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A framework for managing innovation in higher education: lessons learnt from the UAE iPad initiative

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Abstract

Purpose – Managing educational innovation in higher education institutions is a complex process that requires specific strategies based on research and proven frameworks. The aim of this paper was to examine how Bolman and Deal's (2003) theoretical framework can be used to analyse organisational change processes and to evaluate the progress and outcomes of an educational innovation initiative at a university in the Gulf. This educational innovation involved the use of iPads in curricular practices to enhance pedagogical strategies and student learning outcomes.

Design/methodology/approach – An ethnographic case study methodology was used to make an empirical inquiry that investigated data obtained from direct observations, informal interviews, holistic field notes and documents to better understand a contemporary phenomenon within its real-life context.

Findings – A critical analysis of this iPad initiative suggested that the main areas of leading and managing this innovation, through Bolman and Deal's framework, were effectively centred around the human resources, structural and political frames but were less affected by the symbolic frame.

Originality/value – The authors provide suggestions, based on their experiences as faculty members and academic administrators, on how such innovations can be effectively led and managed. In addition, a new cross-cultural model is proposed for managing future educational innovations in higher education, particularly in the Gulf region. This new model could also be used to effectively evaluate the implementation and management of other educational changes such as those precipitated by the COVID-19 pandemic.

Keywords Leading and managing, Educational innovation, Mobile technology, General education, COVID-19

Paper type Research paper

Introduction

Educational innovations are becoming a global priority as higher education institutions (HEIs) are recognizing the importance of offering high-quality, high-engagement learning experiences (Hubball *et al.*, 2013). Increasingly universities are focusing on

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strategic leadership in terms of curriculum, pedagogy and scholarship to enhance student learning (Burt and Hubball, 2014). Managing and leading these educational innovations then becomes extremely relevant, if they are to be successfully implemented and sustained over a long period of time.

The educational innovation that motivated this case study was one in which faculty members at a university in the Gulf region were instructed to use mobile devices, specifically the iPad, as a means of enhancing their pedagogic practices. This was the first major mobile technology implementation at the institution based on the premise that since the current cohort of students were true digital natives, it would be highly beneficial to the overall teaching and learning experience, if professors would integrate this technological device into their classes (Gitsaki *et al.*, 2013).

Whilst there are many theoretical frameworks that could be used to analyse a change process (Kotter, 2007; Lebow and Simon, 1997), for the purpose of this study, the framework by Bolman and Deal (2003) was chosen as it supports using multiple frames to analyse organisations. Such an approach moves away from a narrow-minded and perfunctory organisation analysis (Bolman and Deal, 2003), resulting in more opportunities to find new strategic approaches. The context in which this educational change occurred also contributed to the theoretical framework of choice. The United Arab Emirates (UAE) provides a unique education setting as a significant portion of its tertiary academicians and administrators are expatriates (Ibrahim *et al.*, 2013). The students' mother tongue is Arabic; however, the language of instruction is English. The UAE's educational policies have consistently promoted bilingualism amongst its citizens to meet the rapid modernization and globalisation the country has experienced over the past few decades (Al Hussein and Gitsaki, 2018). This has contributed to a diverse educational system in regard to the policymakers and change agents, hence taking a multidimensional approach seemed most suitable in providing a better understanding of this change process.

This case study examines how change was managed during the introduction and implementation of an educational innovation (i.e. the iPad initiative) at a HEI in the UAE. The scope of this analysis is threefold as follows:

(1) to determine the factors that are essential to be considered for leading and managing of this specific educational innovation;

(2) to find ways of addressing concerns regarding change and innovation in a manner that will support best practices; and

(3) to share the experiences of faculty as they navigate the integration of technology in the classroom.

Educational innovation in higher education

Innovation in education is a systematic and strategically planned change that can be extremely complex and multidimensional. Changes can be classified as "first-order" or "second-order." First-order change occurs when the system remains unchanged, requires no new learning and results in no significant alteration to organisational structure (Fouts, 2003; Hylton *et al.*, 2015; Wong and Cheung, 2009). Second-order change represents an actual change in the system, a new approach in the manner in which things are executed and requires an alteration of one's beliefs and attitudes (Goodman, 1995).

Changes in institutions may arise because they are either imposed, owing to voluntary participation, or may even be initiated because leaders are dissatisfied with

a particular circumstance (Fullan, 2007). Changes can be implemented in one of two distinct forms, "top-down" or "bottom-up" (Fullan, 1994). Whether imposed or voluntary, the change process is commonly associated with some amount of emotional turmoil (Kotter, 1999) such as feelings of anxiety and resistance among participants (Fullan, 2007).

In 2012, the iPad initiative was introduced in the general education programmes at three federal HEIs in the UAE. According to Gitsaki *et al.* (2013, p. 2):

> The UAE iPad initiative meant that the nationwide launch of over 14,000 iPads was unique by all accounts for any nation around the world and its implications for the education of Emirati post-secondary students were expected to be far reaching.

The expectation was to explore the effectiveness of the iPad as a means of moving education into the mobile learning era, challenge traditional approaches to teaching and learning and be more aligned with the educational needs of 21st century learners (Gitsaki *et al.*, 2013). This paper examines the introduction of the iPad initiative as a top-down, second-order change at a HEI in the UAE.

Frameworks for change management in education

Educational leadership and management theories and models are valuable in that they provide a framework to help practitioners better understand how to plan, implement and monitor innovations (Fullan, 2007). Educational changes are usually within the areas of curriculum and teacher development, as well as school improvement and effectiveness (Wideen and Pye, 1994). Duke (2004) (cited in Wong and Cheung, 2009) defines educational change as:

> Change intended to alter the goals of education and/or to improve what students are expected to learn, how students are instructed and assesses how educational functions are organized, regulated, governed and financed (p. 90).

There are several theories and models that have been proposed as frameworks to guide the process. Many of the theories overlap owing to the commonality of perspectives, or they use different names for similar approaches making it difficult to distinguish between the different models (Bush, 2003). Three theories frequently cited in educational change literature include the theoretical perspectives of Fullan (2007); Kotter (2007); and Bolman and Deal (2003).

Fullan (2007) suggests that at any point during an educational change process, there are at least three components that will affect any new programme or policy which are as follows:

(1) use of new or revised materials such as curriculum materials or technologies;

(2) new teaching approaches or strategies; and

(3) the alteration of beliefs or attitudes.

He further explains that these three components are important as when combined they represent a means to facilitate ways in which a specific goal or a set of goals can be achieved. While a change process may focus on these components singularly or synergistically, Fullan (2007) believes that an innovation may not result in significant sustainable changes without all three dimensions. Fullan further suggests that for any educational innovation to be successful, it must be properly led and managed. Cuban (1988) gave an account of how leadership may be distinguished from management, while underscoring the importance of both in any institution. He

explained that leadership refers to influencing and shaping the goals, motivation and actions of others to obtain desirable results. On the other hand, "Managing is maintaining efficiently and effectively current organisational arrangements, while managing will often exhibit leadership skills, the overall function is towards maintenance rather than change" (Cuban, 1988, p. 21). Bush (2003) suggests that leadership and management need to be given equal importance in the context of universities, if they are to be effectively operated. Whatever change processes there are, they need to be implemented in such a manner that all other operations of the institution are carried out effectively, at the same time as the innovations are being initiated and implemented. While Fullan's work emphasizes the role of change at various hierarchical levels of leadership, his three components of educational change do not fully explore the impact of change on policies, procedures and other structural processes within organizations. Instead, Fullan primarily emphasizes the role of stakeholders and their beliefs as the foundation for sustainable reform.

While some of the most popular change management theories or models were not developed specifically for educational systems, they have been applied in educational contexts, albeit yielding different results. For example, Kotter (2007) proposed that there are eight steps to be used to facilitate quick, continuous and successful transformations. These are as follows:

(1) creating a sense of urgency;
(2) forming a powerful guiding coalition;
(3) creating a vision;
(4) communicating the vision;
(5) empowering others to act on the vision;
(6) planning for and creating short-term wins;
(7) consolidating improvements and producing still more change; and
(8) institutionalising the new approaches.

Kotter's theory approaches change as a linear progression. However, in reality, there are gradual steps in change management that do not necessarily lend themselves to clear-cut, linear processes. Change and responses to change are at times cyclical, reiterative, messy and/or unpredictable, therefore, change management requires an awareness of how it impacts organizational constituents and processes from multiple perspectives.

The model put forward by Bolman and Deal (2003) is also popular in the field of educational management. It proposes that organisations can be managed effectively by taking into consideration four perspectives or frames: *human resource*, *structural*, *political* and *symbolic*. The *human resource* frame looks at the organisation as a family made up of individuals with needs, feelings and prejudices. The challenge with leading from this frame is to arrange the organisation around the individuals, get people to complete the task at hand and feel good about themselves for doing so. The *structural frame* is concerned with the organisational structure, roles and responsibilities, policies and procedures. Challenges include a lack of clarity in shared vision which requires clear and open communication as well as alignment with organisational objectives. From the *political frame*, the organisation is considered to be a jungle. Change is normally associated with different degrees of conflict, owing to the diverse needs and perspectives of competing individuals, therefore, opportunities

need to be provided that will help to resolve conflicts. Finally, in the *symbolic frame*, organisations are thought of as a theatre or place where acting is carried out in which actors play their roles and are observed. Impressions are formed based on how the performance is executed and subsequently viewed by the audience. As such, meaning, symbols and rituals are an important part of effecting change. Each frame has its own concept of reality and when all four are applied, they serve to deepen one's appreciation and understanding of organisations (Bolman and Deal, 2003). Given the complexities of HEIs, a holistic analysis enables one to deconstruct the various components of organizational change and explore how each part plays a role in the larger process.

While these three models differ in prescribed approaches or stages of organisational change management, they are similar in their focus on managing the human aspect of change. Fullan (2007) emphasizes the involvement of all stakeholders by building capacity and developing a shared vision. Kotter (2007) refers to "creating the guiding coalition" – assembling a group of people with a shared commitment to work as a team- and "communicating the vision" – teaching new examples as a way of guiding the coalition. The importance given to the human aspect of change is tied in from Bolman and Deal's (2003) *human resource* frame – the relationship between people and the organisation and their need for each other. The analysis of change within educational institutions must move beyond simply managing individuals. Bolman and Deal's (2003) four-frame model provides a broader organizational perspective of change analysis that may produce a richer understanding of change within multidimensional organizations such as universities. Hence, the four-frame model was used as the theoretical framework for this study which aimed to evaluate the progress and outcomes of the iPad initiative at a university in the Gulf.

The study

This ethnographic case study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context" (Yin, 2009, p. 18) using the Bolman and Deal's (2003) four-frame model as its conceptual framework. Rossman and Rallis (2003) posit that ethnographic research addresses the following questions: "What social actions take place in this particular setting? What do these actions mean to the actors involved at the moment the action took place? How are the actions organized in social patterns? What rules apply?" (p. 95). This approach to research was deemed most effective for the present case study as it helps researchers understand an event as it unfolds in real life.

Participants and context of study

The context of the case study is a medium-sized HEI in the UAE with approximately 10,500 students and 900 faculty. The institution primarily consists of local Emirati students whose native language is Arabic, however, the medium of instruction and the curriculum are English. The ethnographic study was conducted by the researchers: two female Western, expatriate faculty members between the ages of 35–40 years old. Both faculty are qualified educational leadership researchers, they hold leadership positions within their college, and they were closely involved in the iPad initiative. At the time of the study, the college was divided into four departments across two campuses. On the campus where the study was conducted, the college had approximately 70 faculty members (adjunct and full-time), 47 females and 23 males

representing more than 20 different nationalities. All but two faculty were expatriates, teaching undergraduate general education courses to students in their first to fourth semester.

Data collection

Data were collected from direct observations, informal interviews, holistic field notes and documents. More specifically, the researchers served as participant observers:

> The participant observer employs multiple and overlapping data collection strategies: being fully engaged in experiencing the setting (participation) while at the same time observing and talking with other participants about whatever is happening (Patton, 2002, p. 266).

Participant observations incorporate reflective practices which are valid qualitative approaches to inquiry. These approaches require an individual to explore their own experiences, thoughts and actions as an investigative lens throughout the research study (Alvesson and Sköldberg, 2017; Mortari, 2015; Palaganas *et al.*, 2017).

Results and discussion

The four-frames model by Bolman and Deal (2003) was used to analyse the implementation and outcomes of the iPad initiative. The model engaged a holistic examination of diverse perspectives impacted by the educational innovation including its effect on university stakeholders, policies and procedures, political conflicts and institutional symbolism. The results are discussed in terms of the four-frame model.

Human resource frame

This frame looks at the involvement and participation of employees within an organisation. It also deals with the training and resources required to develop the skills that would be essential for the change process (Andrade, 2011; Bolman and Deal, 2003). For the iPad initiative, both faculty and students were required to incorporate the use of an iPad in their classroom on some level. Hence, the institution gave each faculty member both a MacBook or a laptop and an Apple iPad. Students were asked to acquire similar devices. Whilst most faculty were fairly competent with the use of a MacBook/laptop, observations suggest that some viewed the iPad as a tool for social interaction (checking social media websites, answering emails, playing games) rather than an educational tool. Several colleagues expressed that they preferred to use a computer rather than an iPad for research and writing. Nevertheless, faculty were required to incorporate this device into their classrooms as a pedagogical tool. Such a change seemed disruptive to the lecture style teaching to which many were accustomed and still believed was the best way to teach. When persons are required to change what they consider their normal routine, it usually leaves them feeling insecure and anxious (Bolman and Deal, 1999) as was the case with the majority of the faculty in this case study.

Bolman and Deal (1999) further explain that if people believe that they are lacking in skills to implement new change processes, then they may resist and in extreme cases sabotage the process, hoping to return to that which they were most comfortable. Changes usually leave educators with feelings of compulsion, fear, frustration and cynicism, which may lead to a lack of support during the implementation stages (Clement, 2014). Hence, the importance of professional development (PD) in ensuring that such an innovation is managed effectively. Materials are easier to change than practices, and practices are easier to change than beliefs (Guskey, 2002). Even though the physical materials are in place to facilitate such a change, for the innovation to truly work, instructors need to be on board, which

can be facilitated through effective PD. The benefits of implementing PD that is strategically designed to meet specific needs of instructors have been shown to enhance university teaching and learning practices (Webb *et al.*, 2013).

In the case study, to assist with the implementation of this change process, the institution facilitated several training sessions and PD workshops primarily during the first week of each semester. Trained professionals in the field of mobile technology conducted workshops on how the iPad could be used for educational purposes. Faculty were exposed to several mobile applications based on the required course learning outcomes. These sessions were coupled with conference-like presentations from faculty who were more au fait with the technology, sharing ways in which they used technology to effectively enhance their pedagogical practices. Such training and investment of resources were instrumental in developing trust and reducing resistance and anxiety among the faculty (Andrade, 2011).

Structural frame

The structural perspective considers the functions and relationships of all stakeholders, on the basis that the organisation exists to achieve specified goals and efficiency can be improved through clear guidelines of roles and responsibilities (Bolman and Deal, 2003). This perspective assumes that organisations will perform at their maximum when reasonableness prevails rather than the personal inclinations of individuals. It is believed that organisations fall below optimum operation when deficiencies arise; however, such can usually be addressed through systematic analysis and restructuring.

While the faculty's role is mainly to ensure that teaching and curriculum (Andrade, 2011) are adequately covered, in the context of the present institution, faculty were also expected to be change agents (Clement, 2014) as they were required to change their pedagogical practice and actively implement the use of technology in the classroom. Technology implementation was left up to the interpretation of the faculty. This meant that the iPad could be used for quizzes (formative and summative), for e-readers, note-taking and data logging for labs, etc. Bolman and Deal (2003) report that if there is uncertainty about what is supposed to be done, then persons will inadvertently shape their role around their preferences, rather than the organisation's goals. In the present study, the goal of the institution may have been for the technology to be used to assist the students with critical thinking, for example, constructing mind maps to demonstrate the relationship between concepts in a topic, but this was not how it was used by the majority of the faculty.

Our experiences, along with information gathered from conversations with our peers, suggests that some of us who were more proficient with the technology used the iPads for higher order thinking tasks, while others, who were less proficient, were comfortable using the device only as an e-reader. These variations in device utilisation made it difficult to accurately determine its impact on learning outcomes as it cannot be expected that the technology will facilitate deeper learning by simply placing the instrument in front of the students (Shirley and Noble, 2016). Furthermore, there was conflict as some faculty were uncertain of their role in the use of the device in their classes. For example, some felt it was up to the students to come up with different ideas on how the device could or should be used. Others only told students about a particular mobile application and let them figure out how it should be used. These problems arose when the roles of faculty members were not clearly defined or understood (Bolman and Deal, 2003). Whilst some autonomy is welcomed by faculty, if the integration of the technology is not structured, then change can be

difficult to manage, especially with regard to quality assurance and measuring intervention effectiveness based on its intended use for enhancing teaching and learning.

Political frame

The political frame views organisations as groups of people with different beliefs, interests and attitudes. The challenge being to get people involved by making them feel included in the whole change process (Andrade, 2011). One important aspect of organisations is the allocation of scarce resources, which may lead to conflict (Bolman and Deal, 2003).

In this case study, physical resources (i.e. equipment) were not an issue, as these were provided for faculty and most of the students had the financial means to purchase their own. The scarcest resource was "faculty time." Divergent beliefs among faculty came to the fore as some felt that the time taken to learn about new technology took away time that should be spent on teaching and research. It may be argued that offering PD training to faculty on technology usage can also serve as a motivation to improve skills (Leithwood and Beatty, 2007), inspite of the additional investment in time. In reality, some researchers believe that the amount of learning in these trainings is sometimes insufficient owing to time constraints and the large amount of information that is disseminated at once (Calabrese, 2006; Ibrahim *et al.*, 2013). In the context of the iPad initiative, some of the faculty were resistant in regard to giving their time to learn more about the use of the technology, and this may have stemmed from the fact that they were not initially convinced that the technology had any significant impact on students' learning outcomes. Feelings of resistance and protection of faculty's time may have also been compounded by the fact that this was a voluntary change.

The team leading this innovation decided to host a conference to get faculty buy-in from those who were sceptical. Faculty who had successfully integrated the technology within their classrooms and devised technology-based pedagogical practices that were aligned with course learning outcomes, showcased their practice. Coupled with this, faculty were encouraged to contribute to publications that compiled successful practices (Gitsaki and Waller, 2015; Gitsaki and Alexiou, 2019) that were later disseminated to faculty. Having the ability to showcase scholarship was instrumental in getting faculty to realise that even though they all had different views, they were all interested in the same common goal of enhancing student learning. The following negotiation was on the table: making the technology an integral part of your classes will not only prove to be beneficial to the students but also provide an opportunity to engage in scholarship, which is always welcomed by academicians as it can significantly contribute to the process of promotion and tenure (Hubball *et al.*, 2010).

Symbolic frame

The symbolic frame focuses on getting people to unite in one accord. It involves ceremonies and symbols from which the meaning and purpose of the organisation can be created or envisioned (Bolman and Deal, 2003). Through the lens of this frame, problems arose when some faculty relished complacency and refused to recognise technology change as a meaningful innovation. In some instances, these faculty assigned different meanings to the outcome of the iPad initiative, especially if they felt that the institution had not communicated a clearly defined shared goal. In reframing the organisation from the

symbolic framework, it became important to let go of the past and develop transition rituals that would create a clear positive vision of what the future can be.

The mission of the iPad initiative aimed to create a culture of modern and relevant modes of instruction that catered to diverse groups of learners that would ultimately enhance the teaching and learning experience. The average student may not be able to identify with a period when technology was not used in their day-to-day activities. This suggests that educators need to get creative in the manner in which they teach age-old topics (Manuguerra and Petocz, 2011). These outcomes align with the original objectives of the iPad initiative. The current cohort of students requires educators that can embrace cultural changes. Such adaptation and flexibility among faculty were later found to be critical during the institution's transition to the emergency remote learning situation created by the COVID-19 pandemic (Wilson, 2020).

Summary of findings and implications

Using Bolman and Deal's (2003) four-frame model to assess the implementation and management of the iPad initiative has shown the strengths and areas of improvement for such a change. One can see from the *human resource* frame that systems were put in place to build faculty capacity in regard to PD and training. Faculty were adequately supplied with the tools and time was allocated for the same. Although technology training and PD can assist with improving comfort levels, it should not be assumed that such training eradicated faculty anxiety. These factors and other emotional stressors should also be considered and addressed.

Reviewing the change management process through the *structural frame* highlighted some areas of improvement such as ambiguous instructions regarding the roles of change agents. Structured policies and procedures become even more essential during crises as the lack thereof can impact instructional delivery and negatively affect the change process (Bolman and Deal, 2003).

While a scarcity of resources was not an issue in the current case study, the time constraints of faculty could be a source of conflict which would require negotiation and compromise as outlined in the *political frame*. Mitigating such potential conflicts by giving instructors a chance to participate in scholarship was effective in making their participation worthwhile. This is in support of Guskey (2002) who proposed that for educators to become committed to new pedagogy, they need hard evidence on how it will affect the learning outcomes of their students. Guskey (2002) believes that training alone is insufficient to convince an educator that an innovation is effective. It must be combined with evidence of improved student academic attainment. The showcasing and celebration of faculty scholarship would therefore serve to offer some evidence in this regard.

Finally, the voluntary nature of the iPad initiative gave faculty the option of clinging to the past as defined by the *symbolic frame*. While faculty were encouraged to use the iPad, they were still able to use traditional teaching methods if they felt uncomfortable using technological devices. Having this option in delivering content might have resulted in considerable resistance to the initiative.

Overall, the four-frame model was limited in the assessment of leading and managing educational innovation if one were to consider the influential effects of societal culture within the context of this institution. The impact of cultural congruence is pertinent when aiming to fully understand educational leadership and management, especially in the framework of diverse international education settings. Currently, Bolman and Deal's symbolic frame scratches the surface of organisational culture but does not reflect the depth of cross-cultural interconnectivity. Therefore, a new cross-cultural four-frame model as

depicted in Figure 1 would better capture all areas of complexity in managing educational innovations with considerations of the cultural context.

According to Dimmock and Walker (2000), it is imperative to contemplate societal culture when aiming to fully understand educational leadership, especially in an international setting. They went on to further explain that understanding the culture provides a basis for comparing the influences and practices associated with educational leadership and management. Most theoretical frameworks do not focus on the interconnectivity between the levels of culture between the institution and the society (Dimmock and Walker, 2000), which they believe would help in having a better understanding of institutions, their educational leaders and by extension their educational innovations. For example, one cultural aspect that could have influenced the implementation of the iPad initiative that was not accounted for by the four-frame model was the approach to teaching and learning from the mainly expatriate faculty. Eastern and western faculty have been known to have different opinions of what this experience might be (Dimmock and Walker, 2000) and may also differ in terms of their pedagogical strategies. One would also need to take into consideration that the students were being taught in a language that they were still trying to master by faculty, many of whom did not have English as their first language either.

The proposed cross-cultural four-frame model combines the models developed by Dimmock and Walker (2000) and Bolman and Deal (2003) to facilitate a better understanding of the change process in the context of this Gulf institution. To accurately apply Bolman and Deal's (2003) four-frame, it is important that one's perspective is embedded within the cultural context. Such an approach illuminates internal and external cultural factors that influence processes and procedures within an organization. Understanding these cultural

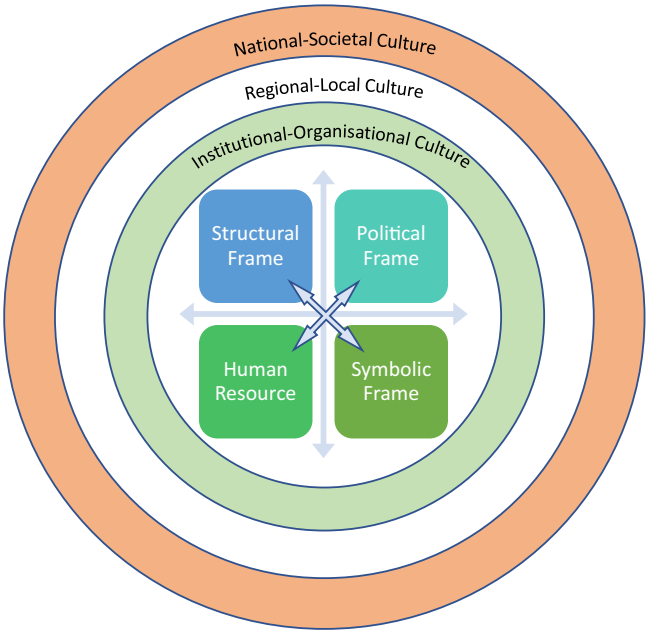

Figure 1.
Cross-cultural four-frame model

nuances enhances the ability of leaders and stakeholders to more effectively lead and manage change.

Conclusion

This paper explored the use of the four-frame by Bolman and Deal (2003) in evaluating the implementation of an educational innovation at a university in the Gulf. The application of the framework revealed organisational processes that were beneficial in the implementation of the initiative, but also areas in need of improvement such as the need for a more holistic evaluation approach that considers societal culture.

Reflective research like this ethnographic case study allows HEIs to be better prepared in the face of educational initiatives that involve the use of technology such as the emergency remote teaching situation that the COVID-19 pandemic created not only in the Gulf region but also around the globe. While such case studies may appear limited in the generalizability of their results, the benefits of the reflective process are invaluable in being able to use a structured scientific approach in the evaluation of the processes involved in the implementation of educational innovations. For example, having gone through the iPad initiative, the institution that was the context for the present study was able to recognise that when the COVID-19 pandemic resulted in the online delivery of the curriculum, adequate training in the use of mobile technology and videoconferencing applications had to be provided to faculty in a timely manner. However, PD went beyond technology training and included a holistic approach to supportive services through counselling and other self-care initiatives for faculty and students. This was instrumental in addressing issues surrounding anxiety and other psychological stressors that can negatively impact the teaching and learning environment making the lessons learned from the iPad initiative all the more valuable during the COVID-19 crisis.

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