Critical Success Factors of the Flexible Learning Delivery as Organizational Innovation of One State University in the Philippines

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Abstract

The COVID-19 pandemic has caused the whole educational system to collapse during the lockdown period. Hence, higher education institutions (HEI) led the change of learning delivery mode phases for effective and efficient academic services. This study describes the extent of manifestation on critical success factors (CSF) observed in one state university and determines the degree of organizational innovation practices in terms of technology-enhanced instructions. It also investigates the dimensions of CSFs that singly or in combination predict organizational innovations. The study purposively chose 251 faculty members from Laguna State Polytechnic University-San Pablo City, Philippines as respondents. Multiple regression analysis was used to determine significant predictors of Organizational Innovations. The findings reveal that five (5) constructs of CSFs were highly manifested (IUQDDI, ILT, IFCE, ISC & ITQ) among respondents and organizational innovations concerning technology-enhanced instructions viewed as highly practiced. Likewise, moderate to a strong association was seen between CSFs and organizational innovations. Furthermore, ISC, ILT, IUQDDI, and IFCE as the CSF construct were deemed significant predictors of organizational innovations. The results served as basis for organizations' future planning on the effective implementation of the learning delivery mode.

Keywords: *critical success factors, flexible learning, organizational innovations*

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1. Introduction

One of the ultimate goals of education is to prepare students for life and mold productive and responsible citizens. Most educators term this as life-long learning, which in turn requires the holistic development of the learners. However, the COVID-19 pandemic has caused the worst disruption in education systems in human history, affecting approximately 1.6 billion students in over 200 nations and resulting in the shutdown of schools, institutions, and other learning spaces, affecting over 94 per cent of the world's student population (Pokhrel & Chhetri, 2021). In turn, schools and universities attempted to utilize various forms of teaching-learning tools to respond to the present need of the student populace, to maintain or possibly enhance the quality of learning despite the pandemic. One way of coping with this challenge is embracing frameworks for organizational innovations. One of which is the extensive adoption of flexible learning delivery modalities facilitated by technology as implemented in real-world school contexts. According to studies, using new computer-based tools helps learn skills and performance required to thrive in a complex, technologically advanced knowledge-based economy (OECD, 2016). Technology is perceived to have the power to eliminate failures and deficiencies, and critical success factors gear a country towards progress. In developed countries, advanced technology seems to be synonymous with modernization, growth, and development. Learning management system aids schools as primary technology tools which are now an integral part of everyday activities (Adzharuddin & Ling, 2013). Therefore, to adapt themselves to these organizational innovations, teachers and students alike must strive. The boundless capability of technology brings about the limitless acquisition of knowledge and efficiency of academic services (Ogar & Dushu, 2018).

Laguna has been one of the most progressive provinces in the Philippines, which in part may have been achieved given the access to quality education of its people. There are only around 112 state universities and colleges (SUCs) in the entire country, one of which is the Laguna State Polytechnic University (LSPU) System. For more than seven decades, the LSPU has been at the forefront of developing the country's next generation of leaders and workforce. LSPU is the largest state university in the province of Laguna, offering affordable and quality education to almost thirty thousand students (LSPU, 2020). As one of the recognized SUC Level III, Level I Institutionally Accredited, and ISO 9001: 2015 Certified HEIs in the country, the

LSPU is one with the government in assuring the continuity of quality learning (LSPU Primer, 2020). However, the LSPU, like all other education systems and institutions, are not averse to change in themselves (OECD, 2016), especially in today's challenge of learning delivery mode. Thus, discussions about the potential of digital technologies in education increasingly placed the issue as part of a more comprehensive approach to innovation in education. It should be considered to explore responsive and innovative learning modalities that will help digital technologies attain their full potential in educational institutions and teaching and learning processes.

To ease the assimilation of the contemporary setting in distance education, where online learning and ICTs stand out (Espino-Daz et al., 2020), a number of actions must be taken, including the training needs of education professionals. Traditional teaching methods have undergone significant modifications due to the growing usage of flexible learning to improve education. Technology is now interwoven into classrooms, allowing students to take a more active role in their education (Jhurree, 2005). In the framework of the COVID-19 pandemic, the contemporary educational scenario encourages the widespread use of computerized language, and online education has become the new norm (Yazon & Callo, 2021). It reflects how technology is used in the workplace and at home for teaching and learning. Students are now taught how to retrieve information from a learning management system, process data, and think logically due to flexible learning delivery (Callo & Yazon, 2020). Using these current educational tools in conjunction with flexible learning delivery will assist both the instructor and the learner develops various abilities using relevant information.

Many researchers have looked into the impact of flexible learning in higher education on the teaching-learning process (Rasheed, Kamsin, & Abdullah, 2020). Few, however, have focused on the CSFs that drive organizational innovations in the educational system. Similarly, critical characteristics of success are solely employed as a model for developing corporate growth (Mabhungu & Van Der Poll, 2017). In a highly competitive environment, innovation has recently been viewed as a critical aspect of growing businesses. Most academics feel that innovation has a favorable impact on businesses (Alharbi et al., 2019). Innovation is required for long-term performance to be sustained (Saunila, 2016). The primary focus of educational innovations should be on teaching-learning theory and practice and the student, parents,

community, society, and culture (Serdyukov, 2017). Technology applications require a strong theoretical foundation built on systematic research and sound pedagogy (Yagyaeva & Zokirov, 2019). To increase the quality of teaching and learning, organizational innovations, such as flexible-learning mode assisted by technology-enhanced instructions, were designed. CSFs, which are based on certain conditions that must be met for an implementation to be successful (Dezder 2012), must be examined in this scenario. Thus, this study aimed to determine the effectiveness of an organizational innovation being implemented in a Philippine state university namely, the flexible-learning modality facilitated by technology-enhanced instructions and how this is predicted by critical success factors to improvement as perceived by the institution's faculty members.

2. Literature review

2.1 Critical Success Factors

A CSF is a management term for an element that must be present in an organization's actions or environment for a project or mission to succeed. The success factor as essential elements within the Texas Accountability Intervention System (TAIS) framework is the focus on this research. The effectiveness of organizational innovations is predicted using these CSFs. The CSFs that have been documented are based on evidence-based research and are essential for executing continuous school improvement activities. Caliskan and Zhu (2020) found that organizational culture factors influence students' and instructors' perceptions of the need for innovation, their views on innovative teaching methods, responsiveness to instructional innovations, and the perceived level of implementation of educational innovations. As a result, CSFs are vital to an organization's success. These might be made for a certain department within the company or the entire organization (Muhammad et al., 2020).

Nonetheless, these are formed by top management and are always intimately tied to the institution's strategy. According to Correani et al. (2020), the rapid rise of digital technologies and the massive amounts of data acquired each day by devices and applications are forcing organizations to change the corporate architecture they build and value drastically. Learning institutions and universities must recognize the importance of assembling a team to engage with CSFs (Muhammad et al., 2020). Faculty members must offer suggestions or provide comments for the organization to improve.

CSFs, according to de Oliveira et al. (2018), are meant to expose crucial spots in the organization, notably management. CSFs, he argued, boost an organization's development and raise the value of procedures by identifying factors that can obstruct or succeed in achieving a given organizational goal. The following CSFs (TAIS Framework) are taken into account in the context of education.

Improve Academic Performance (IAP). Assuring teacher quality, effective leadership, data-driven instructional decisions, a productive community, parent involvement, efficient use of learning time, and sustaining a healthy school environment as the foundational CSF All students' performance can be improved on campuses.

Increase the Use of Quality Data to Drive Instruction (IUQDDI). Empowerment and active involvement of faculty as a vital aspect in adopting technology in an educational environment will be practical in terms of organizational changes in terms of technology-enhanced instruction. Improved student performance can be achieved by using high-quality data to guide instructional decisions. As a result, teachers create both the learning environment and the organizational culture (Porto, 2020).

Increase Leadership Effectiveness (ILE). The requirement for leadership to display characteristics and talents recognized to promote and implement positive educational change is always at the heart of organizational innovations.

Increased Learning Time (ILT). Increased learning time needs tactics that optimize the amount of sustained, engaging instructional minutes, which leads to better academic accomplishment, particularly for underprivileged youth (Jez & Wassmer, 2015).

Increase Family and Community Engagement (IFCE). Schools have prioritized parent and community involvement. As students struggle with the present COVID-19 pandemic, parental involvement in education grows considerably, thanks to flexible learning delivery (Callo & Yazon, 2020). Family and community involvement is also linked to academic success and school improvement (Boonk et al., 2018).

Improve School Climate (ISC). Research has shown a link between school environment and student achievement. According to Reynolds et al. (2017), school identification fully mediated the association between school climate and academic achievement, emphasizing the importance of feeling connected to the school as a whole for academic success.

Increase Teacher Quality (ITQ). Teacher quality focuses on the need to attract and retain competent teachers, as well as assist and enhance current staff's knowledge and abilities through

job-embedded professional development (TAIS Framework). By improving teacher quality, promoting professional development is intended to impact teachers' dedication and capacity to teach (Imron et al., 2020). In the face of the COVID-19 pandemic, organizations are looking for ways to gain a competitive advantage. As a result, organizations' performance is measured in how well they formulate organizational planning (Kader et al., 2020). According to CSF, this is seen as critical for an organization's productivity in providing effective academic services.

2.2   *Flexibility as Organizational Innovations*

Creating a new product, service, technology, or administrative procedure is an example of innovation (Nogueira & Marques, 2008). It is a requirement for achieving long-term success (Saunila, 2016). On the other hand, organizational innovation is described as the development or acceptance of a new idea or practice in organizational operations for the entire organization (Aminbeidokhti, Jamshidi & Hoseini, 2014). New technology and management actions are usually realized by new processes, both direct and indirect, or through used goods, whether tangible items or intangible services. According to Wong and Chin (2006), these new technologies or management practices may have existed previously or had recently been created. However, there have been different ways by which organizational innovation was classified in the literature and other settings. This present study only focused on the innovation in the organizations in the context of an educational institution. In this study, the organizational innovation was introduced in the context of technology-enhanced instruction in distance learning as an innovation introduced in a state university in response to the challenge posed by the pandemic on the learning delivery modality. For the past years, a considerable number of researches have been conducted to investigate the effects of technology on the delivery of the teaching-learning process, specifically how it enhances the learning environment (Jhurree, 2005). While many studies have revealed the positive effects of technology on students, teachers, and administrators, adjustment and scenarios in the present context of a full face-to-face delivery mode in a traditional classroom transformed to a fully online distance learning mode are not well explored.

Technology is perceived as a vital driving force for contemporary education (Buabeng-Andoh, 2019). The 21st-century education has witnessed a remarkable improvement in computer and internet availability among learning institutions. As most learning institutions were

compelled to adapt their delivery method from conventional and flexible learning to complete distant education during the Covid-19 pandemic, the availability of technological infrastructure and technology integration in instruction has become increasingly important. During this time, technology-enhanced instruction thus appeared to open more opportunities for flexible learning. Evidence of how to use technology purposefully and adequately could make learning more meaningful and enjoyable. It also increases learners' subject engagement, knowledge, and retention. The use of technology to improve the delivery of teaching and learning (Gordon, 2014) and facilitating administrative work within institutions can be flexible using various tools to help learners interact with the material, their peers, and their instructors even from a distance. While technology-enhanced instruction is widely promoted in general curriculum areas to increase students' learning and problem-solving skills, the integration of technology in teaching and learning to improve educational quality has been limited (Buabeng-Andoh, 2012; Hinostroza, 2018).

Technology-enhanced instruction and technology integration in education remains to be a contentious issue. In this context, the study will examine the effectiveness of organizational innovation as perceived by the teachers who implement the flexible learning delivery modes in one state university.

3. Methodology

This study utilized a regression analysis design (Siedlecki, 2020) to determine a relationship between critical success factors and organizational innovations. Likewise, it aims to identify which CSF dimensions predict organizational innovations in technology-enhanced instructions (Caliskan & Zhu, 2020).

LSPU-San Pablo City was the research locale. Purposive sampling procedures were used to pick 251 faculty members as respondents (Table 1). Every member of the teaching staff in the school has an equal probability of being included in the sample.

The respondents were mostly female (56.57%) aged 26 to 35 (48.61%) and pursuing master's degree (31.08%). As to employment status, 47% were employed full-time, with most faculty members belonging to the College of Arts and Sciences (26.29%). The majority of respondents were instructors (60%) of the institution's full-time faculty.

Table 1

Distribution of Respondents' Profile

	Demographic	*F*	*%*
Sex	Female	142	56.57
	Male	109	43.43
Age	20-25	45	17.93
	26-35	122	48.61
	36-45	34	13.55
	46-55	23	9.16
	Above 55	27	10.76
Educational Background	Bachelor's Degree	45	17.93
	With Master's Units	78	31.08
	Master's Degree	53	21.12
	With Doctorate Units	50	19.92
	Doctorate Degree	25	9.96
Employment Status	Full-time	120	47.81
	Part-time	131	52.19
College/ Department	Industrial Technology	27	10.76
	Engineering	17	6.77
	Teacher Education	60	23.90
	Computer Studies	23	9.16
	Hospitality Management and Tourism	16	6.37
	Arts and Sciences	66	26.29
	Criminal Justice Education	14	5.58
	Business Management and Accountancy	28	11.16
Position*	Instructor	72	60
	Assistant Professor	33	27.5
	Associate Professor	15	12.5
	Professor	0	0

N: 251   *With full-time position*

A researcher-made questionnaire was used to obtain data about the variables of the study. The level of manifestation on CSFs and organizational innovation strategies for technology-enhanced instruction was determined using a researcher-created questionnaire. The Likert Scale was used to score the indicators of applied representations.

Content validation was used to fine-tune and finalize the CSF (α: 0.835; Items: 35; VI: *Good*) instrument and organizational innovation practices (α: 0.892; Items: 20; VI: *Good*). Twenty-six (26) full-time faculty members in the teacher education department were given the questionnaire to test its validity and reliability. Due to the current COVID-19 pandemic, the final instrument was distributed via Google Form, delivered to every university teaching personnel's

institutional email account. The respondents consented to conduct the study, and all personal information collected was kept confidential in compliance with the Data Privacy Act of 2012.

The mean of the responses in each item of the questionnaire about the manifestation of CSFs and organizational innovation practices was calculated using a weighted mean and standard deviation. The Pearson Product-Moment Correlation Coefficient was used to establish the significant relationships between variables at 0.05 level of probability. In addition, multiple regression analysis was utilized to evaluate the construct of CSF as a significant predictor of organizational innovations.

4. Findings and Discussion

Table 2

The extent of manifestation of CSFs and Organizational Innovation practices

	Mean	SD	VI
Critical Success Factors			
Improve Academic Performance (IAP)	3.14	0.537	MM
Increase the Use of Quality Data to Drive Instruction (IUQDDI)	3.36	0.455	HM
Increase Leadership Effectiveness (ILE)	3.19	0.637	MM
Increased Learning Time (ILT)	3.61	0.482	HM
Increase Family and Community Engagement (IFCE)	3.37	0.596	HM
Improve School Climate (ISC)	3.55	0.565	HM
Increase Teacher Quality (ITQ)	3.62	0.482	HM
Organizational Innovations			
Technology-enhanced Instructions	3.56	0.466	HM

Legend: 1.00-1.75 Rarely Manifested; 1.76-2.50 Seldom Manifested; 2.51-3.25 Moderately Manifested; 3.26-4.00 Highly Manifested

Based on their current policies and conditions, an organization might implement several quality management and control systems (AlQudah, Osman, & Safizal, 2014). Organizational performance is determined by comparing an organization's actual outputs to its desired objectives.

Table 2 depicts the degree to which CSFs were manifested at one state university. Flexible learning's impact on academic performance goals allows students to track their progress and make adjustments as needed. Among the teachers at LSPU-San Pablo City, IAP was moderately manifested ($\bar{X}$=3.14; σ=0.537). According to Correani et al. (2020), the affordances of technologies in flexible learning influenced teaching and learning activities. The need for flexible environments is also mentioned, as is the importance of expanding the use of quality

data to drive training, resulting in tailored instruction (Rasheed et al., 2020). IUQDDI is highly manifested ($\overline{X}$=3.36; σ =0.455) among faculty respondents. It was clear that the high level of IUQDDI manifestation reflects organizational innovation practices.

ILE was moderately manifested among the faculty ($\overline{X}$=3.19, σ =0.637). According to Caliskan & Zhu (2020), higher education institutions must respond to changing educational needs by adopting more flexible organizational cultures to meet their academic, social, and economic conditions. It is common for an organization to reach a point where it is easier to stick to the path of least resistance than it is to pursue development and innovation (AlQudah Osman, & Safizal, 2014). Individual learning is always influenced by the amount of time spent on a task and the assignment's fit with the student (Jez & Wassmer, 2015). Learners benefit from flexible and blended learning modalities since the student is actively involved in working on the task at his speed. Accordingly, ILT is highly manifested ($\overline{X}$=3.61; σ =0.482). It could signify that the organization's current delivery approach allows instructors to boost efficiency and produce high-quality outputs to their pupils. Family participation is critical for a child's successful learning and development of essential abilities, according to Boonk et al. (2018). Based on the perceived mean ($\overline{X}$=3.37; σ =0.596), Increase Family and Community Engagement (IFCE) was rated highly manifested. IFCE can improve the quality of university guidance settings, as well as student attitudes and behavior (Kader, Mustapha & Zaki, 2020). If instructors, students, and families are firmly connected, organization guidance and support services are more significant and serve children better. Improve School Climate ($\overline{X}$=3.55; σ =0.565) was also highly manifested. According to Reynolds et al. (2017), school identification entirely moderated the association between school atmosphere and academic attainment. Increased Teacher Quality (ITQ) ($\overline{X}$=3.62; σ =0.482) was also highly manifested. Imron et al. (2020) describe commitment as individual ties to the organization in carrying out their responsibilities. Finally, in terms of technology-enhanced instructions, organizational innovation practices were rated highly practiced ($\overline{X}$=3.56; σ =0.466). Members of a hierarchical organization are not actively advancing the organization's objective and goals, instead opting to complete a mandated task (Imron et al., 2020). As members are verified, supervised, and assessed, top management typically assigns these jobs and expects them to adhere to tight rules. As a result, having a suitable member who understands and applies the process has a good and significant impact on the success of organizational innovations.

Table 3

Test of Correlation between CSFs and Organizational Innovations

Critical Success Factors	Organizational Innovations
Improve Academic Performance (IAP)	0.438**
Increase the Use of Quality Data to Drive Instruction (IUQDDI)	0.518**
Increase Leadership Effectiveness (ILE)	0.479**
Increased Learning Time (ILT)	0.744**
Increase Family and Community Engagement (IFCE)	0.664**
Improve School Climate (ISC)	0.831**
Increase Teacher Quality (ITQ)	0.772**

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

In terms of technology-enhanced instructions, Table 3 demonstrates the examination of the association between seven (7) CSFs and organizational innovations. The results show that CSFs (IAP, IUQDDI, ILE, IFCE) and organizational innovations have a moderate relationship (Sig. =0.000; r=0.438; 0.518; 0.479; 0.664). Education and technology may work together to create dynamic teaching and learning experiences that will help to develop and transform the educators and learners who will power the digital economy (Garcia, 2017). Faculty members' digital competency is strong and highly connected with their research productivity (Callo & Yazon, 2020).

According to Muhammad (2020), workforce recruiting is a manifestation that creates an environment that allows records and information management professionals to carry out their duties effectively. Similarly, it shows that as their knowledge, abilities, and attitudes toward working, living, and learning in the knowledge society improve, they can produce publishable research results. As a result, the more instructional time provided to a school has a statistically significant and beneficial impact on average academic success (Jez & Wassmer, 2015).

The findings also show that CSF constructs (ILT, ISC, ITQ) have a strong relationship with organizational innovations in terms of technology-enhanced instructions (Sig. =0.000; r=0.744; 0.831; 0.772). There are practical challenges concerning physical workspaces favorable to diverse styles of learning, according to Pokhrel and Chhetri (2021). Because they require less supervision and direction, naturally driven learners are generally unaffected in their learning. Although there have been numerous problems for educators, schools, institutes, and the government regarding online education, the COVID-19 pandemic has created multiple chances for those unprepared or have long-term intentions to deploy an e-learning system (Pokhrel &

Chhetri, 2021). The organization needs to improve teacher maturity and capacity to provide effective professional coaching for teachers. According to Imron et al. (2020), a competent level instructor has moved and gained a lot of experience and a strong desire to succeed. It was projected that school identity would be strongly linked to academic achievement and that it would even act as a mediator between school environment and achievement (Reynolds et al., 2017).

Table 4

Prediction of the Critical Success Factors (CSF) Constructs to Organizational Innovations.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.253	0.122		2.077	0.039
Improve School Climate (ISC)	0.408	0.037	0.495	11.155	0.000
Increased Learning Time (ILT)	0.227	0.041	0.235	5.501	0.000
Increase the Use of Quality Data to Drive Instruction (IUQDDI)	0.175	0.034	0.171	5.115	0.000
Increase Family and Community Engagement (IFCE)	0.135	0.031	0.173	4.406	0.000

Note: Dependent Variable: Organizational Innovations   *Adjusted R^2 = 78.6%; p < .01; N = 251*
F = (4,246) = 230.070

A stepwise multiple linear regression analysis was conducted with organizational innovations (technology-enhanced instructions) as the dependent variable and the seven (7) constructs CSFs as independent variables. The multiple regression analysis revealed that Improve School Climate (ISC), Increased Learning Time (ILT), Increase Family and Community Engagement (IFCE) and Increase Use of Quality Data to Drive Instruction (IUQDDI) both contributed considerably to the regression model $F = (4,246) = 230.070$, p < .01 and accounted for 78.6% of the variation in organizational innovations score.

ISC was found to be very prevalent among the teaching staff at LSPU in San Pablo City. According to Cowan et al. (2009), there is no shortage of discussion on how technology affects people's lives and how technical breakthroughs are being deployed at incredible speeds. According to Callo & Yazon (2020), the success of flexible learning delivery depends on the institution's adaptable culture to organizational changes. Many colleges attempt to improve student learning by increasing learning time (ILT) in a relaxed learning atmosphere. Increased interest in the agenda has been followed by a developing evidence base on the academic, social, and other benefits of increased learning time programs (Kidron & Lindsay, 2014). This method

has the impact of highlighting the potential beneficial effects on student conduct during the pandemic. The IUQDDI has also discovered a favorable predictor of organizational innovation. The efficiency and efficacy of the flexible learning delivery were boosted by the high quality of data used to give appropriate information. According to Ogar and Dushu (2018), innovation technologies have caused a paradigm change in libraries and information services. It is critical to have sufficient recordkeeping and information management (Muhammad et al., 2020). The use of information and communication technology under a flexible learning approach to optimize organizational innovations on the work of education professionals in the current context of a pandemic contributes to managing emotions and motivational processes, contributing to meaningful learning in students. Faculty perceived an increase in family and community engagement as a good influence. Educators' work arrangements have changed significantly as a result of the pandemic. Since most schools were closed and no face-to-face classes were offered during the current school year, the work-from-home option became popular in most educational systems. The IFCE, as a CSF construct, completes the regression model as a positive predictor of Organizational Innovations in terms of Technology-assisted Instructions.

5. Conclusion

The primary goal of this research is to find out which of the CSFs present in one state university lead to actual organizational innovations in terms of technology-enhanced instructions. Five (5) of the seven (7) constructs of CSFs were deemed highly manifested. The faculty of LSPU are with the vision and mission of the university to provide a quality, efficient and effective educational service through the university's flexible learning delivery. Also, the current COVID-19 pandemic made the institution characterized an adaptive culture that envisions organizational innovations bringing support to its community. There is a moderate correlation between CSFs (IAP, IUQDDI, ILE, IFCE) and organizational innovations. Likewise, a strong association was seen between CSFs (ILT, ISC, ITQ) and organizational innovations. Furthermore, ISC, ILT, IUQDDI, and IFCE as CSF construct significantly predict organizational innovations in technology-enhanced instructions.

The study's findings have significant implications for successfully implementing flexible learning delivery of LSPU in higher education levels. First, the study results could provide salient inputs for the university's top management to expand and support its flexible learning delivery mode. Second, the study highlighted the role of faculty in manifesting the effectiveness

of organizational innovation practices. Likewise, it could inform educational policymakers to explore the merits of flexible learning delivery regarding its usefulness and manageability to increase organizational productivity. Third, this study suggests that various critical success factors can explain organizations' future planning. It highlights the CSFs that must be considered to implement the learning delivery mode effectively. Finally, other external elements that can determine organizational innovation practices affecting organizational productivity for future research areas may be discovered.

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