



A Process for Institutional Adoption and Diffusion of Blended Learning in Higher Education

Ramiz Ali¹ · Helen Georgiou¹

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Abstract

Blended learning has emerged as a prominent feature in higher education over the past decade, aiming to enhance students' learning experiences and improve outcomes. It has been adopted at various levels within universities, with an increasing trend of institutional adoption. Despite its prevalence, scholars have expressed concerns about our limited understanding of blended learning beyond small-scale and individual applications. Drawing on Rogers' diffusion of innovations theory, this case study explores the intricate process of adoption and implementation of blended learning within a university. Semi-structured, one-on-one interviews were conducted with 24 lecturers and six university executives involved in a university-wide initiative for blended learning. The interviews were analysed using a thematic pattern matching technique. In addition, a variety of relevant university documents were gathered and analysed using a content analysis method. Results reveal that despite some hesitations among lecturers, the process of adoption of blended learning was supported by a well-justified strategy, investment in infrastructure, and provision of continued lecturer support. Viewing these results through the lens of Roger's stage model highlights a lack of a proper 'matching' stage, reflecting a failure to engage lecturers in adoption decision-making and incorporate their feedback into the blended learning strategy.

Keywords Higher education · Blended learning · Diffusion of innovations · Institutional change · Adoption of technology

✉ Ramiz Ali
ramiz@uow.edu.au

Helen Georgiou
helengeo@uow.edu.au

¹ University of Wollongong, Wollongong, Australia

Introduction

Blended learning has been a popular mode of course delivery, particularly gaining momentum over the past decade and experiencing a further surge in recognition due to the COVID-19 pandemic. It has been perceived as an instructional method that provides learners with increased access to learning (Dziuban et al. 2018; Wang and Huang 2018), increased flexibility (Thai et al. 2020; Wang and Huang 2018), and enhanced learner engagement (Crawford 2017; Posey and Pintz 2017). However, despite the potential of blended learning and its popularity in higher education, institutional implementation remains inconsistent and under-described (Adekola et al. 2017; Antwi-Boampong and Anthony Jnr 2021; Mestan 2019). To comprehend the intricacies surrounding the institutional adoption of blended learning, a more comprehensive and holistic exploration of the experiences of various stakeholders, such as university executives and lecturers, during the process of adoption and diffusion is warranted. Acquiring nuanced knowledge about the approaches and frameworks for institutional adoption and implementation of blended learning are crucial for university leaders in establishing appropriate policies, infrastructure, and support mechanisms to facilitate successful implementation at scale.

The aim of this study was to analyse the complex process of adoption and implementation of blended learning within a university context, focusing on the nuances of the institutional approaches and strategies for adoption. A few models have been utilised to capture the adoption and diffusion process within organisational settings (e.g., Meyer and Rowan 1977; Rogers 2003; Tornatzky et al. 1990). In this study, Rogers' (2003) diffusion of innovations (DoI) theory served as the theoretical framework to examine the innovation process and decision-making in transitioning from traditional face-to-face (F2F) teaching to blended instruction at the university. The study utilised a case study methodology, conducting interviews with academics and university executives involved in a blended learning initiative. Additionally, policy documents pertaining to blended learning were analysed. By exploring the implementation of blended learning within a university context, this research contributes to a deeper understanding of the adoption process, facilitating smoother diffusion at the institutional level and supporting informed decision-making regarding blended learning initiatives. This is especially pertinent in the post-COVID-19 era, as universities seek to establish sustainable and flexible course delivery methods (Müller and Mildemberger 2021; Thomas et al. 2022). Furthermore, this study can assist universities in adopting strategic and sustainable approaches to blended learning implementation, mitigating student and teacher anxieties and frustrations associated with this mode of instruction.

Background

Blended learning has evolved from a novel teaching method to an established instructional approach. At its core, blended learning integrates online and traditional face-to-face (F2F) learning modalities (Dziuban et al. 2018; Mestan 2019; Xu et al. 2020). The combination of these two learning environments offers the potential for teachers to enhance learning effectiveness by leveraging the benefits of F2F interactions alongside the affordances provided by instructional technologies. Extensive research has documented the positive impacts of purposefully blending F2F instruction with digital technologies (e.g., Crawford 2017; Ożadowicz 2020; Wang and Huang 2018). This phenomenon may well explain the widespread adoption of blended learning in universities, especially due to the impacts of the COVID-19 pandemic. In fact, recent literature has already referred to blended learning as the “new normal” in higher education (e.g., Dziuban et al. 2018; Mestan 2019).

Blended learning is a widely recognised instructional method that offers learners numerous advantages. It significantly enhances access to learning, particularly for individuals residing in remote locations who face challenges attending regular on-campus classes (Ali 2022; Wang and Huang 2018). In addition, blended learning provides students with increased flexibility by eliminating the need for daily F2F classes and allowing them to study at their own pace and convenience (Dziuban et al. 2018; Wang and Huang 2018). Blended learning has also demonstrated potential to significantly enhance learner engagement and overall academic success (Crawford 2017; Li and Wang 2022). The incorporation of digital technologies into learning environments fosters active learning, peer collaborations, and various social interactions, providing students with multiple avenues for engagement (Tay 2016). Consequently, these elements are likely to enhance students’ motivation, prompting them to invest more energy and time into their learning activities, leading to improved academic outcomes (Li and Wang 2022; Owston et al. 2013; Ożadowicz 2020).

Blended learning is generally perceived as superior to fully online formats. The literature suggests that both students and teachers commonly encounter various challenges in fully online learning environments, such as a sense of isolation, lack of engagement, poor retention, and low success rates (e.g., Dumford and Miller 2018; Ferri et al. 2020; Keis et al. 2017). These challenges can be effectively mitigated through the purposeful integration of F2F instruction within online learning, resulting in a blended delivery approach. While well-designed fully online courses can be successful and play a crucial role in providing flexibility for learners in various educational settings, numerous studies have indicated that students in blended courses tend to outperform their counterparts in both fully online and F2F subjects (e.g., Olelewe and Agomuo 2016; Thai et al. 2017; Xu et al. 2020). Students also tend to express a preference for blended courses over the latter modes of delivery (e.g., Uğur et al. 2011; Wanner and Palmer 2015), highlighting some of the reasons behind the notable rise in the use of blended learning in higher education.

A considerable number of universities currently offer some form of blended delivery (McCarthy and Palmer 2023; Thomas et al. 2022). For instance, in 2016,

one-third of students in Australian public universities undertook a significant portion of their studies through online or blended delivery, experiencing a 37.1% increase in enrolment in these modes over the past 6 years (Fan et al. 2024). It is noteworthy that this trend in the sector has yielded numerous insights into blended learning from the standpoint of institutional adoption. For example, Graham et al. (2013) introduced a framework for blended learning adoption, identifying three key categories for university leaders to focus on: strategy, structure, and support. Expanding upon Graham et al. (2013), Porter and Graham (2016) asserted that institutional adoption of blended learning can be categorised into three main stages: awareness/exploration, adoption/early implementation, and mature implementation/growth. More recently, Ravenscroft and Luhanga (2018) focused on the adoption approach within a specific faculty of a university, while Mestan (2019) investigated the extent to which blended learning was utilised across a university. Regarding university administrators' decision-making, Anthony Jnr et al. (2020) examined factors influencing administrators' readiness for the implementation of blended learning, and Antwi-Boampong and Anthony Jnr (2021) sought to understand the reasons behind the adoption and implementation of blended learning in a university. Additionally, Hill and Smith (2023) outlined aspects related to how universities envision and engage with blended learning at the institutional level.

Despite the mentioned above research into blended learning, scholars have raised concerns regarding our limited understanding of this delivery method beyond small-scale and individual applications (see for instance, Anthony Jnr 2021; Antwi-Boampong and Anthony Jnr 2021; Hill and Smith 2023; Porter and Graham 2016; Smith and Hill 2019). While the previously outlined research provides valuable insights on institutional adoption, many of these studies have primarily focused on one or two aspects of institutional dynamics, such as understanding the reasons behind adoption (Antwi-Boampong and Anthony Jnr 2021), the extent of blended learning utilisation (Mestan 2019), the uptake of individual faculties (Ravenscroft and Luhanga 2018), and exploring university leaders' readiness (Anthony Jnr et al. 2020). This underscores the necessity for more research on the institutional dimensions, specifically for the whole process of adoption. The current study aims to comprehensively delineate the adoption process of blended learning by presenting perspectives from both university executives and lecturers. The objective is to outline a detailed account of the adoption and diffusion of blended learning within a university-wide context. An in-depth account and analysis of the adoption process, utilising a well-established theoretical framework, yields practical and theoretical insights. From a practical standpoint, the analyses reveal success, failures, and the overall experiences. Theoretically, an examination of the specific circumstances and dynamics of the case can offer insights into the framework's application under certain conditions, such as a predominantly novice staff. With a nuanced understanding of institutional adoption of blended learning, particularly considering the inherent complexities at the institutional level, university leaders can establish sufficient support mechanisms and structures for both lecturers and students, thereby enhancing the sustainability of adoption.

Conceptual framework

Various theories/frameworks have been employed in investigating the nature of institutional change in organisations. One such theory is Institutional Theory (Meyer and Rowan 1977), which delves into grasping how organisations respond and adapt to external pressures and expectations such as regulatory requirements, societal expectations, and professional standards. The technology–organization–environment framework (Tornatzky et al. 1990) foregrounds factors influencing the adoption and assimilation of technological innovations within organisations. The diffusion of innovations theory (Rogers 2003) is another widely utilised theory that provides insights into how new ideas, practices, or technologies disseminate within an organisation through a structured process that consists of five distinct stages.

While each of these theories or frameworks possesses distinct merits, commonalities, and distinctions, the diffusion of innovation (DoI) theory emerges as the most suitable for elucidating the process of institutional adoption within this case. DoI assists in explaining how and why individuals and organisations engage with innovations, and how these innovations are adopted and diffused within and across organisational contexts (Grgurovic 2014; Zhai et al. 2018). In this research, because the adoption process is explored in its entirety at one institution, the precision afforded by Rogers' five-stage model was considered appropriate, as represented in previous research (e.g., Ali 2022; Harriger et al. 2014; Turner et al. 2021).

The innovation process in organisations

According to Rogers (2003), an innovation is as an idea, practice, object, or tool perceived as new by individual users or a group of people. Diffusion, as per Rogers (2003), is a “social change” that elucidates “the process by which alteration occurs in the structure and function of a social system”, such as an organisation or a group of individuals (p. 6). In this study, blended learning was considered an innovation because it represented a relatively new idea within the social context in which it was diffused. Adoption of innovations in organisations is often a process that consists of five distinct stages (Rogers 2003). These stages are agenda-setting, matching, redefining/restructuring, clarifying, and routinising. Table 1 shows a description and some typical activities that can occur in each of these stages.

The literature suggests that the DoI can assist in comprehending the intricate process of diffusion of innovations across various institutional settings. For instance, Rogers' (2003) innovation process in organisations has been employed to investigate change processes in US community pharmacies (Turner et al. 2021), and the implementation of thematic learning in primary schools in Indonesia (Latip et al. 2020). These studies provide valuable insights into understanding organisational change processes, such as motives for change and highlight the crucial steps and actions linked to the change processes at institutional level. While some criticisms have been raised regarding sequential or stage models explaining organisational change processes (e.g., Dall'Alba and Sandberg 2006; Jennifer 2003), the literature

maintains that Rogers' innovation process in organisations offers a valuable perspective for comprehending these processes, especially key institutional steps and actions associated with institutional adoption and diffusion on a larger scale (e.g., Frei-Landau et al. 2022; Tshabalala et al. 2014; Turner et al. 2021). Therefore, by employing Rogers' DoI, this study examines the adoption and implementation process of blended learning within a university context. The two research questions were as follows: (a) how university executives and lecturers reflect on the process of institutional adoption of blended learning, and (b) what are the key events of the adoption process and what can these events tell us about the potential for success of adoption of blended learning across a university?

Approach and Methods

Research approach

This study has adopted a single case study design. A case study approach supports deep analysis of phenomena in real-world situations. Case studies are appropriate when the human activities are embedded with a natural context and the research questions are descriptive (Yin 2012).

The context and participants

The study was conducted at a public university in the Maldives, with its main campus located in the capital city of Malé. Additionally, regional facilities are being established in the atolls. The university comprises nine faculties and three centres, serving a student population of over 9000 annually. The primary mode of course delivery is F2F teaching. However, due to the absence of a reliable public transport system for inter-island commuting, individuals residing on the islands face significant challenges in attending F2F classes held at other locations. Although blended learning had been employed as a course delivery method by a small number of faculties/centres in the university since 2010, it was not until the first half of 2019 that blended learning, as an innovation, was officially adopted at the institutional level.

Research participants of the study were 24 university lecturers from eight faculties, and six university executives that included five deans/heads and one member of the chancellery team. Lecturers were employed at the faculties: education, business, health sciences, nursing, hospitality, science, Islamic studies and law, and arts, in addition to Centre for Educational Technology and Excellence (CETE): the centre that is responsible for coordinating blended learning related activities, where the author one was previously employed. A purposeful sampling method (Creswell 2014) was utilised to select the participants. Out of the 24 lecturers, 14 were females and 10 were males. During the data collection period, 61.5% of the lecturers had less than 2 years of experience in blended teaching. It should be noted that no lecturers from the school of medicine were included in the study as they did not have a blended learning programme at the time of data collection. Among the six university

executives, one was a senior member of the chancellery team, while the remaining four were deans/heads of the available faculties/centres during the data collection period.

Data collection

For data collection, a purposeful sampling method (Yin 2012) was used, and the data were collected using semi-structured interviews. Semi-structured interviews encourage open-ended discussions, leading to richer and more comprehensive qualitative data (Creswell 2014). The interview questions were informed by Rogers' (2003) stages of the innovation process in organisations, with the aim of obtaining comprehensive insights into the events that transpired across the university. These questions were carefully designed to delve into intricate details regarding the adoption and diffusion of blended learning. This encompassed exploring participants' perspectives on blended learning, identifying pivotal events that unfolded during the adoption process, and understanding the barriers to the implementation of blended learning, among other aspects. All the interviews were conducted face-to-face during normal working hours. Each interview lasted approximately 50–60 min, and all the interviews were audio recorded. In addition, university policies and documents such as the strategic plans, internal memos, and blended learning implementation guidelines were collected and analysed. Ethics approval for conducting this study was obtained from the Human Research Ethics Committees at the relevant universities, prior to the data collection.

Data analysis

Recorded interviews were transcribed verbatim, and data were analysed relying on a theoretical proposition (Yin 2012). For interview analysis, a thematic pattern matching technique was employed. The process involved transcribing the audio recordings of the interviews verbatim, followed by multiple readings of the transcriptions to develop a profound familiarity with the data. This iterative review led to the identification of main themes corresponding to Rogers' five stages of the innovation process. The themes subsequently underwent a comprehensive refinement process to ensure clarity and relevance of the codes in capturing the essence of the data. To enhance the credibility of the findings, the final themes underwent a review by two experts specialising in the field of educational research. Subsequent refinements were made based on the valuable feedback received from these experts, ensuring a rigorous and robust analytical process. All authors reached a unanimous 100% agreement on the final themes. For document analysis, content analysis was administered, and the relevant content was linked to their respective themes emerged from the interview analysis. Multiple sources of data (e.g., lecturers' interviews, executives' interviews, and institutional documents) were used for data triangulation to improve the trustworthiness of the findings.

Results

The results provide an account of the events, activities, and perspectives with respect to institutional adoption and diffusion of blended learning within the university. These accounts are contextualised within Rogers' stage model of the innovation process and, therefore, organised under the subheadings corresponding to the five stages of the innovation process. Pseudonyms are used for lecturers to improve the readability of the results.

Agenda-setting

Agenda-setting involves identifying a common problem within the organisation that typically initiates a search for a potential innovation (Rogers 2003). The results indicate that the innovation process commenced with the university identifying various issues associated with its course delivery, particularly concerning student experiences. These challenges were recognised as “common problems” within the university, prompting a quest for an innovative solution, ultimately identified as blended learning.

One of the key “problems” identified at the agenda-setting was the geographical dispersion of the nation. Afza, a preservice teacher educator highlighted this need by saying “*our islands are very dispersed, and the students who live on the islands cannot come for daily classes*”. Almost all the other participants also talked about how the remote nature of the nation necessitated the need for an innovation for the university. The executive C was one of them who said, “*our students live in remote islands, so we can't keep them here (in Malé) for fully face-to-face teaching*”.

A second reason that the university sought to adopt blended learning was due to the challenges associated with its then-used “block-mode” courses. Block-mode was a course delivery method which involved reduced F2F class time by approximately half. Students enrolled in these courses would travel to the campus for F2F classes over selected weekends, normally 3–4 times per semester, and would not have supplementary online learning in between their F2F classes. This raised some concerns in relation to the quality of student learning and overall learner experiences. This was highlighted by Aban, a teacher who involved in block-mode teaching. “*... (for block-mode) we had to conduct intensive classes only, ... we couldn't effectively monitor students ... and there were speculations about the quality of teaching, which was a major concern for us*’.

A third reason for the university to set an agenda for blended learning was the free degree programme (FDP). The FDP is a higher education course fee funding scheme introduced by the government of the Maldives that allows undergraduate students to be exempted from their course fees. However, the document analyses

suggested that having weekly learning (including online learning) was a requirement to be fulfilled by the education providers to make their students eligible for the FDP. This had some unavoidable implications on “block-mode” delivery, because typically, online learning was not part of the block-mode teaching thus students in block-mode courses may not be eligible to participate in the FDP. One of the deans highlighted this issue.

“With the FDP, we had to start blended teaching like immediately. ... We had to change all our block teaching subjects to blended teaching, because that’s the only way we can have weekly learning interactions for those subjects, which (was) a requirement of the program”.

Overall, the university’s pursuit of an innovative teaching method was prompted by three key issues: the geographical dispersion of the nation, concerns associated with block-mode delivery, and the government’s course fee funding scheme, FDP. The analyses of documents revealed that these concerns were deliberated at high-level meetings within the university, including Heads’ Meetings and the Academic Senate, and blended learning was chosen as a potential solution to those issues.

Matching

Matching is fitting an innovation with a problem identified from the organisation’s agenda (Rogers 2003). The typical activities of “matching” involve things such as engaging in staff consultations and providing the staff with opportunities to interact with the innovation. These interactions empower the organisation to arrive at an informed decision, drawing from the insights and experiences of its workforce.

Results revealed that in the matching stage, blended learning was thought to be the best available option for the university, consequently, was chosen to be implemented. This decision was, however, made by few members of the leadership team without having proper consultations with the wider community of the university, specifically, the teaching staff. One of the deans described how blended learning was adopted by the university by saying, *“I would say that it (introduction of blended learning) was very ad hoc. We were informed that it must be implemented”.* Lectures also talked about this process and Haifa was one of them who mentioned, *“they (the management) informed us (that) there was no option other than blended learning for all the flexible courses. It was a pretty short notice to be honest”.*

The interview descriptions indicate that there were no staff consultations regarding the identification of a “suitable” innovation for the university. Instead, the task of “aligning the innovation” was carried out by selected members of the executive, resulting in a top-down approach to change. The document analyses revealed that the course delivery issues emphasised during the agenda-setting were deliberated upon at the Academic Senate. Subsequently, the Senate passed a resolution

mandating blended learning as the exclusive course delivery method for all flexible programmes across the university, starting from semester one of 2019. This decision was then communicated with the faculty heads via an internal memo by the vice chancellor, and the teaching staff had no option but to use blended learning. Hana, a lecturer who used have block-mode teaching, highlighted how it happened by saying “... *the reason (why) I use blended learning is because they (the management) are forcing us to use (it). I don’t think I would use it, otherwise*”.

In sum, the typical activities of the matching stage, such as comprehensive staff consultations and enabling organisational members to experiment with the innovation to grasp its implications before full-scale implementation, were notably absent in the current study. Instead, the use of blended learning from the first semester of 2019 was mandated, indicating a top-down adoption approach, with faculties and academic staff directed to implement it without the prior mentioned considerations.

Redefining/restructuring

In the redefining/restructuring stage, typically both the innovation and the organisation get modified, as least to some extent (Rogers 2003). Redefining typically entails tailoring the innovation to suit the specific organisation in which it will be implemented, while restructuring involves activities such as establishing new organisational units within the organisation and recruiting personnel for leadership roles in the implementation process (Turner et al. 2021). These modifications are necessary because innovations usually do not fit seamlessly into the organisations where they are intended to be integrated (Rogers 2003).

In the current study, both redefining and restructuring occurred. In terms of redefining, blended learning was modified to fit the needs of the university. The analysis of documents suggested that through a resolution of the Academic Senate, blended learning was redefined by describing certain essential aspects of the pedagogic method. For instance, it involved establishing that the F2F component constituted 50% of the total contact hours, ensuring a minimum 2-week gap between consecutive F2F classes, and requiring students to engage in mandatory online activities during weeks without F2F instruction throughout the semester. A dean mentioned these customisations by saying “*the resolution of the Academic Senate includes the features of blended learning, for example, number of F2F classes and the gap between any two F2F meetings*”.

In relation to “restructuring”, some structural changes were brought to the university to facilitate blended learning across the institution. This was mentioned by a dean who said, “*the first thing was establishing a new dedicated centre, CETE (The Centre for Educational Technology and Excellence) to oversee and help faculties in all the activities related to blended teaching*”. This structural transformation held great significance as it allowed the university to identify and address critical concerns pertaining to its technological infrastructure and resources which are critical

for implementation of blended learning at the institutional level. In summary, the redefinition/restructuring stage occurred quite well. Blended learning was appropriately adapted to fit for the needs of the university, and some structural changes were implemented at the university to facilitate the diffusion.

Clarifying

Clarifying is making the meaning of the new idea clearer to the members of the organisation (Turner et al. 2021). This typically occurs when the innovation is put into more widespread use in the organisation (Rogers 2003). The process of clarification entails social construction (Rogers 2003), which can manifest in various ways, including written communications, staff meetings and training, and the dissemination of promotional materials (Turner et al. 2021).

Results indicate that clarifying stage did occur, and two key types of activities took place in this stage, namely staff meetings and professional development (PD). In terms of staff meetings, throughout the implementation process, specifically in the initial months, multiple meetings were conducted with lecturers and faculty heads. A dean highlighted these meeting by stating, “...initially the VC met the Heads (to explain the blended learning initiative) ...and there were a series of meetings with the lecturers too.” This was confirmed by several lecturers such as Inaya who acted as a faculty liaison throughout the innovation process. “Yes, we had many meetings which gave an opportunity to the university not only to clarify but also it was a chance (for the university) to know about the individual faculty needs, for example, disciplinary differences”.

A second type of activity conducted in the clarifying stage was professional development (PD) workshops. The findings reveal that many training sessions were arranged for the teaching staff right from the start of the blended learning initiative. Inaya, an academic responsible for conducting these PD sessions, mentioned that nearly 40 scheduled training sessions were conducted, including those held at regional campuses. The document analysis corroborated that the PD workshops encompassed various facets related to blended learning. These aspects comprised designing for blended delivery, acquiring fundamental and advanced skills in Moodle (the university’s Learning Management System), facilitating online learning, and delivering weekly online feedback to students. These workshops were reported helpful not only to clarify the concept of blended learning for lecturers but also enhanced their proficiency and confidence in utilising blended delivery methods. Hana, a lecturer who initially possessed limited experience in blended teaching, expressed, “The PD sessions were very helpful in boosting my confidence in conducting online teaching, particularly in using Moodle.” Overall, the clarifying stage unfolded quite effectively. Through a combination of staff meetings and PD workshops, lecturers began to comprehend the significance of blended learning for both their teaching practices and the university.

Routinising

Routinising is innovation getting incorporated into regular activities of the organisation and losing the foreign identity of the new idea (Rogers 2003). Interview analyses suggest that lecturers and faculties followed a pattern of activities in relation to blended learning implementation that can be considered as the occurrence of the routinising stage. Inaya, a lecturer who is responsible for overseeing the implementation described this pattern by saying, “*now every semester we (the CETE) formally ask the faculties to send the subject information that they want to offer in blended mode. faculties to inform CETE at least 6 months prior to start of the semester, and we provide support for them on first-come, first-served basis*”.

As described by Inaya, starting from the second semester of the implementation, lecturers and faculties established a consistent routine for integrating blended learning into their teaching practices. The document analysis indicates that this routine encompassed various actions related to the utilisation of blended learning. These actions included but were not limited to: faculties proactively selecting subjects suitable for blended learning well in advance, formally requesting technical support from CETE, and collaborating with instructional designers to develop course pages. These activities underscore that blended learning became an integral part of the university’s regular operations, shedding its earlier perception as an unfamiliar concept (or innovation). This suggests that the innovation process for blended learning reached its culmination.

Overall, results suggested that despite the limited occurrence of the matching stage, Rogers’ (2003) stages of the innovation process within organisations were observed in the institutional adoption and diffusion of blended learning at the university. This finding is consistent with prior research (e.g., Latip et al. 2020; Templeton et al. 2009; Turner et al. 2021), indicating that organisational change processes can unfold as a sequential progression of events. This further implies that the distinct stages of this process can aid organisations in strategically promoting widespread change initiatives.

Discussion

The results indicate that the adoption of blended learning at the university was driven by a strong motivation for change, which appeared to be widely supported by various stakeholders, such as the leadership and staff, through internal committees like the Academic Senate and Heads’ Meeting. Given the geographical dispersion of the Maldives and the imposition of a new policy requirements on higher education institutions, there was a consensus that change was necessary. Blended learning emerged as the natural solution to these challenges. The transition occurred relatively swiftly and was managed in what could be characterised as a top-down manner (Chiu 2017). Despite the stakeholders’ alignment on the need for change,

interviews with staff revealed significant hesitancy once the transition was under-way. The introduction of blended learning, while anticipated, still caught some staff off guard, leading to concerns about the lack of consultation and the perception that blended learning was being imposed upon them. Consequently, certain lecturers remained sceptical about its efficacy, even after support services were provided. However, it became evident that acceptance of blended learning increased gradually over time. Through professional development opportunities and organised staff meetings, lecturers expressed that they were able to voice their concerns and contribute to a more collaborative implementation process. While Rogers' model of the innovation process was observed, it should be noted that the interviews were conducted at a point where the sustainability of the adoption process could not be conclusively determined.

In terms of Rogers' five stages of the innovation process, it was clear that "agenda setting" was very well represented in the data. Rogers (2003) posits that innovation process in organisations commences with the identification of a common problem within the organisation that necessitates an innovative solution. The efficacy of agenda-driven initiatives in securing additional funding, allocating resources, and mobilising institutional energy is paramount for the successful implementation of organisational change endeavours (Porter and Graham 2016). The deliberate commitment of the university to enhance student experiences through blended learning not only reflects its responsiveness to contextual challenges but also emphasises the crucial role of a well-defined institutional agenda in propelling the successful adoption and diffusion of innovations within a university context. However, we observed that the introduction of blended learning was expedited during the matching stage, and teaching staff had limited opportunities to pilot this approach before its full-scale implementation—an essential phase in the adoption process. One possible rationale for accelerating adoption decisions is the existence of the university's pre-established blended learning "model" at the former Centre for Open Learning. Despite its localised nature, the university perceived itself as already possessing the requisite knowledge and experience in blended learning. Leveraging existing institutional knowledge and resources is a common strategy in organisational change initiatives (e.g., Gornitzka and Larsen 2004; Hoover and Harder 2015; Martin-Sardesai et al. 2017). Another explanation for the accelerated adoption may stem from the social dynamics of the adoption process. The university might have sought to capitalise on the expertise, knowledge, and skills of staff members capable of supporting the university-wide adoption of blended learning. This strategic approach has the potential to facilitate institutional adoption and diffusion, with experienced staff members serving as innovators (Rogers 2003), who play a pivotal role in persuading their colleagues to embrace the new concept. Social influence, particularly peer influence, has been shown to significantly impact human behaviour regarding the adoption of technology and technology-enhanced learning, such as blended learning (Eckhardt et al. 2009; Graf-Vlachy et al. 2018).

While the university's decision to expedite the matching stage may appear justifiable, the limited occurrence of 'matching' of blended learning could contribute to the observed hesitancy among many lecturers, particularly in the initial phases of

adoption. Research indicates that teachers often avoid employing unfamiliar technologies and pedagogical methods to mitigate potential negative impacts on their teaching and students (Howard 2013; Sánchez-Prieto et al. 2019). This suggests that lecturers lacking sufficient time to experiment with blended learning to tailor it to their pedagogical requirements may result in hesitations towards adoption—an understandable apprehension. Pedagogical methods that do not align with teaching needs are less likely to be embraced by educators (Ertmer et al. 2012; Tondeur et al. 2017), indicating a potential adverse effect on the university's endeavours for adoption and diffusion of blended learning. The acceptance of innovations by individuals is crucial for the successful diffusion of innovations within organisations (Rogers 2003). This underscores the importance of careful consideration, consultation, and alignment with pedagogical needs during the matching stage to enhance the overall effectiveness of adoption and diffusion at the institutional level.

Regarding redefining, universities often tailor pedagogic methods such as blended learning by identifying their key attributes so the teaching approaches can be aligned with the specific requirements of the institution. This is particularly critical in the context of blended learning, as despite its long-standing use in higher education, ambiguity persists in the existing literature regarding what to blend and how to blend (Dziuban et al. 2018; Smith and Hill 2019). This lack of clarity may pose challenges for lecturers striving to understand the optimal methods for integrating F2F instruction with online learning, potentially resulting in inconsistent learning experiences among students. The significant variation in lecturers' understanding and proficiency with blended learning is problematic because it increases the likelihood of disparate practices across subjects, courses, faculties, and university levels (Pulham et al. 2018; Short et al. 2021). These divergent teaching methods might contribute to inconsistencies throughout the university and ultimately lead to unequal experiences for students, potentially resulting in resistance from lecturers. The literature suggests that teachers are more likely to refrain from adopting uncertain technologies and pedagogical methods that could negatively impact their teaching practices (Howard 2013; Tondeur et al. 2017). Therefore, redefining various aspects of blended learning, such as the proportion of the F2F component and the frequency of F2F meetings, was crucial for the university to implement blended learning in a manner that suits its needs. This not only enhanced the clarity of blended learning for lecturers, thereby increasing acceptance, but also expedited the institutional adoption process. Innovations tailored to suit the specific local context have a higher likelihood of successful adoption (Rogers 2003).

In relation to restructuring, analyses indicate that the university underwent a significant transformation in its organisational structure. Specifically, it changed the name and mandate of the former Centre for Open Learning to the Centre for Educational Technology and Excellence (CETE), with the aim of facilitating the adoption and diffusion process more effectively. This strategic change is in line with common practices in universities, which often undergo structural transformations to enhance institutional readiness through technological enhancements and additional human

resources (e.g., Antwi-Boampong 2020; Hamari and Nousiainen 2015; Webster and Gardner 2019). Such changes, specifically, a robust technological infrastructure plays a pivotal role in fortifying institutional readiness and is essential for the effective implementation of online and blended learning initiatives (Anthony Jnr et al. 2020; Porter and Graham 2016). In addition, the establishment of the CETE enabled the university to conduct strategic and targeted training for the academic staff, which in turn boosted the university's overall readiness for blended learning. The literature emphasises the significance of staff training, especially the training of teaching staff, as a crucial element in facilitating change initiatives associated with pedagogical transformations in universities (e.g., Chikasanda et al. 2013; Philipsen et al. 2019; Scherer et al. 2021). This suggests that restructuring is likely to have a positive impact on the institutional adoption and diffusion of blended learning.

In the clarifying stage, two primary activities were prominent—staff meetings and professional development (PD) workshops. Both activities proved valuable for staff, particularly academics, in addressing questions and uncertainties surrounding blended learning. Encouraging discussions about new innovations is a common organisational practice that allows members to gradually comprehend the significance of the innovation for both them and the organisation (Rusek et al. 2017). Such understanding is pivotal for facilitating a smoother adoption and diffusion at the institutional level (Rogers 2003). This is particularly crucial in the case of blended learning, where ambiguity still exists regarding key aspects such as what to blend and how to blend (Dziuban et al. 2018; Smith and Hill 2019). Therefore, organising activities like staff meetings to discuss blended learning could provide greater clarity for lecturers, enhancing their understanding of the application of the pedagogic approach, subsequently positively influencing their uptake. The literature suggests that teachers are more likely to adopt familiar technologies and pedagogic methods (Ertmer et al. 2012; Tondeur et al. 2017).

A second type of activity occurred in the clarifying stage—PD workshops, also played a crucial role in enhancing lecturers' understanding of blended learning, specifically, pedagogical knowledge. Beyond the technical know-how of using instructional technologies, teachers should possess a comprehensive understanding of the pedagogical principles underlying the integration of technologies into classroom activities to provide optimal learning experiences for students (Liang et al. 2013). Therefore, universities often organise PD workshops to equip the teaching staff with the necessary knowledge and skills, especially when adopting new pedagogic approaches (Philipsen et al. 2019). In the present study, this support was more significant because, at the time of adoption, many lecturers had limited or no prior experience with blended delivery. Offering support related to design principles, models, and approaches of blended instruction could enhance lecturers' self-efficacy (Narayanan and Ordynans 2021; Reid 2017), subsequently improving their willingness to adopt blended learning. The literature suggests that teachers with higher self-efficacy in online and blended delivery are more inclined towards adoption (e.g., Hameed and Arachchilage 2021; Reid 2017; Zee and Koomen 2016). Overall, the

clarifying stage proved quite effective and had a positive impact on the adoption and diffusion of blended learning.

In the final stage of the innovation process, routinising, the university's primary focus was on providing support, with a predominant emphasis on systematic "after-implementation" support and overseeing the progress of diffusion. Universities establish structures and mechanisms to ensure the continued implementation of online and blended learning. This is crucial because, in the initial phases of lecturers' adoption, their conceptualisation of the new pedagogical approach and actual usage could be fragile, and consequently, their pedagogical techniques might still closely reflect their traditional teaching strategies (Chikasanda et al. 2013). This situation could be problematic because if lecturers are unable to fully shift their beliefs and teaching practices and cannot discern significant differences between the new and previous method, the likelihood of abandoning the new idea is high (Liu 2011). However, universities can mitigate such challenges by implementing effective monitoring mechanisms and offering tailored support to lecturers and faculties, like the approach taken in the current study. Ongoing support for academics is essential for the sustainability of institutional adoption and implementation of technology-enhanced learning (Ali 2022; Graham et al. 2013; Porter and Graham 2016). This is even more critical for blended learning, as the combination of F2F and online learning substantially changes teacher practice (Crawford 2017; Dziuban et al. 2018), making it challenging for many teachers unless sufficient pedagogical and technological support is provided. In the current study, this support was realised through a dedicated support centre—the CETE, established during the restructuring stage of the innovation process. Support centres and teaching and learning units, as observed in various studies, play a vital role in the institutional adoption and diffusion of technology-enhanced learning, such as blended learning (Ali 2022; Graham et al. 2013; Porter and Graham 2016).

Overall, the current study highlights the utility in using Rogers' five-stage model to understand institutional change processes within higher education. In this case, the absence of a key stage, matching, suggests a necessity for further development in this stage of the innovation process. While this study demonstrates successful completion of institutional adoption of blended learning, it is crucial to acknowledge Rogers' caution regarding the intricacy of the routinising stage, which emphasises the sustainability of innovations in complex organisations such as universities. Even when an innovation appears to be routinised, its sustainability may be precarious, and lecturers might revert to previous practices if they perceive a lack of alignment between the new approach and their pedagogical needs due to insufficient "matching". The findings underscore the significance of institutional dedication to nurturing a culture of innovation in teaching and learning practices. This can be achieved through enhanced participation of teaching staff in adoption decision-making, appropriate allocation of resources, continuous lecturer support, and diligent

monitoring to ensure the sustainability and impact of blended learning initiatives within universities.

Conclusion

This study underscores the applicability of Rogers' innovation process within the context of higher education, providing a valuable framework for guiding the adoption and diffusion of technology-integrated learning, such as blended learning, at the institutional level. While the change processes within institutions, especially large and complex organisations like universities, may not always occur in a strictly sequential fashion, the five stages followed in the current study offer crucial guidelines for university leadership in the adoption and diffusion of blended learning.

The implications drawn from this study have significant relevance for higher education policy and university leadership. The findings highlight the importance of carefully coordinated efforts for the successful adoption and diffusion of blended learning within a university. Specifically, the emphasis on agenda-setting, matching, redefining/restructuring, clarifying, and routinising stages reveals critical aspects where strategic decisions and interventions significantly influence blended learning initiatives. Higher education policymakers should be attentive to the nuanced challenges associated with each of these stages, particularly in crafting policies that foster a supportive environment for the adoption of technology-enhanced learning.

It is also recommended that the university increases the involvement of teaching staff during the initial stages of adoption, particularly in agenda-setting and matching stages. This proactive engagement can enable academics to gain insights into the attributes of blended learning and align it with their instructional needs, fostering a positive attitude towards its adoption. Additionally, university leaders must actively work to cultivate an institutional culture that encourages ongoing support, professional development, and systematic oversight of blended learning initiatives. The study suggests that successful adoption and diffusion require not only a robust institutional agenda but also continuous support mechanisms, structured monitoring, and strategic alignment with pedagogical needs. Considering the increasing adoption of technology-enhanced learning methods, such as blended learning in the post-COVID era, the insights from this study provide valuable guidance for policymakers and university leaders in navigating the complexities of institutional adoption and diffusion in higher education.

Appendix

See Table 1.

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Table 1 The process of innovation in organisations (Rogers 2003)

Stage	Definition	Example of typical activities
Agenda-setting	Identifying a common problem within the organisation that typically initiates search for a potential innovation to solve the problem	An existing course delivery method is being perceived problematic in terms of consistency and quality of teaching. The management team discusses the course delivery issues in a meeting.
Matching	Fitting an innovation with a problem identified from the organisation's agenda	The university chooses blended learning as a potential innovation to solve the issues identified in the agenda-setting stage.
Redefining/ restructuring	Bringing necessary changes to the innovation and/or existing structure of the organisation to fit innovation within the local context	The university defines key characteristics of blended learning through policy guidelines. The university establishes a new entity (centre) to coordinate blended learning activities.
Clarifying	Making the meaning of the new idea clearer to the members of the organisation	The university organises series of meetings with the staff to explain blended learning. The university conducts blended teaching training for lecturers. Lecturers start understanding of how blended learning is going to be look like.
Routinising	Innovation getting incorporated into regular activities of the organisation and losing the foreign identity of the new idea	Lecturers consider blended learning as part of their daily practice and follow the standard procedures for implementation.

Declarations

Conflict of interest The authors have no conflict of interest to declare that are relevant to the content of this article. The authors have also no financial interest in any material or aspect discussed in this article.

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