



Role of Absorptive Capacity for E-learning and Organizational Culture on Job Performance: An Empirical Study from Pakistan

Maryam Moula Bakhsh¹, Atif Aziz²

¹Assistant Professor, Dow University of Health Sciences, Karachi, Pakistan. Email: maryam.bakhsh@duhs.edu.pk

²Associate Professor, Karachi Institute of Economics and Technology, Pakistan. Email: atif.aziz@iqra.edu.pk

ARTICLE INFO

Article History:

Received: January 10, 2023

Revised: March 29, 2023

Accepted: March 30, 2023

Available Online: March 31, 2023

Keywords:

Absorptive Capacity

E-learning

Organizational Culture

Job Performance

Funding:

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

Employee job performance is a critical topic of interest and concern for the organization. In order to evaluate the factors that may impact employee job performance in the context of COVID-19 pandemic, this study aims to explore the impact of absorptive capacity for e-Learning on the job performance of teaching faculty. Additionally, the study explored how organizational culture may act as a mediator. The COVID-19 pandemic calls for a transformation in the educational system from the physical to the virtual, which requires teaching faculty to increase their E-learning proficiency. It was necessary to assess each faculty member's effort in this situation. An analytical cross-sectional study design was used to collect data from the teaching faculty of higher education institutions in Karachi, Pakistan. The sample size was 377. Data was collected through reliable and valid self-administered tools. SPSS 23.0 and the PROCESS macro were used to conduct data analysis. Empirical findings from the study demonstrate the significant positive effect of knowledge recognition, assimilation, transformation, and exploitation on job performance. Furthermore, organizational culture significantly mediates the effect of knowledge recognition, assimilation, transformation, and exploitation on job performance. The findings have important implications for managers and policymakers besides employees in creating opportunities for their employees to develop high absorptive capacity and recommend managers to create an appreciative climate within their organizations, which may influence job performance.

© 2023 The Authors, Published by iRASD. This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License

Corresponding Author's Email: maryam.bakhsh@duhs.edu.pk

1. Introduction

The COVID-19 pandemic is not merely a global public health issue but also an economic, political, religious, cultural, and educational one. The pandemic has had an impact on higher education systems (Bozkurt et al., 2020). The COVID-19 pandemic forced institutions to switch to a digital environment for their educational process to avoid devastating effects on higher education (Rashid & Yadav, 2020). Due to pandemic uncertainty, hard decisions have been made to limit the impact on teaching and learning (Dhawan, 2020). According to a UNESCO report, the closure of education institutions affected 94% of the student population across the globe, with around 99% in poor as well as low-middle-income countries (De Giusti, 2020). However, developed countries have changed their teaching methods from physical to online. Third-world countries like Pakistan suffered the most because they were not ready and neither equipped for online teaching at every stage of COVID-19 (Abid, Zahid, Shahid, & Bukhari, 2021). Acquiring the new technology has faced many challenges, from students to teachers (Abid et al., 2021) (*The Difference Between Emergency Remote Teaching and Online Learning*, 2020). Due to the nature of the online format, teachers frequently encounter technical difficulties during their online sessions. Teachers' capacity is insufficient to address these issues, leaving them unsatisfied with their work. Teachers are more likely to experience stress, exhaustion, insomnia, and other

unfavorable emotions over time, which can lead to varying degrees of burnout. When a teacher's job burnout is more severe, it eventually results in poor execution of educational activities and affects the order. Subsequently, this may alter the performance of the teaching faculty (Chen et al., 2020). As a consequence of the crisis brought about by the COVID-19 pandemic in 2019, the education sectors were compelled to accept new capacity requirements (Penado Abilleira, Rodicio-García, Ríos-de Deus, & Mosquera-González, 2021). Universities had to swiftly adjust to digital and virtual techniques as a result of the unanticipated shift away from the physical classroom in many parts of the globe (Refaat El Said, 2021). Across the globe, universities take initiatives and utilize various strategies to ensure academic employees' readiness (Masalimova et al., 2022). Similarly, higher education institutes located in Pakistan developed policies for the virtual learning environment and utilized resources to make their academic staff capable enough to deliver services online (*Distance Education and Online Learning*, 2020). As a result, the teachers underwent training in new online approaches and expressed an interest to acquire novel teaching techniques in response to the issues that developed and the new reality (Dogar, Shah, Ali, & Ijaz, 2020). Furthermore, Teachers demonstrate efforts to assess valuable knowledge regarding e-learning and teaching to perform their job (Dogar et al., 2020). To the best of my knowledge, there hasn't been enough research done to evaluate the effect of teacher effort on successful e-learning adoption and job performance across the globe. The current study highlights the factors that help to introduce E-learning through individual employees' efforts, despite scarce resources, and eventually improve job performance; individual absorptive capacity is one of the crucial factors in implementing E-learning in higher education. It aids recognition and integration of new knowledge with existing one to enhance job performance (van der Heiden, Pohl, Mansor, & van Genderen, 2015). This would be the first study of its kind to assess the effect of knowledge recognition, knowledge assimilation, knowledge transformation, and knowledge exploitation of e-learning on the job performance of teaching faculty in higher education institutions during COVID-19 pandemic.

Additionally, organizational culture has a significant impact on how knowledge is recognized, assimilated, transformed, exploited, and how well employees perform their jobs. Limited studies have assessed the mediating effect of organizational culture in higher education institutes (Batugal & Tindowen, 2019). The current study will play a significant role in this domain and fills the gap by assessing the indirect effect of organizational culture on the relationship between the four dimensions of absorptive capacity for e-learning and the job performance of teaching faculty.

Considering the Pakistani context, there were inadequate resources and limited expertise and training for teaching faculty in the field of e-learning prior to the COVID-19 pandemic. In such cases, universities must be aware of the key success factors that aid in the adoption of e-learning approaches to fully comprehend the value of e-learning as a way of delivering higher education (Algahtani, 2011). This paper enables individuals, stakeholders, organizations, and policymakers to integrate advanced technology into current practices via individual absorptive capacity while keeping connected to the established policies and practices within the organization.

1.1. Theoretical Background and Hypothesis Development

1.1.1. Absorptive Capacity for E-Learning

At the individual level of analysis, Absorptive capacity is define as the ability of an individual to recognize the value of novel externally obtained knowledge, assimilate, transfer, and exploit it to produce an individual capability (Lowik, Kraaijenbrink, & Groen, 2012). Andersén and Kask (2012) viewed absorptive capacity as a dynamic capability. According to dynamic capability theories, resources, as well as capacities, are essential to gain and develop with the time to achieve the aims of responding to environmental changes, modifying the organization's current capabilities as well as routines, and generating new solutions (Samsudin & Ismail, 2019). Absorptive capacity is an important attribute in this regard since it allows the organization to improve its performance via utilizing knowledge from its environment (Bozkurt et al., 2020). Furthermore, E-learning is a crucial component of achieving the goals of contemporary higher education. E-learning assists learners in developing digital competence, lifetime learning abilities, and the skills to comprehend drastic changes in society and technology while adjusting to the dynamics of technological change as well as globalization (Coman, Țîru, Meseșan-Schmitz, Stanciu, & Bularca, 2020). Nevertheless, as per Algahtani (2011), if e-learning is implemented

and used properly, the likelihood of e-learning's benefits is greater than the traditional classroom learning benefits.

This paper employed the model of ACAP for E-learning (Martin, Massy, & Clarke, 2003) at the individual level to shed light on research questions/objectives, because individuals are the repository of knowledge and deliver knowledge to organizations through their efficient and effective performance. ACAP for E-learning comprises four major dimensions (Todorova & Durisin, 2007; Zahra & George, 2002): 1) Recognition: This dimension has been adapted to signify the individual's dynamic capability to recognize as well as acquire external knowledge on e-learning. 2) Assimilation is used to assess the potential of an individual to evaluate, process, define, and comprehend acquired external knowledge regarding e-learning: 3) Transformation is used to assess the capability of an individual to change and embrace externally obtained knowledge while combining it with existing Knowledge to acquire novel insights. For instance, combining traditional learning methods with the benefits of online delivery is progressively being considered the way ahead for numerous higher education institutions; 4) Exploitation is used to assess individual ability to use its obtained and transformed e-learning knowledge to enhance, expand upon, and utilize already existing learning capabilities or to develop novel competencies (Todorova & Durisin, 2007; Zahra & George, 2002).

1.1.2. Job Performance of Teaching Faculty

Job performance refers to individual behaviors and actions that aid in the accomplishment of organizational goals (Rotundo & Sackett, 2002). Contemporary organizations function in a rapidly changing environment, which has resulted in the nature of today's jobs and workplace being dynamic as well (Wolf, 2013). Employees must focus on implementing changes in order to contribute effectively to the organization's long-term sustainability via their dynamic capabilities (Law, Hills, & Hau, 2017). Employees' dynamic capabilities (EDC) were found to have a significant influence on job performance, particularly in the modern workplace where employees need to perform their tasks efficiently in a dynamic environment that is changing rapidly (Farooqui & Nagendra, 2014). EDC is the capacity to combine, build, and reorganize employee expertise to handle a quickly changing environment that has a direct impact on how activities are performed at work (Teece, Pisano, & Shuen, 1997). As in the COVID-19 pandemic, teachers had to utilize digital technologies to expedite teaching and learning (Thakur, Soklaridis, Crawford, Mulsant, & Sockalingam, 2020). According to (Li & Wang, 2021), technological overload has a beneficial effect on teacher effectiveness, whereas technological insecurity, as well as complexity, has a detrimental effect. Job performance of teaching faculty is influenced by the degree of individual technological stress brought upon by technological aptitude and work overload.

1.1.3. Organizational Culture

Organizational culture is defined as a set of basic principles, values, and standards that a group creates, finds, and develops as it learns how to handle challenges, including both internal integration and external adaptation (Schein, 1985). The world is evolving dramatically, and with it, the employees' levels of satisfaction and expectations are also changing (Cascio & Montealegre, 2016). As a result, organizational culture is evolving throughout time to meet these dynamic shifts as well as the varying satisfaction and expectations of employees (Davidescu, Apostu, Paul, & Casuneanu, 2020). The organizational culture of a university is unique because it is based on the notion that an educational institution is a self-organized system founded on the principles of learning and knowledge (Coman et al., 2020). It is crucial to examine the organizational culture of higher education institutions from the perspective of how their employees perceive and participate in it (Vasyakin, Ivleva, Pozharskaya, & Shcherbakova, 2016). The authors (Davenport & Prusak, 1998) stated that the environment has a significant impact on the development, adaptation, and sharing of knowledge within the organization as it expedites communication, experimentation, and examination. This paper utilized competing value framework, as it is one of the most vital and widely accepted models for developing the profile of organizational culture to assess organizational clan culture (Cameron, Quinn, & Tromp, 1999). Organizational clan culture is the dominant type of culture that exists in the service industry, specifically in higher education institutes (Kaufman, 2013). As per (Ferreira & Hill, 2008), clan culture fosters employees' willingness to adapt. The role of organizational culture in facilitating e-learning initiatives within higher education institutions is crucial. The HEIs must fully comprehend the complexities of the organizational climate if they want to get the most out of their e-learning effort (Madni et al., 2022). Previous studies have demonstrated that various

cultural adaptations are necessary for efficient e-learning initiatives (Hosseini, Salimifard, & Yadollahi, 2017; Kinasevych, 2010).

1.1.4. Absorptive Capacity for E-Learning and Job Performance

Absorptive capacity is an essential component for an organization to successfully deploy a new online learning approach (Todorova & Durisin, 2007). The organization needs to nurture its employees' absorptive capacity. Studies on the creation of new services or products, adoption of novel technology, the dissemination of technology-related knowledge, and organizational learning have all examined how an absorptive capacity affects individual/organization performance (Schweisfurth & Raasch, 2018). Instead of using a direct measure to assess absorptive capacity, the majority of research employs proxies such as the number of scientists, the training of R & D members, R & D spending, or a combination of any of these facets (Versiani, Cruz, Rezende, & Castro, 2021). Additionally, numerous studies have assessed how the absorptive capacity at the organizational level influences its performance (García-Sánchez, García-Morales, & Martín-Rojas, 2018; Sancho-Zamora, Hernández-Perlines, Peña-García, & Gutiérrez-Broncano, 2022). However, the absorptive capacity at the individual level does contribute significantly to the knowledge transfer process (Wang, Yang, & Xue, 2017). According to recent literature, more research is needed to comprehend the direct measure, the multi-dimensional perspectives, and the consequences of absorptive capacity. This paper contributes significantly to the existing body of knowledge by using four dimensions of absorptive capacity as a direct measure for the E-learning process and to assess its impact on job performance. Considering the theory of dynamic capabilities and employee's dynamic capability, we hypothesized that:

H1: The effect of Knowledge recognition on the job performance of teaching faculty is significant.

H2: The effect of Knowledge assimilation on the job performance of teaching faculty is significant.

H3: The effect of Knowledge transformation on the job performance of teaching faculty is significant.

H4: The effect of Knowledge exploitation on the job performance of teaching faculty is significant.

1.1.5. Absorptive Capacity for E-Learning, Organizational Culture and Job Performance

The literature recognized two key elements that influence employee performance. One is absorptive capacity, or the capacity to generate knowledge. In general, absorptive capacity fosters problem-solving and learning abilities that affect employee performance. The second is organizational cultures that are crucial to knowledge generation and innovation activities in all of their manifestations (Limaj & Bernroider, 2019). Contemporary research on absorptive capacity indicates that values like dynamism and flexibility, as well as formalization and control, can all have a positive effect on how knowledge is processed (Jansen, Van Den Bosch, & Volberda, 2005). Employee collaboration in an open, innovative culture where knowledge streams into, within, and outside of the organization makes it easier for employees to process external knowledge. Therefore, employees must adapt and cultivate their relationships both internally as well as externally concurrently, because knowledge is more readily transmitted in close relationships among collaborative individuals (Reddy & Jansen, 2008).

Limited evidence is available regarding how culture impacts absorptive capacity and innovation performance. According to an analysis of pertinent literature, studies that integrate organization culture, absorptive capacity, and innovative performance all at once typically claim that either organization culture directly influences both absorptive capacity and innovation performance or that absorptive capacity mediates the organization culture and innovative performance relationship (Naqshbandi & Tabche, 2018). Furthermore, both the direction and pace of technological advancement, as well as the advancement of absorptive capacity, are influenced by the external environment. Even with sufficient prior knowledge for the assimilation and application of an E-learning system, it is still very challenging to accomplish desired outcomes without the assistance of an organization (Zou, Guo, & Guo, 2016). Employees with sufficient

support and motivation are encouraged to utilize their absorptive capacity to fully comprehend e-Learning (Schweisfurth & Raasch, 2018).

Thus, the following hypotheses are proposed.

H5: Organization culture mediates the effect of knowledge recognition on job performance of teaching faculty.

H6: Organization culture mediates the effect of knowledge assimilation on job performance of teaching faculty.

H7: Organization culture mediates the effect of knowledge transformation on job performance of teaching faculty.

H8: Organization culture mediates the effect of knowledge exploitation on job performance of teaching faculty.

1.2. Conceptual Model

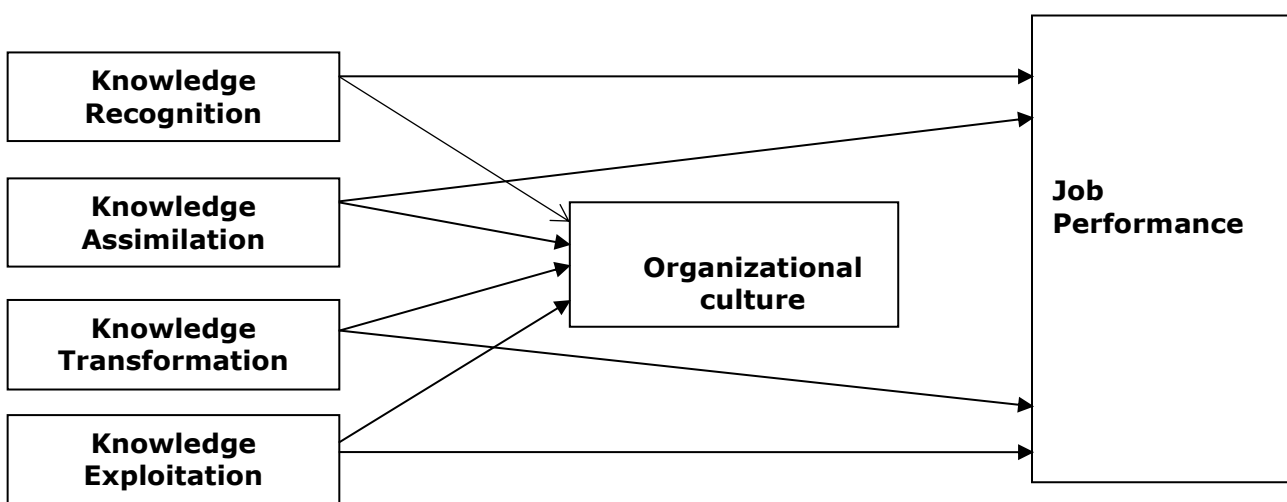


Figure: 1

2. Methodology

2.1. Target Population and Sample Size

The positivist research paradigm, quantitative research approach, and cross-sectional study design are used to select sample from public and private sector higher education institutes in Karachi, Pakistan. In this study, the unit of analysis is the teaching faculty which includes professors, associate professors, assistant professors, lecturers, and instructors having direct interaction with the stakeholders. This population has been chosen within the context of COVID-19 pandemic. A sample has been chosen from the study population via the convenience sampling technique. Moreover, a sample has been chosen as per the inclusion criteria, which include teaching faculty who are currently teaching at higher education institutes and obtained training from a third party or ICT department for online teaching and learning, A faculty member who has taught courses online at least undergraduate level for a semester, an adult Age ≥ 26 years, and is willing to participate in a study. Academic faculty members teaching at other than higher education institutes, non-teaching employees, and teaching faculty who are not fulfilling inclusion criteria are excluded. Additionally, it is crucial to choose an adequate sample size. The Rao software has been used to calculate an accurate sample size. The calculated sample size is 377 when considering 95% CI, 5% margin of error, and population size of 20000 as advised for an unknown population.

2.2. Data Collection Tools and Procedure

2.2.1. Survey Instruments

A self-administered tool was developed and used after including the items of independent, dependent, and mediating variables in addition to demographic variables. The questionnaire comprises 34 items relevant to the study's variables. In some items, unspecified "organizations"

were modified to include the statements about E-learning in COVID-19 pandemic (for example, "adequately complete assigned duties" became "E-Learning approach helps me adequately complete assigned duties in the COVID 19 pandemic").

2.2.2. Scale Development

The details of each section of the questionnaire are discussed here:

- 1) Demographic variables:** The demographic variable includes questions regarding an individual's age, Gender, level of education, employment status, teaching experience, and Professional status.
- 2) Absorptive Capacity Scale:** Absorptive capacity for e-learning was assessed via the individual absorptive capacity scale that was developed by Lowik et al. (2012). The scale consists of 14 items, which are categorized into four sub-dimensions: recognition (04 items), assimilation (03 items), transformation (04 items), and exploitation (03 items). In a previous study, the reported internal consistency and convergent validity for knowledge recognition is $\rho A = 0.78$ and $AVE = 0.60$, for assimilation, transformation, and exploitation, are $\rho A = 0.77$ and $AVE = 0.68$, $\rho A = 0.82$ and $AVE = 0.65$, and $\rho A = 0.73$ and $AVE = 0.63$, respectively (Lowik, Kraaijenbrink, & Groen, 2017).
- 3) Organizational Culture Scale:** Cameron et al. (1999) proposed an organizational culture assessment tool that was based on a competing value framework, which was used to assess the organization's clan culture. The scale consists of six items. Each item depicts six key dimensions, namely: organizational leadership, dominant characteristics, employee management, strategic emphasis, organization glue, and success criteria. Individual responses are measured on a seven-point Likert scale, ranging from strongly disagree (SD) to strongly agree (SA). A past study found strong reliability in Cronbach's Alpha, $\alpha = 0.887$ for the scale (David, Valas, & Raghunathan, 2018).
- 4) Job performance Scale:** Job performance was measured via the (Williams & Anderson, 1991) scale. The scale consists of 7-items that assess the single dimension of job performance, and the responses of each item are assessed on a seven-point Likert scale ranging from 01: SD to 07: SA. Past studies reported strong reliability of the job performance scale, and the Cronbach's alpha ranges from $\alpha: 0.75$ to $\alpha: 0.90$ (Madukoma & Opeke, 2013; Onukwube, Iyabga, & Fajana, 2010; Welbourne, Johnson, & Erez, 1998).

2.2.3. Data Collection

Two approaches were adopted (personal delivery of the questionnaire and an online survey) to reach a large number of teaching faculty in public and private sector higher education institutes for a higher response rate. Prior to the data collection, ethical approval has been taken from internal review board (IRB) of Dow University of Health Sciences (DUHS) Karachi, Pakistan. The consent page of the research questionnaire listed the aims of the study, a disclaimer about respecting respondents' confidentiality and privacy about the submitted information and their responses, instructions for filling out the research questionnaire, and a request for demographic data. The comprehensive survey questionnaire was divided into three domains: covering letter, demographic information, and core research variables. The sequencing of the questions was retained in a manner that generated interest in the participants without being prejudiced.

2.3. Data Analysis Tools and Procedures

SPSS version 23 was used for the descriptive and inferential analysis of data in addition to PROCESS macro for the mediation analysis (Hayes, Montoya, & Rockwood, 2017). By employing SPSS techniques, data coding, screening, missing values' treatment, and assessment of normality, were carried out. The reliability and validity assessment of all constructs, such as internal consistency through Cronbach's Alpha & composite reliability and convergent validity via factor loading and AVE are assessed. Items with a factor loading < 0.5 or cross-loaded on any other constructs were removed before evaluating AVE.

Descriptive statistics were applied to calculate percentages/frequencies, and mean \pm SD. The assumptions of normality were examined before regression analysis for hypothesis testing. Pearson correlation values were determined and found a significant association between all the study's variables. Additionally, scatterplots were visually inspected to test the linearity

assumption. The skewness and kurtosis values were used to assess normality and find the value within the acceptable range. The acceptable values for skewness and kurtosis are ≤ 01 and ≤ 03 , respectively (Blanca, Arnau, López-Montiel, Bono, & Bendayan, 2013). For the test of homoscedasticity, a thorough analysis of the scatterplot was conducted, as well as the analysis of the residuals' distributions across predictors and the LOESS line test. Most of the scatterplots seem to be homoscedastic in nature. Though, based on simulation experiments, researchers claim that minor violations of the assumption are negligible (Hayes et al., 2017). The multicollinearity was assessed via tolerance and VIF (variance inflation factor) statistics. The multicollinearity assumption was met, and the value of the VIF and tolerance test are within the acceptable range. The proposed standard value for VIF is < 05 , while the tolerance test is > 0.20 (Garson, 2012). Durbin-Watson test was used to evaluate Independence of observation. The statistical values for all variables are within the normal range of 1.5 to 2.5 (Field, 2013); none of the variables violated the assumption. There were no major outliers identified in this study because the data were sorted and cleaned prior to any descriptive and inferential analysis.

Furthermore, linear regression was used to evaluate the hypotheses H1, H2, H3, and H4. To evaluate whether the hypothesis is accepted or not, alpha values of < 0.5 are set and considered significant. PROCESS macro model No. 04 was employed via SPSS to assess mediating effect of organizational culture. The supports of these hypotheses are established if zero "0" is not included in the upper and lower limit of bootstrapped CI. Age and gender are considered covariates.

3. Result

3.1. Descriptive Profile of the Respondents

Out of 377 teaching faculty, 62.9% (n=237) were females and 37.1% (n=140) were males. Concerning age group, most of the respondents, 42.7% (n= 161) were in age group between 33 to 39 years, the next highest percentages, 21.8 % (n=82) and 18.8% (n=71) were found to be age group between 26 to 32years, and 40 to 46years, respectively. Similarly, 10.1% of teaching faculty reported the age group between 47 to 53years; 4.5% (n=17) and 2.1% (n=8) respondents were in age between 54-60years and > 60 years of age, respectively. The majority of the respondents, 54.4% (n=205) hold master's degrees, and 30% (n=113) of teaching faculty were Ph.D. 10.9% (n=41) reported their qualification as a bachelor and 4.8% (n=18) were found to be other than a bachelor's, master and Ph.D. degree. As the teaching experience of respondents is concerned, most of the faculty members, 39.0% (n=147) and 31.3% (n=118) have teaching experiences of 1 to 5 years and > 10 years respectively. Furthermore, 24.4% (n=92) teaching faculty has 6 to 10years of teaching experience and 5.3% (n=20) has < 5 years teaching experience. Out of 377, 43.5% (n=164) were reported their professional status lecturer/senior lecturer, 32.6% (n=123) were Assistant professor, 16.4% (n=62) were demonstrator/instructor, 4.0% (n=15) were associate professor and 3.4% (n=13) were professor.

3.2. Validity and Reliability of the Constructs

The values of AVE, CR, and Cronbach's alpha for knowledge recognition, knowledge assimilation, Knowledge transformation, knowledge exploitation, organizational culture, and job performance are within the normal range (Table 01). The threshold values for AVE are ≥ 0.5 (Nunnally, 1994) and for Cronbach's alpha and CR are ≥ 0.70 (Hair, 2011).

Table: 1 Cronbach's alpha, AVE and CR

Constructs	Mean	SD	AVE	CR	Cronbach Alpha
Knowledge Recognition	23.472	2.922	0.596	0.937	0.717
Knowledge Assimilation	24.552	2.610	0.530	0.911	0.773
Knowledge Transformation	23.011	3.123	0.514	0.842	0.757
Knowledge exploitation	18.114	2.062	0.575	0.840	0.703
Organizational culture	32.806	6.749	0.621	0.978	0.896
job performance	38.639	6.465	0.633	0.978	0.785

3.3. Pearson Coefficient Correlation

Findings of the study revealed knowledge recognition has significant association with knowledge assimilation ($r = .352$), Knowledge transformation ($r = .334$), knowledge exploitation ($r = .315$), organizational culture ($r = .194$) and job performance ($r = .331$). Similarly, knowledge assimilation was also found to be significantly associated with Knowledge transformation ($r = .545$), knowledge exploitation ($r = .458$), organizational culture ($r = .281$) and job performance ($r = .347$). Furthermore, Knowledge transformation has a significant association with knowledge exploitation ($r = .564$), organization culture ($r = .265$) and job performance ($r = .274$). Likewise, knowledge exploitation is also significantly associated with organization culture ($r = .264$) and job performance ($r = .324$). The association between organizational culture and job performance is also significant ($r = .315$). All the constructs are significantly associated at the p -value < 0.01 .

3.4. Hypothesis Testing

The findings of the regression analysis depict that (H1) knowledge recognition, (H2) Knowledge assimilation, (H3) Knowledge transformation, and (H4) knowledge exploitation significantly and positively predicted job performance (Table 02). Knowledge recognition explained 10.7% of variance in job performance scores ($R^2 = .107$, $F(1,375) = 46.110$, p -Value = .000). Similarly, Knowledge assimilation accounted for 11.8% of variance in job performance ($R^2 = .118$, $F(1,375) = 51.259$, p -Value = .000), Knowledge transformation explained 7.2% of variances in job performance ($R^2 = .072$, $F(1,375) = 30.381$, p -Value = .000), and Knowledge exploitation accounted for 10.3% variance in job performance ($R^2 = .103$, $F(1,375) = 44.094$, p -Value = .000).

Table: 2 Regression Analysis: Knowledge Recognition, Assimilation, Transformation, Exploitation and Job Performance

Predictors	B	SE	t-test	95% CI	
				LLCI	ULCI
Knowledge Recognition	0.732***	0.108	6.790	0.520	0.944
Knowledge Assimilation	0.859***	0.120	7.160	0.623	1.095
Knowledge Transformation	0.567***	0.103	5.512	0.365	0.769
Knowledge exploitation	1.017***	0.153	6.640	0.716	1.318

*** P -value < 0.001

The findings of the mediation effect of organizational culture in the relationship between H5: Knowledge recognition and job performance, H6: Knowledge assimilation and job performance, H7: Knowledge transformation and job performance, and H8: Knowledge exploitation and job performance are reported in table 03. As zero does not fall between upper and lower CIs, the indirect effects of knowledge recognition on job performance, Knowledge assimilation on job performance, Knowledge transformation on job performance and Knowledge exploitation on job performance through the organization culture are statistically significant. Thus, there is a mediation of organizational culture in the relationship between four dimensions of absorptive capacity for e-Learning and job performance. Furthermore, controlling the effect of Age and gender, the Knowledge recognition and organizational culture explained significant variance in job performance ($R^2 = .1797$, $F(4,372) = 20.3688$, p -Value = 0.000), which is 17.97%. Knowledge assimilation and organizational culture also accounted for 17.57% significant variance in job performance ($R^2 = .1757$, $F(4,372) = 19.8253$, p -Value = 0.000). Similarly, knowledge assimilation and organizational culture accounted 14.31% variances in job performance ($R^2 = .1431$, $F(4,372) = 15.5290$, p -Value = 0.000). Moreover, Knowledge exploitation along with organizational culture accounted 16.35% of variance in job performance ($R^2 = .1635$, $F(4,372) = 18.1750$, p -Value = 0.000).

Table: 3 Mediation Analysis: Organizational Culture

Path Analysis	B	SE	t-value	95%CI	
				LCI	UCI
Total Effect					
KR on JP	.7243***	.1074	6.7442	.5132	.9355
KA on JP	.8421***	.1205	6.9900	.6052	1.0790
KT on JP	.5574***	.1025	5.4394	.3559	.7588
KE on JP	.9815***	.1549	6.3375	.6770	1.2861

Direct effect					
KR → JP	.6203***	.1059	5.8559	.4120	.8286
KA → JP	.6927***	.1218	5.6871	.4532	.9322
KT → JP	.4242***	.1030	4.1166	.2216	.6268
KE → JP	.7976***	.1551	5.1409	.4925	1.1027
		Effect	Boot SE	Boot 95%CI LLCI	ULCI
Indirect Effect					
KR → OC → JP		.1040	.0379	.0405	.1858
KA → OC → JP		.1494	.0486	.0662	.2562
KT → OC → JP		.1331	.0429	.0576	.2263
KE → OC → JP		.1840	.0626	.0727	.3186

Sig. ***P-value < 0.001

KR: knowledge recognition, KA: knowledge assimilation, KT: Knowledge Transformation. KE: Knowledge Exploitation, OC: Organizational culture

Table: 4 Summary of Hypothesis Testing

S.NO.	Hypothesis	Status
H1	Knowledge recognition has positive significant effect on job performance of teaching faculty.	Accepted
H2	Knowledge assimilation has positive significant effect on job performance of teaching faculty.	Accepted
H3	Knowledge transformation has positive significant effect on job performance of teaching faculty.	Accepted
H4	Knowledge exploitation has positive significant effect on job performance of teaching faculty.	Accepted
H5	There is a mediating effect of organizational culture in the relationship between Knowledge recognition and job performance of teaching faculty.	Partially mediated-Accepted
H6	There is a mediating effect of organizational culture in the relationship between Knowledge assimilation and job performance of teaching faculty.	Partially mediated-Accepted
H7	There is a mediating effect of organizational culture in the relationship between Knowledge transformation and job performance of teaching faculty.	Partially mediated-Accepted
H8	There is a mediating effect of organizational culture in the relationship between Knowledge exploitation and job performance of teaching faculty	Partially mediated-Accepted

4. Discussion

The study was conducted to develop a thorough understanding of absorptive capacity for E-learning (such as Knowledge recognition, knowledge assimilation as well as transformation, and knowledge exploitation) and its effect on the job performance of teaching faculty, and how organizational culture mediate the relationship in COVID-19 pandemic. The findings of the Pearson correlation depict a significant positive association between knowledge recognition, knowledge assimilation, knowledge transformation, knowledge exploitation, organizational culture, and job performance of teaching faculty at P-Value < 0.01. The study findings are in agreement with past studies' findings (Ahmad, Mohamad, & Ibrahim, 2013; Contreras et al., 2020; Khan, Ismail, Hussain, & Alghazali, 2020). In their studies, the Cronbach's alpha, AVE, and CR for all constructs are in the range between 0.717 to 0.936, 0.514 to 0.633, and 0.842 to 0.991, respectively. A study conducted to assess absorptive capacity, external sources of knowledge and innovation in the Brazilian power sector also found that Cronbach's alpha, AVE, and CR for the four dimensions of absorptive capacity were in the range between 0.84 to 0.87, 0.55 to 0.66, 0.88 to 0.91 respectively (Versiani et al., 2021). Similarly, another study conducted among Chinese high-tech firms to assess the effect of absorptive capacity and innovative culture on job performance and found the value of Cronbach's alpha, AVE, and CR for the four dimensions of absorptive capacity, innovative culture, and innovative performance respectively in the range between 0.904 to 0.931, 0.657 - 0.732, 0.905 to 0.932. (Khan et al., 2020; Stoffers, Neessen, & van Dorp, 2015), we infer that there has strong reliability and validity established for the four constructs of individual absorptive capacity, organization culture, and job performance.

Furthermore, the findings of the current study revealed that knowledge recognition ($\beta = 0.732$), assimilation ($\beta = 0.859$), transformation ($\beta = 0.567$), and

exploitation ($\beta = 1.017$) are positive significant predictors of the job performance of teaching faculty in higher education institutes in COVID-19 pandemic at P-value = 0.000. These results are consistent with past studies (Arubayi & Obunadike, 2011; Tsai, 2022) that evaluated the impact of absorptive capacity on the job as well as organization performance at individual and organizational levels. Past studies have been conducted among different industries, and their findings also significantly predict the performance outcome. According to studies, absorptive capacity is one of the major factors influencing organizational productivity since it results in high employee performance (Huang, Rice, & Martin, 2015; Lau & Lo, 2015). Thus, we infer that absorptive capacity plays a crucial role in a variety of sectors and various situations.

Additionally, the mediation analysis revealed that organizational culture partially mediates the relationship between Knowledge recognition and job performance, Knowledge assimilation and job performance, Knowledge transformation, and job performance, and Knowledge exploitation and job performance. These findings are in support of the past studies' findings. Organizational culture is essential for organizations to improve performance and create competitive advantage (Kissi, Dainty, & Liu, 2012). According to studies if the employer can create an environment that individuals perceive as positive then organizations are likely to experience greater commitment and motivation which will boost individual or organizational performance (DiLiello & Houghton, 2006; Isaksen & Ekvall, 2010). Another study asserts that to access and utilize knowledge resources effectively; an organization's culture needs to interact with its knowledge exploration and exploitation capabilities (Harrington & Guimaraes, 2005). Thus, the relationship between organizational culture and absorptive capacity has a substantial impact on knowledge inflows within the organization (Kang & Lee, 2017). Greater levels of absorptive capacity are expected to complement organizational culture attributes like knowledge acquisition, dissemination, and sharing in such a way that individuals with higher absorptive capacities are more able to source, absorb and assimilate novel knowledge (Todorova & Durisin, 2007). In other words, it can be inferred that the interaction of organization culture with individual absorptive capacity results in enhanced job performance (Todorova & Durisin, 2007). Thus, we infer that organizational culture plays a crucial role in producing a significant indirect effect of four dimensions of absorptive capacity on job performance.

Managers and policy makers must create opportunities for their staff to build high absorptive capacity and motivate them to do so (Yildiz, Murtic, Zander, & Richtnér, 2019). To facilitate knowledge sharing process, Higher education leaders as well as administrators need to create an appreciative climate within their organizations, where faculty members can acknowledge and appreciate the effort done by knowledge providers (Adamseged & Hong, 2018). A trust culture may also aid in removing the fear of losing face. Furthermore, Higher education administrator should continue to provide adequate resources to support knowledge sharing activities in their organizations (Maponya, 2005).

4.1. Limitations and Future Research Recommendations

The research focused on individual absorptive capacity. The organization-level absorptive capacity needs to be examined in the Pakistani context. This study has chosen a non-probability sampling technique. Using probability sampling techniques, a larger study considering the same constructs in similar or other sectors would be of interest for the sake of generalization of the results. This research is its cross-sectional design. Thus, may not lead to the causality of predictors, mediators on outcome variables. Respondent's level of knowledge absorption may vary over time, leaving the scope for a longitudinal study. The current integrated conceptual model, which has been designed and tested in the Pakistani context, would be equally applicable in other relevant countries. Hence, it is advised that the current research study model should be used in a variety of nations.

5. Conclusion

The findings of the hypothesis affirmed that there is a significant effect of four dimensions of absorptive capacity for E-learning on job performance of teaching faculty and organization culture partially mediates the relationship between four dimensions of absorptive capacity for E-learning and job performance. The results of this study highlight the role of individual absorptive capacity in the development of novel knowledge and recommend managers to create an appreciative climate within their organizations and develop policies and procedures that

encourage knowledge recognition to exploitation and collaboration among employees in order to generate novel ideas and improve job performance.

References

- Abid, T., Zahid, G., Shahid, N., & Bukhari, M. (2021). Online teaching experience during the COVID-19 in Pakistan: Pedagogy–technology balance and student engagement. *Fudan Journal of the Humanities and Social Sciences*, 14, 367-391. doi:<https://doi.org/10.1007/s40647-021-00325-7>
- Adamseged, H., & Hong, J. (2018). Knowledge sharing among university faculty members. *Journal of Education and Practice*, 9(24), 1-10.
- Ahmad, F., Mohamad, O., & Ibrahim, H. (2013). Effect of organizational culture on individual absorptive capacity: Evidence from Malaysian electrical and electronic sector. *Science & Commerce*, 4(1), 66-76.
- Algahtani, A. (2011). *Evaluating the effectiveness of the e-learning experience in some universities in Saudi Arabia from male students' perceptions*. Durham University,
- Andersén, J., & Kask, J. (2012). Asymmetrically realized absorptive capacity and relationship durability. *Management Decision*, 50(1), 43-57. doi:<https://doi.org/10.1108/00251741211194868>
- Arubayi, D., & Obunadike, J. C. (2011). Problems of teaching and learning clothing and textiles in senior secondary schools in Anambra State, Nigeria. *Studies on Home and Community Science*, 5(2), 113-119. doi:<https://doi.org/10.1080/09737189.2011.11885336>
- Batugal, M. L. C., & Tindowen, D. J. C. (2019). Influence of organizational culture on teachers' organizational commitment and job satisfaction: The case of catholic higher education institutions in the Philippines. *Universal Journal of Educational Research*, 7(11), 2432-2443. doi:<https://doi.org/10.13189/ujer.2019.071121>
- Blanca, M. J., Arnau, J., López-Montiel, D., Bono, R., & Bendayan, R. (2013). Skewness and kurtosis in real data samples. *Methodology*. doi:<https://doi.org/10.1027/1614-2241/a000057>
- Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., . . . Olcott Jr, D. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, 15(1), 1-126.
- Cameron, K. S., Quinn, R. E., & Tromp, T. H. (1999). *Onderzoeken en veranderen van organisatiecultuur: gebaseerd op het model van de concurrerende waarden: Academic Service economie en bedrijfskunde*.
- Cascio, W. F., & Montealegre, R. (2016). How technology is changing work and organizations. *Annual review of organizational psychology organizational behavior*, 3, 349-375.
- Chen, H., Liu, F., Pang, L., Liu, F., Fang, T., Wen, Y., . . . Zhao, Y. (2020). Are you tired of working amid the pandemic? The role of professional identity and job satisfaction against job burnout. *International journal of environmental research and public health*, 17(24), 9188. doi:<https://doi.org/10.3390/ijerph17249188>
- Coman, C., Țiru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability*, 12(24), 10367. doi:<https://doi.org/10.3390/su122410367>
- Contreras, F., Juarez, F., Cuero Acosta, Y. A., Dornberger, U., Soria-Barreto, K., Corrales-Estrada, M., . . . Jauregui, K. (2020). Critical factors for innovative work behaviour in Latin American firms: Test of an exploratory model. *Cogent Business & Management*, 7(1), 1812926. doi:<https://doi.org/10.1080/23311975.2020.1812926>
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*: Harvard Business Press.
- David, S. N., Valas, S., & Raghunathan, R. (2018). *Assessing organization culture—a review on the ocai instrument*. Paper presented at the International Conference on Management and Information Systems.
- Davidescu, A. A., Apostu, S.-A., Paul, A., & Casuneanu, I. (2020). Work flexibility, job satisfaction, and job performance among Romanian employees—Implications for sustainable human resource management. *Sustainability*, 12(15), 6086. doi:<https://doi.org/10.3390/su12156086>
- De Giusti, A. (2020). Book review: Policy brief: Education during COVID-19 and beyond. *Revista Iberoamericana de Tecnología En Educación y Educación En Tecnología*(26), 110-111.

- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of educational technology systems*, 49(1), 5-22. doi:<https://doi.org/10.1177/0047239520934018>
- DiLiello, T. C., & Houghton, J. D. (2006). Maximizing organizational leadership capacity for the future: Toward a model of self-leadership, innovation and creativity. *Journal of managerial psychology*, 21(4), 319-337. doi:<https://doi.org/10.1108/02683940610663114>
- Dogar, A. A., Shah, I., Ali, S. W., & Ijaz, A. (2020). Constraints to online teaching in institutes of higher education during pandemic COVID-19: A case study of CUI, Abbottabad Pakistan. *Revista Romaneasca Pentru Educatie Multidimensionala*, 12(2Sup1), 12-24. doi:<https://doi.org/10.18662/rrem/12.2Sup1/285>
- Farooqui, M. S., & Nagendra, A. (2014). The impact of person organization fit on job satisfaction and performance of the employees. *Procedia economics and Finance*, 11, 122-129. doi:[https://doi.org/10.1016/S2212-5671\(14\)00182-8](https://doi.org/10.1016/S2212-5671(14)00182-8)
- Ferreira, A. I., & Hill, M. M. (2008). Organisational cultures in public and private Portuguese universities: A case study. *Higher Education*, 55, 637-650. doi:<https://doi.org/10.1007/s10734-007-9080-6>
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*: sage.
- García-Sánchez, E., García-Morales, V. J., & Martín-Rojas, R. (2018). Influence of technological assets on organizational performance through absorptive capacity, organizational innovation and internal labour flexibility. *Sustainability*, 10(3), 770. doi:<https://doi.org/10.3390/su10030770>
- Garson, G. D. (2012). Testing statistical assumptions. In: Statistical associates publishing Asheboro, NC.
- Hair, J. (2011). Multivariate data analysis: an overview BT-international encyclopedia of statistical science (pp. 904-907). M. Lovric. In: Springer. https://doi.org/10.1007/978-3-642-04898-2_395.
- Harrington, S. J., & Guimaraes, T. (2005). Corporate culture, absorptive capacity and IT success. *Information and Organization*, 15(1), 39-63. doi:<https://doi.org/10.1016/j.infoandorg.2004.10.002>
- Hayes, A. F., Montoya, A. K., & Rockwood, N. J. (2017). The analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling. *Australasian Marketing Journal*, 25(1), 76-81. doi:<https://doi.org/10.1016/j.ausmj.2017.02.001>
- Hosseini, S. Y., Salimifard, K., & Yadollahi, S. (2017). E-learning readiness and the effects of organizational culture. In *Organizational Culture and Behavior: Concepts, Methodologies, Tools, and Applications* (pp. 1299-1313): IGI Global.
- Huang, F., Rice, J., & Martin, N. (2015). Does open innovation apply to China? Exploring the contingent role of external knowledge sources and internal absorptive capacity in Chinese large firms and SMEs. *Journal of Management & Organization*, 21(5), 594-613. doi:<https://doi.org/10.1017/jmo.2014.79>
- Isaksen, S. G., & Ekvall, G. (2010). Managing for innovation: The two faces of tension in creative climates. *Creativity and innovation management*, 19(2), 73-88. doi:<https://doi.org/10.1111/j.1467-8691.2010.00558.x>
- Jansen, J. J., Van Den Bosch, F. A., & Volberda, H. W. (2005). Managing potential and realized absorptive capacity: how do organizational antecedents matter? *Academy of management journal*, 48(6), 999-1015. doi:<https://doi.org/10.5465/amj.2005.19573106>
- Kang, M., & Lee, M.-J. (2017). Absorptive capacity, knowledge sharing, and innovative behaviour of R&D employees. *Technology Analysis & Strategic Management*, 29(2), 219-232. doi:<https://doi.org/10.1080/09537325.2016.1211265>
- Kaufman, J. A. (2013). *Organizational culture as a function of institutional type in higher education*. Minnesota State University, Mankato,
- Khan, M. A., Ismail, F. B., Hussain, A., & Alghazali, B. (2020). The interplay of leadership styles, innovative work behavior, organizational culture, and organizational citizenship behavior. *Sage Open*, 10(1), 2158244019898264. doi:<https://doi.org/10.1177/2158244019898264>
- Kinasevych, O. (2010). The Effect of Culture on Online Learning. *Online Submission*.
- Kissi, J., Dainty, A., & Liu, A. (2012). Examining middle managers' influence on innovation in construction professional services firms: a tale of three innovations. *Construction Innovation*. doi:<https://doi.org/10.1108/14714171211197472>
- Lau, A. K., & Lo, W. (2015). Regional innovation system, absorptive capacity and innovation performance: An empirical study. *Technological Forecasting and Social Change*, 92, 99-114. doi:<https://doi.org/10.1016/j.techfore.2014.11.005>

- Law, M. M. S., Hills, P., & Hau, B. C. H. (2017). Engaging employees in sustainable development—a case study of environmental education and awareness training in Hong Kong. *Business Strategy and the Environment*, 26(1), 84-97. doi:<https://doi.org/10.1002/bse.1903>
- Li, L., & Wang, X. (2021). Technostress inhibitors and creators and their impacts on university teachers' work performance in higher education. *Cognition, Technology & Work*, 23, 315-330. doi:<https://doi.org/10.1007/s10111-020-00625-0>
- Limaj, E., & Bernroider, E. W. (2019). The roles of absorptive capacity and cultural balance for exploratory and exploitative innovation in SMEs. *Journal of Business Research*, 94, 137-153. doi:<https://doi.org/10.1016/j.jbusres.2017.10.052>
- Lowik, S., Kraaijenbrink, J., & Groen, A. J. (2012). *The effects of prior knowledge, networks, and cognitive style on individuals' absorptive capacity*. Paper presented at the Academy of Management Proceedings.
- Lowik, S., Kraaijenbrink, J., & Groen, A. J. (2017). Antecedents and effects of individual absorptive capacity: a micro-foundational perspective on open innovation. *Journal of knowledge management*, 21(6), 1319-1341. doi:<https://doi.org/10.1108/JKM-09-2016-0410>
- Madni, S. H. H., Ali, J., Husnain, H. A., Masum, M. H., Mustafa, S., Shuja, J., . . . Hosseini, S. (2022). Factors Influencing the Adoption of IoT for E-Learning in Higher Educational Institutes in Developing Countries. *Frontiers in Psychology*, 3415. doi:<https://doi.org/10.3389/fpsyg.2022.915596>
- Madukoma, E., & Opeke, R. O. (2013). Information use and job performance of senior nonacademic staff in Nigerian universities. *Library Philosophy and practice*, 9, 1-20.
- Maponya, P. (2005). Fostering the culture of knowledge sharing in higher education. *South African journal of higher education*, 19(5), 900-911.
- Martin, G., Massy, J., & Clarke, T. (2003). When absorptive capacity meets institutions and (e) learners: adopting, diffusing and exploiting e-learning in organizations. *International Journal of Training and Development*, 7(4), 228-244. doi:<https://doi.org/10.1046/j.1360-3736.2003.00183.x>
- Masalimova, A. R., Khvatova, M. A., Chikileva, L. S., Zvyagintseva, E. P., Stepanova, V. V., & Melnik, M. V. (2022). *Distance learning in higher education during COVID-19*. Paper presented at the Frontiers in Education.
- Naqshbandi, M. M., & Tabche, I. (2018). The interplay of leadership, absorptive capacity, and organizational learning culture in open innovation: Testing a moderated mediation model. *Technological Forecasting and Social Change*, 133, 156-167. doi:<https://doi.org/10.1016/j.techfore.2018.03.017>
- Nunnally, J. C. (1994). The assessment of reliability. *Psychometric theory*.
- Onukwube, H. N., Iyabga, R., & Fajana, S. (2010). *The Influence of motivation on job performance of construction professionals in construction companies in Nigeria*. Paper presented at the Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors.
- Penado Abilleira, M., Rodicio-García, M.-L., Ríos-de Deus, M. P., & Mosquera-González, M. J. (2021). Technostress in Spanish university teachers during the COVID-19 pandemic. *Frontiers in Psychology*, 12, 617650.
- Rashid, S., & Yadav, S. S. (2020). Impact of Covid-19 pandemic on higher education and research. *Indian Journal of Human Development*, 14(2), 340-343. doi:<https://doi.org/10.1177/0973703020946700>
- Reddy, M. C., & Jansen, B. J. (2008). A model for understanding collaborative information behavior in context: A study of two healthcare teams. *Information Processing & Management*, 44(1), 256-273. doi:<https://doi.org/10.1016/j.ipm.2006.12.010>
- Refaat El Said, G. (2021). How Did the COVID-19 Pandemic Affect Higher Education Learning Experience? An Empirical Investigation of Learners' Academic Performance at a University in a Developing Country. doi:<http://libraryaplos.com/xmlui/handle/123456789/7889>
- Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship, and counterproductive performance to global ratings of job performance: A policy-capturing approach. *Journal of applied psychology*, 87(1), 66. doi:<https://doi.org/10.1037/0021-9010.87.1.66>
- Samsudin, Z., & Ismail, M. D. (2019). The concept of theory of dynamic capabilities in changing environment. *International Journal of Academic Research in Business and Social Sciences*, 9(6), 1071-1078.

- Sancho-Zamora, R., Hernández-Perlines, F., Peña-García, I., & Gutiérrez-Broncano, S. (2022). The impact of absorptive capacity on innovation: The mediating role of organizational learning. *International journal of environmental research and public health*, 19(2), 842. doi:<https://doi.org/10.3390/ijerph19020842>
- Schein, E. H. (1985). Organizational change and leadership: A dynamic view. *San Fransisco, CA: Jossey-Bass Publishers.*(1995). "The Role of the Founder in Creating Organizational Culture," *Family Business Review*, 8(3), 221-238.
- Schweisfurth, T. G., & Raasch, C. (2018). Absorptive capacity for need knowledge: Antecedents and effects for employee innovativeness. *Research Policy*, 47(4), 687-699. doi:<https://doi.org/10.1016/j.respol.2018.01.017>
- Stoffers, J., Neessen, P., & van Dorp, P. (2015). Organizational culture and innovative work behavior: A case study of a manufacturer of packaging machines. *American Journal of Industrial and Business Management*, 5(04), 198.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, 18(7), 509-533. doi:[https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- Thakur, A., Soklaridis, S., Crawford, A., Mulsant, B., & Sockalingam, S. (2020). Using rapid design thinking to overcome COVID-19 challenges in medical education. *Academic Medicine*. doi:<https://doi.org/10.1097/ACM.0000000000003718>
- Todorova, G., & Durisin, B. (2007). Absorptive capacity: Valuing a reconceptualization. *Academy of management review*, 32(3), 774-786. doi:<https://doi.org/10.5465/amr.2007.25275513>
- Tsai, H.-Y. (2022). Individual-level absorptive capacity and multidimensional work behavior in tourism. *Journal of Organizational Change Management*, 35(2), 280-292. doi:<https://doi.org/10.1108/JOCM-01-2021-0014>
- van der Heiden, P., Pohl, C., Mansor, S. B., & van Genderen, J. (2015). The role of education and training in absorptive capacity of international technology transfer in the aerospace sector. *Progress in Aerospace Sciences*, 76, 42-54. doi:<https://doi.org/10.1016/j.paerosci.2015.05.003>
- Vasyakin, B. S., Ivleva, M. I., Pozharskaya, Y. L., & Shcherbakova, O. I. (2016). A Study of the Organizational Culture at a Higher Education Institution [Case Study: Plekhanov Russian University of Economics (PRUE)]. *International Journal of Environmental and Science Education*, 11(10), 11515-11528.
- Versiani, Á. F., Cruz, M. A., Rezende, S. F., & Castro, J. M. (2021). ABSORPTIVE CAPACITY, INNOVATION, AND EXTERNAL SOURCES OF KNOWLEDGE: THE BRAZILIAN POWER SECTOR. *RAM. Revista de Administração Mackenzie*, 22. doi:<https://doi.org/10.1590/1678-6971/eRAMR210083>
- Wang, J., Yang, J., & Xue, Y. (2017). Subjective well-being, knowledge sharing and individual innovation behavior: The moderating role of absorptive capacity. *Leadership & Organization Development Journal*. doi:<https://doi.org/10.1108/LODJ-10-2015-0235>
- Welbourne, T. M., Johnson, D. E., & Erez, A. (1998). The role-based performance scale: Validity analysis of a theory-based measure. *Academy of management journal*, 41(5), 540-555. doi:<https://doi.org/10.5465/256941>
- Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of management*, 17(3), 601-617. doi:<https://doi.org/10.1177/014920639101700305>
- Wolf, J. (2013). Improving the sustainable development of firms: The role of employees. *Business Strategy and the Environment*, 22(2), 92-108. doi:<https://doi.org/10.1002/bse.1731>
- Yildiz, H. E., Murtic, A., Zander, U., & Richtnér, A. (2019). What fosters individual-level absorptive capacity in MNCs? An extended motivation–ability–opportunity framework. *Management International Review*, 59, 93-129. doi:<https://doi.org/10.1007/s11575-018-0367-x>
- Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of management review*, 27(2), 185-203.
- Zou, B., Guo, F., & Guo, J. (2016). Absorptive capacity, technological innovation, and product life cycle: a system dynamics model. *SpringerPlus*, 5, 1-25. doi:<https://doi.org/10.1186/s40064-016-3328-5>