed, and emotion suppression is defined as a strategy where the expressive or emotional reaction is not shown to others (Enebrink et al., 2013). Both in turn, have been shown to increase teachers' self-efficacy (Brichinall et al., 2019). The wide-ranging relationships between mindfulness and teacher's sense of self-efficacy leave the question of the direction of the relationship. Knowing if mindfulness influences self-efficacy or if teachers with self-efficacy are also more mindful which automatically lead to better well-being, would give insights into which constructs to focus on to enhance the interaction between teachers and their students.

Huang and colleagues (2019) have displayed positive relationships between well-being and teachers' self-efficacy, goal orientation, and personal coping strategies, underlying the needed personal well-being among teachers to teach efficiently and having a high perceived efficacy indicating personal well-being and contentment and job satisfaction. These so-called job resources can activate personal resources, increasing self-efficacy and leading to

well-being and better organizational outcomes. This is underlined by the fact that teachers with a greater sense of self-efficacy frequently report lower levels of burnout and higher adaptability, persistence, and job satisfaction. Furthermore, the findings from a study by Manasia and colleagues (2020) support Huang and colleagues (2019) findings by showing that self-efficacy is one of the most potent personal resources resulting in well-being, displaying that self-efficacy is connected to higher happiness levels and well-being. Lastly, self-efficacy mediates the relation between job demands and job happiness. This relation is explicable by the more delicate management of job demands such as classroom management which influences the feelings of well-being among teachers (Zee & Koomen, 2016). Knowing this can clarify the importance of a more complete and mindfulness- integrative approach in schools.

Mindfulness-based interventions in school settings have been implemented and studied in school settings and have shown promising results. However, these are often difficult to generalize due to their specific target group at that time and are time and cost expensive for the students involved when the intervention entailed trained mindfulness trainees. (Simpson et al., 2018).

The study by Jennings and colleagues (2019) in secondary schools indicated integrating mindfulness into school settings enhances emotion regulation and reduces psychological distress. Likewise, further research concluded that mindfulness decreases teachers' anxiety in teaching in itself, which consecutively increased their self-efficacy concerning teaching (Tassel et al., 2020). Furthermore, a further study investigating the effects of mindfulness in German schools among teachers and their students found that mindfulness positively affects stress, emotion-regulation, and self-efficacy (Luong et al., 2019). Furthermore, it has been shown that mindfulness helps build the framework for

positive areas such as compassion, equanimity, wisdom and simultaneously decreases negative symptoms in physical and mental health (Dave et al., 2020).

Although the mentioned studies were all conducted in secondary education, these combined findings could indicate that mindfulness exercises for teachers help increase the interaction between teachers and students in the classroom by helping the teachers in their well-being and in their self-efficacy.

The Current Study

As mindfulness has yielded promising results in improving well-being and emotion regulation strategies that influence self-efficacy (Brichinnall et al., 2019; Jennings et al., 2019), this study will investigate the relationship between mindfulness and self-efficacy amongst teachers, studying whether mindfulness can be used to directly influence teachers' self-efficacy. The study aims to replicate the already existing findings and to help to close the knowledge gap concerning the question if mindfulness directly influences teacher's self-efficacy and therefore is an adequate tool to help teachers and their students to better cope with the present-day stress levels in school setting.

The first purpose of this current study is therefore to explore if there is a direct relationship between mindfulness and teachers' self-efficacy. For this, the study firstly aims to verify the already existing findings such as the existing relationships between mindfulness and well-being, of well-being and teacher's self-efficacy, emotion regulation and mindfulness and between emotion regulation and teacher's self-efficacy. Then, the assessment of a direct influence of mindfulness on teacher's self-efficacy will be examined (Figure 1). This will display if mindfulness is an adequate strategy for increasing teacher's self-efficacy when controlling for well-being and emotion regulation among primary education teachers.

The following hypotheses were created to verify existing findings and to inquire if mindfulness can be directly associated to teachers' self-efficacy:

H1: There is a significant positive relation between mindfulness and well-being.

H2: There is a significant positive relation between well-being and teachers' sense of self-efficacy.

H3: There is a significant positive relation between mindfulness and emotion regulation.

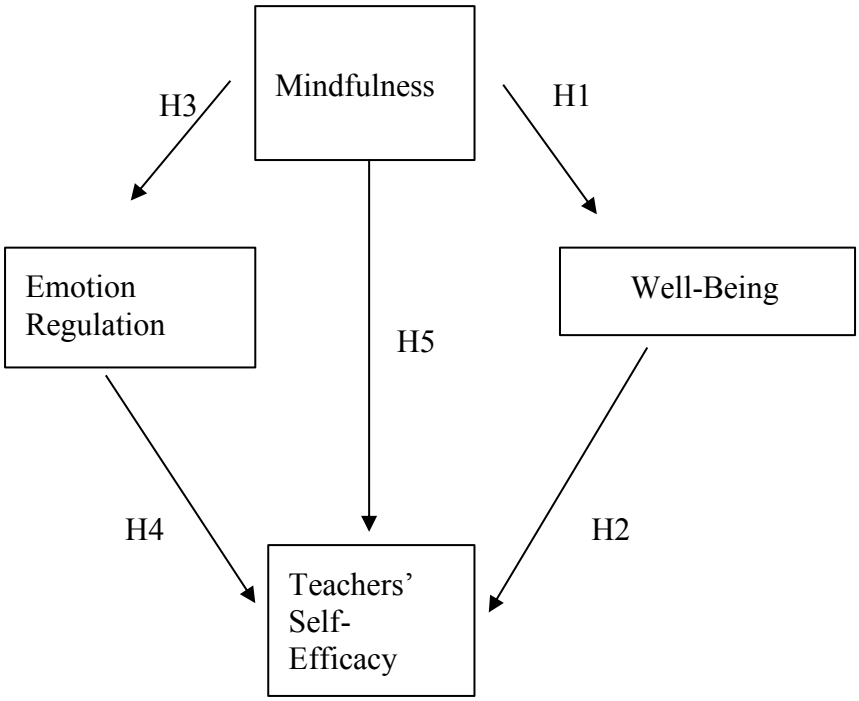
H4: There is a significant positive relation between emotion regulation and teachers' sense of self-efficacy.

H5: There is a significant positive relation between mindfulness and teachers' sense of self-efficacy.

H6: There is a significant positive relation between mindfulness and teachers' sense of self-efficacy when controlling for well-being and emotion regulation.

Figure 1

Model of relations between Mindfulness, Well-Being, Emotion Regulation and Teachers' Self-Efficacy



Methods

The present study was approved by the BMS Ethics Committee (EC) of the University of Twente, BCE18211. Before engaging in the study, participants gave their online informed consent.

Design

This study involved a cross-sectional questionnaire study, where the association between mindfulness, well-being, emotion-regulation, and teachers' self-efficacy was investigated with an online survey.

Participants and Procedure

Primary school teachers from all over the Netherlands were recruited by the Super Chill Foundation to participate in the Super Chill Mindfulness app pilot testing. During the pilot, teachers were invited to voluntarily take part in this study through feedback forms which entailed the description of this study. Teachers were asked to take part in the study through the Qualtrics online survey portal. In total, 32 responses were recorded in the Qualtrics system, of which 22 were successfully completed. The mean age was 43 years (SD= 9.98) and the age distribution covered ages from 26 to 58 years (M=43; SD=9.98). The sample consisted of 18 females (81.1%), three males (13.6%) and one other (4.5%).

Materials

This study was part of a Master's Programme of Psychology involving two different researchers. The materials of the two researchers were combined in the form of one online survey. The shared survey entailed demographic questions regarding gender, age, working residence, and measurements regarding emotional regulation, teachers' self-efficacy, well-being, mindfulness, work engagement, and burnout. The present study utilized the descriptive data and the measurements of emotion regulation, teachers' self-efficacy, well-being, and mindfulness.

Emotion-Regulation. For measuring emotion regulation, the Emotion Regulation Questionnaire (ERQ) by Gross and John (2003) was utilized. This 10-item Emotion Regulation Questionnaire assesses emotion regulation through the two different emotion regulation strategies. The measured strategies are cognitive reappraisal (e.g. '*When I want to feel more positive emotions (such as joy or amusement), I change what I'm thinking about'*) and cognitive suppression (e.g. *'I keep my emotions to myself'*). Answers were given on a seven-point Likert scale ranging from one (*strongly disagree*) to seven (*strongly agree*). The scores were calculated as sum scores from the subscales of cognitive reappraisal and cognitive suppression and the overall score was the mean of the two subscales. The higher the score, the greater the degree of emotion regulation.

Former research found good Cronbach's α for the subscale cognitive reappraisal with α= .84 and a sufficient Cronbach's α for the subscale cognitive suppression with α= .73 (Donker et al., 2020).

Cronbach's α was high in the current study with α =.80 for the complete scale. For the subscale's *cognitive reappraisal* and *cognitive suppression* Cronbach's α was high with α= .83 and α= .84, respectively.

Teachers' Self-Efficacy. For measuring teachers' self-efficacy, the Teachers' Sense of Efficacy Scale (short-form) by Tschannen-Moran and Hoy (2001) was employed. The 12-item Teachers' Sense of Efficacy Scale determines the aspects that create difficulties for teachers in their school activities. Teachers' Self-Efficacy is measured by three subscales; the efficacy in student engagement (e.g. *'How much can you do to control disruptive behavior in the classroom?'*), efficacy in instructional strategies (e.g. *'Two what extent can you craft good questions for your students?'*) and efficacy in classroom management (e.g. *'How much can you do to control disruptive behavior in the classroom?'*). Answers were given on a nine-point Likert scale ranging from one (*nothing*) to nine (*a great deal*). Scores were calculated by the mean score of the entire questionnaire, and through the mean scores of the subscales. Higher scores indicated a higher emotion regulation level within the different subscales, hence lower scores represented a lower emotion regulation capacity overall or on the assessed subscales.

Through former research the reliabilities of the subscales *instructional strategies were found good* α= .91, for *classroom management also good* α= .90 and respectively for *student engagement* α= .87 (Tschannen-Moran & Woolfolg Hoy, 2001)

The value for Cronbach's α in this study of the total scale was high with α= .88, for the subscales *instructional strategies* sufficient α=.76, for *student engagement* high α= .87 and for *classroom management* α= .85.

Well-Being. In order to capture the well-being of the participants the Mental Health Continuum Short Form (MHC-SF) by Keyes (2002) was used. The 14-item MHC-SF assesses the overall well-being by measuring emotional well-being (e.g. *'During the past months, how often did you feel happy?'*), social well-being (e.g. *'During the past months, how often did you feel that you had something important to contribute to society?'*) and psychological well-being (e.g. *'During the past month, how often did you feel that you liked most parts of your personality?'*). Answer options were given on a six-point Likert scale ranging from zero (*Never*) to five (*Every Day*). Scores were calculated by the total sum of the given answers. The higher the scores, the higher the individual well-being. Ergo, the lower the scores, the lower the well-being. In this study only emotional and social well-being were assessed as the items for psychological well-being were missing in the survey. However, the three different subscales show to have sufficient to good reliability, ranging between $\alpha = .74$ and $\alpha = .89$, and are predictive of the other subscales (Lamers et al., 2011). Cronbach's α of the subscales within this study was high for emotional well-being $\alpha = .85$ and $\alpha = .83$ for social well-being.

Mindfulness. Mindfulness was measured through the Five Facet Mindfulness Questionnaire (FFMQ) by Baer et al., (2006). The 39-item Questionnaire assesses mindfulness by measuring the five different components of its construct. The measured components are Observing (e.g. *'When I am walking, I deliberately notice the sensations of my body moving'*), Describing (e.g. *'I am good at findings words to describe my feelings'*), Acting with Awareness (e.g. *'When I do things, my mind wanders of and I am easily distracted'*), Non Judgment of inner experiences (e.g. *'I criticize myself of having irrational or inappropriate emotions'*) and Nonreactivity to inner experiences (e.g. *'I perceive my feelings and emotions without having to react to them'*).

Answers were given on a five-point Likert scale ranging from one (*Never or very rarely true*) to five (*Very often or always true*). The scores were calculated by averaging the

scores of the full questionnaires and by the means of the subscales. Before averaging the scores, negatively formulated items had to be reverse-scored. Higher scores indicate a higher level of mindfulness among the participants. Accordingly, lower scores indicate a lower level of mindfulness.

Prior research displayed a good reliability with Cronbach's α ranging between .69 and .90 (Veehof et al., 2011). Cronbach's α within the present study for the complete scale was sufficient α= .7, for the subscale *Describing* good α= .87, for *Non-Reactivity* sufficient α= .77, for *Non-Judgment* sufficient α= .78, for *Observation good* α = .87 and for *Aware Action* low α=.37.

Norms. Table 1 displays the normative population to which the studies samples results were compared to.

Table 1

Population Norms: Summary of four studies

Instrument	M	SD
FFMQ [a]		
O	13.86	3.21
D	16.28	3.91
AA	13.19	3.32
NJ	14.09	3.63
NR	13.47	3.07
MHC-SF [b]		
EWB	4.67	0.94
SWB	3.33	1.01
ERQ [c]		
CR	4.66	1.01
ES	3.30	1.09
TSES [d]		
SE	5.46	0.69
IS	5.67	0.65
CM	5.90	0.67

FFMQ= Five Facets Mindfulness Questionnaire, O=Observing, D=Describing, AA=Acting with Awareness, NJ=Non-Judgment, NR=Non-Reaction, MHC-SF=Mental Health Continuum Short Form, EWB=Emotional Well-Being, SWB= Social Well-Being, ERQ= Emotion Regulation Questionnaire, CR=Cognitive Reappraisal, ES= Emotion Suppression, TSES= Teachers' Self Efficacy Scale, SE=Student Engagement, IS=Instructional Strategies, CM=Classroom Management
a= Bohlmeijer et al., 2011

b= Lamers et al., 2010
c= Donker et al., 2020
d= Zee et al., 2016

Data Analysis

The data set was investigated with SPSS 24. First the sample demographics were calculated via descriptive statistics including age and gender. Then, Cronbach's Alpha, means, standard deviations were calculated to examine the data set and its representativeness. To compare the results of participants within this study to normative data, Pearson correlations and t-tests were performed. Further, all hypotheses were analysed with a Pearson's product-moment correlation to assess the relations between mindfulness, well-being, emotions-regulation, and teacher's sense of self-efficacy. For H1 mindfulness was set as the independent and well-being as dependent variable, for H2 well-being was set as independent and teachers' sense of self-efficacy as dependent variable, for H3 mindfulness was set again as independent variable and emotion regulation as dependent variable, for H4 emotion regulation was set as independent and teachers' sense of self-efficacy as dependent variable and for H5 mindfulness was set as independent and teachers' sense of self-efficacy as dependent variable. Finally, for H6, a multiple regression analysis was conducted where mindfulness was used as independent and well-being, emotion regulation and teachers' sense of self-efficacy were set as dependent variables.

Results

Descriptive Statistics of Mindfulness, Social and Emotional Well-Being, Teachers' Self-Efficacy and Emotion Regulation

Table 2 contains the results which revealed that the sample of the current study scored slightly lower compared to the Dutch population norm, with moderate levels in Teachers Self-Efficacy, Emotion regulation Strategies as well as for Emotional and Social Well-Being. For

the variable Mindfulness the sample of this study scored higher than the Dutch population norm.

Table 2

Means, Standard Deviations, Dutch Norms and Standard Deviations, t scores and p-values of sample on assessed variables (N = 22)

Measure	N	Sample Mean	SD	Dutch Norms	SD	t	p
FFMQ-SF							
DS	22	18.73	3.30	16.28	3.91	3.481	.002*
NR	22	15.18	3.05	13.47	3.07	2.633	.01*
NJ	22	16.04	3.50	14.09	3.63	2.632	.01*
O	22	14.82	3.80	13.86	3.21	1.195	.246
A	22	16.73	2.10	13.19	3.32	7.911	.001**
A							
TSES							
SE	22	5.35	0.90	5.46	0.69	0.587	.564
IS	22	5.54	0.64	5.70	0.65	0.907	.375
CM	22	5.77	0.71	5.96	0.67	1.236	.230
ERQ							
SU	22	3.07	1.11	3.30	1.09	0.928	.364
CR	22	5.01	0.77	4.66	1.01	2.150	.043*
EWB	22	3.80	0.91	4.67	0.94	-4.429	<.001**
SWB	22	3.08	1.09	3.32	1.01	-1.063	.30

FFMQ-SF=Five-Facet-Mindfulness-Questionnaire-Short-Form, DS=Describing, NR=Nonreacting, NJ= Non-Judgment, O=Observing, AA=Aware Action, SWB= Social Well-Being, EWB= Emotional Well-Being, TSES=Teacher-Self-Efficacy-Scale, SE=Student Efficacy, IS=Instructional Strategies, CM=Classroom Management, ERQ=Emotion Regulation Questionnaire, SU=Suppression, CR= Cognitive Reappraisal, *p<.05, **p<.001

Correlations between Mindfulness, Emotion Regulation Strategies, Teachers Sense of Self-Efficacy, Emotional and Social Well-Being

A Pearson's product-moment correlation was calculated to assess the relationship between all variables (Table 3). Preliminary analyses showed the relationships to be linear with all variables normally distributed, as assessed by the Shapiro-Wilk's test (p >.05), and there were no outliers.

Correlation between Mindfulness and Emotional and Social Well-Being. H1: There was no statistically significant correlation between Mindfulness and Emotional Well-Being (r (20) = .128, p = .291) and Social Well-Being (r (20) = .094, p = .342)

Therefore, the null hypothesis cannot be rejected. Meaning that there is no positive association between Mindfulness and Emotional- as well as Social Well-Being.

Correlations between Emotional and Social Well-Being and Teachers' Sense of Self-Efficacy. H2: There was no statistically significant correlation between Emotional Well-Being and Teachers Sense of Self-Efficacy (r (20) = .100, p = .333). Therewith the null hypothesis cannot be rejected, showing no positive association between Emotional Well-Being and Teachers Sense of Self-Efficacy.

There was a statistically significant correlation between Social Well-Being and Teachers Sense of Self-Efficacy (r (20) = .417, p = .030)

Therefore, the alternative hypothesis is accepted, displaying here a positive association between Social Well-Being and Teachers' Sense of Self Efficacy. Showing therewith, that Teachers' Sense of Self-Efficacy increases when Social Well-Being expands.

Correlations between Mindfulness and Emotion Regulation. H3: There was no statistically significant correlation between Mindfulness and Emotion Regulation (r (20) = -.131, p = .285). Therefore, the null hypothesis is accepted, displaying no association between Mindfulness and Emotion Regulation.

However, there was a statistically significant correlation between the subscale *Describing* from the Mindfulness Questionnaire and the subscale *Expression Suppression* from the Emotion Regulation Questionnaire (r (20) = -.474, p = .015). This shows an association between the subscales Describing and Expression Suppression and demonstrates

that even though the complete constructs of Mindfulness and Emotion Regulation are not associated with each other, there are sub constructs which influence each other.

Correlations between Emotion Regulation and Teachers' Sense of Self-Efficacy. H4: There was a statistically significant correlation between Emotion Regulation and Teachers Sense of Self-Efficacy (r (20) = -.480, p = .014).

Therewith, the alternative hypothesis is accepted, meaning that Emotion Regulation and Teachers' Sense of Self-Efficacy are associated with each other. This displays that Teachers' Sense of Self-Efficacy increases when Emotion Regulation increases.

Correlations between Mindfulness and Teachers' Sense of Self-Efficacy. H5: There was no statistically significant correlation between Mindfulness and Teachers' Sense of Self-Efficacy (r (20) = -.005, p = .491).

Therefore, the null hypothesis is accepted. Showing no association between the full measure of Mindfulness and the complete measure of Teachers' Sense of Self-Efficacy. Nonetheless, there was a significant correlation between the subscale Aware Action from the Mindfulness Questionnaire and the general Teachers Sense of Self-Efficacy Questionnaire (r (20) = -.395, p = .038). Further, there was a significant correlation between the Aware Action subscale from the Mindfulness Questionnaire and the Student Engagement subscale from the Teachers Sense of Self-Efficacy Questionnaire (r (20) = -.512, p = .009). Displaying here, that the full measures do not need to necessarily be associated with each other to influence each other within their sub-constructs.

Table 3

Pearson Correlation between Emotion Regulation, Teachers' Self-Efficacy, Mindfulness, Emotional Well-Being and Social Well-Being (N=22)

	ERQ	CR	SU	TSES	IS	CM	SE	FFMQ	D	NR	NJ	O	AA	EWB	SWB
ERQ															
CR	.802**														
SU	.770**	.237													
TSES	-.480*	-.329	-.430*												
IS	-.188	-.129	-.167	.774**											
CM	-.521**	-.390*	-.431*	.554**	-.028										
SE	-.335	-.197	-.335	.900**	.814**	.201									
FFMQ	-.131	.017	-.232	-.005	-.090	.151	-.084								
D	-.206	.131	-.474*	.045	-.254	.299	.008	.716**							
NR	-.008	.045	.061	-.048	-.278	.229	-.095	.631**	.563**						
NJ	-.247	-.251	-.134	.066	-.070	.244	-.154	.592**	.050	.181					
O	.155	.117	.128	.146	.339	-.279	.296	.469*	.174	.037	.052				
AA	-.102	.010	-.176	-.395*	-.323	-.041	-.512**	.472*	.325	.061	.464*	-.187			
EWB	.096	.242	.103	.100	.032	.175	.012	.128	.091	.200	.363	-.326	.110		
SWB	-.170	-.111	-.158	.417*	.353	.248	.336	.094	.183	.017	.133	-.063	-.015	.576**	

ERQ=Emotion Regulation Questionnaire, CR=Cognitive Reappraisal, SU=Suppression, TSES=Teacher Sense of Self-Efficacy, IS=Instructional Strategies, CM=Classroom Management, SE=Student Engagement, FFMQ=Five Facet Mindfulness Questionnaire, D=Describing, NR=Non-Reaction, NJ=Non-Judgment, O=Observing, AA=Aware Action, EWB=Emotional Well-Being, SWB=Social Well-Being, **Correlation is significant at .01 level (1-tailed), *Correlation is significant at .05 level (1-tailed)

Multiple Regression Analysis

A multiple regression analysis was run to test H6 (Table 4). Mindfulness was set as independent, whereas Emotion Regulation, Emotional as well as Social Well-Being and Teachers' Sense of Self-Efficacy were set as dependent variables. There was no linearity as assessed by the partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.060. There was heteroscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was evidence for collinearity, as assessed by tolerance values greater than 0.1. There were no studentized deleted residuals greater than +-3 standard deviations, there were leverage values greater than 0.2, and values for Cook's distance above 1. The assumption of normality was met, as assessed by a Q-Q Plot. Displaying here that four out of eight assumptions were violated calling here for caution when looking at the results as the violations impact the results validity.

The multiple regression model statistically significantly predicted Teacher's Sense of Self-Efficacy ($F(4,17) = 3,380$, $p < 0.05$, adj. $R^2 = .312$). All four variables added statistically non-significantly to the prediction, $p > .05$. Showing here that separately the constructs do not predict Teachers' Sense of Self-Efficacy wherewith it is displayed that Mindfulness is not associated with Teachers' Sense of Self-Efficacy when controlling for Emotion - and Social Well-Being as well as for Emotion Regulation.

Table 4

Multiple Regression results for TSES

TSES	B	95% CI FOR B		SE B	ß	R^2	Δ^2
		LL	UL				
Model Constant						.443	.312
	66.5999*	34.533	98.665	15.198			
ERQ	-.293	-.705	.119	.195	-.290		
FFMQ	-.047	-.364	.270	.150	-.058		
EWB	.719	-.802	.2.240	.721	.273		
SWB	.527	-.218	1.271	.353	.398		

Note. Model +Enter" method in SPSS Statistics; B = unstandardized regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; SE B = standard error of the coefficient; ß= standardized coefficient; R^2 = coefficient of determination; Δ^2

Discussion

This study concerned itself if mindfulness has a direct influence on teachers' sense of self-efficacy. The different statistical analyses within this study displayed that mindfulness was not related to the teacher's sense of self-efficacy. Hence, implying here that mindfulness was not sufficient for increasing teachers' sense of self-efficacy. It should, however, be considered that subscale analyses displayed associations between the complete Teachers' Self-Efficacy instrument and the Aware Action subscale from the Mindfulness Measure and specifically between the subscale Student Engagement from the Teachers Self-Efficacy instrument and Aware Action from the Mindfulness instrument, between the subscale Social Well-Being from the Well-Being and the Teachers' Sense of Self-Efficacy measure, between the subscale Describing from the Mindfulness measure and the Expression Suppression subscale from the Emotion Regulation Questionnaire and lastly between the full measures of Emotion Regulation and Teachers' Sense of Self-Efficacy. Future research could further investigate and integrate these findings.

The results of this study do not support the presented associative pathways (Figure 1); however, they still yield important findings. The findings of the first hypothesis suggest no association between mindfulness and emotional and social well-being. These results seem to contradict prior research, as Brichinall and colleagues (2019) found a decrease in psychological distress through mindfulness. The difference in findings between the first hypothesis and the already existing research could be explained by the perspective taken on well-being; the two-continua model suggests that mental illness and mental health are related but distinct constructs (Westerhof, 2017). With the understanding that the findings by Brichinall et al. (2019) show that well-being does not increase through mindfulness but does decrease mental illness, the findings of this research become less contradicting. These findings display the importance of viewing and studying well-being and mental health as two different constructs in relation to mindfulness. However, they show a research gap that should be investigated as mindfulness is shown here not to increase social and emotional well-being.

The second hypothesized association was partly confirmed in this study. The findings propose that only social well-being is associated with teachers' sense of self-efficacy, whereas emotional well-being is not. These findings align partly with Huang and colleagues' (2019) findings as they have found that well-being increases teachers' sense of self-efficacy. Keyes and Waterman (2003) defined social well-being as positive functioning within social interactions. As the classroom in its broadest sense could be seen as a social interaction, the findings of this study could display that for teachers' sense of self-efficacy social well-being and its positive functioning is sufficient. Further, Manasia and colleagues (2020) have shown that teachers' sense of self-efficacy is a powerful personal resource which results in well-being. Thus, suggesting here a bi-directional relationship between well-being and teachers' sense of self-efficacy.

Thirdly, the results from this current study suggest that mindfulness is not related to emotion regulation strategies as the two measures showed no significant association. Despite

these results, the subscale Describing from the mindfulness measures was negatively associated with the subscale Expression Suppression from the Emotion Regulation Measure. Defined by Enebrink et al., (2013) as not showing one's reactions or emotions openly to others, this negative association is still in line with the assumption that there is no association between mindfulness and the emotion regulation strategies assessed in this current study. The negative association could result from two contrary constructs where mindfulness in- or decreases depending on the exhibition of expression suppression behaviour as Describing in this subscale is defined as being able to adequately express one's own emotions.

Coming now to the fourth hypothesis, the findings from this study indicate an association between emotion regulation strategies and teachers' sense of self-efficacy within the full measures. Confirming the results by Brichinall et al. (2019) who found an increase in teachers' sense of self-efficacy through emotion regulation strategies. Defined by Armor et al. (1976) teachers efficacy beliefs is a judgment of his or her capabilities to bring about a desired outcome of student engagement and learning, even among those students who may be difficult or unmotivated. Possessing suitable emotion regulation strategies which could help to accomplish these beliefs could be a possible explanation for the association found between emotion regulation strategies and teachers' sense of self-efficacy.

The results of the analyses for the fifth hypothesis indicate no association between mindfulness in general and teachers' sense of self-efficacy. This result contradicts prior research findings, which shows an increase in teachers' sense of self-efficacy through mindfulness (Tassel et al., 2020; Luong et al., 2019). However, the analyses of the subscales indicate a positive relationship between the mindfulness-subscales Aware Action and the general Teachers Sense of Self-Efficacy scale and between Aware Action and Student Engagement. It could therefore be concluded that mindfulness partly influences some aspects of teachers' sense of self-efficacy. One possible influence being aware action as this subscale is defined as the capability to act out of quick judgment and simultaneously coming out of

one's own autopilot mode (Chowdhury, 2021). The association between teachers' sense of self-efficacy and especially between student engagement could be explained by the need for aware action of being able to respond with the adequate awareness towards students to engage them properly and therewith teaching efficiently.

The sixth hypothesis concerned itself if mindfulness has a direct influence on teachers' sense of self-efficacy whilst controlling for the variables well-being and emotion regulation. The different statistical analyses within this study displayed that mindfulness is not related to the teacher's sense of self-efficacy. Hence, implying here that mindfulness is not sufficient for increasing teachers' sense of self-efficacy. It should, however, be considered that subscale analyses displayed associations. Future intervention designs could further investigate and integrate these findings.

Limitations

First, the results of this study are limited through the lack of generalizability and reliability due to the small sample size, which resulted in low power. This could have influenced the results of this study as a larger sample size might have yielded more significant relationships. Secondly, the non-complete data collection regarding the well-being questionnaire (MHC-SF) presents a major limitation as assessing the overall well-being among the sample was not possible. Therefore, the results of the social and emotional well-being subscales have to be interpreted with caution even if the reliability within the subscales is high and they represent the given constructs (Lambron et al., 2018; Lamers et al., 2011).

Thirdly, it has to be remembered that all conclusions are drawn from simple correlations, therefore not explaining the causality of the results. Further, the multiple regression analyses showed that the presented relationships statistically significantly predict teachers' sense of self-efficacy. However, four out of eight assumptions could not be met prior to the analysis, and the results should be interpreted cautiously.

Lastly, a limitation of this study is that the participants enrolled themselves which might have led to a self-selection bias. This in turn causes the results to be difficult to generalize to the teacher population.

Future Research and Recommendations

Future research should consider a non-probability sampling method and a more systematic and informative recruitment process in which the importance of the findings is connected to the participants, so importance of participation becomes of personal interest and committed participation is ensured.

Future research on the increase of teachers' sense of self-efficacy should focus more on strategies which increase well-being instead of only on mindfulness.

Lastly, the stated literature in this research focuses mostly on secondary schools, which displays a gap in primary school research regarding teachers' sense of self-efficacy. Therefore, future research should concentrate to fill this gap to find adequate strategies for this target group.

Conclusion

To conclude, this study's findings might serve as a preliminary indication that mindfulness cultivation to enhance teachers' sense of self-efficacy is insufficient. Instead, it might be of interest to look into factors where well-being with all its sub-constructs is incorporated.

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