Educators' Self-Efficacy, Work Engagement, and Mental Health in the Transition to On-Line or Remote Work During the COVID-19 Pandemic

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Abstract: The COVID-19 pandemic had a significant impact on all sectors of education globally, but the full extent of that impact is yet to be understood. To build our understanding of the effects of the pandemic and its associated lockdowns on educators, this study set out to examine educators perceived self-efficacy, work engagement and mental health during the period when classes were transitioned to an online, away-from-school or off-campus mode of delivery. Data were collected through an online survey, distributed via social media and a snowball approach. The study found that the levels of self-efficacy, work engagement and mental health during on-line and remote work differed between educational sectors and between genders. The paper concludes by considering implications for educational institutions in times of crisis.

Keywords: Self-Efficacy, Work engagement, Mental health, COVID-19, Education workforce

1. Introduction

Globally, COVID-19 and the associated stay-at-home measures meant that workers had to adopt and adapt to new ways of conducting their everyday work activities (Jetten et al., 2020). Educators were no exception to this. With education facilities closed, they had to deal with the rapid transition of their teaching to home environments, as a way of providing opportunities for student learning, while ensuring that staff and students were safe "from a public health emergency that [was] moving fast and not well understood" (Hodges et al., 2020, para. 2). Ziebell et al. (2020) found that teachers worked more hours during the pandemic restrictions, while MacIntyre et al. (2020) indicated that teachers experienced more stress than during their usual teaching activities. Increased workloads came from expectations that educators would seamlessly move to online and blended learning, even though this was a relatively new field of practice in many teaching contexts (Hu et al., 2019).

Given educators were faced with the swift transformation of their teaching and learning environments, this study set out to investigate the mental state and self-efficacy of educators from a broad range of contexts, including early childhood, primary and secondary schools, technical colleges, and higher education. During this time, social distancing measures were in place and educators were having to manage complex educational environments. The authors hypothesized that teachers would show indicators of emotional disturbance and distress and that this would impact on their teaching self-efficacy.

The "emergency remote teaching" (Hodges, 2020, para. 1) that occurred as a result of the COVID-19 lockdowns meant that emerging technologies were thrust into educators' working lives. Without warning, they were required to engage with what Popchev and Orozova (2020) called the Fourth Industrial Revolution: "the integration of the physical and virtual world, as well as of social communities" (p. 116). Hodges et al. (2020) highlighted that it is important to distinguish between situations of forced online teaching—in this case, "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" (para. 14)—and prepared and planned integration. Forced online teaching put educators into a space of high expectations and required them to instigate such teaching, even if they were without adequate resources and the support and careful online design processes that forge success (Hodges et al., 2020).

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Work engagement is conceptualised as a fulfilling and positive state of mind, characterised by high levels of energy, resilience, and persistence, with educators seeing themselves as able to deal with the demands of the job (Schaufeli & Bakker, 2004). However, there is evidence that educator stress impacts their efficacy and long-term outcomes of the education process, such as job satisfaction (Collie, Perry & Martin, 2017). They. argue that teachers' stress is triggered by three main sources: the level of work pressure or demands, emotional or behavioural responses, and stress as a transaction between work demands and the resources to manage those demands. Indeed, teachers' intention to quit is predicted by their levels of exhaustion (Granziera, Collie, & Martin, 2022), burnout and, conversely, job satisfaction (Madigan & Kim, 2021). Furthermore, teachers' levels of self-efficacy are reflected in their levels of disengagement (Perera et al., 2021). It would appear that all of these may have been intensified by sudden transition to school closures and online learning induced by COVID-19 pandemic. What remains unclear in the literature, in terms of a transactional model (Collie, Perry & Martin, 2017), are the relations among teachers' engagement, self-efficacy, and mental health during the lockdowns,specifically with regards to environmental demands and cognitive stressors.

Thinking along these lines, Luthar and Skyler (2020) concluded that schools need a "trauma informed approach" (p. 154) that is systemically supported by policymakers through the provision of dedicated social, emotional and behavioural resources. There is also evidence that educators require mentoring and support, and that their work environments have an impact on attrition rates within the profession (Borman & Dowling, 2008).

The current research presents a clinical approach to measuring educator psychological distress, work engagement and self-efficacy, to investigate how educators were impacted by COVID-19 and to consider whether this impact requires increased support and possibly clinical intervention. This paper describes the data that emerged from an online survey for considering ongoing policy and support of educators across educational sectors, and creates a base line for further research. The aim of the study was to examine educators' self-reports of self-efficacy for teaching, engagement in their work, and mental health, during the period in which classes were transitioned to an online, off-campus mode of delivery across educational sectors. Three specific research questions were posed:

RQ1: In what ways has COVID-19 impacted on teaching self-efficacy?

RQ2: How has COVID-19 altered educators' work engagement?

RQ3: To what extent has COVID-19 had an impact on educators' anxiety and stress?

2. Method

Ethics approval (#H20REA103) was received from the host university prior to recruitment and data collection. Participation was voluntary, and participants could exit the survey at any stage. There were no financial incentives for participation. The data were completely anonymous, with no identifiable details collected (e.g., name, IP address). The online survey included an informed consent button for participants to consent.

2.1.1 Participants

Potential participants were invited to complete a survey hosted on the Lime Survey platform. The participants comprised a convenience sample (Kelley et al., 2003) of educators who were recruited through email contacts and the researchers' personal social media accounts, including Facebook, LinkedIn, and Twitter. Additional recruitment occurred through snowballing, when social media users shared the survey details with others. Potential participants were advised that the survey was in English language. Whilst the invitation to participate extended to all education settings (e.g., sector, country), teachers employed by the Queensland Department of Education in Australia were excluded from the survey, due to their employer's embargo on research activities in response to the COVID-19 pandemic.

Recruitment resulted in 420 respondents: 342 females (81.4%) and 78 males (18.6%), with a combined average age of 43.72 years (SD = 10.42, Mdn = 45). The survey respondents worked in various education sectors: early childhood (n = 18, 4.3%), elementary/primary (n = 173, 41.4%), secondary/high school (n = 113, 27%), vocational education and training (n = 10, 2.4%), higher education (n = 103, 24.6%), and corporate training (n = 1, .20%). Two participants did not indicate a sector.

The participants were working in 30 countries: Australia (n = 300, 71.6%), Indonesia (n = 24, 5.7%), the Philippines (n = 19, 4.5%), USA (n = 14, 3.3%), Canada (n = 10, 2.4%), Papua New Guinea (n = 9, 2.1%), South Africa (n = 6, 1.4%), United Kingdom (n = 6, 1.4%), New Zealand (n = 4, 1.0%), Ireland (n = 3, 0.7%), Israel (n = 3, 0.7%), Japan (n = 3, 0.7%), Thailand (n = 2, 0.5%), and the remainder (n = 17) from multiple other countries with

one respondent from each. Their qualifications included postgraduate masters and doctoral degrees (n = 223, 53.1%), undergraduate/bachelor degrees (n = 182, 43.3%), and lower certificates (n = 15, 3.6%).

2.1.2 The measures

Participants responded to an online survey comprising demographic questions and psychometric measures of self-efficacy, work engagement, and psychological distress. The survey introductory information included a statement to contextualize its aim: "This survey aims to investigate the impact of the disruptions and challenges of COVID-19 on educators." Each measure was preceded with the statement: "How I have been feeling and thinking about myself and my work as an educator?"

Teaching Self-Efficacy

The 12-item version of the Teacher Self-Efficacy Scale [TSES] (Tschannen-Moran & Woolfolk Hoy, 2001) was used to measure participants' self-efficacy on three sub-scales: Instructional Strategies, Classroom Management, and Student Engagement. The TSES has been used widely in different countries (Klassen et al., 2009). Participants responded to the items on a scale of 1 (none at all) to 5 (a great deal). Examples of items are:

> *For the Classroom Management sub-scale: "How much can you do to control disruptive behaviour in the classroom?"*
>
> *For the Student Engagement sub-scale: "How much can you do to motivate students, who show low interest in schoolwork?"*

Using Cronbach's alpha, the measures' internal consistency estimates were: Instructional Strategies $\alpha = .83$, Classroom Management $\alpha = .88$, and Student Engagement $\alpha = .76$.

Work Engagement

The 9-item Utrecht Work Engagement Scale [UWES] (Schaufeli, Bakker, & Salanova, 2006) was used to measure participants' work engagement, including vigour, dedication, and absorption. They demonstrated that the UWES has utility in different international contexts. Participants responded to the items on a scale of 1 (never) to 6 (always). Example items are:

> *For vigour : "At my work, I feel bursting with energy."*
>
> *For dedication: "I am proud of the work that I do."*
>
> *For absorption: "I am immersed in my work."*

Using Cronbach's alpha, the measures' internal consistency estimates were: Vigour $\alpha = .84$, Dedication $\alpha = .88$, and Absorption $\alpha = .76$.

Psychological Distress

The 10-item Kessler Psychological Distress Scale [K10] (Andrews & Slade, 2001) was used to measure participants' psychological distress, based on questions about anxiety and depressive symptoms, such as "feeling tired out for no good reason" and "sad and depressed." The K10 has been extensively tested in different counties and languages other than English (National Comorbidity Survey, 2005). Items were responded to using a 5-point scale from 1 (*none of the time*) to 5 (*all of the time*). The sum of these scores yields a minimum possible score of 10 and a maximum possible score of 50, with the higher scores indicating higher levels of psychological distress. Participants with scores under 20 are likely to be well; scores of 20 to 24 are indicative of a mild mental disorder; scores of 25 to 29 are indicative of a moderate mental disorder; and scores of 30 and above indicate a severe mental disorder. Internal consistency in this sample was Cronbach's $\alpha = .91$.

Data Screening and Analysis

The raw data set was screened prior to analysis. This process deleted 221 non-responses generated by potential participants who entered the survey site's landing page but did not progress into the survey. There were no surveys with missing responses for the TSES, UWES, and K10. Because of the low numbers of participants in some sectors, the analyses focused on the primary, secondary and higher education sectors. Participants' gender was also considered.

2.2 Results

Table 1 presents the TSES, UWES, and K10 measures' mean scores, skewness, kurtosis, and their intercorrelations. The measures' distributions of skewness and kurtosis were within acceptable limits.

Table 1: Measures' Descriptive Statistics, Skewness, Kurtosis, and Scale Score Correlations (N = 420)

Measure	SE-CM	SE-IS	SE-Seng	WE-V	WE-D	WE-A	WE-tot	K10	Age
SE-CM	—								
SE-IS	.65**	—							
SE-Seng	.72**	.66**	—						
WE-V	.26**	.28**	.37**	—					
WE-D	.26**	.25**	.37**	.77**	—				
WE-A	.30**	.29**	.36**	.61**	.66**	—			
WE-tot	.31**	.31**	.41**	.90**	.92**	.84**	—		
K10	-.20**	-.31**	-.22**	-.39**	-.32**	-.22**	-.35**	—	
Age	.05	.15**	.01	.15**	.10*	.13*	.14**	-.34**	—
***M* (*SD*)**	3.63 (.83)	3.77 (.76)	3.50 (.71)	4.61 (1.04)	5.44 (1.02)	5.32 (.93)	5.12 (.88)	22.47 (7.41)	43.72 (10.42)
Skewness	-.41	-.54	-.06	-.22	-.37	-.42	-.31	.39	.025
Kurtosis	-.16	.20	-.25	-.13	-.30	.82	.03	-.57	-.45

Note. SE-CM = Self-Efficacy Classroom Management, SE-IS = Self-Efficacy Instructional Strategies, SE-Seng = Self-Efficacy Student Engagement, WE-V = Work-Vigour, WE-D = Work Engagement Dedication, WE-A = Work Engagement Absorption, WE-tot = Work Engagement Total, K10 = Kessler 10. * $p < .05$, ** $p < .01$

2.3 Self-Efficacy

Females' and males' levels of self-efficacy measured by the TSES (on a 1–5 scale) did not differ for the three subscales: Classroom Management (females: *M* = 3.62, *SD* = .85; males: *M* = 3.69, SD = .73), Instructional Strategies (females: *M* = 3.74, *SD* = .77; males: *M* = 3.91, *SD* = .70), and Student Engagement (females: *M* = 3.51, *SD* = .72; males: *M* = 3.42, *SD* = .65). We explored mean levels of self-efficacy across the primary school, secondary/high school, and higher education sectors, but did not include the other sectors due to their relatively small numbers of participants.

For Classroom Management, a one-way ANOVA revealed no statistically significant differences across the three sectors: primary, *M* = 3.64, *SD* = .84; secondary, *M* = 3.71, *SD* = .82; higher education, *M* = 3.57, *SD* = .77 [$F(2, 386) = .79$, $p = .45$]. There were statistically significant differences for mean levels of Instructional Strategies across the sectors (primary, *M* = 3.62, *SD* = .78; secondary, *M* = 3.87, *SD* = .71; higher education, *M* = 3.96, *SD* = .67) [$F(2, 386) = .8.13$, $p < .001$]. Post hoc analysis using the Bonferroni test indicated that teachers in the primary school sector had lower mean levels of self-efficacy for Instructional Strategies than those in the Secondary (M_{diff} = -.25, CI95% LL = -.46, UL = -.04) and Higher Education (M_{diff} = -.34, CI95% LL = -.56, UL = 5.95) sectors. The effect size for the differences was small, $eta^2 = .04$. For Student Engagement, there were no statistically significant differences across the three sectors: primary, *M* = 3.53, *SD* = .71; secondary, *M* = 3.54, *SD* = .74; higher education, *M* = 3.37, *SD* = .62 [$F(2, 386) = .1.85$, $p = .16$]. A two-way ANOVA revealed no interaction effects across gender and sector for all measures of self-efficacy.

2.4 Work Engagement

Females' and males' mean scores for total work engagement differed (on a 1 – 6 scale) (females: *M* = 5.10, *SD* = .89; males: *M* = 5.33, *SD* = .84) [$t = 2.28$, df = 418, $p = .02$, $M_{diff} = .25$, CI95% LL = .03, UL = .47]. Likewise, their levels of Vigour differed (females: *M* = 4.54, *SD* = 1.05.; males: *M* = 4.90, *SD* = .93.) [$t = 2.70$, df = 418, $p < .01$, $M_{diff} = .35$, CI95% LL = .13, UL = .60]. The effects sizes for the differences were relatively small for total

engagement (r = .11) and Vigour (r = .13). Differences between females' and males' means scores for Dedication (females: M = 5.40, SD = .1.03; males: M = 5.62, SD = .98), and Absorption (females: M = 5.29, SD = .92; males: M = 5.47, SD = .98) were not statistically significant.

We explored levels of work engagement across the primary, secondary, and higher education sectors, using a one-way ANOVA. The other sectors were not included in the analysis due to their relatively small sample sizes.

Mean levels were significantly different for Dedication (primary: M = 5.36, SD = 1.00; secondary: M = 5.36, SD = .10; higher education: M = 5.67, SD = .96), [F(2, 386) = 3.61, p = .03], but not for work Engagement (primary: M = 5.07, SD = .87; secondary: M = 5.06, SD = .92; higher education: M = 5.31, SD = .81), Absorption (primary: M = 5.31, SD = .86; secondary: M = 5.22, SD = 1.03; higher education: M = 5.50, SD = .89), and Engagement (primary: M = 5.36, SD = 1.00; secondary: M = 5.36, SD = 1.06; higher education: M = 5.67, SD = .95). The effect size for Dedication's differences was small, eta^2 = .02.

The Bonferroni test revealed Dedication's mean difference to be lower for the primary sector compared to higher education (CI95% LL = .-.61, UL = -.01), but not in comparison to the secondary sector. Mean differences for Dedication for the secondary and higher education sectors were not statistically significant. A two-way ANOVA revealed no interaction effects across gender and sector for all measures of engagement.

2.5 Psychological Distress

The distribution of scores (on a 1 – 5 scale) revealed that 54.5% of the participants had scores 20 and higher (M = 22.47, SD = 7.41). This is a reason for concern, given that scores of 20 or above are indicative of mental disorder: 20–24 mild; 25–29 moderate, and higher than 30 severe (Andrews & Slade, 2001). There were n = 174 (41.4%) participants with scores in the well category, n = 85 (20.2%) in the mild category, n = 81 (19.2%) in the moderate category, and n = 80 (19.3%) in the severe category (19%).

The difference between females' mean level of distress (M = 23.12, SD = 7.32) and males' (M = 19.61, SD = 7.18) was statistically significant, t = -3.83, df = 418, p < .01, M_{diff} = -3.50, CI95% LL = -5.30, UL = -1.70. Although the effect size of the difference was small (r = .18), females' mean score fell above the cut-off score of 20 for moderate mental disorder, whereas the males' fellow below the cut-off score.

We explored differences across primary (M = 24.56, SD = 7.14), secondary/high school (M = 22.33, SD = 7.01), which were above the 20 cut-off, and higher education sectors (M = 18.70, SD = 6.98), but did not include the other sectors due to their relatively small numbers. Using a one-way ANOVA, differences among the three sectors were statistically significant, F(2, 386) = 22.26, p < .01, with eta^2 = .10 indicating a moderate to strong effect size. Post hoc analysis using a Bonferroni test revealed each sectors' respective means score differences were statistically significant. Thus, teachers in the primary school sector had higher levels of distress than those in the secondary sector (CI95% LL = .18, UL = 4.29) who, in turn, had higher levels than those in the higher education sector (CI95% LL = 1.32, UL = 5.95).

Table 2 presents the raw number and percentage of cases in each K10 distress category across the primary, secondary, and higher education sectors. The proportions were statistically different, χ^2 = 34.75, p < .001, with the primary school sector having the highest rates of mild, moderate, and severe psychological distress. A two-way ANOVA revealed no interaction effect across gender and sector.

Table 2: Number and Percentage of Cases in each K10 Distress Category

	K10 Distress Category			
Sector	**Well**	**Mild**	**Moderate**	**Severe**
Primary school	50 (30.5%)	37 (46.8%)	44 (59.5%)	42 (58.3%)
High school	49 (29.9%)	24 (30.4%)	19 (25.7%)	21 (29.2%)
Higher education	65 (39.6%)	18 (22.8%)	11 (14.9%)	9 (12.5%)
Total per category	164 (42.2%)	79 (20.3%)	74 (19.0%)	72 (18.5%)

Note. Total indicates the n per category and % of total N = 389 cases

2.6 Correlational Analysis

All measures correlation coefficients were statistically significant. As would be expected, the subscale measures of self-efficacy have stronger correlations with one another than with the subscales of work engagement, and

vice versa, providing evidence of the measures' validity. Furthermore, all self-efficacy and work engagement subscales' correlations were negatively correlated with psychological distress. Thus, higher levels of self-efficacy and work engagement were associated with lower levels of distress, and vice versa. Psychological distress was negatively correlated with age, with relative peaks evident in distress levels for those in their mid-20s and mid-40s.

3. Discussion

This study aimed to examine educators' self-reports of self-efficacy for teaching, engagement in work, and mental health, during the period in which classes across educational sectors were transitioned to an online, or remote, mode of delivery. This section will answer the three specific research questions posed.

3.1 RQ1: In What ways has COVID-19 Impacted on Teaching Self-Efficacy?

Teacher self-efficacy is a significant predictor of ability to cope with job-related stress and is part of a multifactorial phenomenon (Katsantonis, 2020). This study has examined teaching self-efficacy and self-efficacy in general terms during the response to COVID-19 and builds on recent interest in this topic (Zee & Koomen, 2016). The limited gender difference found in our study contrasts with the findings of Ehrish et al. (2020), who found females to have higher levels of teacher efficacy and higher levels of interpersonal/communication skills.

Our results are contrasted by the differences for instructional strategies between sectors with primary teachers indicating higher levels of teacher self-efficacy than both secondary and higher education teachers. Primary teachers' Psychological distress was also concerningly higher than in the secondary and higher education sectors, which suggests there is a strong link between the two areas and a need for policy makers to address this sector and its ability to cope during trauma-based events, such as the COVID-19 pandemic.

3.2 RQ2: How has COVID-19 Altered Educators' Work Engagement?

Although educators were required to move quickly to emergency remote teaching, the educators in this study still felt highly engaged with work. With the total work engagement averages above five (on a six-point scale), educators were positive and identified with their work (Ruiz-Frutosab, 2021). When compared to women, men showed slightly increased levels of vigour, dedication, and absorption, indicating higher resilience and persistence in the face of difficulties (Schaufeli, Bakker, & Salanova, 2006).

Work engagement across sectors differed, with higher dedication in the primary sector compared to the secondary and higher education sectors. It is likely that specific contexts and the demands across the different sectors may have contributed to varied levels of work engagement. In the primary sector, for example, educators typically have a commitment and dedication to one class of students for the whole day; whereas other sectors do not.

3.3 RQ3: To What Extent has COVID-19 had an Impact on Educators' Anxiety and Stress?

Concerningly, just over half of the participants had scores on the K10, indicating they were experiencing some degree of distress (Andrews & Slade, 2001). Perhaps this is not surprising given the outcomes of COVID-19, including high death rates across the world and lockdowns to try to halt transmission. We assume participants were concerned about personal matters (e.g., the well-being of family members, finances), and work (e.g., the remote work transition).

Our study also showed differences in distress levels between genders, with females experiencing greater distress. Perhaps this can be attributed to the multiple demands experienced by female participants, including the home-schooling of educators' own children during the time of the survey. Indeed, Power (2020) highlighted that research prior to COVID-19 had suggested that females globally managed 75% of the day-to-day demands of family life, including caring responsibilities for children, elderly parents, friends or family members with a disability or health condition, and this has been exacerbated during the pandemic. Our results also mirror concerns reported by mental health providers that demand for mental health support services increased during COVID-19 stay-at-home restrictions (Lifeline, 2020).

Remote working environments have long been associated with stressful working conditions, including the intensification of labor and longer working hours (DeFilippis et al., 2020), and changes to ways of working have been found to significantly contribute to increased stress levels (Taylor, 2020). For teachers in Australia, stress related to remote teaching may have been intensified on an already high level of stress. Indeed, according to the 2018 Teaching and Learning International Survey (TALIS) (Organisation for Economic Cooperation and Development, 2018), 58% of Australian teachers reported feeling quite a bit or a lot of stress in their jobs

compared to the international average of 49%. In relation to our study, this could mean that individuals' work-life balance was not manageable, or even that boundaries between work and home were more ambiguous during the transition to remote work. For example, if educators were working longer hours to manage their workload during the transition, this may have been exacerbated by the need to allow time through their day for managing their own children. Moretti et al. (2020) found that one-third of remote workers were less stressed and one-third experienced increased stress.

In our study, there were also significant differences in distress depending on the work environment of the participants, for example, primary school, secondary school or university. Although this could reflect the nature of their work, it is also likely that university educators were more familiar with teaching in online environments and working remotely. If this was the case, we would expect less distress experienced by educators working in the university sector. In addition, primary teachers spend all day with the same students, so the stress may be cumulative over the same day, whereas secondary and university educators work with the multiple groups of students within a day.

3.4 Conclusion

The overall sample size of our study is sufficient for the statistical analyses used to address the research questions and comparisons of mean levels of self-efficacy, work engagement, and mental health among three educational sectors (viz. primary, secondary, and higher education). However, these findings should be interpreted with caution considering the convenience sample used in the study limits the generalisability of the findings. Whilst the measures had appropriate levels of internal consistency as evidence of reliability, consistent with other research, we were unable to test the three measures' invariance across the sectors.

This study examined the self-reports of self-efficacy for teaching, engagement in work, and the mental health of educators from different educational contexts, when classes were pivoting to online or other hybrid off-campus teaching modes. The findings of this study suggest several implications. Firstly, educational institutions (especially primary schools) need to consider the provision of mental health/psychological support for their staff when traumatic or crisis events occur. This is particularly important given the psychological distress reported by primary educators suggesting a need for sector-specific interventions and trauma-informed support systems. Secondly, employers should consider the additional burden put on females in multiple caring roles. This finding aligns with broader gender equality concerns and suggests policies such as flexible work arrangements and other targeted support is important for staff with caregiving responsibilities. Finally, educational institutions need to consider items which impact on work intensification, such as working hours, workload, place and pace of work. Practical strategies to address this could include workload audits, time-use studies and boundaries for remote work to prevent burnout. This study found that there were different outcomes for self-efficacy, work engagement and mental health in different sectors. There were also gender differences in work engagement and stress related to additional work hours and caring duties falling to females during this time.

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