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# Navigating for smooth sailing: a qualitative analysis of factors affecting institutional adoption and diffusion of blended learning

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## ABSTRACT

The adoption and diffusion of blended learning in higher education have a surge in recent years, particularly since the COVID-19 pandemic. However, research on comprehensive institutional strategies elucidating the reasons and mechanisms behind institutional adoption is still limited. This gap may contribute to a lack of understanding among university leadership regarding the provision of necessary policies and essential support for both students and academics. Utilising a case study methodology, and grounded in Diffusion of Innovations theory, this study investigates the factors influencing the institutional adoption and diffusion of blended learning in a university. The study involved interviews with 24 lecturers and six university executives, and the data were analysed relying on a theoretical proposition. Additionally, various university documents were collected and subjected to content analyses. The results revealed a range of factors that either facilitated or impeded the diffusion process, including student experiences, teacher beliefs and attitudes, teacher support, teacher self-efficacy, university policies, and institutional readiness. While most of these factors contributed to the innovation process, certain elements had a negative impact, hindering the university's efforts for diffusion. Notably, the study observed the dynamic evolution of the roles played by some factors as the diffusion process unfolded.

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## KEYWORDS

Blended learning; diffusion of innovations; institutional adoption; higher education

## 1. Introduction

Blended learning, a purposeful integration of online and face-to-face (F2F) instruction (Gao, Jiang, and Tang 2020), has been in practice for more than two decades. By effectively harnessing the strengths of both instructional technology and F2F teaching, blended learning is widely acclaimed as a promising pedagogic approach spanning the entire spectrum of learning. The central goal of blended learning is to afford learners greater flexibility, improved access to learning, and enhanced engagement (Cidrala et al. 2018; Dziuban et al. 2018). Thanks to these affordances, this instructional approach

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has been adopted across diverse academic disciplines, encompassing fields such as education, accounting and business, language learning, medical sciences and nursing, engineering, mathematics, and computer science (e.g. Lima, Lautert, and Gomes 2021; Ożadowicz 2020; Wang and Huang 2018; Xu et al. 2020; Zibin and Altakhaineh 2019), among others. Moreover, it has found application in unconventional academic settings, including vocational education and professional development within corporate environments (e.g. Krismadinata et al. 2020; Mubayrik 2018). This underscores the widespread integration of blended learning in nearly every learning context, whether formal or informal.

Despite the pervasiveness of blended learning, it is worth noting that historically, blended learning had been predominantly confined to individual or subject-level initiatives rather than forming a strategic, university-wide approach (Ali 2022; Antwi-Boampong 2020; Groen et al. 2020). However, it is now evident that in the recent years, particularly with the events related to COVID-19, an increasing number of universities have been leaning toward the institutional adoption of technology-enhanced learning, including blended learning (e.g. Groen et al. 2020; Huang, Matthews, and Lodge 2022; Mestan 2019; Thomas, Al Jarrah, and Joseph 2022). As universities navigate the transition toward greater reliance on online and blended learning, it becomes imperative for academic leaders to make informed decisions and allocate resources wisely. Without a nuanced understanding of the factors that facilitate or hinder the institutional adoption of blended learning, university leaders may struggle to implement effective policies and establish the critical support structures needed by both students and teaching staff. This lack of insight could jeopardise the sustainability of institutional adoption. Given the complex ecosystems of modern universities – characterised by diverse academic and administrative structures (Elton 2008) – and the need for purposeful integration of F2F and online instruction, it is imperative to thoroughly understand the factors that influence institutional adoption. This study aims to address this critical knowledge gap by leveraging the Diffusion of Innovations theory to comprehensively investigate the factors and their roles in driving or inhibiting the adoption and diffusion of blended learning within a university. By doing so, we seek to provide university leaders, educators, and policymakers with evidence-based insights and guidance on the factors affecting institutional adoption, enabling them to effectively integrate blended learning. This, in turn, will enhance lecturer adoption, improve student experiences, and elevate learning outcomes in the evolving landscape of higher education.

## 2. Background

### 2.1. Blended learning in higher education

Blended learning has evolved beyond being a novel method of course delivery, finding widespread application in higher education across various academic levels and disciplines. While the historical focus in the literature has predominantly centred on teacher practices and student learning, recent years have witnessed a surge in research efforts addressing aspects related to institutional adoption. In this context, Graham, Woodfield, and Harrison (2013) have formulated a framework delineating the institutional adoption and implementation of blended learning, while Porter et al. (2014) have delved

into issues pertaining to the initial phases of blended learning implementation in higher education. Further contributions to the exploration of institutional adoption include studies by Porter and Graham (2016), Mestan (2019), Anthony Jnr et al. (2022), and Anthony Jnr (2022). These studies have investigated diverse aspects, such as those influencing teacher adoption of blended learning, the status of institutional implementation, the readiness of university leaders to embrace blended learning initiatives, and the impact of institutional pressure on teacher implementation of blended learning. Numerous other studies have also explored related aspects within this domain (e.g. Abusalim et al. 2020; Al-Ayed and Al-Tit 2021; Antwi-Boampong and Anthony Jnr 2022; Edge et al. 2022; Thomas, Al Jarrah, and Joseph 2022).

However, none of these studies has provided a comprehensive narrative of why and how blended learning is adopted and diffused at the institutional level, nor have they thoroughly examined the roles and interactions of the various factors influencing this process. Even those studies that have attempted to delve into these processes have only offered partial descriptions. For instance, Antwi-Boampong and Anthony Jnr (2022) investigated the motivations behind the adoption of blended learning in a Ghanaian institution but failed to detail the key activities during the innovation process or the factors influencing university leadership decisions. Similarly, Abusalim et al. (2020) discussed important aspects for implementing institutional blended learning, including resource allocation and professional development, but did not provide a comprehensive account of the adoption and diffusion process. Several other studies have also reported only partial descriptions (e.g. Adekola, Dale, and Gardiner 2017; Huang, Matthews, and Lodge 2022; Ravenscroft and Luhanga 2018), collectively underscoring the urgent need for more extensive research efforts to comprehensively understand the adoption and diffusion processes in higher education institutions.

The reviewed literature indicates that recent years have witnessed attempts to investigate various facets concerning the institutional adoption and implementation of blended learning. However, a noticeable gap exists in empirical research that comprehensively examines the entire process of adoption and diffusion, including the influencing factors that may either facilitate or hinder this process. This nuanced understanding is imperative for university leadership, enabling them to make informed decisions and establish necessary support structures for both lecturers and students within the dynamic landscape of higher education. Such insights are vital for facilitating smoother transitions to technology-integrated learning approaches, such as blended learning.

## **2.2. Factors affecting adoption**

Although the primary focus of the current study was at the institutional level, it is imperative to delve into the factors influencing individuals' adoption. Understanding the adoption of individuals within organisations is crucial because institutional initiatives related to the adoption and diffusion of innovations, such as blended learning, are unlikely to be successful without the uptake of individuals (Ali 2022; Rogers 2003). Furthermore, blended learning incorporates a significant technological component that necessitates careful integration with F2F instruction (Dziuban et al. 2018). Therefore, by drawing upon the literature, we compiled a list of common factors influencing teachers' intentions regarding the adoption of technology, as outlined in Table 1.

**Table 1.** Factors affecting adoption of technology-integrated learning.

Factors	Authors	A description of roles of factors
Student experiences	Adekola, Dale, and Gardiner (2017); Antwi-Boampong and Anthony Jnr (2022); Lim, Wang, and Graham (2019); Mestan (2019); Mirriahi et al. (2015)	The primary objective of utilising technology or technology-enhanced learning methods being to improve students' learning outcomes and overall learning experiences.
Teacher beliefs and attitudes	Eickelmann and Vennemann (2017); Huang and Teo (2021); Liu (2011); Liu, Geertshuis, and Grainger (2020); Scherer et al. (2021); Tondeur et al. (2017)	The beliefs and attitudes that teachers hold regarding pedagogy and technology predicting how they will utilise a specific technology or pedagogical method in the classroom.
Teacher support	Adekola, Dale, and Gardiner (2017); Hilliard (2015); Hudson (2012); Liang et al. (2013); Thomas, Al Jarrah, and Joseph (2022); Wang and Zhao (2021)	Systems and mechanisms established within universities and schools, in relation to pedagogy and technology, affecting teacher use of technology in the classroom.
Teacher self-efficacy	Wang and Zhao (2021); Taimalu and Luik (2019); Narayanan and Ordynans (2022); Kwon et al. (2019); Cheng, Chen, and Chang (2021)	Teachers engage in subjective assessments of their proficiency concerning the knowledge and skills required for utilising a particular technology or pedagogical method.
Academic disciplines	Al-Furaih and Al-Awidi (2020); Mercader and Gairín (2020); Salto (2022); Shelton (2014)	The affiliation of a teacher with a specific academic discipline influencing their decisions regarding the integration of technology in teaching and learning due to subject-specific requirements and dispositions.
Institutional policies	Adekola, Dale, and Gardiner (2017); Graham, Woodfield, and Harrison (2013); Ibrahim and Nat (2019); Porter and Graham (2016); Porter et al. (2014)	Institutional strategies, frameworks, and processes implemented within the institution having a 'control' over teacher integration of technology in the classroom.
Institutional readiness	Abusalim et al. (2020); Mukhula et al. (2021); Porter et al. (2016); Scherer et al. (2021); Webster and Gardner (2019)	The overall preparedness of the university, encompassing technology availability and teacher readiness, impacting individual teacher use of technology in the classroom.

As outlined in Table 1, several factors can influence the choices made by individual teachers in adopting technology. Understanding the elements affecting teacher utilisation of technology and technology-integrated learning has been an ongoing pursuit for several decades. This is because teachers typically hold the pivotal role in decision-making regarding classroom practices, and, consequently, individual teacher adoption plays a crucial role in driving changes at the university level (Ali 2022; Porter and Graham 2016). It is, therefore, reasonable to apply the factors identified in Table 1 to analyse the innovation process of blended learning in a university.

### 2.3. The innovation process in organisations

The diffusion of innovations holds a central role in catalysing change and fostering progress in organisations. A model for understanding this change is by Rogers (2003) which postulated that the diffusion of innovations within organisations can occur as a process that consists of five distinct stages. These stages collectively encompass the journey of an innovation from its inception to its seamless integration into the organisational fabric.

The first two stages, collectively known as the *initiation sub-process*, involve *agenda-setting*, and *matching* (Rogers 2003). During agenda-setting, organisations identify pressing challenges or performance gaps that necessitate innovative solutions. In this stage stakeholders come together to prioritise needs, and the organisation embarks on a quest to uncover innovations that align with these identified needs (Ali 2022). The matching stage involves a critical assessment of how well a chosen innovation fits the

organisation's unique challenges, serving as a 'reality test' to gauge compatibility and anticipate potential benefits and obstacles (Rogers 2003). Activities such as piloting, stakeholder engagement, and user feedback collection become pivotal during this stage.

According to Rogers (2003), the last three stages are in the *implementation sub-process* which consists of *redefining and restructuring*, *clarifying*, and *routinising*. In the redefining and restructuring stage, the innovation and organisational structure undergo adaptive modifications, facilitating alignment of the innovation with the organisation's context, while the clarifying stage focuses on ensuring that the innovation's meaning becomes 'well-spoken' to all members of the organisation (Ali 2022; Rusek et al. 2017), emphasising the importance of social construction and shared understanding. Finally, in the routinising stage, the innovation becomes integrated into the routine activities of the organisation, losing the foreign identity of the innovation (Rogers 2003).

While Rogers' diffusion of innovations theory (Dol) has been extensively utilised to understand the adoption and diffusion of innovations in various contexts, from farming and business to education (e.g. Jahanmir and Cavadas 2018; Lin and Cantoni 2018; Min, So, and Jeong 2019; Zhai, Ding, and Wang 2018), it is not without critiques. Some scholars have questioned the model's ability to adequately explain the adoption and diffusion of complex and networked technologies and systems such as transportation and electrical supply systems (e.g. Lyytinen and Damsgaard 2001). There are also arguments regarding the nature of the innovation process (Dall'Alba and Sandberg 2006), suggesting that change processes in organisations may not always be linear and are often iterative, which opposes Rogers' (2003) five-stage model of the innovation process. Despite these critiques, many studies have highlighted the potential of Dol in explaining the diffusion process and have applied it to explore how innovations, including blended learning, are adopted and diffused (e.g. Ali and Georgiou 2024; Min, So, and Jeong 2019; Sahin 2006). Rogers' model encapsulates more nuances on why and how innovations are adopted and diffused (Min, So, and Jeong 2019; Turner et al. 2021). Therefore, Dol is expected to provide a solid framework for understanding how blended learning was adopted and diffused across a university, illuminate the roles of various factors in the innovation process, and provide comprehensive guidance for the adoption and diffusion.

### 3. The context and case

The context of this study was a public university in the Maldives, an archipelago with 185 inhabited islands located in the Indian Ocean. Over a third of the country's population (~150,000) resides in the greater Malé area, the capital city, while most of the remaining islands have populations between 500 and 3,000. Due to the small size and population of these islands, services such as healthcare, education, and employment opportunities are quite limited, leading island communities to heavily rely on Malé for these services. However, travelling to Malé is challenging for much of the nation, with sea travel being the primary mode of transport. At the time of data collection, there was no reliable public transportation system (i.e. ferry) connecting the islands and the city, or even between the islands. This makes inter-island travel difficult and costly, limiting access to services provided in Malé, especially higher education. All higher education providers operate their main campuses in the capital city, despite some regional campuses being

established with limited facilities. Consequently, people from island communities often need to relocate to the city to participate in university studies.

The university under study is the largest higher education provider in the nation, a dual-mode university with an average annual student population of over 9500. At the time of data collection, the university consisted of six faculties (education, science, Islamic studies, tourism, arts, and health sciences), three schools (business, nursing, and medicine), and three centres (maritime studies, foundation studies, and educational technology). As a public university and the largest higher education provider, it acknowledges the need to expand its programmes to the island communities to address geographical challenges of the nation. Blended learning has been used by some individual lecturers and faculties as a strategy to address this need since 2010. The researcher, employed by the university, was one of the early adopters and oversaw flexible learning programmes between 2011 and 2018. He was no longer employed by the university at the time of data collection.

In 2018, the government of the Maldives introduced a higher education policy called the Free Degree Program (FDP), which required certain conditions to be met by higher education providers (e.g. ensuring weekly learning interactions in flexible subjects). Following this national policy, the university introduced its own policy for the institutional adoption of blended learning as the mode of delivery for its flexible learning programmes across the university. The overarching aim was to address the geographical challenges of the nation, improve access to learning, and enhance the quality of courses while aligning with the FDP. The current study focuses on this university initiative which provides interesting insights into why and how institutional blended learning could be implemented in universities, especially in geographically challenging contexts. This study was a part of larger PhD project.

## 4. Methods

### 4.1. Research design and data collection

A single case study design was employed, focusing on one university. A case study is an empirical inquiry that provides a focus on a specific real-world context, allowing the researcher to comprehensively cover a wide range of intricate and contextual conditions related to the case (Yin 2012). As universities are inherently complex and large organisations (Elton 2008), and the university under study had its own unique characteristics (i.e. geographical challenges), the use of the case study method allowed for unpacking how certain aspects or factors within the university could affect individuals' adoption of blended learning, leading to institutional implementation. These insights are believed to be informative from the perspective of the experience of an average person or institution, which falls under the 'typical' type of single case studies (Yin 2009). Earlier studies have used case study methods to investigate the adoption of blended learning in various settings (e.g. Lai, Lam, and Lim 2016; Truitt and Ku 2018). Ethical approvals were obtained from Human Ethics Committees of the respective institutions prior to the commencement of data collection.

Data collection was conducted through a purposeful sampling method (Fetters, Curry, and Creswell 2013). Given the small size of the university, all leadership members and lecturers involved in the implementation of blended learning were invited for interviews.

A total of 22 lecturers from eight academic disciplines, two lecturers from the Centre for Educational Technology and Excellence (CETE), and six university executives, including one from the chancellery, agreed to participate in the interviews, making a total of 30 participants. At least two lecturers participated from each subject domain. Lecturers from the CETE were included because they played a key role in the facilitation of implementation, including an oversight role. No participants from the School of Medicine were included because it did not have any blended learning subjects at the time of data collection. Of the 24 lecturers, 14 were female, and 10 were male. Notably, during the data collection phase, 61.5% of the lecturers had less than two years of experience in blended teaching.

One-on-one semi-structured interviews were conducted, each lasting approximately 50–60 minutes. The interview questions were crafted to extract detailed accounts of the events and activities that transpired throughout the adoption and diffusion process of blended learning. Questions included, but were not limited to, those related to participants' perceptions and experiences of blended learning, significant steps or stages in the innovation process, and the key activities that either facilitated or hindered the adoption and implementation of blended learning across different faculties. All interviews were audio recorded for subsequent data analysis. Additionally, a range of university documents related to the implementation of blended learning were gathered. These included all relevant policy documents and internal communications, such as the university's strategic plan, the guidelines of the Free Degree Program, relevant resolutions of the Academic Senate, the academic staff professional development schedule, and internal memos.

#### **4.2. Data analysis**

For data analysis, the interviews were transcribed verbatim and analysed relying on a theoretical proposition (Yin 2012). The initial coding scheme included themes from Rogers' five stages of the innovation process (agenda-setting, matching, redefining/restructuring, clarifying, and routinising) and the identified factors that affect teacher adoption of technology (student experiences, university policies, teacher beliefs, academic disciplines, institutional readiness, teacher support, and teacher self-efficacy). For interview coding, each interview transcription was thoroughly read multiple times, and initial codes were highlighted in NVivo. Following the generation of the initial codes, numerous sub-codes were collated into potential themes that were then refined and renamed, subsequently linking to the identified initial themes. The themes were then refined, succinctly summarised, and deliberated upon with two experts in the field of educational research. Refinements were once again made based on their feedback, culminating in the finalisation of themes. This process of peer debriefing contributes to the overall trustworthiness of qualitative data analysis (Flick 2009). For the analysis of documents, a content analysis method was utilised. The documents were carefully read, and relevant sections to the implementation of blended learning were highlighted and linked to the themes identified through the interview analysis.

### **5. Results**

Results suggest that the adoption and diffusion of blended learning at the university can be understood as a relatively sequential process, aligning with the framework articulated

by Rogers (2003). These stages involve agenda-setting, matching, redefining/restructuring, clarifying, and routinising. The subsequent sections detail the key activities that occurred within each stage. Following this, a discussion delves into the factors that either facilitated or hindered the diffusion process, along with an exploration of the implications stemming from these aspects. Pseudonyms are used for lecturers to improve readability of the results.

### 5.1. Agenda-setting

Agenda-setting – identifying issues within the organisation that require attention, often serves as the initial step in the innovation process (Rogers 2003). Results suggested that, in the context of the current study, the university had multiple issues related to its course delivery, including the geographical dispersion of the nation, issues with the delivery of flexible courses, and a higher education policy of the Maldivian government which all contributed for creating an urgent need for the university to search for an innovation, in this case, it happens to be blended learning.

In relation to issues incepted by the geographical dispersion of the nation, all the participants highlighted the dire need for the university to find an alternative mode of course delivery to enable people who live on the remote islands, approximately 1/3 of the population of the nation, to participate in university education. Afza, a preservice teacher educator noted, 'Our islands are so dispersed, and students live on these islands cannot attend the daily classes'. This sentiment echoed among all other participants, and Executive C emphasised it by saying '... we can't keep them (student) here (in Malé) for fully F2F teaching'.

Another key issue contributed to the university's agenda of finding an innovation was associated with the university's existing 'block-mode' courses. Block-mode delivery entailed reduced face-to-face class time, typically occurring over selected weekends, with no or very limited online support in between. This raised significant concerns in various levels within the university regarding the student learning experiences and the overall quality of the courses. Aban, another preservice teacher educator who involved in block-mode delivery, explained, '... (because of no/limited online interactions) we struggled to effectively monitor students, and concerns about teaching quality became a major issue'. Executive E also highlighted the same issue by saying '... concerns related to block-mode courses were discussed many times (at the Heads meetings), like lack of consistency (was an issue) ...'. The analysis of documents indicates that the university identified the quality of students' learning in block-mode courses as a significant concern which was perceived to be addressed by introducing blended learning.

A third major reason behind the university's push for blended learning was the Free Degree Program (FDP), a government initiative exempting undergraduate students from course fees. However, the analysis of the documents suggest that certain criteria must be fulfilled by the education providers, such as student participation in weekly learning, including online components, for making their students eligible for the fee exceptions. This had a direct impact on block-mode delivery, which did not historically incorporate online learning. As one of the deans emphasised, '... with the FDP, we were forced to swiftly transition to blended teaching ... we had to adapt all our block-

mode courses to blend, in order to meet the program's requirement'. In sum, the university's pursuit for an innovation was triggered by three key concerns: access of the geographically dispersed students, quality challenges associated with block-mode delivery, and the requirements of the FDP. The first two issues were linked to student experiences, while the latter pertained to institutional policies.

### **5.2. Matching**

Matching – aligning an innovation with the issues identified during the agenda-setting, is a crucial stage in the innovation process (Rogers 2003). This stage often involves activities such as staff consultations and providing them the opportunity to 'experiment' with the innovation before full-scale implementation.

Results indicate that the 'matching' did not occur, and almost immediately after blended learning was identified as a potential innovation, the adoption decision was made by the senior executive of the university. Document analysis corroborated this observation, as the Academic Senate's decision regarding the implementation was communicated throughout the university via an internal circular issued by the Vice Chancellor.

All of a sudden, on one fine day with the introduction of FDP (Free Degree Program), blended learning was started. They didn't give us enough time to think about it. (Executive D)

As Executive D highlighted, the FDP emerged as a pivotal factor leading to the skipping of key activities of the matching stage, expediting the implementation process. Document analysis revealed that the Academic Senate's resolution mandated the immediate adoption of blended learning. The sudden nature of this adoption decision was described as such by numerous lecturers, particularly in academic disciplines like hospitality and tourism, and engineering, where hands-on teaching is more prevalent. Many lecturers and some executives in these disciplines exhibited reluctance to embrace blended learning and expressed a lack of opportunity to understand what blended learning meant for them and their subjects. Hana, a language expert, and an experienced lecturer with limited online delivery experience, voiced her frustration, stating, '... the reason I use blended learning is because they (the management) are forcing us to use it. I don't think I would use it otherwise. My preferred method of teaching is F2F'. In summary, the critical activities in the matching stage did not unfold, and the decisions made by the executives and lecturers were influenced by two factors: university policies and academic disciplines.

### **5.3. Redefining/Restructuring**

In the redefining/restructuring stage, both the innovation and the organisation undergo modification, at least to some extent (Rogers 2003). Redefining typically entails tailoring the innovation to align with the specific requirements of the organisation, while restructuring encompasses activities such as establishing new organisational units and appointing leaders for the implementation process (Turner et al. 2021).

In the current study, it is evident that both redefining and restructuring occurred. Blended learning was adapted to align with the university's specific needs, particularly

in addressing key issues related to learner experiences identified during the agenda-setting stage. Document analysis revealed that the crucial elements of blended learning were clearly outlined in a resolution from the Academic Senate. This resolution specified aspects such as ‘maintaining at least 50% of contact hours as in-class teaching’, ‘conducting four face-to-face intensive classes’, and ‘ensuring at least two weeks between any two F2F classes’. Interviews with the Executives supported and affirmed this analysis and overall, they believed that the process of redefining would enhance the university’s ability to improve the quality and consistency of blended courses, and ‘ultimately enhance student learning’. This underscores the influence of student experiences on the university’s adoption decisions.

In terms of restructuring, results indicated that the university initiated structural changes to facilitate blended learning across the institutional. They established a dedicated centre namely CETE (Centre for Educational Technology and Excellence) to oversee and support faculties in all activities related to blended teaching. This structural transformation was highlighted as pivotal in addressing critical concerns related to technological infrastructure and resources essential for implementing blended learning at the institutional level which in turn can improve institutional readiness and teacher support, as highlighted by Executive D.

... With the CETE, the centre has a new mandate now. It does some great work to prepare the university for this change ... is supporting faculties in using blended learning. (Executive D)

Many lecturers, including Aban, a preservice teacher educator, echoed sentiments similar to those of Executive D, emphasising the valuable support provided by CETE in terms of both technological and pedagogical assistance. Aban noted, ‘They (the CETE) ran many professional development workshops about Moodle’ which he thought was helpful for him and many of his colleagues to learn about the technological aspects of blended delivery. In sum, both redefining and restructuring took place, with student experiences playing a pivotal role in the redefinition of blended learning, while two other aspects, namely, teacher support (technological) and institutional readiness, shaped the restructuring efforts of the university.

#### 5.4. Clarifying

Clarifying, the process of making the meaning of a new idea clearer to the members of organisation, occurs as the innovation gains wider adoption within the organisation (Rogers 2003). Clarifying can be achieved through various means, including written communications, staff meetings, training sessions, and the dissemination of promotional materials (Turner et al. 2021).

In the current study, the clarifying stage was quite successful, primarily through two key activities: staff meetings and professional development (PD). Executive E described the nature of the staff meetings and how discussions took place at various levels within the university. She stated, ‘Initially, there were a series of meetings within the university ... During these meetings, our staff asked many questions about blended learning’. Many lecturers, including Hana, who initially had significant concerns about the use of blended learning, even had one-on-one meetings. Hana described how these meetings helped her clarify questions and concerns about blended delivery. She said, ‘... I had a

one-to-one meeting with a dean ... They explained to me how the Moodle pages should look, how they allocate face-to-face hours and online hours, and so on ... I (now) follow that as a kind of structure for my subjects’.

A second significant activity during this stage was professional development workshops. Document analysis indicates that, upon the adoption, the university conducted at least 32 workshops on a range of topics related to blended learning, including Moodle basics, course design for blended teaching, online facilitation, and creating Moodle quizzes, among others. Haifa, a tourism studies expert with limited experience in online delivery, mentioned, ‘... the professional development opportunities arranged by CETE for us were very useful’. Overall, lecturers found that the staff meetings and professional development workshops not only helped clarify their doubts about blended learning but also significantly supported them in upskilling for blended delivery which in turn improved their self-efficacy of blended teaching. In sum, the clarifying stage was relatively effective, the activities that occurred in this stage were related to teacher support, and teacher self-efficacy.

### 5.5. Routinising

Routinising involves the integration of innovation into the organisation’s day-to-day operations, leading to the innovation shedding its initial foreignness within the new environment (Rogers 2003). Results indicate that, within a year of initiating the implementation process, blended learning became an established component of the university’s standard course delivery practice. Executive A described this process as follows.

Now every semester we formally ask the faculties to send the subject information that they want to offer in blended mode to the CETE. Our minimum timeframe for this is six months prior to the start of teaching the subject. ... The CETE provides support to the faculties on a first-come-first-served basis. (Executive A)

As Executive A elaborated, during this stage, lecturers and faculty members began to regard blended learning as an integral part of their routine work at the university. Many lecturers shared similar sentiments, explaining how this process supported them in seamlessly incorporating blended learning into their teaching methods, signifying that blended learning had become ingrained in the university’s core operations. Nazim, a lecturer within the CETE, who collaborates with colleagues across the university to offer support, noted the following.

After receiving faculty requests, I contact the subject coordinators and discuss the subject ... I explain to them how the subject can be developed through collaborative efforts. (Nazim)

As Nazim pointed out, during this stage, the university had established mechanisms for monitoring the implementation process and providing ongoing support to the faculty. In return, faculty members could implement blended learning in accordance with the university’s requirements. In sum, despite the less effectiveness of the matching stage, Rogers’ innovation process in organisations was evident in the adoption and diffusion of blended learning at the university and teacher support (on-going support) was evident in the routinising stage. Overall, the results suggested that several factors played a pivotal role in shaping the activities and decisions of the university during the adoption and diffusion process of blended learning (see Table 2).

**Table 2.** Factors that affected the innovation process of blended learning.

Stage of the innovation process	Influencing factors	Main role
Agenda setting	Student Experiences	Enabler
	University Policies	Enabler
	Teacher Beliefs (positive)	Enabler
Matching	University Policies	Enabler
	Teacher Beliefs (negative)	Inhibitor
	Academic Disciplines	Inhibitor
Redefining/restructuring	Student Experiences	Enabler
	Institutional Readiness	Enabler
	Teacher Support (technological)	Enabler
Clarifying	Teacher Support (pedagogical)	Enabler
	Teacher Self-efficacy	Enabler
Routinising	Teacher Support (after-implementation)	Enabler

## 6. Discussion

Results indicate that various factors influenced the key decisions made by the university during the adoption and diffusion process of blended learning. Most of these factors played a positive role in advancing the innovation process, while some hindered the university's endeavours to integrate blended learning into its course delivery practice. Additionally, it was interesting to observe how the roles of certain factors changed over the course of the innovation process. These aspects are discussed in the following sections.

### 6.1. Agenda-setting

The agenda-setting involved two aspects – prioritising the university's problems and needs and selection of blended learning as a potential innovation. Results suggest that prioritising the problems and needs were influenced by two factors: Student Experiences and University Policies. In relation to student experiences, it is imperative for universities to enhance educational access, specifically, geographically challenging nations such as the Maldives, so people can continue their normal life without needing to relocate themselves in the city to attend university. In the current study, the university wanted to offer students improved access, flexibility, and enhanced learner engagement, particularly catering to the unique circumstances of remote island communities through an alternative mode of teaching. This is not a unique practice, specifically since the COVID-19 pandemic, as alternative modes of delivery such as blended and online learning are being widely considered to accommodate diverse student needs (e.g. Ożadowicz 2020; Scherer et al. 2021; Zimba, Khosa, and Pillay 2021). The literature has shown that blended learning can significantly improve access to learning, flexibility, and engagement (Dziuban et al. 2018; Gao, Jiang, and Tang 2020).

Another factor that influenced the university to prioritise its needs was University Policies, specifically the Academic Senate's resolution that mandated blended learning. University policies are typically informed by learner experiences, and often serve as catalysts for transformative initiatives in teaching and learning practices. In some instances, the necessity for transforming university practices is prioritised because of government higher education policies. In the present study, the Maldives government's Free Degree Program (FDP) emerged as a critical policy influencing the university's decision to

expedite the adoption of blended learning. While the FDP was a government policy, it directly impacted all undergraduate degree courses, and as a result, swiftly became embedded in the university's policies to enhance educational access through course fee exemptions, which was also related to student experiences. Government policies can have considerable influence over organisational change in universities (Guan, Xie, and Zhou 2015). Overall, identifying the university's issues related to course delivery was deeply influenced by its commitment to enhancing student learning experiences, and the need was prioritised through a university policy related to the FDP. The aspiration to change pedagogic practices and adopt blended learning for improved learning experiences is not an uncommon practice for educators and university leadership (e.g. Crawford 2017; Zimba, Khosa, and Pillay 2021).

The second part of the agenda-setting, searching for innovation within the organisation, was shaped by Beliefs and Attitudes, specifically the positive beliefs and attitudes regarding the perceived benefits of blended learning. Beliefs and attitudes, particularly teacher beliefs and attitudes are significant, because teacher beliefs and attitudes often determine their intentions regarding the integration of technology-enhanced learning into their instructional practices. In this study, it was predominantly the beliefs and attitudes of the perceived usefulness of blended learning in enhancing access, learner engagement, and overall success of students, specifically for individuals residing on the remote islands of the Maldives. In technology adoption, perceived usefulness is often associated with individual user beliefs that a particular tool can fulfil their needs (Teo 2014). In the current study, this thinking was held by a group of senior executives and teachers who were quite positive about the potential of blended learning in improving the university's issues related to learner access and engagement. This is possible with blended learning, as the purposeful integration of digital technology with F2F learning could offer remote students not only opportunities to participate in university education but also multiple avenues for active engagement in the learning process (Crawford 2017; Dey and Bandyopadhyay 2019). The consideration of blended learning's affordances is a common practice among lecturers and university executives, often leading to its adoption (Antwi-Boampong 2020). Overall, while the impetus for the university's agenda for blended learning was initiated by Student Experiences and University Policies, the search for innovation as a solution was significantly influenced by Beliefs and Attitudes, which all had a positive impact on the process of innovation.

## 6.2. Matching

Results suggested that the 'matching' of blended learning with the issues identified in the stage of agenda-setting was largely influenced by two factors: University Policies and Academic Disciplines. Regarding university policies, unlike its role in prioritising blended learning during the agenda-setting stage, University Policies played a different role in the matching stage by expediting the diffusion process. In this study, the government's Free Degree Program (FDP) becoming a university policy accelerated the implementation of blended learning to provide students with access to fee-free courses. However, the accelerated timeline hindered the matching stage, limiting time for critical activities such as lecturer consultations and piloting blended learning. Insufficient time for thoughtful consideration and action on organisational issues has a detrimental impact on the

innovation and behaviour of organisations (Amabile 1988). This is especially significant in contexts where pedagogic changes are involved because the absence or limitation of time for matching may prevent teachers from aligning new pedagogic methods with their teaching needs, substantially hindering adoption. Teachers typically do not adopt pedagogic methods that do not align with their teaching needs (Tondeur et al. 2017). Therefore, the FDP becoming a university policy was noteworthy not only because it significantly contributed to mandating blended learning (in the agenda setting stage), but also because it expedited the entire process of diffusion which overall had a negative impact on the diffusion of blended learning. Literature suggests that change initiatives in universities can be significantly influenced by government policies and programmes (Guan, Xie, and Zhou 2015), and institutional policies shape change initiatives in universities such as adoption of online and blended learning (e.g. Adekola, Dale, and Gardiner 2017; Mestan 2019).

A second factor impacting the matching stage was Academic Disciplines, which had a negative impact due to the lack of alignment with blended learning. Academic disciplines have distinct ways of knowledge construction, making each subject discipline unique in terms of cognitive purposes, knowledge acquisition, and competencies (Vo, Zhu, and Diep 2020). This uniqueness results in individual subjects focusing on different pedagogic approaches and learning activities (Lim and Richardson 2021), suggesting that while some subjects may find blended learning suitable for delivering their content, others may not. In the current study, academic disciplines such as liberal arts and Islamic studies were more receptive to blended learning, while disciplines like engineering, and hospitality and tourism studies had more reservations about using blended learning in their subjects. Literature suggests that students in academic disciplines such as education and liberal arts often employ nonlinear, iterative, and reflective practices for knowledge construction, while students in disciplines such as engineering and hospitality and tourism may master content and apply theories through various practical elements (Vo, Zhu, and Diep 2020). These differences are largely related to the epistemological beliefs of lecturers (Kang and Wallace 2005), and lecturers' epistemological beliefs significantly impact their decisions in selecting pedagogic methods, such as online and blended learning (Sengul, Enderle, and Schwartz 2020; Taimalu and Luik 2019). In sum, the critical activities within the matching stage were influenced by two factors: University Policies and Academic Disciplines. Notably, the role of University Policies in this stage differed from its function in the agenda-setting stage.

### **6.3. Redefining and restructuring**

The results indicate that at the university, both redefining and restructuring occurred, and were shaped by three influencing factors: Student Experiences, Institutional Readiness, and Teacher Support. In relation redefining, the tailoring of blended learning to align with the university's needs was largely driven by aspects related to student experiences. Universities often tailor learning methods by clearly identifying their key features, enabling lecturers to implement them in a way that aligns with the university's needs. This customisation is crucial in the context of blended learning because, despite its extensive use in higher education, there remains ambiguity in the current literature regarding what to blend and how to blend (Hrastinski 2019). This lack of clarity may pose challenges for lecturers in determining the appropriate strategies for integrating F2F instruction with

online learning, potentially resulting in inconsistent student experiences. In the present study, this issue became even more pronounced, as lecturers had limited or no familiarity with blended learning and lacked the time to update their pedagogical and technological knowledge to adopt a different course delivery method. The significant variation in lecturers' knowledge and skills concerning blended learning is problematic, as it increases the likelihood of divergent practices within subjects, courses, programmes, and faculties. Such discrepancies in teaching practices may lead to substantial differences in student learning experiences, contributing to inequity throughout the university and potentially causing teacher hesitation and outright rejection. Thus, redefining blended learning not only helped the university to establish indicators of achievement for blended learning implementation, which is vital for consistent and convenient implementation for stakeholders (Galvis 2018), but also assisted the university in better aligning blended learning with its needs, resulting in an overall positive effect on diffusion. The likelihood of innovations being adopted is high within organisations when they are redefined to fit well with the local context (Rogers 2003).

Analysis suggested that the restructuring of the university was influenced by two key factors: Institutional Readiness and Teacher Support. In relation to Institutional Readiness, the implementation of blended learning necessitates teachers to utilise reliable internet connectivity, along with various digital technologies like a LMS and specific software and hardware to develop online learning materials. The absence of these technological facilities for academics makes it challenging for universities to implement blended learning at the institutional level (Porter and Graham 2016). Despite the widespread availability of advanced technologies, not all universities, especially those adhering to a 'brick and mortar' style of education, may be adequately prepared for this shift. The lack of access to appropriate technological facilities can undermine the motivation of academics to adopt online learning, leading to negative perceptions (Brown 2016). Literature suggests that negative perceptions and attitudes among teachers significantly hinder their adoption of technology (e.g. Liu 2011; Tondeur et al. 2017). For these reasons, universities often establish necessary facilities for lecturers and students, such as support centres, to improve the overall readiness of universities. In the present study, the restructuring of the university and the establishment of a support centre (the Centre for Educational Technology and Excellence – CETE), facilitated the strengthening of the technological infrastructure. A robust technological infrastructure is pivotal for institutional readiness and plays a crucial role in the successful implementation of online and blended learning at the institutional level (Porter and Graham 2016; Rasheed, Kamsin, and Abdullah 2020).

Another factor that influenced the restructuring was Teacher Support. Lecturers require various forms of assistance, including technological support, pedagogical support, and incentives such as recognition and financial rewards, to effectively utilise technology-enhanced learning. This need becomes more critical in the context of blended learning, as it requires lecturers to navigate both F2F and online teaching, representing a significant shift in practice that may be unfamiliar to many academics. In response to this need, universities often establish one-stop support centres, enabling lecturers to access assistance as and when required. In the present study, the university implemented a structural change related to the establishment of the CETE, serving as a comprehensive support centre to empower lecturers in adopting blended learning. This centre played a pivotal role in addressing technological issues associated with the

online component of blended learning. The availability of such support for lecturers in managing the technological aspects of blended learning is crucial, given that not every lecturer may possess advanced technological proficiency (Liang et al. 2013). Moreover, the adoption of multiple delivery methods within a single subject represents a substantial change in teacher practice, an adjustment that many lecturers may not be accustomed to. Consequently, lecturer support is considered a prerequisite for the successful implementation of institutional blended learning (Porter and Graham 2016; Thomas, Al Jarrah, and Joseph 2022). Overall, the redefining of blended learning and activities related to the *restructuring* had a positive effect on the institutional adoption and diffusion of blended learning.

#### 6.4. Clarifying

Results indicated that the clarifying stage was influenced by two factors: Teacher Support and Teacher Self-efficacy. While teacher support was provided to academics in the redefining/restructuring stage, the role of support in the clarifying stage differed slightly, predominantly involving pedagogical support. In addition to the necessary skills and knowledge of instructional technologies, it is important teachers possess a comprehensive understanding of pedagogical principles underlying the integration of technologies into classroom (Liang et al. 2013). This becomes especially critical in the context of blended learning, which entails purposeful integration of online and F2F instruction (Garrison and Vaughan 2013), a task achievable only when teachers comprehend the pedagogical principles guiding the blending of F2F instructions with online learning. However, this understanding may pose a challenge for many academics, as traditionally teacher training predominantly focuses on F2F teaching. Hence, pedagogical support becomes imperative to address uncertainties of lecturers about combining online instructions with F2F learning, an experience many of them may not have encountered before. In the current study, this support took place as professional development workshops, conducted at both central and faculty levels. Literature suggests that pedagogical support related to design principles, models, and approaches of blending instruction equips academics with a better understanding of blended learning, enhancing their comfort levels of using it (Reid 2017).

Another factor playing a role in the clarifying stage was Teacher Self-efficacy. Teachers often subjectively evaluate their own knowledge and skills in utilising new pedagogic practices before integrating them into teaching and learning. This self-assessment is crucial, as teachers are generally hesitant to adopt new pedagogic practices unless they believe in their ability to produce positive learning outcomes and prevent potential adverse effects on student learning (Cheng, Chen, and Chang 2021). In the context of blended learning, this becomes even more significant, given that it brings about a substantial shift in teacher practice by requiring the integration of F2F and online instruction. In addition, a teacher's higher self-efficacy in one area does not necessarily translate to higher self-efficacy in another area (Kwon et al. 2019), thus, those who are excellent in delivering F2F lectures may face significant challenges in managing the online component of blended learning. In the current study, this was the case for many lecturers, which was addressed through a tailored professional development programme covering various aspects, including basic Moodle skills, strategies for maintaining online learner engagement, and principles/models of combining online instruction with F2F learning. Teachers reported these activities helpful in improving their self-efficacy in teaching

blended subjects, positively influencing their individual adoption of blended learning. The literature supports the close relationship between teacher self-efficacy, motivation, classroom management, and persistence in performing challenging tasks in teaching (e.g. Goddard and Kim 2018; Kwon et al. 2019). Teachers with higher self-efficacy are more likely to adopt online and blended teaching methods (Narayanan and Ordynans 2022). In sum, the key activities of the clarifying stage were affected by Teacher Support and Teacher Self-efficacy, both of which had an overall positive effect on the adoption and diffusion of blended learning.

### **6.5. Routinising**

Results suggested that the routinisation of blended learning occurred and was primarily influenced by Teacher Support. However, the role of Teacher Support in this stage was somewhat different from the earlier stages, taking on a more systematic 'after-implementation' support function and overseeing the overall diffusion process. Universities establish support centres with structures and mechanisms to ensure the continuity of online and blended learning implementation. This becomes essential in the initial phases of adoption, where academics' conceptualisation and use of blended learning might be fragile, and their pedagogical techniques may still closely mirror traditional teaching strategies (Chikasanda et al. 2013). Universities address such challenges by implementing proper monitoring mechanisms and offering tailored support to teachers and faculties. In the present study, the CETE took this role, working closely with faculties to monitor the implementation progress, identify areas for improvement, conduct tailored training for those in need, and generate periodic implementation reports for senior management. This approach helped the university to ensure that blended learning adhered to the guidelines of the Academic Senate, and faculties received adequate support to integrate the new pedagogic practice into their daily routine activities. Support centres and teaching and learning units play a crucial role in the institutional adoption and diffusion of blended learning (Graham, Woodfield, and Harrison 2013). In sum, the activities that occurred during the routinising stage was related to teacher support, and within a relatively short timeframe (6-8 months), blended learning became an integral part of the university's routine activities, indicating the successful completion of the innovation process. According to Rogers (2003), when routinising occurs, the innovation process is completed.

### **7. Limitations**

The limitations of this study are largely inherent in its design as a qualitative, single case study in a small university setting. The findings, including the process or approach for the adoption and diffusion of blended learning, are context-specific and may not be generalisable to other settings. Additionally, although lecturers from all academic disciplines were included in the sample, the small number of lecturers available for interviews may not represent all the academic staff involved in the blended learning initiative. Further research with a larger sample size and more methods of data collection could help comprehensively explore the entire adoption process and provide a more nuanced understanding of the factors that enable or inhibit institutional adoption and implementation of blended learning.

## 8. Conclusion

The institutional adoption and diffusion of blended learning within the university involved a process that began with an institutional agenda for innovation and culminated in routinisation. This process was shaped by several key factors related to both individual academics and the institution as a whole, including student experiences, teacher beliefs and attitudes, teacher self-efficacy, teacher support, academic disciplines, institutional policies, and institutional readiness. The findings of this study suggest that multiple factors can influence activities at various stages of the innovation process. Notably, some factors, such as student experiences, university policies, and teacher support, may evolve throughout the diffusion process, assuming different roles at different stages. These insights into institutional adoption are critical for university leaders to implement effective policies and establish the critical support structures needed by both students and teaching staff.

The policy implications of these findings are significant. First, university leadership must increase academic staff participation in the adoption decision-making process. This inclusive approach will likely enhance lecturers' receptiveness to blended learning, positively influencing key factors such as teacher beliefs and attitudes, and academic disciplines. Second, while Rogers (2003) proposed a sequential model for innovation in organisations, the adoption and diffusion of pedagogical methods like blended learning at the university level may not strictly follow this linear path. Therefore, universities should anticipate that stages such as 'clarifying' and 'restructuring' might occur earlier, even during 'agenda-setting' and 'matching'. This requires additional planning and proactive measures to ensure a smooth transition to blended learning. Third, recognising the evolving roles of factors like teacher support and teacher self-efficacy across various stages of adoption is crucial. Universities must strategically design professional development programmes to provide lecturers with critical pedagogical and technological support. Tailored interventions, such as structured professional learning workshops and ongoing monitoring, can be helpful to strengthen professional development programmes. Overall, this study underscores the necessity of a comprehensive and adaptive approach to support academics as they navigate the complexities of adopting and diffusing blended learning at the university level.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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