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Bachelor's Thesis

The mediating effect of self-control in the relationship between mindfulness and work engagement in teachers

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List of Abbreviations

UWES 9	Utecht Work Engagement Scale
MAAS	Mindful Attention Awareness Sclae
SCS	Self-Control Scale
PSS	Perceived Stress Scale
EI	Emotional Intelligence

Abstract

Background: Work engagement was found to have beneficial aspects for employers and employees. Recent studies have shown that mindfulness is associated to work engagement while it remained unclear how both constructs are associated. A growing body of research suggests that mindfulness may promote self-regulatory processes which may lead to more work engagement. Therefore, the present study investigated whether self-control mediates the relationship between mindfulness and work engagement in teachers. This was the first study that tested this assumption and measured all three constructs at the same time in teachers. **Methods:** A cross-sectional survey based design was used to examine if self-control mediates the relationship between mindfulness and work engagement in teachers. A sample of 82 teachers was recruited via convenience sampling. The participants could choose between an online or a paper-and-pencil version of the survey and were asked to answer questions about their current level of mindfulness, work engagement and self-control. **Results:** The results indicated that as expected mindfulness and work engagement were related constructs. However, no relationship was found between self-control and either mindfulness or work engagement. Thus, self-control did not mediate the relationship between mindfulness and work engagement. **Conclusion:** Although no mediation could be found, it is still an important result for understanding how mindfulness and work engagement are related. In order to gain new theoretical insights, further research focusing on other mediators and underlying factors is needed.

Keywords: mindfulness, work engagement, self-control, teachers, mediation

Introduction

Although the concept of work engagement appeared only recently in health psychology, it has gained increased attention over the past years. One reason for the strong interest in the concept may be a variety of positive outcomes for individuals and organisations such as job satisfaction (Hakanen, Bakker & Schaufeli, 2006; Markos & Sridevi, 2010); lower levels of burnout (Hakanen, et al., 2006); employee commitment beyond the required tasks, organisational success and profitability (Attridge, 2009; Markos & Sridevi, 2010) as well as customer satisfaction (Harter, Schmidt & Hayes, 2002). One group that may benefit in particular from work engagement are teachers, as studies show that engaged teachers see their work as meaningful and may increase their own as well as their pupil's classroom performance by paying more attention to specific student's needs (Klusmann, Kunter, Trautwein, Lüdtke & Baumert, 2008). Furthermore, as overall more engaged employees report better physical and mental health, this may lead to less work absence, which could prevent early retirements and lower the high absence rates of teachers (Gallup, 2015; Schaufeli, Bakker & Van Rhenen, 2009; Soane, Shantz, Alfes, Truss, Rees & Gatenby, 2013). Initial evidence shows that mindfulness is associated to work engagement while it remains unclear how both constructs are related (Leroy, Anseel, Dimitrova & Sels, 2013).

Work engagement can be defined as a „positive, fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption" (Schaufeli, Salanova, Gonzáles-Romá & Bakker, 2002). Vigour is described as a state in which the individual is full of energy and actively involved in working while being resilient and persistent when encountering difficulties. Dedication is characterised by the meaning and significance the individual attributes to the job. Absorption refers as a state in which the individual is highly and happily focused on the work and experiences a flow from which it is difficult to detach oneself (Schaufeli et al., 2002). Work engagement can be seen as a *state*, a momentary experience that changes over time or as a *trait*, a stable characteristic that varies across individuals (Sonnentag, 2003). This study focuses on trait work engagement.

Another focal point in the work context next to work engagement is mindfulness, that gained increased interest over the last years. Mindfulness is commonly defined as a process of purposefully paying attention and being aware of the present moment, internally and externally, in an accepting and non-judgmental way (Black, 2011; Brown & Ryan, 2004; Grossman, 2008; Shapiro & Carlson, 2009). Like work engagement, mindfulness is seen by some researchers as a *trait*, a dispositional characteristic that focuses on inter-individual differences

and is stable over time (Brown & Ryan, 2003). However, other researchers conceptualise mindfulness as a *state*, a temporary condition that can be trained with mindfulness based practices such as mindfulness meditations (Kabat-Zinn, 2003; Didonna, 2009). Overall, researchers agree that mindfulness training conducted over a longer period of time leads not only to an increase of state mindfulness but may also contribute to more trait mindfulness which shows that trait mindfulness is a capacity that can be trained and increased (Davidson, 2010; Kiken, Garland, Bluth, Parlsson & Gaylord, 2015; Vago & Silbersweig, 2012). This study is looking at trait mindfulness.

Regardless of whether mindfulness is seen as a trait or a state, a variety of studies has demonstrated its positive effects on work-related outcomes such as better decision-making and problem-solving skills, successful coping strategies, better mental and physical health, job performance (Glomb, Duffy, Bono & Yang, 2011) as well as higher job satisfaction and less emotional exhaustion (Hülsheger, Alberts, Reinhold & Lang, 2013). Furthermore, Leroy, Anseel, Dimitrova and Sels (2013) found a positive association between mindfulness and work engagement in a cross-sectional study that measured both constructs at three different time points in 68 participants. Additionally, Dane and Brummel (2014) demonstrated in an explorative study, conducted on 98 restaurant servants, that trait mindfulness was a significant predictor for job performance which goes beyond work engagement. Thus, there is emerging evidence for a positive relationship between dispositional mindfulness and work engagement as well as beneficial work-related outcomes beyond work engagement.

Initial evidence suggests that one construct that may explain how mindfulness and work engagement are related is self-control (Fetterman, Robinson, Ode & Gordon, 2010; Glomb, Duffy, Bono & Yang, 2011). Self-control can be described as the capacity to modify and regulate thoughts, emotions and behaviours in accordance with social norms and personal expectations in order to accomplish goals (Baumeister, Vobs & Tice, 2007; Baumeister, Galliot, DeWall & Oaten, 2006; Tangney, Baumeister, Boone, 2004). According to Tangney, Baumeister and Boone (2004) characteristics of self-control involve resistance of undesirable behaviours such as impulses as well as the practice of self-discipline. Similar to mindfulness and work engagement, the construct of self-control can be seen as a *state* that varies across time and as a *trait* that is stable in different contexts (Gray, 2012). This study focuses on trait self-control.

There is growing evidence that offers possible explanations for the role of self-control in the relationship between mindfulness and work engagement. Studies by various researchers

suggest that mindfulness promotes self-control by increasing attention and awareness of present thoughts, emotions, impulses and behaviours which leads to more consciousness and self-control and in turn leads to successful decision making and alternative thinking (Brown, Ryan & Creswell, 2009; Glomb et al., 2011; Sharpio, Carlson & Astin, 2006). In addition, Masicampro and Baumeister (2007) assume that the causal link between trait mindfulness and its beneficial outcomes might be completely attributable to self-control mechanisms. Thus, it seems plausible that more mindfulness is also linked to a higher degree of self-control which in turn might have a positive influence on work engagement.

Previous research has demonstrated that self-control may help employees to accomplish their work goals by coping more effectively with distractions, feelings, emotions and impulses (Johnson, Lin & Lee, 2018; Johnson, Muraven, Donaldson & Lin, 2017). This is in line with previous findings that showed a positive association between trait self-control and better coping with distress, greater success at work and academia, better psychological health with less frequent anxiety and depression rates and higher satisfaction with interpersonal relationships (Tangney et al., 2004). Therefore, self-control might lead to a more attentive and positive state at work which may create conditions for a positive work atmosphere and work engagement. Hence, it seems plausible that more self-control leads to higher work engagement and self-control may mediate the relationship between mindfulness and work engagement.

As prior studies show that mindfulness can only account for a part of the variance in work engagement, it is essential to find the underlying factors that indirectly influence work engagement (Malinowski & Lim, 2015). The present study aims to close this gap in literature by examining whether self-control mediates the relationship between mindfulness and work engagement in teachers. This is the first study that measures all three constructs in the educational context on teachers and examines all constructs simultaneously. Hence, the current findings may not only bring new insights how mindfulness and work engagement are theoretically related but contribute to more knowledge on how mindful, engaged and self-controlled teachers are.

Based on previous research the following hypotheses are proposed:
Hypothesis 1: Mindfulness is positively related to self-control
Hypothesis 2: Self-control is positively related to work engagement
Hypothesis 3: Mindfulness is positively related to work engagement

Hypothesis 4: Self-control mediates the relationship between mindfulness and work engagement.

Method

Design

In this study, a quantitative cross-sectional online and paper-and-pencil survey study design was employed with mindfulness as independent variable, work engagement as dependent variable and self-control as mediator.

Participants

The study involved a sample of 82 participants (M_{age} = 37.18; SD_{age} = 10.60; 23.20% male; 76.80 female). The majority of the participants had German nationality (95 %) while the rest had Austrian and Polish origin (5 %). On average, the participants worked 21.32 hours per week (*SD* = 6.50). The range taught per week was between 5 to 36 hours (*SD* = 6.73). Inclusion criteria were being at least 18 years old and understanding German. Initially, participants were also required to work as high school teachers which was changed to school teachers.

Procedure

The participants were approached via convenience sampling either by Facebook or by the headmasters of six schools who were prior asked to participate in the study by the researchers. They participated voluntarily and had to choose between a paper-and-pencil (which was distributed personally by the researchers) or an online version (which was distributed via an online link provided by the headmasters). Of the six participating schools, two chose the paper-and-pencil version, while the others preferred the online version. Before filling out the survey, participants were informed about the purpose, procedure and methods as well as their right to withdraw from the study at any time point via an information sheet or information page in written form. It was clarified that responses were collected anonymously, confidentially and that the schools had no access to participant's data. In case of the agreement to the terms in the online version or by signing the informed consent in the paper-and-pencil version, the participants were asked to fill in some demographic questions about gender, age, nationality and their teaching experience in order to check for the inclusion and exclusion criteria. The completion of the questionnaire took approximately 5-10 minutes. The participants

were thanked for their participation and provided with contact details of the researchers in case of remaining questions or concerns. After the study ended, participants who indicated their wish to be informed about the results were provided with the outcomes of the study on a general level and a debriefed about the specific aims of the study.

Measurement instruments

Demographic questions about gender, age, nationality, years of teaching and how many hours the participants taught per week were asked at the beginning of the questionnaire.

Work engagement was measured with the German Version of the Utrecht Work Engagement Scale 9 (UWES 9) developed by Schaufeli and Bakker (2003). The UWES 9 is a popular measurement tool for determining one's level of work engagement by using 9 items. There are three items measuring one's vigour (e.g. „when I get up in the morning, I feel like going to work), three items measuring one's dedication (e.g. „I am proud on the work I do") and three items measuring one's absorption at work (e.g. „I am immersed in my work"). Responses were collected on a seven-point Likert scale anchored from 0 = never to 6 = always and to interpret the results a mean was computed by adding up all responses. According to Schaufeli and Bakker (2003), high scores indicate high work engagement (very high = > 5.54, high = 4.67 -5 .53, average = 3.07 - 4.66, low = 1.94 - 3.06, very low = < 1.93). This was taken as a reference to interpret the scores of the participants. The UWES 9 has demonstrated strong psychometric properties and a Cronbach's alpha between .80 and .90 across various studies **(**Schaufeli & Bakker, 2003). With a Cronbach's alpha of .92, the UWES 9 demonstrated good reliability in this study.

Mindfulness was measured with the German Version of the Mindful Attention Awareness Scale (MAAS) developed by Brown and Ryan (2003). The MAAS measures dispositional mindfulness by using 15 statements about everyday experiences regarding mindfulness (e.g. „I do jobs or tasks automatically, without being aware of what I'm doing" or „I find myself preoccupied with the future or the past"). Items were rated on a 6-point Likert scale ranging from 1 = almost always to 5 = almost never. To score the questionnaire, the mean was computed whereby a higher score constitutes a higher level of mindfulness. The MAAS has demonstrated good psychometric properties with a Cronbach's alpha of .83 for the German version (Michalak, Heidenreich, Stöhle & Nachtigall, 2008). In this study, the Cronbach's alpha was .86 indicating good internal consistency of the MAAS.

Self-control was measured by the German version of the Brief SCS developed by Tangey, Baumeister and Boone (2004). The questionnaire measured the dispositional self-control of participants by presenting 13 statements about the control of thoughts, feelings, impulses and performance (e.g. „I do things that feel good in the moment but regret later on“ or „Pleasure and fun sometimes keep me from getting work done“). Responses were collected on a 5-point Likert scale, ranging from 1 = not at all like me to 5 = very much like me. For scoring, a mean was computed by adding up the responses and reverse seven inverse coded items. Hereby, a total score of 5 means extremely self-controlled whereas a score of 1 means not at all self-controlled. Overall, the Brief SCS has good psychometric properties with Cronbach's alpha ranging from .83 to .85 (Tangey, Baumeister & Boone, 2004). A Cronbach's alpha of .79 indicated good reliability of the SCS in this study.

Data Analyses

The data was analysed using SPSS Statistics 24 (IBM Corp, 2016). Of 133 filled in questionnaires, 71 responses of high school teachers met all inclusion criteria after deleting missing and incomplete data. 11 responses met all criteria but worked as primary school teachers. Therefore, the scores of primary and high school teachers were compared with an independent-sample *t*-test in order to determine if there was no difference between the groups and the scores of primary school teachers could be included in the analyses. Next, descriptive statistics such as means, correlations and standard deviations were determined to get an overview of the data. The alpha level was set to 0,05. Correlation coefficients of $r = 0.1$ were considered as weak, $r = 0.3$ as moderate and $r = 0{,}5$ - 1 as strong correlation (Hemphill, 2003). In order to test the hypotheses, a mediation analysis was conducted via PROCESS macro with bootstrapping (Hayes, 2012). First, the direct effects of mindfulness, work engagement and self-control were determined with regression analyses. To test whether self-control mediates the relationship between mindfulness and work engagement, a 95% confidence interval was computed. The mediation effect was considered as significant when the interval does not contain zero.

Results

Comparison between high school teachers and primary school teachers

Table 1 displays the outcomes of the independent-sample t-test that showed that there

was no significant difference between high school teachers and primary school teachers in the scores of work engagement $t(80) = 1.48$, $p = .14$, mindfulness $t(80) = .49$, $p = .63$ and self-control $t(80) = -1.83$, $p = .71$). Therefore, the scores of the primary school teachers were included in all subsequent analyses.

Table 1. Independent-sample t-test. Comparing high school teachers and primary school teachers with regards to their mean scores on work engagement, mindfulness and self-control.

	Primary school teachers (n=11)	High school teachers (n=72)	t-test
	M (SD)	M (SD)	p-value
Mindfulness	4.05 (.62)	4.16 (.69)	0.63
Work engagement	5.34 (1.13)	4.88 (.92)	.14
Self-control	3.31 (.28)	3.13 (.29)	.71

Preliminary Analyses

On average, the participants experienced feelings of work engagement a few times a week, felt mindful somewhat frequently and indicated having moderate levels of self-control. There was a significant relationship between mindfulness and work engagement while self-control was not related to either mindfulness or work engagement. It was also found that mindfulness decreased when self-control increased and vice versa. The means, standard deviations and Pearson correlations for all constructs can be found in Table 2.

Table 2. Means, standard deviations, and Pearson correlations for all participants (n = 82).

	M (SD)	Scale range	1. (r)	2. (r)	3. (r)
1. Work engagement	4.95 (.95)	0-6	1	.33**	.11
2. Mindfulness	4.14 (.68)	1-6	.33**	1	-.13
3. Self-control	3.16 (.30)	1-5	.11	-.13	1

**. Correlation is significant at the 0.01 level (2-tailed).

Mediation

In order to test hypotheses 1-4, a mediation analysis was conducted (see Figure 1). No significant relationship between the independent variable mindfulness and the mediator self-control *(path a)* was found, b = .0,5, $t(80)$ = -1,20, p = .23. Therefore, hypothesis 1 is rejected. Second, the relationship between the mediator self-control and the dependent variable work engagement *(path b)* was not significant, b = .35, $t(80)$ = 1.51, p = .14. Thus, hypothesis 2 was rejected as well. Third, the relationship between the independent variable mindfulness and the dependent variable work engagement (*path c)* was significant, b = .28, $t(80)$ = 3.12, p < 0,01. Approximately 11 % of the variance in work engagement was accounted for by mindfulness. Therefore, hypothesis 3 is accepted. Fourth, when including the mediator self-control in the model *(path c')*, the relationship between mindfulness and work engagement remained significant, b = .30, $t(80)$ = 3.31, p < 0,01, and approximately 13% of the variance of work engagement was accounted for by mindfulness and self-control together. Results of the 95% confidence interval with 5,000 bootstrapping samples revealed that the indirect effect of the mediator self-control was not significant because the interval included zero, b = -.02, SE = .02, 95% CI = [-.07; .02]. Thus, hypothesis 4 is rejected.

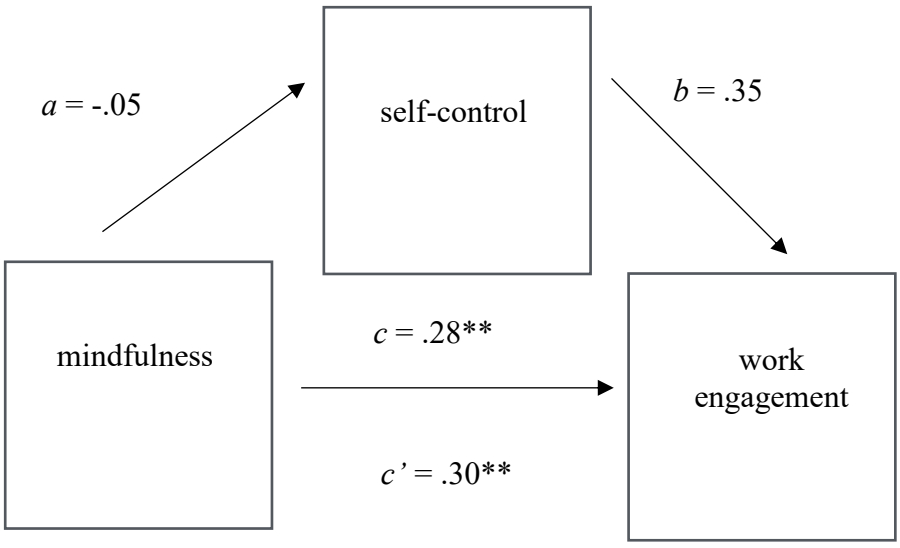

Figure 1. Regression coefficients for the relationship between mindfulness and work engagement mediated by self-control. **p < 0,01.

Discussion

The aim of this study was to test the relationships between mindfulness, work engagement and self-control. More specifically, it was expected that self-control serves as a mediator in the relationship between mindfulness and work engagement in teachers. While mindfulness and work engagement were found to be associated, contrary to the expectations self-control did not mediate this relationship and was not associated to both constructs in this study.

The findings of this study support the hypothesis that trait mindfulness is positively related to trait work engagement which is in line with previous research (Leroy et al., 2013). In other words, the more mindful the teachers were, the higher levels of work engagement they experienced. However, as for this study, mindfulness only accounts for 11% of the variance in work engagement, it seems important to find a construct that may explain more variance.

Based on previous literature, it was proposed that self-control may mediate the relationship between mindfulness and work engagement and is therefore related to both constructs **(**Glomb et al.,2011; Johnson et al., 2018). In this study, mindfulness and self-control were not related and the more mindfulness the participants were, the less self-control they experienced and vice versa. This is not in line with previous findings that suggested that mindfulness promoted self-awareness of thoughts and emotions which promotes alternative thinking styles and leads to better coping with distress and more efficient decision making (Sharpio et al., 2006). Even though, it was proposed that mindfulness promotes self-control by various researchers, it was done only on a theoretical basis and never tested in an actual study (Brown et al., 2009; Glomb et al., 2011; Masicampo & Baumeister, 2007; Sharpio et al., 2006).

Similarly, contrary to the expectations, no relationship between self-control and work engagement was found. This contradicts the prediction of various researchers who suggested that self-control is responsible for regulating thoughts, emotions, impulses and behaviour and therefore, may contribute to a more effect task performance, productivity and well-being (Johnson et al., 2018; Johnson et al., 2017). Nevertheless, it is striking that the regression coefficient between self-control and work engagement is high in this study. Thus, this might be an indication for a possible significant relationship which is not significant in this study because the sample is too small. Therefore, by increasing the sample size and power, it would be interesting to see how this relation changes.

As self-control was neither related to mindfulness nor to self-control, the preconditions for mediation were not met. Nonetheless, a significant relationship between mindfulness

and work engagement was found when controlling for self-control. Thus, when including self-control to the model, more variance in work engagement could be explained than by mindfulness alone. However, as self-control accounted only for 2% more in work engagement than mindfulness alone, it did not add a lot the analysis. Therefore, it is recommended to investigate other possible mediators such as EI, a construct that involves being able to recognise and regulate one's own and other's emotions by being self aware, motivated, empathetic and having social and self-regulating skills **(**Brunetto, Teo, Shacklock & Farr-Wharton, 2012). As there is growing evidence for the support between mindfulness and EI and as well as EI and work engagement this indicates that EI may be a potential mediator which should be explored in future studies (Brunetto et al., 2012; Schutte & Malouff, 2011).

Strengths, Limitations and Recommendations

The present study has several strengths. In general, it was the first study to include all three constructs in regard to their relational properties in one concise model. Further, a methodological core strength lies in the measurement of work engagement directly embedded in the working environment of the participants which may have facilitated responses about the work context und lead to a higher validity (Holden, 2010). Another strength lies in the overall large sample of participants as teachers pose a difficult group to recruit for studies and there is some evidence for low response rates among teachers (Robbins, Grimm, Stecher & Opfer, 2018).

However, there are also some limitations to this research which may function as recommendations for future studies.First, this study was based on a cross-sectional survey design that measured the constructs only at one time point. However, this faces a major limitation when testing for mediation as a cross-sectional design cannot establish temporal precedence. More specifically, it means that one cannot be sure that one variable precedes the other which is a requirement in a mediation model that assumes that an independent variable precedes the mediator which in turn precedes the dependent variable. Further, the one-time measurement poses a particular difficulty for the measurement of mindfulness as research has shown that even though it is measured as a trait, it is still fluctuating over time (Davidson, 2010; Kiken, et al., 2015; Vago & David, 2012). One endeavor, given the present limitation, would be to focus on a longitudinal approach with a pilot test in future studies that aim to test for mediation and ensure to measure mindfulness at multiple time points in order to give a more reliable picture (Maxwell & Cole, 2007).

Second, the participants received the link to the study by their bosses which may have led to social desirability effects. Thus, the teachers might have chosen consciously or unconsciously more socially preferable rather than true answers in order to present themselves in a positive light. An indication for this assumption could be considered the rather high overall score on work engagement in this sample. Therefore, before generalising the results to other groups of employees, this should be taken into account. Future studies may combat this limitation by providing the survey through a neutral person directly to the participants.

Third, a lot of the participants mentioned that they felt stressed while completing the study. This might have influenced their responses on the SCS as there is evidence that stress may impair self-control (Maier, Makwana & Hare, 2015; Oaten & Cheng, 2005). Therefore, because of feeling distressed, the participants might have rated their level of self-control lower than usual. This may be an explanation for the insignificant results between self-control and either mindfulness or work engagement. Thus, it might be one reason for the missing mediation as the total and indirect effect were significant in the model. In order to control for the stress level in future studies, it is recommended to include an additional measurement such as the Perceived Stress Scale (PSS) by Cohen, Kamarck and Marmelstein (1994) that measures the present stress level and explore whether it indeed influences self-control.

Finally, this study measured mindfulness as a one-dimensional construct as it is predominant in the measurement of dispositional mindfulness at work across various studies (Dane & Brummel, 2014; Leroy et al., 2013). Nonetheless, there is evidence for mindfulness as a multi-dimensional construct consisting of at least four different components (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006). Similarly, work engagement was examined one-dimensionally without including the sub constructs of vigour, dedication and absorption in the analyses. However, by looking at various subcomponents, more precise insights about the relationship between mindfulness and work engagement could have been yielded. Thus, to gain a more nuanced understanding of the relationships between the constructs, it is recommended to focus on a multi-dimensional approach based on structural equation modeling (SEM) in future studies.

Conclusion

In conclusion, the current study has shown that self-control does not mediate the relationship between work engagement and self-control in teachers. This offers important insights into

how mindfulness and work engagement are related because the present results are contradictory to the theoretical assumptions from various researchers. Therefore, further research is needed in order to find underlying factors that may explain how both constructs are related. By knowing which constructs mediate and which do not mediate the relationship between mindfulness and work engagement, future interventions that aim to increase work engagement in the educational context may be made more efficiently which could contribute to better classroom performances of students and less sick-related absenteeism of teachers.

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