DIGITAL COMPETENCIES AND TRANSFORMATIONAL LEADERSHIP AS PREDICTORS OF JOB PERFORMANCE IN UNIVERSITY TEACHERS

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ABSTRACT

COVID-19 has adversely impacted the entire university community worldwide, including teachers, administrative staff, and students. This study analyzed the relationship between digital competencies, transformational leadership, and job performance of Peruvian university teachers. A predictive cross-sectional study was conducted with 201 teachers from a private university in Peru in three regions of the country (coast, highlands, and jungle). The Digital Competencies in Teaching (CDD), Multifactor Leadership Questionnaire (MLQ 5X Short), and the Job Performance scale were used for data collection. The samples were analyzed with structural equation modeling and an adequate fit to the data was obtained ($\chi^2 = 194.342, p < 0; \chi^2/df = 2.23, CFI = .952, TLI=0.942, RMSEA = .078, SRMR = .061$). In addition, both digital competencies ($\beta = .28, p < 0$) and transformational leadership ($\beta = .76, p < 0$) were found to be predictive factors of job performance. These findings provide evidence that digital competencies and transformational leadership were directly related to the job performance of university teachers during the COVID-19 pandemic. Consequently, it would be appropriate for educational leaders to consider these findings to enhance the digital competencies of teachers, promote a positive work environment, and support professional growth by stimulating motivation and job satisfaction during crisis situations.

Keywords: digital competencies, transformational leadership, job performance, parceling

INTRODUCTION

The COVID-19 pandemic meant that the education system had to adopt online teaching as a measure to ensure that education continued in schools during the quarantine period (Lorente et al., 2020). Indeed, because of this abrupt change, universities have had to adapt classes to keep students and ensure that they have access to learning (Radu et al., 2020). On the other hand, university teachers were forced to adjust to this new situation by creating new distance teaching strategies that, therefore, required the use of digital competencies to adequately manage virtual tools and devices in the learning and teaching process. It is possible that these sudden and unanticipated changes affected the performance, professional development,
motivation, and satisfaction of university teachers (Ionescu et al., 2020), because some university teachers, particularly in the Peruvian context, do not have an adequate command of the new technologies to cope with this new teaching modality (Méndez et al., 2022). The fact of not having an adequate level of digital competence in the current context, the lack of knowledge of how to achieve online class preparation, and the high financial costs to invest in distance learning tools could lead to the emergence of job stress in university teachers (Calamlam et al., 2022; Nabolsi et al., 2021).

Digital competencies are skills that enable people to use information and communication technologies (ICT) effectively and productively. Currently, ICT is becoming increasingly important in the workplace, making digital competencies a key aspect of job performance (Touron et al., 2018). Digital competencies in education refer to the skills, knowledge, and attitudes necessary for the effective and safe use of digital technology in academic life and learning (Cabero-Almenara & Palacios-Rodríguez, 2019; Méndez et al., 2022). These competencies include knowledge and understanding of different types of digital technologies, as well as the ability to use them effectively and critically, to create academic content and deliver it to students (Blau & Shamir-Inbal, 2017). In fact, digital competencies are fundamental in the academic and professional training process and allow instructors to generate new methodologies and learning resources that serve students in a more appropriate way (Méndez et al., 2022; Touron et al., 2018). Therefore, in the university education system, in the current context of the health crisis and because these digital skills are increasingly important in the academic environment, it is necessary that the agents or entities involved in the design, implementation, and evaluation of teaching and learning processes implement policies and strategies to improve the skills and competencies of university teachers to develop their role in a more appropriate way to meet the current educational demands. This is particularly important considering that university teachers play a fundamental role in higher education, as they are responsible for teaching classes, guiding and advising students, and contributing to the development of research and knowledge in their field of specialization (Monteiro & Leite, 2021).

The incorporation of technology into the educational system is a topic of interest for both public and private educational institutions in Peru. Indeed, an increase of the Educational Technology (Edtech) sector by an average of 400% was observed during the first year of the COVID-19 pandemic, demonstrating the impact of the pandemic on the Peruvian educational system (El Peruano, 2021). In addition, Peru currently has about twenty Edtech programs, and 86% of them are used for both communication and teaching (Magisterio, 2021). Furthermore, among the main academic factors that impact the success of Peruvian university students, the available technology and the use of educational technology resources are 96% and 94% successful, respectively (El Peruano, 2021). However, in several regions, many teachers and students faced problems such as a lack of electricity and poor internet access, which makes it impossible to implement virtual tools for education. Although Peru is considered an upper middle-income country, there are still households without electricity. In fact, at the beginning of the pandemic, about 9% of Peruvian students lived in areas where virtual classes were not accessible (UNICEF-Peru, 2021). Consequently, taking into account all above, and considering that Peru is ranked fourth lowest in the region in terms of access to internet for the poorest population groups (CEPAL, 2017), it is important to consider access to electricity and internet as a global public good and essential for access to quality education. This is particularly important because it would allow the strengthening of digital infrastructure in rural and urban areas and amplify the use of portable devices among students and teachers.

Transformational leadership is a leadership approach where the leader has a set of deep inner ideas and values that focus on inspiring and motivating followers through having a shared vision, appealing to higher moral ideas and values, and sharing a commitment to transcendent goals. These principles enable followers to act to uphold the greater good, rather than their own interests, and creates a supportive and caring environment where responsibility is shared (Doody & Doody, 2012). While this leadership approach is often used in organizations and businesses, it can be applied in the context of universities. Transformational leadership can be especially critical in the context
of virtual education, where collaboration, creativity, and adaptation are essential for the academic and professional success of students (Amin et al., 2022). It can also be particularly useful in creating a collaborative and enriching learning environment that fosters innovation and creativity and promotes a shared commitment to the mission and values of the university (Firmansyah et al., 2022; Ghorbani et al., 2023). This is important because university leaders often have the responsibility of guiding and motivating a diverse community that includes students, teachers, and administrative staff (Firmansyah et al., 2022; Ghorbani et al., 2023). In addition, a transformational leader can inspire their team members through a shared vision of virtual education and its potential to transform the educational experience (Bellibaş et al., 2021; Steinmann et al., 2018). This vision can motivate students and academic staff to collaborate on innovative projects and to seek new ways of learning and teaching (Fischer, 2017), resulting in educational excellence (Ionescu et al., 2020; Sukendro et al., 2020). Finally, applying transformational leadership principles in the university environment can help students and academic staff succeed in virtual education and prepare them to meet the challenges of the modern world, which is becoming increasingly digitized (Hoehe & Thibaut, 2020).

Currently in the educational field, there is no consensus on the most appropriate and effective type of leadership. Despite the large body of research demonstrating the importance of transformational leadership in various aspects (Bellibaş et al., 2021; Doody & Doody, 2012; Firmansyah et al., 2022; Kim & Cruz, 2022; Steinmann et al., 2018), there is a lack of empirical studies confirming its effectiveness and relevance in university student settings in the context of the COVID-19 crisis.

Job performance has been widely discussed and conceptualized in the scientific literature (Krijgsheld et al., 2022; Varela & Landis, 2010) and is defined as the effectiveness and efficiency with which workers achieve the objectives and expectations established by their employers in a given period of time (Ngwenya, 2021). Job performance can be measured in terms of quantity and quality of work performed, efficiency in the use of resources, ability to work in a team, problem solving and decision making, and the ability to meet deadlines and established goals, among other aspects (Krijgsheld et al., 2022). In the context of university teaching, job performance is defined as the ability of a university teacher to effectively impart knowledge and skills to their students and to meet the expectations and objectives established by the educational institution (Hwang et al., 2017). In addition, job performance can be measured by considering the teacher’s ability to demonstrate a high level of knowledge and mastery of the content in their area of specialization (Hosotani & Imai-Matsumura, 2011; Shulman, 1991), to effectively communicate skills to impart knowledge and generate interaction with students (Montes de Oca & Pérez, 2015), to provide feedback to students on their performance and offer additional resources to support their learning (Al Ansari et al., 2020), and to keep up to date in their field and contribute to academic knowledge through research and publication of articles in specialized journals (Azevedo & Duarte, 2018). These aspects are particularly important in a context that has posed for both teachers and students the challenge of rapidly adopting elearning (Leal Filho et al., 2021).

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Digital Competencies and Job Performance of Teachers

Recent studies have shown that the higher the development of digital competencies, the higher the level of job performance of workers (Emperatriz & Yudet, 2022). At the university level, this relationship could be even greater due to the integration of information and communication technologies in university education (Cabero-Almenara et al., 2020). ITC use has intensified due to the migration towards distance education during the COVID-19 pandemic (Monteiro & Leite, 2021) because of social distancing policies (Davila-Torres et al., 2021). In fact, in recent years, research has attempted to describe the negative and positive impacts of the use of technology at work, and the findings have been more positive than negative and shows higher performance and job satisfaction (Ninaus et al., 2015; Sandoval-Reyes et al., 2019). However, some studies have reported negative effects under certain conditions, including work overload (Sandoval-Reyes et al., 2019) and job burnout (Ninaus et al., 2015). Although these findings do not detract from the need for teachers
to be proficient in the use of digital tools, because digital competencies are an essential skill for university teachers, they can have a significant impact on teachers’ job performance and the learning of their students (Blau & Shamir-Inbal, 2017). In fact, teachers who are digitally competent can use digital tools effectively to improve their teaching practice and increase the academic success of their students (Méndez et al., 2022; Touron et al., 2018).

Currently, there is an exponential increase in the use of digital devices by university students, which is making it necessary for teachers to acquire digital competencies to maintain the educational process and improve their performance (Touron et al., 2018). It is therefore essential that university teachers have the necessary skills to develop digitally integrated learning and to cope in this changing environment. Based on this literature, we expect digital competencies to improve the job performance of university teachers in times of the COVID-19 pandemic and in times of adversity. For the purposes of this study, digital competencies have the following dimensions: information literacy, communication and collaboration, digital content creation, security, and problem solving (Touron et al., 2018). In addition, the job performance of teachers is evaluated through discipline and student attendance in class (Carlos-Guzmán, 2016).

**Transformational Leadership and Teacher Job Performance**

Transformational leadership is an important aspect in the growth of organizations and the job performance of people, making it one of the most effective operational leadership paradigms popular with leaders and managers across the globe (Afsar et al., 2020). Transformational leadership is particularly relevant in the context of crisis because the effectiveness of transformational leaders is actualized and adapted during periods of change, chaos, and high uncertainty (Bass & Riggio, 2006).

Previous studies have examined the relationship between transformational leadership and job performance (Darvishmotevali & Ali, 2020; Lai et al., 2020). Also, transformational leadership can positively impact employee job performance (Khan & Khan, 2019), because transformational leaders are able to establish positive relationships and interactions among their followers, which in turn leads to motivation in the workplace, better job performance, and the feeling of belonging to the group (Bass & Avolio, 1990; Boamah, 2018). In fact, transformational leaders improve employee performance by supporting them in persistence and having sympathy for their job responsibilities (Schwarz, 2017). In addition, transformational leaders help improve the psychological well-being of employees in the workplace and make them happy, which, in turn, improves job performance (Lai et al., 2020). Transformational leadership fosters a safe work environment, decreases threats of potential negative consequences when they are expressed, and facilitates the use of available work resources, which consequently allows employees to be more willing to be psychologically present and more inclined to invest their energies in the performance of their designated job roles (Kahn, 1990).

In the educational field, transformational leadership is fundamental to improving and strengthening the quality of education and focuses on driving and motivating university teachers to work towards change by providing attention to students and ensuring academic success (Jovanovic & Ciric, 2016). In addition, teachers who have transformational leaders often have greater motivation, commitment, and job satisfaction (Shava & Heystek, 2021). Moreover, teachers are more likely to feel inspired by their leader to achieve higher goals and make significant contributions to their field of expertise, which, in turn, fosters a culture of effective teaching and learning (Shava & Heystek, 2021). In addition, transformational leaders in the field of education tend to foster an environment of learning and academic and professional growth through ongoing training (Asad et al., 2022). Teachers working in this type of environment may feel more comfortable sharing their ideas, collaborating with their peers, and experimenting with new teaching methodologies (Bolkan & Goodboy, 2009).

Several studies have evidenced the effectiveness of transformational leadership in many settings, including industries and organizations, healthcare, and the public and private sectors (Boamah, 2018; Doody & Doody, 2012; Jiatong et al., 2022). There are also several reports that demonstrate the positive relationship between transformational leadership and some organizational variables, such as organizational effectiveness, employee satisfaction with their
leader, and job performance (Álvarez-Solves et al., 2012; Cruz-Ortiz et al., 2014; Darvishmotevali & Ali, 2020; Lai et al., 2020). However, despite the wealth of research demonstrating the importance of transformational leadership (Boamah, 2018; Doody & Doody, 2012; Jiatong et al., 2022; Khan & Khan, 2019; Shava & Heystek, 2021), there are few empirical studies that confirm its efficacy and relevance in university environments in the context of great uncertainty such as the health crisis caused by COVID-19. In addition, there is little empirical evidence of the relationship between transformational leadership and job performance in university teachers. Therefore, it is necessary to conduct research to predict the influence of transformational leadership in university teachers to improve their work performance in the Peruvian educational sector. For the purposes of this study, seven dimensions that characterize transformational leadership are specified: charisma, individual consideration, intellectual esteem, inspiration, psychological tolerance, participation, and leader performance (Meza-Mejía & Flores-Alanís, 2014). Figure 1 shows the theoretical background for this study.

**Figure 1. Theoretical Model of Research Hypothesis**

Based on the theoretical model, we put forward the following hypotheses:

H1\_0: There is no statistically significant and positive relationship between digital competencies and job performance (\(\alpha = 0.05\)).

H1\_A: There is a statistically significant and positive relationship between digital competencies and job performance.

H2\_0: There is no statistically significant and positive relationship between transformational leadership and job performance (\(\alpha = 0.05\)).

H2\_A: There is a statistically significant and positive relationship between transformational leadership and job performance.

**MATERIALS AND METHODS**

**Study Design and Participants**

The nature of our research was cross-sectional. In addition, in this study we applied a predictive design, because the objective of the research was to explore a functional relationship through the prediction of some criterion variable (Job Performance) based on one or more predictors (Digital Competencies and Transformational Leadership) (Ato et al., 2013). Moreover, we used a multivariate analysis with Structural Equation Modeling (SEM) for the relationship of variables, as reported in similar research (Alaminos et al., 2015).

The number of participants was determined using Soper software (https://www.danielsoper.com/statcalc/) for SEM, resulting in a total of 1,184 participants. The number of observed and latent variables, anticipated effect size (\(\lambda = .3\)), statistical power levels (1 - \(\beta = .95\)), and desired probability (\(\alpha = .05\)) were considered.

Finally, we surveyed 201 teachers from a higher education institution in Peru. The participants worked at the university campuses located in Lima, Juliaca, and Tarapoto, of which 67 participants were taken from each campus. Approximately 62.2% of the participants were men and 37.8% were women. The age range of the majority was between 36 and 55 years old (80%). More than 77% were married and with respect to academic degree, 58.7% had a master’s degree and 19.9% had a doctorate. Approximately 71.2% were employees with a length of service between 5 and 15 years (60%) (see Table 1).

Before collecting data from the professors, we requested permission from the research ethics committee of the Universidad Peruana Unión. After obtaining the authorization document, a telephone call was made to the teachers chosen according to their availability. Participants were informed about the objective of the study, the voluntary nature of their participation, the benefits, and the confidentiality of the information collected. Data collection from participants was conducted through an online
survey from September to December 2021. Each participant was sent via WhatsApp a unified virtual questionnaire generated with Google Forms.

MEASURES

Digital Competencies

We used the Digital Competencies for Teachers (CDD) instrument from Touron et al. (2018). It consists of 54 items measured with a 7-point Likert scale (1 = Never, 7 = Always). The instrument evaluated five dimensions: (a) information and information literacy, (b) communication and collaboration, (c) digital content creation, (d) security, and (e) problem solving. It is a validated and reliable instrument with an alpha coefficient of .98. In addition, in this study, the model presented adequate reliability indices (α = .97, ω = .97) and adequate validity indices ($\chi^2 = 2616.862; df = 1367; p = .000; CFI = .916; TLI = .912; RMSEA = .068$). It is worth mentioning that this instrument was used in a previous study carried out in the Peruvian population in the context of the COVID-19 pandemic (Julca Guerrero et al., 2022).

Transformational Leadership

We used the Multifactor Leadership Questionnaire (MLQ-5X) from Meza-Mejia and Flores-Alanís (2014). The questionnaire presents 32 items measured with a 5-point Likert scale (1 = Never, 5 = Always). The instrument evaluated seven dimensions: (a) charisma, (b) individual consideration, (c) intellectual esteem, (d) inspiration, (e) psychological tolerance, (f) participation, and (g) teacher’s performance. In the current study, the model presented adequate reliability indices (α = .94, ω = .95) and adequate validity indices ($\chi^2 = 801.053; df = 443; p = .000; CFI = .950; TLI = .944; RMSEA = .064$). In studies carried out in the Peruvian population, the reliability analysis yielded a Cronbach’s Alpha of 0.97 (Cruzado, 2021).

Job Performance

The job performance instrument was taken from Goodman and Svyantek (1999). The questionnaire presents 25 items measured with a 7-point Likert scale (1 = never and 7 = always). The instrument evaluated three dimensions: altruism, conscientiousness, and task performance, with an alpha coefficient ranging from .86 to .93.

Data Analysis

Job Performance was considered the criterion variable, while Digital Competencies and Transformational Leadership were considered predictor variables. The elements of each of the variables were integrated using the parceling approach. SEM models make it possible to analyze several simultaneous connections and explain relationships, associations, and correlations of multiple variables or constructs by allowing the creation of

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<td>5-10</td>
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<td>26-30</td>
<td>7</td>
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complex statistical models (Byrne, 2010; Hair et al., 2010; Manzano Patiño & Zamora Muñoz, 2009).

Parceling has been used since its introduction by R. B. Cattell in 1956 (see also Bandalos, 2002; Kishton & Widaman, 1994; Little et al., 2002) as a procedure for grouping items into clusters or plots and then using them as new indicators of the latent variable or construct and calculating sums or averaging over multiple items (Kishton & Widaman, 1994). Parceling is generally used when the data do not have a normal distribution, which is allowed when using robust estimators and not when estimators such as maximum likelihood (ML) and general least squares estimation require it. The methodology accepts the sum of the plots or groups formed as new indicators of the latent variables, instead of the individual scores, and reduces the complexity of the model; thus, the number of indicators of a latent factor is reduced (Hagtvet & Nasser, 2004).

Prior to the SEM analysis, the descriptive analysis was performed by determining the Pearson correlation matrix, mean, standard deviation, skewness, and kurtosis. To evaluate the theoretical model, structural equation modeling was used with the MLR (robust maximum likelihood) estimator, which is appropriate for numerical variables and is called a robust estimator (Muthén & Muthén, 2017). For the analyses, the data were processed with the parceling method as recommended by several studies (Bandalos, 2002; Hagtvet & Nasser, 2004; Kishton & Widaman, 1994). The parameters to evaluate the model were the comparative fit index (CFI > .90) and Tucker-Lewis fit index (TLI > .90). The root mean square error of approximation (RMSEA < .80) and standardized root mean square residual (SRMR < .80) indices indicate an acceptable fit (Chiang-Vega & Candia-Romero, 2021; Pilatti et al., 2011). Standardized coefficients β were also determined to test the hypotheses stated in the model.

For reliability, alpha and omega reliability coefficients were determined (Zinbarg et al., 2005). The values of alpha (α) below .5 is unacceptable, from .5 to .6 is poor, from .6 to .7 is questionable, from .7 to .8 is acceptable, from .8 to .9 is good and above .9 is excellent. In the case of the omega coefficient, they indicate that for omega to be acceptable it must be in the range of .7 to .9. (Campo-Arias & Oviedo, 2008).

Data analysis was performed with SPSS v.26 for descriptive analysis, AMOS v.24 for the path diagramming of the model, and R v.4.0.5 for the use of the MLR estimator, using the Lavaan library.

RESULTS

Descriptive Statistics, Internal Consistency, And Correlations

Table 2 shows the results of the descriptive analysis of the mean (M), standard deviation (SD), skewness (g1), kurtosis (g2), where the standard deviation presents low values indicating that the responses were not very dispersed. According to the skewness and kurtosis values, we observed that the data distribution presents adjusted normality. A correlation matrix was run to evaluate the relationships between variables before creating the model. We observed that digital competence was positively correlated with transformational leadership (r = .489, p < .01) and job performance (r = .550, p < .01); furthermore, transformational leadership was positively correlated with job performance (r = .667, p < .01), ensuring that the indicators are representative of their constructs. Suggesting that those with higher levels of digital competencies

<table>
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<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>g1</th>
<th>g2</th>
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<th>ω</th>
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<td>-15</td>
<td>-21</td>
<td>.97</td>
<td>.97</td>
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<tr>
<td>Transformational leadership</td>
<td>4.417</td>
<td>.40</td>
<td>-.71</td>
<td>.48</td>
<td>.94</td>
<td>.95</td>
<td>.489**</td>
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<tr>
<td>Job performance</td>
<td>5.371</td>
<td>.68</td>
<td>.28</td>
<td>.23</td>
<td>.86</td>
<td>.81</td>
<td>.550**</td>
<td>.667**</td>
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Note: **Correlation significant at the .01 level. M=Mean; SD=Standard deviation; g1=Asymmetry; g2=Kurtosis.
and higher levels of transformational leadership are more likely to be correlated with higher levels of job performance. Furthermore, the proposed variables were significantly correlated with each other ($p < 0.01$). Regarding internal consistency, the alpha values ($\alpha$) ranged from .86 to .97 and the omegas coefficients ($\omega$) had similar values from .81 to .97.

**Global Adjustment of the Structural Model**

Figure 2 shows the theoretical model with adequate fit confirming the final model: $\chi^2 = 194.342, p < 0; \chi^2/df = 2.23, \text{CFI} = .952, \text{TLI} = .942, \text{RMSEA} = .078, \text{SRMR} = .061$. The model shows that digital competencies ($\beta = .28, p < 0$) and transformational leadership ($\beta = .76, p < 0$) predicted job performance. The reported standardized $\beta$ coefficients confirm the hypotheses (H1 and H2) of the theoretical model. Referring to the explained variability, we reported that 85% of the scores fit the theoretical model.

**DISCUSSION**

The purpose of this study was to determine the relationship between digital competencies and transformational leadership on the job performance of Peruvian university teachers through the structural equation modeling approach. The findings of this study have shown that the theoretical model fits the data collected, i.e., digital competencies significantly, directly, and positively predicted the job performance of university student teachers during the COVID-19 pandemic. The effect of digital competencies on job performance observed in the current study is consistent with previous studies (Afrianty et al., 2022; Edeh et al., 2020). More specifically, in the Peruvian context, a study conducted during the pandemic by COVID-19 on a group of workers that performed remote work shows that the higher the development of digital competencies, the higher the level of job performance of workers (Emperatriz & Yudet, 2022). In fact, in recent years, studies have attempted to detail both the negative and positive effects of technologies in the workplace. Nevertheless, the results obtained have been mostly favorable, demonstrating higher performance and greater job satisfaction (Ninaus et al., 2015; Sandoval-Reyes et al., 2019). However, some research has pointed out that in certain circumstances, such as work overload (Sandoval-Reyes et al., 2019) and job burnout (Ninaus et al., 2015), technologies can have adverse effects.

It is important to note that the transition to digital education requires university teachers to have a high degree of competence in the use of technologies for teaching, since it is crucial to train future professionals to be able to function in an increasingly technological and digitized labor market (Antón-Sancho et al., 2021). Indeed, although reports indicate that teachers perform well using digital tools, they may have difficulties applying their digital knowledge in the actual pedagogical process, which may negatively affect their performance as teachers (Huerta Soto et al., 2022; Núñez-Canal et al., 2022). In fact, many university teachers lack digital competencies, which, in turn, can negatively impact the productivity of academic staff (Benavente-Vera et al., 2021; Martínez-Garcés & García-Fuenmayor, 2020). Therefore, to maximize the job performance of teachers, we recommend that higher education institutions that opt for distance work through the use of technological devices provide their employees with sufficient digital training and ensure that they have the necessary skills to perform in this environment.

On the other hand, another important finding of this study is that transformational leadership significantly, directly, and positively predicts job performance during the COVID-19 pandemic. Likewise, previous studies have examined the impact of transformational leadership on job performance (Darvishmotevali & Ali, 2020; Khan & Khan, 2019; Lai et al., 2020), demonstrating that transformational leadership can positively impact employee job performance. Similarly, our results support the findings of a study conducted in the context of developing countries showing that leadership style, particularly transformational leadership, can affect the performance of university
staff (Jameel & Ahmad, 2019). This is possibly because transformational leaders have the ability to generate positive interactions and relationships among their followers, which, in turn, promotes motivation in the workplace and improves work performance, which can increase the feeling of belonging to the group (Bass & Avolio, 1990; Boamah, 2018). In fact, improved job performance can be attributed to the fact that transformational leadership increases employee engagement and motivation within the organization (Nguni et al., 2006; Para-González et al., 2018).

Transformational leaders improve employee performance by providing support and empathy in carrying out their job responsibilities (Schwarz, 2017). In addition, transformational leaders contribute to improving the psychological well-being of workers in the workplace by fostering satisfaction and contentment, which translates into better performance in work tasks (Lai et al., 2020). Transformational leadership promotes a safe work environment, reduces fear of possible negative consequences when speaking out, and facilitates the use of available work resources, which in turn makes employees more willing to be psychologically present and more inclined to invest their energies in the performance of their assigned job roles (Kahn, 1990). The use of transformational leadership from a university teaching perspective, in addition to improving the performance of academic staff, can promote a positive influence on the commitment, teamwork, and solidarity of students (Fischer, 2017).

Finally, it is clear that the COVID-19 pandemic has profoundly affected educational systems. Due to the contingency measures adopted, university education has moved to the distance mode, and in most countries, face-to-face education has been suspended (Biyik et al., 2021; León-Paucar et al., 2021; Moschovis et al., 2022; Saintila et al., 2021). This transition has surprised the university community and has revealed several challenges, such as classroom management and the inability to achieve learning objectives in the virtual environment due to the lack of technological skills of professors, among other causes (Casali & Torres, 2021). These factors could be influencing their job performance as teachers.

In practical terms, the results of this study have great relevance for professionals in the educational field, as they suggest that university teachers must possess high digital competence to perform adequately in a distance learning context. We suggest that higher education institutions provide teachers with adequate training to improve their skills in the use of digital technologies and their effective integration in teaching. Consequently, educational institutions could introduce training and development initiatives focused on the advancement of digital skills and the integration of technologies in teaching. Training for teachers should be personalized, tailored to the specific needs of each teacher, and focused on the development of digital skills, taking into account teachers’ strengths and weaknesses in relation to these competencies. In addition, it is essential that the training be practical and applied in real teaching situations.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The findings of this study should be interpreted with some limitations in mind. Firstly, the survey we used had more than 100 items that each participant had to answer, which, in turn, lengthened data collection and could lead to demotivation in the participants. Secondly, although the study was conducted among teachers at a university whose campus is located in the three regions of Peru (coast, highlands, and jungle), this relatively small sample was limited to professors from a single university (unicentric) with a single religious focus and with little diversified approach; therefore, the results cannot be generalized. We suggest that future studies consider providing evidence that can be generalized to teachers of diverse religious, cultural, and other approaches. Third, the study has a cross-sectional design, given that it reflects a static picture of a Peruvian university, and thus the findings do not allow us to suggest causal relationships. We recommend that the study be replicated longitudinally in the future to examine teaching
performance. Likewise, this study may lead to other research that will make it possible to evaluate the performance of teachers in other contexts by making comparisons and identifying factors that may favor the training and professional development of university teachers.

Despite these limitations, the study makes a theoretical and practical contribution to the scientific literature, because it sheds light on the mechanisms of the impact of digital competencies and leadership on teacher job performance. We recommend that future research could expand and explore studies on other mediating variables that allow the achievement of a good job performance of university students. Although the results of the present study showed that there is a positive relationship between digital competencies and transformational leadership with the work performance of teachers, other mediating variables involved in the process should be included, from which more specific causal studies can be generated. On the other hand, it would also be advisable to conduct comparative studies of the types of leadership (transactional, autocratic, laissez-faire, task oriented, and relationship oriented) to facilitate a better understanding of the work performance of university professors.

CONCLUSION

The results show the significant role of digital competencies and transformational leadership in improving job performance, which allows teachers to improve the quality of teaching and learning of students in virtual scenarios. The findings of the current study contribute empirically to the literature suggesting that digital competencies and transformational leadership are predictors of job performance in university teachers in the context of the COVID-19 pandemic. These results, therefore, could encourage academic leaders to implement programs aimed at improving the digital competencies of university teachers, supporting their professional development, and fostering motivation, which, in turn, would favor the creation of a safe and positive work environment in times of great uncertainty, such as the current global health crisis.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

CM, LC, and WCM-G participated in the conceptualization, SHV, JS-G, and JS were in charge of the methodology and software. For validation, formal analysis, and research, WCM-G, JS-G, and DQ-S took care of data and resource curation. The writing, revision, and editing of the first draft, visualization, and supervision were carried out by WCM-G, JS-G, and SHV. All authors have read and approved the final version of the manuscript.

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DATA AVAILABILITY STATEMENT

The generated data sets are available upon request from the corresponding author.

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