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TLIC PAPER

Examining How Work Environment Effects the Work Engagement of Instructional Designers and the Moderating Role of Psychological Capital

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ABSTRACT

The primary purpose of this study was to determine if and to what extent there is a difference in the overall work engagement of instructional designers who are either working predominantly at home or predominantly in the office in the United States and the secondary purpose of this study was to examine the moderating effect of psychological capital on the predictive relationship between work environment and work engagement. Based on a sample size of 345, the results illustrate that the work engagement scores for those who work predominantly in the office (mean rank = 221.89) were statistically significantly higher than those who work predominantly at home (mean rank = 122.67), U = 23431.50, z = 9.25, $p < 0.001$, but did not indicate that the interaction effect between types of work environment and psychological capital on work engagement was statistically significant (B = –0.04, se(HC3) = 0.07, p = 0.58. The results extend research on work engagement by providing evidence that there is a statistically significant difference in mean ranks of work engagement scores between those who worked predominantly at home and those who worked predominantly in the office.

KEYWORDS

work environment, work engagement, psychological capital, instructional designers, quantitative

1 INTRODUCTION

1.1 Background of the study

As the result of advancements in technology and ongoing growth of the information age, virtual work has become more pervasive in the business world. Because of the coronavirus pandemic, 35.2% of employees in the United States transitioned to remote work, thereby, increasing the total percentage of employees working from home to approximately 50% [1]. Additionally, states with a larger

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number of employees in professional and management roles are more likely to have higher numbers of remote workers [1]. In 2018, a Gallup [2] report indicated that organizational leaders need to understand how workers respond to the changes and demands of developing business realities, including learning more about the psychological needs of workers. With more of the workforce moving to a virtual work environment, it is critical that these employees are effectively engaged.

The coronavirus pandemic created a demand for organizations to speed up the adoption of virtual work. Therefore, maintaining an overall engaged workplace is essential for the success of an organization. Engaged employees are described as taking initiative with their work, being energized when working, responding more quickly when receiving new information, and putting more effort into their work [3]. Engaged employees have a positive impact on an organization's financial performance and employee productivity [4] and demonstrate positive organizational behaviors, like psychological capital, as coping tools to help them manage a dynamic virtual work environment [5]. Onken-Menke et al. [6] noted that employees tend to have increased organizational attachment when hired into organizations that offer flexible work practices, such as virtual working. The challenges faced by virtual or remote employees are different from those faced by traditional workers due to the complexities and dynamics of a virtual job [7]. As the future of work becomes more of a focus, leaders need to understand how workers will respond to the changes and demands of developing business realities, including learning more about the psychological needs of the global workforce [2].

1.2 Identification of the problem space

Based on detailed review of current literature, the identification of the problem space evolved. First, in today's world, the dynamics are changing. Due to the global pandemic and recent shutdowns, the expanded number of employees working virtually increases the urgency to understand what impact the extent of time spent working virtually has on employee outcomes [8]. With the introduction of new technologies, the ability to work virtually, and the need for new skill sets, human resource departments are feeling the pressure to improve the employee experience [9]. Shaik and Makhecha [7] noted that, in the virtual team context, the mechanisms that drive engagement change in both meaning and shape and called for additional research to understand employee engagement. As the number of people moving to the virtual workplace is increasing, leaders need to understand how that affects employee performance and work outcomes. Therefore, it is currently known that the number of people moving to the virtual workplace is increasing, however, it is not known how the drivers of engagement change when working virtually [7].

Second, current research pertaining to virtual workers does not provide consistent evidence for their engagement. Employee engagement was shown to lead to improved employee performance [10]. It is unknown what impact the extent of time spent working virtually has on employee outcomes like engagement [8]. Additionally, Golden and Gajendran [8] noted that employees who perform at high levels are often rewarded with the opportunity to work virtually which may provide insight into the differences in how employees who work predominantly at home and those who work predominantly in the office utilize their individual personal resources. Therefore, it is currently known that engaged employees have improved performance [10]; however, it is not known how much time spent working virtually impacts that level of performance [8].

Third, one's personal resources were found to have a positive relationship with work engagement and are vital for maintaining success in changing work environments. Du Plessis and Boshoff [11] found that employees with higher levels of work engagement often had more of their own personal resources, such as self-efficacy, optimism, and resilience. In their quantitative study, Toth et al. [12] assessed the relationship of one's personal resources and job engagement in a sample of knowledge workers. They found a positive relationship between one's personal resources of self-efficacy, satisfaction with life, and organizational-based self-esteem with job engagement and called for additional research using a broader set of one's personal resources, specifically the inclusion of the other constructs of psychological capital: optimism, hope, and resilience [12]. It was suggested that human resources management practices in organizations could be improved through a better understanding of psychological capital, its effect on the employee experience, and how aspects of HR policies and systems impact individual levels of psychological capital [13]. Therefore, it is currently known that self-efficacy, a sub-construct of psychological capital, is positively associated with work engagement in knowledge workers, however, it is not known how psychological capital, as a whole construct made up of self-efficacy, optimism, hope, and resilience, relates to work engagement in knowledge workers [12].

Fourth, as the coronavirus pandemic brought on new challenges for the workforce, the demands placed on instructional designers, a subset of knowledge workers, increased. There are increased job demands for instructional designers as their role has evolved from simple instructor-led course development to eLearning development to the race to transform instructor-led training to online environments because of the coronavirus pandemic [14], [15]. Engaging instructional designers is critical, as new job demands remain high and their personal and psychological resources are taxed through managing work-life balance and adjusting to new workplace policies [16]. Therefore, it is currently known that the demands placed on instructional designers have increased with the onset of the coronavirus pandemic, however, it is not known how their work engagement was affected based on these changes.

Finally, psychological capital is valuable for maintaining work engagement during organizational change. In their study, Martínez et al. [17] found that students with high psychological capital assess challenging situations positively and tend to perceive challenging circumstances as less demanding. Psychological capital was shown to act as a shielding force in situations of high stress [18]. In their study of employees transitioning to new ways of working, Van Steenbergen et al. [19] suggested that employees with a larger number of personal resources, such as psychological capital, are better equipped to cope with shifting demands and that their engagement levels remained stable. Based on these five points, demonstrating what is known and what is not known, a societal need emerged indicating that it was not known if and to what extent there was a difference in the overall work engagement of instructional designers who were either working predominantly at home or predominantly in the office in the United States and whether that relationship was moderated by overall psychological capital.

Engaged employees were shown to use positive organizational behaviors, like psychological capital, as coping tools to help them manage a dynamic virtual work environment [5]. Prior studies have focused on the relationship of psychological capital and work engagement in various contexts [11], [20], [21], [22], but research was not conducted to understand if and to what extent there was a difference in the overall work engagement of instructional designers who were either working

predominantly at home or predominantly in the office in the United States and whether that relationship was moderated by overall psychological capital. Therefore, the first research question for this study was:

> *If and to what extent does a difference exist between types of work environment and work engagement for instructional designers?*

With the growth of the information age and advancements in technology, virtual work is becoming more pervasive in the business world. As more of the workforce moves to the new challenges and context of a virtual work environment, it is likely that employee engagement is impacted [7]. Work engagement was linked to superior results in business, worker performance, and life satisfaction [4]. Datu et al. [21] found that psychological capital strengthens engagement, motivation, and achievement in the academic world. Alessandri et al. [3] posited that work engagement is the motivational process whereby latent qualities, like psychological capital, are transformed into useful and positive organizational behaviors. The results of this study could provide practical direction for leaders in developing psychological capital in instructional designers to increase their engagement and positively impact organizational outcomes. Therefore, the second research question for this study was:

> *To what extent is there a moderation effect by psychological capital on the predictive relationship between types of work environment and work engagement for instructional designers?*

1.3 Theoretical framework

The intent of this study was to expand the empirical evidence regarding the differences in the overall work engagement of instructional designers based on their work environment and the moderation effect that psychological capital has on that relationship, supporting the concepts and models in this section. Therefore, two compelling theoretical foundations were identified to support this study. The first is Bakker et al.'s [23] work engagement theory, and the second is Luthans et al.'s [24] psychological capital theory. Figure 1 illustrates how these theoretical foundations are entwined and are most appropriate to support this study. As displayed, the hypotheses for this study suggest that the type of work environment an individual works in may affect their work engagement and that relationship may be moderated by the psychological capital of that individual.

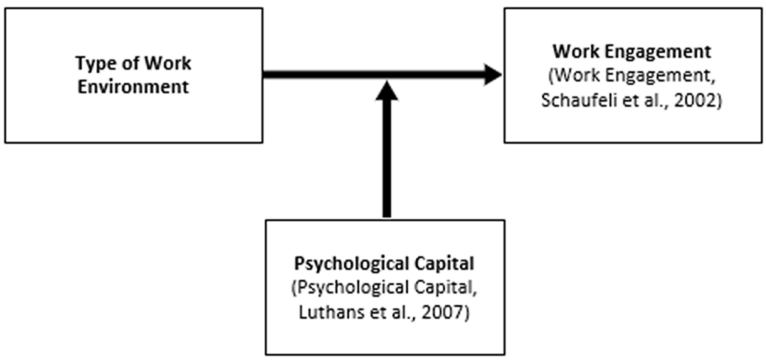

Fig. 1. Theoretical framework

Work engagement theory. The first model providing theoretical support for this study is work engagement theory. Work engagement is described as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" [25, p. 74]. Vigor is described as working hard, where an individual is willing to put effort into work and stay focused, even when faced with challenges [25]. Dedication extends beyond the idea of involvement and is described as having a sense of meaning, eagerness, inventiveness, enjoyment, and being challenged through one's work [25]. Absorption is characterized by being focused and occupied in the work being done that one loses track of time and finds it difficult to disconnect from the work to leave and do other things [25]. Schaufeli et al. [25] argued that while engagement is the positive antipode to burnout, it is a separate, distinct concept, and therefore cannot be measured on a burnout scale, leading to the development of the Utrecht Work Engagement Scale (UWES).

Psychological capital theory. The second theory providing foundational support for this research is the theory of psychological capital. Psychological capital is rooted in positive organizational behavior. Luthans et al. [26] defined psychological capital as:

> An individual's positive psychological state of development that is characterized by: (1) having confidence (efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success [26, p. 2].

One's personal resources, such as psychological capital, could have a positive impact on engagement levels. Work engagement was described as the positive state an employee is in while working while psychological capital is identified as the dynamic and positive personal resource of that individual used to maintain an engaged state [27]. Du Plessis and Boshoff [11] found that employees with higher levels of work engagement often had more personal resources, such as self-efficacy, optimism, and resilience. Van Steenbergen et al. [19] suggested that employees with a larger number of personal resources, such as psychological capital, may be better equipped to cope while staying engaged, which is particularly pertinent as the 2020 global pandemic has brought on massive organizational changes.

2 RESULTS

The first research question was designed to measure the difference in overall work engagement scores between instructional designers who work predominantly at home or predominantly in the office. A Mann-Whitney *U* test was run to answer research question one. The distributions of work engagement scores for those who work predominantly at home and those who work predominantly in the office were not similar, as shown in Figure 2. Due to the distributions not having the same shape, the data was described using mean ranks instead of median values.

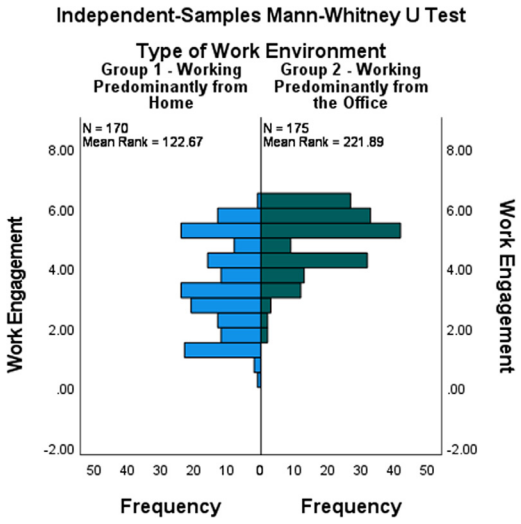

Fig. 2. Population pyramid chart for work engagement

The results of the Mann-Whitney *U* test are contained in Table 1. The results illustrate that there was a statistically significant difference in work engagement scores between groups. The work engagement scores for those who work predominantly in the office (mean rank = 221.89) were statistically significantly higher than those who work predominantly at home (mean rank = 122.67), $U = 23431.50$, $z = 9.25$, $p < 0.001$. Therefore, the null hypothesis was rejected.

Table 1. Independent-samples Mann-Whitney *U* test summary

Statistic Name	Statistic
Total *N*	345
Mann-Whitney *U*	23431.50
Wilcoxon *W*	38831.50
Test Statistic	23431.50
Standard Error	925.40
Standardized Test Statistic	9.25
Asymptotic Sig. (2-sided test)	.000

The second question was designed to assess the moderating effect that psychological capital could have on the predictive relationship between types of work environment and work engagement for instructional designers who work predominantly at home or predominantly in the office. Despite issues of heteroscedasticity and multicollinearity, moderated multiple regression test using the Hayes PROCESS macro was sufficiently robust to yield valid results to answer research question two, as shown in Table 2. While interpreted with caution, the results of the moderated regression analysis were significant, F (3, 336) = 1042.64, $p = 0.000$, $R^2 = 0.82$, indicating that approximately 82% of the variance in work engagement is explainable by type of work environment and psychological capital. Type of work environment significantly predicted work engagement ($B = 0.47$, *se*(HC3) = 0.09, $p < 0.001$), conditional on psychological capital = 0. The conditional effect of psychological capital on work engagement was also positive and significant

($B = 1.02$, se(HC3) = 0.04, $p < 0.001$), conditional on type of work environment = 0. The interaction between type of work environment and psychological capital was not statistically significant ($B = –0.04$, se(HC3) = 0.07, $p = 0.58$) in the model, suggesting that psychological capital was not a significant moderator on the predictive relationship of type of work environment and work engagement, accounting for less than 1% of the variation in work engagement. Therefore, the null hypothesis was failed to be rejected.

Table 2. Moderated multiple regression analysis (psychological capital moderating the relationship between type of work environment and work engagement)

Variables	*B*	*se*(HC3)	*t*	*p*	CI
Work Engagement (Y)	4.13	.05	91.00	.000	[4.04, 4.22]
Type of Work Environment (X)	.47	.09	5.18	.000	[.29, .65]
Psychological Capital (W)	1.02	.04	28.83	.000	[.95, 1.09]
Intercept (XW)	–.04	.07	–.56	.580	[–.18, .10]

Note: CI is at the 95% confidence level.

3 DISCUSSION

There are two fundamental conclusions drawn from the results of this study. The first is that there is a difference in work engagement between those instructional designers who work predominantly at home and those who work predominantly in the office. Second, psychological capital was not a significant moderator of the effect of type of work environment on work engagement, accounting for less than 1% of the variation in work engagement.

The first research question was designed to measure the difference in overall work engagement scores between instructional designers who work predominantly at home or predominantly in the office. The primary conclusion that can be drawn from these results is that there is a difference in work engagement between those who work predominantly at home and those who work predominantly in the office. This finding is supported by Hayes et al. [28] who noted that engagement is affected differently by those who work in virtual roles and ten Brummelhuis et al. [29] who found a positive association between new ways of working and engagement. This finding conflicts with more recent work by de Vries et al. [30] and ter Hoeven and van Zoonen [31] indicating that teleworking has a negative effect on work engagement. de Vries et al. [30] specifically reported that neither working full-time or part-time from home was related to work engagement in a quantitative study of 61 Dutch teleworkers, which was not supported by the findings in this study. In addition to there being a difference in work engagement between those working predominantly at home and those working predominantly in the office, the mean ranks between the two groups were quite different.

The results of this study also show that work engagement was significantly higher for those working predominantly in the office (mean rank = 221.89) versus those working predominantly at home (mean rank = 122.67). As shown in Figure 2, starting at an aggregate work engagement score of 2.0 and down, there is heavy output from those working predominantly from home (g1) and very little for those working predominantly in the office (g2). However, for aggregate work engagement scores of 5.0 and up, the opposite is true with a heavier population for those working

predominantly in the office (g2) and a lesser population reflecting high work engagement scores for those working predominantly from home (g1). Essentially, this means that the higher the work engagement score, the greater the difference grew between the two groups, with a larger number of high work engagement scores for those working predominantly in the office.

While unanticipated, this finding could be explained by Kang and Busser's [32] suggestion that there are numerous contextual factors to consider even though work environment may nurture work engagement. Furthermore, Kulikowski [33] posited that work engagement may not be an all-inclusive concept but suggested instead that varied work contexts may influence the makeup of work engagement. At the time of data collection for this study, many organizations were transitioning back to working in the office after coronavirus pandemic restrictions were lifted in mid-May 2021 [34]. This could have been a motivator in terms of how the sample responded to the survey questions.

The second question was designed to assess the moderating effect that psychological capital could have on the predictive relationship between types of work environment and work engagement for instructional designers who work predominantly at home or predominantly in the office. The primary findings did not show a statistically significant interaction effect between type of work environment and psychological capital on work engagement ($B = –0.04$, $se(HC3) = 0.07$, $p = 0.58$). This outcome conflicts with similar findings in previous research. Du Plessis and Boshoff [11] found that psychological capital both mediated and moderated the relationships between authentic leadership and work engagement in their cross-sectional quantitative study of 647 managers in a South African healthcare organization. In two separate studies of 606 and 384 high school students in the Philippines, psychological capital was shown to be associated with and to be a predictor of autonomous and controlled motivation, as well as academic engagement and achievement [11]. In their quantitative study, Xi et al. [35] found that psychological capital moderated the relationship between social support and work engagement, but not the other way around, providing support for the development of individual resources along with organizational support when looking to increase work engagement. Engaged employees were shown to use positive organizational behaviors, like psychological capital, as coping tools to help them manage a dynamic virtual work environment [5] and demanding situations [17].

The results of this study corroborate the findings in one recent article. The premise for the second research question in this study is comparable to that of Van Steenbergen et al.'s [19] who suggested that employees with a larger number of personal resources, such as psychological capital, may be better equipped to cope while staying engaged, which is particularly pertinent as the 2020 global pandemic has brought on massive organizational changes. In their longitudinal quantitative study of 126 employees of a financial services provider in Holland, Van Steenbergen et al. [19] found that psychological capital did not moderate the relationship between work engagement and the transition to new ways of working. By conducting MANCOVAs, they reported that the univariate main effect for psychological capital was significant for task ambiguity but was not significant for job demands and mental demands. Although support was not found for the moderating role of psychological capital, Van Steenbergen et al.'s [19] findings did show that employees who had higher psychological capital in all three data waves also showed higher levels of engagement and autonomy than colleagues with lower psychological capital scores. In this study, psychological capital was also shown to have a conditional effect on work engagement.

An ancillary observation in the results of the moderated multiple regression were significant relationships between type of work environment and psychological capital on work engagement, conditional on the other predictor variable being = 0. The conditional effect of psychological capital on work engagement was positive and significant (B = 1.02, se(HC3) = 0.04, $p < 0.001$), conditional on type of work environment = 0. This coincides with research stating that psychological capital has a positive relationship with engagement [11] and that it strengthens engagement levels [21]. When an individual has higher levels of psychological capital and their psychological needs, as defined by self-determination theory, are satisfied, they are likely to exhibit more positive organizational behaviors and may be more engaged in their work [31], [36]. Type of work environment was also shown to have a conditional effect on work engagement.

In the results of the moderated regression analysis, type of work environment was also shown to significantly predict work engagement (B = 0.47, se(HC3) = 0.09, $p < 0.001$), conditional on psychological capital = 0. This result provides evidentiary support for the influence of an individual's work environment on their work engagement. Shaik and Makhecha [7] noted that it is likely that employee engagement is impacted as more of the workforce confront new challenges and circumstances of a virtual work environment. Moreover, the findings in this study partially corroborate Duque et al.'s [37] conclusion that work engagement was directly and positively affected by physical working conditions. They also reported that this relationship was mediated by new ways of working, but that all facets of new ways of working did not have to be implemented to increase employee engagement. The inference drawn from their results was that investments into improvements of the physical work environment may enhance engagement more when the implementation of at least one facet of new ways of working is implemented as well. While the ancillary observations in the present study are interesting, the answer to the second research question for this study did not provide statistically significant evidence to address issues identified in the problem space.

The secondary purpose of this study was to determine if there was a significant moderation effect by psychological capital on the predictive relationship between types of work environment and work engagement for instructional designers. This focus was guided by a call for research to understand how one's personal resources, specifically psychological capital, relate to work engagement in a sample of knowledge workers [12]. Furthermore, Carnevale and Hatak [16] indicated that the demands placed on instructional designers have increased with the onset of the coronavirus pandemic, but, prior to this study, there was no known research that delineated how instructional designer's work engagement may be affected based on these changes. Van Steenbergen et al. [19] proposed that employees with a larger number of personal resources, such as psychological capital, are better equipped to cope with shifting demands and that their engagement levels remain stable. While the findings failed to support these concepts, the results of this study extend existing research.

4 RECOMMENDATIONS

Based on the findings and conclusions of this study, there is an opportunity for further exploration and practice. Due to the complexities of virtual work, future research could employ a qualitative method to understand the organizational context and environmental factors that influence the differences of work

engagement between those who work predominantly at home and those who work predominantly in the office. Kang and Busser [32] suggested that work environment may nurture work engagement, but that there are numerous contextual factors to consider. For example, Panteli et al. [38] found that leaders could effectively use resources, such as support, pay, and job autonomy, to promote work engagement in virtual teams. Farina et al. [4] noted that the work location for any employee could be structured in a way that promotes engagement in the workflow. An additional opportunity for future research could be the replication of this study.

While the results of this study have shown there are significant differences in work engagement, there is more to be learned about why those working in the office were shown to be more engaged than those working predominantly at home. As shown in the Mann Whitney *U* test results, starting at an aggregate work engagement score of 2.0 and down, there is heavy output from those working predominantly from home (g1) and very little for those working predominantly in the office (g2). However, for aggregate work engagement scores of 5.0 and up, the opposite is true with a heavier population for those working predominantly in the office (g2) and a lesser population reflecting high work engagement scores for those working predominantly from home (g1). This means that those working predominantly in the office had higher levels of engagement. Replication of this study could determine if the results remain true when environmental factors change. Given the timing of data collection for this study, when offices were re-opening after the coronavirus pandemic, the levels of engagement may change once work practices and job demands return to previous levels of normalcy. Additional research should focus on the amount of time spent working virtually.

The groups for this study included those working predominantly at home and those working predominantly in the office, with the term predominantly being defined as 80% or more of the time. This rationale was based on Golden and Gajendran [8] who noted that it was unknown what impact the extent of time spent working virtually has on employee outcomes like engagement. Excluded from this study were those who worked less than 80% of the time in either location. Future researchers could explore differences in work engagement by assessing time spent working virtually versus in the office by the number of days. Future researchers could also examine work engagement in other types of knowledge workers.

This study focused on a target population of instructional designers, a subset of knowledge workers, however an examination of work engagement in other types of knowledge workers with increased job demands is recommended. The coronavirus pandemic created new challenges for instructional designers and increased demands on their personal and psychological resources. In early 2020, as stay-at-home orders went into effect, faculty and instructional staff in higher education were tasked with finding ways to quickly convert face-to-face courses into online formats (instructor-led virtual courses and self-directed eLearning programs) as well as develop new training interventions to help learners cope with the new normal of the pandemic, regardless of their expertise [39]. Other types of knowledge workers, such as teachers, human resources employees, and IT workers may have had similar increases in job demands due to the increase in virtual work during the pandemic and ongoing discussions about returning to the workforce post-pandemic. A valuable understanding of work engagement could be gained by additional research using target populations of other types of knowledge workers, specific industries, organizations, or regions to enable better generalizability of the study results.

It was hoped that this study could provide practical direction for leaders to consider when designing human resource practices for different work environments, conceptualizing training programs for developing psychological capital, and creating avenues to increase work engagement. The results of this study showed that there are statistically significant differences in work engagement based on an individual's type of work environment. The outcomes, however, did not show psychological capital to be a moderator of the relationships between type of work environment and work engagement. Based on these findings, there are three central recommendations for future practice for organizational leaders and human resources practitioners.

First, knowing that there are differences in work engagement for employees working predominantly at home and predominantly in the office, organizational leaders and human resources practitioners should design flexible work practices in a way that accommodates the diverse needs of employees based on their type of work environment. Work contexts should be designed with the goal of creating the right fit between what employees expect for their roles and the type of work environment in which they want to work [40]. Bakker [40] also proposed that human resource managers should consider work environment designs that lessen job demands and enable job resources to proactively support work engagement.

A second recommendation for future practice is for organizational leaders and human resources practitioners in the learning and development industry. Based on the results of this study, it would be prudent for learning and development department heads to allow their instructional design staff to choose the type of work environment where they feel they will be most effective. This recommendation is in line with Spivack and Woodside [41] who noted that intrinsic work motivation is likely to influence work environment choices. Individuals who have high intrinsic motivation, specifically knowledge workers, are likely to prefer and choose work environments that help their productivity [41]. Moreover, knowledge workers are also more likely to select a work environment that will have a positive influence on their productivity and well-being, particularly if they have perceived location autonomy [42].

Lastly, while this study did not show psychological capital to be a moderator of the relationship between type of work environment and work engagement, it is clear through the ancillary results of the moderated multiple regression that work environment and psychological capital each have a positive conditional effect on work engagement. Therefore, human resources practitioners should consider contextual factors influencing an individual's work environment as well as establish programs to develop their psychological capital. Kotzé and Nel [43] posited that organizational leaders can increase an employee's work engagement by investing in human resource practices and a work environment that enhances both job and personal resources, specifically psychological capital. When an individual has higher levels of psychological capital and that individual's psychological needs are satisfied, that person is likely to exhibit more positive organizational behaviors and be engaged in their work [31], [36].

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