Leadership and change management in the transition to online curriculum delivery in Malaysia: a comparative case study

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Abstract

Purpose – This research aims to investigate the leadership strategies employed by two higher education institutions in Malaysia as they navigated the shift to online delivery of their computer science programs in response to the demands of Education 4.0.

Design/methodology/approach – A phenomenological, comparative case study approach was used to delve into the leadership and management practices of these institutions during the transition to online learning. Data were collected through interviews and document analysis.

Findings – This study explores the leadership strategies employed by two higher education institutions in Malaysia during their transition to online learning due to the COVID-19 pandemic. Five key themes emerged from the data: leadership and team coordination, training and skill development, adaptation to new assessment methods, resource management and work culture and environment. Both institutions demonstrated effective leadership, continuous training and adaptability in assessment methods. However, differences were noted in resource management and work culture. Institution A’s leader had to liaise with various departments and personally invest in equipment, while Institution B was already well-equipped. The work culture at Institution A demonstrated flexibility and mutual understanding, while Institution B used key performance indicators to measure progress. Despite these differences, both leaders successfully managed the shift to online teaching, underscoring the importance of effective leadership, continuous training, flexibility, resource management and a supportive work culture in managing change. The study also highlighted the distinct roles of curriculum leaders in both institutions, with Institution A’s leader focusing on multiple activities, while Institution B’s leader was able to focus solely on curriculum change due to their institution’s preparedness.

Research limitations/implications – This study provides a rich, qualitative exploration of the strategies and challenges faced by program leaders in managing the shift to online teaching during the COVID-19 pandemic. Future research could build on these findings by conducting similar studies in other educational contexts or countries to compare and contrast the strategies and challenges faced by program leaders. Additionally, future research could also employ quantitative methods to measure the effectiveness of different strategies in managing the shift to online teaching. This could provide a more comprehensive understanding of the factors that contribute to successful change management in educational institutions.

Practical implications – This study provides valuable insights for program leaders, educators and policymakers in managing change in educational institutions. The themes identified in this study – effective leadership, continuous training and skill development, flexibility in adapting to new assessment methods, effective resource management and a supportive work culture and environment – can serve as a guide for program leaders in managing future changes in their institutions. Moreover, the strategies employed by the program leaders in this study, such as forming a powerful coalition, providing training on online tools and prioritizing student welfare, can be adopted or adapted by other program leaders in managing change.

Originality/value – This study presents a unique contribution to the existing literature by offering a comparative analysis of change management strategies in two distinct educational institutions during the shift to online teaching due to the COVID-19 pandemic. It uncovers the nuanced differences in leadership styles, resource management and pedagogical adaptations, providing a rich, context-specific understanding of the change process. The study fills a research gap by examining the practical application of Kotter’s 8-Step Change Model and the McKinsey 7S Model in real-world educational settings. The findings offer valuable insights for
other institutions navigating similar changes, thereby extending the practical and theoretical understanding of change management in higher education.

**Keywords** Educational leadership and management, Education management in higher education, Curriculum change management, Higher education management

**Paper type** Case study

**Introduction**

The COVID-19 pandemic significantly affected individuals' social, political and economic lives globally, leading to massive policy changes to enhance sustainability and efficiency. According to studies by Olajide (2020) and Maqsood et al. (2021), the education sector was among the critical sectors hugely affected by the pandemic, given that nations had to implement preventative strategies to curb the spread of the pandemic. The social distancing guidelines necessitated the need for individuals to work from home, making education systems shift to a complete online learning method. Consequently, the face-to-face learning system experienced reduced dominance due to the need to revamp learning despite the rising spread. The reality of Malaysia’s online learning and teaching methods, especially for higher learning institutions, became compulsory throughout the pandemic (Sia and Abbas Adamu, 2020). All the higher learning institutions adopted a similar approach since the announcement of pandemic lockdown in 2020, where learners and educators had to adapt to online teaching and learning. Online learning entailed timely completion of worksheets, assignments and watching educational videos. Although online lessons have been less common due to insufficient access to digital devices, the Internet and a friendly learning environment, most students and educators have since then embraced the undeniable need to integrate online learning into education. The situation has presented a glimpse of opportunities and challenges in the higher education landscape of Malaysia and overseas institutions, starting in the reshaping of students’ engagement in synchronous and asynchronous communication with their educators (Law, 2021; Osman, 2020; Wang and Wang, 2020). Consequently, online learning has been vital in promoting the educational needs of learners.

The adoption of online learning and teaching globally has been vital in promoting Education 4.0, in line with the ever-changing economic, social and political frameworks. Globally, learning institutions face significant challenges brought about by the tectonic shifts in the digital revolution and techno-socio-economic frameworks in Industry 4.0 (Chattopadhyay, 2020). Consequently, nations have embarked on the adoption of knowledge economies through massive curricula change. The integration of data, communication and technology in 21st-century curricula can facilitate innovation and creativity. Given the rising unemployment rates globally, there is a need for education systems to provide learners with skills and knowledge that match job markets. More so, innovation leads to self-empowerment where learners understand market needs and offset the gaps. Although the COVID-19 pandemic has hastened the adoption of online learning, the shift has been crucial in ensuring that economies adopt Curriculum 4.0 amid the rising technological innovations (Dhawan, 2020). Therefore, the pandemic has played a vital role in making nations adopt a knowledge-based approach towards social, political and economic prosperity.

Leadership is vital in the implementation of the curriculum needs of the 21st century. Curriculum developers need to ensure that an education system meets the global needs of markets to avoid redundancy and lower development levels. During the pandemic, learners have understood the role played by educators in fostering effective learning. Although program leaders such as the head of programs are vital in facilitating positive learning, educators need to take a modest role in facilitating adaptive learning despite the challenges (Stevenson et al., 2016). Initially, institutional leaders could directly supervise educators and
learners to assess the learning progress. However, the pandemic makes educators central in managing curriculum changes and innovations. Specifically, the COVID-19 pandemic has triggered a significant shift in curriculum delivery in Malaysian higher education (Razali et al., 2023; Selvanathan et al., 2023). The necessity to maintain educational continuity during lockdowns and social distancing measures led to an abrupt transition from traditional face-to-face teaching to online learning. This sudden change was not merely a temporary solution to the crisis but has brought about a profound transformation in the educational landscape. It has accelerated the existing agenda of shifting toward 21st-century learning approaches and the implementation of Curriculum 4.0. This curriculum, characterized by the integration of technology and innovation, is designed to equip students with the skills and knowledge necessary for the digital age. This shift has had a profound impact on higher education institutions in Malaysia, necessitating a reevaluation of teaching methods and curriculum design (Asadullah and Tham, 2023). The pandemic, despite its disruptive nature, has thus served as a catalyst for educational institutions to embrace technology-enhanced learning and teaching methods more fully.

The study aimed to compare how the leaders from two Malaysian higher learning institutions of the computer science program embraced and managed curriculum change and innovation by shifting toward online learning delivery in the 21st century in line with Education 4.0. In order to answer the research purpose, the case study is guided by an overarching research question:

*RQ1.* How do the leaders manage the shift toward online teaching, learning and assessment in the computer science program?

**Literature review**

Curriculum 4.0 desires to incorporate technological innovations to meet current and future learning needs. Many institutions fail in adopting online learning primarily due to the lack of assessment of organizational readiness for modern curricular. According to Kang et al. (2020), institutions can mitigate the risk of failure by identifying improvement areas and changing strategies. To achieve the goal, there is a need for sound leadership in the implementation process to ensure that all involved stakeholders, such as educators and learners, understand the need to have knowledge-based societies amid changing economic and social setups. Canales (2023) and Walletzy et al. (2023) advocated adapting the basic principles of change-management theory onto all aspects of curriculum change, regardless of having individual learning outcomes and objectives. Several key steps are mentioned for managing changes in the curriculum: a stimulus for change and situational analysis, communication with stakeholders, planning, implementation, monitoring or transition management and evaluation. Consequently, an in-depth understanding of management and leadership models can promote online learning despite the challenging economic times.

**Curriculum leadership in higher education**

Curriculum leadership in higher education is a complex and multifaceted role that requires a deep understanding of the educational landscape and the ability to navigate the various challenges that come with implementing curriculum changes. It involves the ability to envision, plan and implement curriculum changes that align with the institution’s mission and goals, as well as the broader educational and societal context (Law, 2021).

Curriculum leaders are often tasked with the responsibility of ensuring that the curriculum is relevant, engaging and effective in meeting the learning needs of students. They are also responsible for ensuring that the curriculum aligns with the institution’s strategic goals and objectives, and that it is responsive to changes in the external environment.
environment, such as technological advancements, societal changes and shifts in the job market (Tadinada et al., 2023).

In the context of the shift to online learning due to the COVID-19 pandemic, curriculum leaders in higher education institutions have had to navigate numerous challenges. These include the need to rapidly transition to online delivery modes, ensuring that faculty are adequately trained and supported in this transition and that the quality of education is maintained despite the shift in delivery mode (Bozkurt et al., 2020).

Curriculum leaders have also had to grapple with the need to ensure that the curriculum remains relevant and engaging in an online environment (Tadinada et al., 2023). This has involved rethinking traditional pedagogical approaches and exploring innovative ways to engage students in online learning. For example, some curriculum leaders have incorporated elements of gamification into the curriculum to enhance student engagement and motivation.

According to Noh and Abdul Karim (2021), in the Malaysian context, curriculum leaders have played a crucial role in the successful implementation of Education 4.0. They have been instrumental in driving the shift toward a more learner-centered, technology-enabled and flexible curriculum that prepares students for the demands of the 21st-century workplace. Through their leadership, these institutions have been able to successfully navigate the challenges of this transition and position themselves as leaders in the field of online education (Sia and Abbas Adamu, 2020).

Digital curriculum leadership is a relatively new concept in higher education, but it is becoming increasingly important as institutions continue to integrate technology into their teaching and learning practices. Digital curriculum leadership involves the strategic use of technology to enhance the curriculum and improve student learning outcomes (Cox et al., 2019). They are responsible for guiding the integration of technology into the curriculum, ensuring that it is used effectively to enhance teaching and learning. This involves understanding the pedagogical potential of various technologies, training faculty in their use and evaluating their impact on student learning (Cox et al., 2019). They have been instrumental in guiding the rapid transition to online delivery modes, ensuring that faculty are adequately trained and supported in this transition and evaluating the effectiveness of online teaching and learning practices (Noh and Abdul Karim, 2021).

In the Malaysian context, digital curriculum leaders have been key drivers of the implementation of Education 4.0. They have guided the integration of technology into the curriculum, ensuring that it is used effectively to enhance teaching and learning and prepare students for the demands of the 21st-century workplace. Through their leadership, these institutions have been able to successfully navigate the challenges of this transition and position themselves as leaders in the field of online education (Sia and Abbas Adamu, 2020).

The importance of Education 4.0 in Malaysian higher education policy and development

Education 4.0 is a strategic initiative by the Malaysian government to transform the country’s higher education sector in response to the Fourth Industrial Revolution. It aims to equip students with the skills and knowledge they need to thrive in a rapidly changing, technology-driven world (Sia and Abbas Adamu, 2020). It is a key component of the Malaysian government’s higher education policy and development strategy. It is seen as a crucial driver of economic growth and social development, helping to prepare the country’s workforce for the jobs of the future and ensuring that Malaysia remains competitive on the global stage (Sia and Abbas Adamu, 2020). The implementation has involved a significant shift in teaching and learning practices. Institutions have been encouraged to adopt more learner-centered, technology-enabled and flexible approaches to education, with a strong
emphasis on developing students’ critical thinking, problem-solving and digital literacy skills (Law, 2021).

The successful implementation of Education 4.0 in Malaysia’s higher education sector has been largely due to the leadership of curriculum and digital curriculum leaders. Through their strategic vision and effective management of the change process, these leaders have been able to guide their institutions through the challenges of this transition and ensure that they are well-positioned to meet the demands of the 21st-century workplace (Noh and Abdul Karim, 2021).

McKinsey 7S model
In the 1980s, McKinsey consultants Robert Waterman and Tom Peter developed the model to guide institutions to achieve higher success levels (Cox et al., 2019). McKinsey 7S Model is a tool that analyzes organizational design by focusing on seven critical internal aspects, namely skills, style, staff, strategy, systems, structure and shared values. The seven areas of an organization are divided into two areas, the soft and hard. With strategy, structure and systems being categorized under “hard” elements are easier to manage than soft areas like style, staff, skills and shared values. However, the soft areas are the organization’s foundation and are essential in creating a sustainable and competitive advantage. The proponents of the model believe that change is inevitable, and there is a need to have a framework that guides organizations on the implementation process (Peters and Waterman, 1984). The critical point of the McKinsey 7S Model is that all the seven areas are interconnected, in which a change in one area requires a change in the rest for the model to function effectively. The adoption of online learning due to the COVID-19 pandemic was necessitated by the need to facilitate educational progress despite the economic and social challenges. For example, Jollyta et al. (2021) study showed that university service enhancements can be achieved by combining clustering techniques and the McKinsey framework during the COVID-19 pandemic.

The government decided to promote online education in Malaysia until the pandemic could be successfully suppressed, necessitating timely change management strategies (Sia and Abbas Adamu, 2020). An online learning strategy is a comprehensive and systematic plan to facilitate online learning and teaching by establishing supportable and sustainable frameworks. The process must critically identify the mission, vision, objectives and strategic plans to prevent the risk of failure (Ma and Siau, 2018). Education 4.0 aims at ensuring that nations successfully shift from industrial to a knowledge approach through a multidisciplinary orientation and technology integration. To achieve the vision, economies have to institute able structures capable of implementing the changes. In higher learning, individual institutions promoted understanding during the pandemic based on institutional and national educational requirements. Given that online learning has gained popularity among education systems, there is a need to structure institutions to successfully meet the learning needs of the 21st century (Zincir and Tunc, 2017). Institutional leaders need to focus on centralization to ensure that educators and learners understand the needs and implementation process. There is a need to invest in technological leadership by hiring and training adequate and competent chief information officers to timely resolve emerging technical issues and facilitate further developments.

The need to effectively implement Curriculum 4.0 during the pandemic requires the creation of a qualified pool of personnel. Although some educators might have previously engaged learners in online learning, institutional leaders need to focus on the industrial needs of the 21st century. In doing so, educators will adopt teaching strategies that promote the welfare of all learners. Additionally, Curriculum 4.0 advocates for a multidisciplinary approach toward learning, where educators have to facilitate the holistic development of learners. Institutions have to expose students to multiple disciplines to allow them to identify
their strengths. Consequently, traditional teaching styles will be affected, necessitating adopting impactful learning and teaching strategies. Educators need to have adequate leadership and teaching skills to facilitate learners’ long-term growth. Given the dying need to embrace online learning, educators should be leaders who implement curriculum needs and make self-interventions about learning needs (Zincir and Tunç, 2017). Consequently, there is a need to ensure that all parties involved in the implementation process have the autonomy to decide what is best for students based on educational goals. In doing so, learners, educators and other leaders will have a shared vision of aligning graduates with market needs.

*Kotter’s 8-Step change model*

Kotter’s 8-Step Change Model is among the best-known frameworks for change management due to its simplicity and straightforwardness. According to Kotter’s change model, it should comprise eight steps: creating a sense of urgency, building a guiding coalition, forming a strategic vision for change, communicating the vision, removing obstacles, creating short-term wins, consolidating improvements and anchoring the changes (Kang et al., 2020; Kotter and Cohen, 2012). The first four steps are essential in creating and developing the strength of the change initiative. It is also known as the de-freezing process of the existing culture. According to Edge et al. (2021), Kang et al. (2020) and Kotter and Cohen (2012), it is also important to identify possible obstacles that are likely to reduce the chances of success. Since steps five to seven focus on making the change happen, it is crucial to create short-term wins to motivate individuals in the direction of change while continuing to build on the change. The last step of Kotter’s change model is to anchor the changes in the corporate culture by using the process by refreezing the new culture, ensuring employees and stakeholders’ adaptation to the change. Kotter and Cohen (2012) mentioned that many necessary steps of planning and preparation are required to ensure successful changes in an organization.

In implementing change, there is a need to inform all involved stakeholders of the urgent need for change to ensure that they understand the future direction. The move is critical in getting all individuals affected by the shift prepared to embrace the positive aspects and be ready for the implementation. Communicating the need for change rallies the right talents and knowledge together, leading to a positive response toward the long-term achievement of desired goals (Whittaker and Pearson, 2021; Ma and Siau, 2018). Individuals feel compelled to embrace change when they critically understand the vision affecting the change. Leaders are responsible for designing the vision and mission of a change process and timely communicating it to the affected stakeholders. The interaction between the leaders and implementers makes it easy to identify potential challenges (Whittaker and Pearson, 2021). When leaders identify difficulties in advance, they adopt measures geared toward removing obstacles for a successful implementation. Once the change process has been actualized, leaders at all levels assess the minor success and identify improvement areas and immediate courses of action (Ma and Siau, 2018). Once the change becomes institutionalized and a routine to the implementers and managers, an institution should continually enrich the skills and knowledge to achieve long-term goals.

Kotter’s change model has been successfully used to guide higher learning institutions for technological and administrative purposes. Curriculum 4.0 desires to promote creativity and innovation through sound leadership strategies, making the model vital in the education sector (Edge et al., 2021; Kang et al., 2020). The adoption of Kotter’s change model in higher learning settings has been successful over the years, revealing that nations such as Malaysia can significantly cause positive changes in the education system. After the emergence of the COVID-19 pandemic, there was an urgent need for change, necessitating online learning and teaching (Whittaker and Pearson, 2021). For instance, Mirzaian and Franson’s (2021) and Whittaker and Pearson’s (2021) studies have shown the application of change management in
the organization to maintain continuity and stability during times of crisis, such as shifting to emergency remote teaching during the pandemic. Besides that, Wentworth et al. (2018) applied the model to replace a teaching evaluation system. In the process, they learned of the need to incorporate all elected faculty members within the shared governance. The scholars communicated the changes to the faculty members and even allowed them to input the desired process. In the end, the change process was successful, showing that Kotter’s model can be vital in facilitating online learning and achieving the long-term goals of Curriculum 4.0 (Edge et al., 2021; Kang et al., 2020). Consequently, higher learning institutions can successfully adopt online learning by following Kotter’s eight steps advocated for.

Methodology
This study was designed as a qualitative, comparative case study rooted in the phenomenological paradigm, aiming to explore the leadership and management strategies of two selected higher learning institutions in Malaysia as they transitioned to online learning delivery. As Williams and Moser (2019) suggest, qualitative research offers opportunities to uncover the reasons behind certain phenomena, codify the experiences of those involved and determine whether these experiences contribute to a conceptual understanding of the phenomenon.

The phenomenological paradigm in qualitative research is a philosophical approach that emphasizes the importance of personal perspective and interpretation. It is fundamentally concerned with understanding social and psychological phenomena from the perspectives of the individuals involved, focusing on their subjective experiences and interpretations of the world. In this study, the phenomenological paradigm was employed to gain an in-depth understanding of the experiences, perceptions and responses of the leaders and lecturers during the shift to online learning delivery.

The two private institutions in Malaysia were selected based on the purposive sampling technique, a non-probability sampling method that relies on the researcher’s judgement in choosing individuals who can provide valuable data. These institutions were chosen because they represent different aspects of the higher education sector in Malaysia, offering a comprehensive overview of leadership and management practices in this context. The choice of private institutions was motivated by their unique challenges and opportunities in the shift to online learning, which differ from those faced by public institutions.

The study participants, namely the program leaders and lecturers, were chosen due to their central role in the implementation of online learning. Their experiences, perceptions and responses provide valuable insights into the leadership and management practices during this shift. Including both program leaders and lecturers allows for a comparison of experiences and perspectives at different levels of the institution, adding depth and complexity to the findings.

Data collection methods employed in this study include interviews and document analysis. Documents related to training on the use of online tools and alternative assessment methods are being analyzed. The data analysis techniques used include thematic analysis for the interview data and content analysis for the documents. Thematic analysis involves identifying, analyzing and reporting patterns (themes) within the data, providing a flexible and useful research tool that can offer a rich, detailed yet complex account of data. Content analysis, on the other hand, is a research method used to identify patterns and themes in a set of data, involving coding and categorizing the data to understand trends and patterns (Bengtsson, 2016). These techniques were chosen for their ability to handle complex data and provide a detailed, nuanced understanding of the phenomena under study.

The comparative case study involved participants from two different private institutions in Malaysia. The purposive sampling technique was used to select the program leaders and
lecturers of a similar program from each institution. Each institution was represented by one program leader and two lecturers under their supervision. The inclusion of lecturers and program leaders in the sample was primarily to triangulate the interview data collected from the participants.

Findings
The COVID-19 pandemic has necessitated a significant shift in the educational landscape, with institutions worldwide transitioning from traditional face-to-face teaching to online learning. This study explores how leaders in the computer science programs of two institutions, referred to as Institution A and Institution B, managed this transition. Through a thematic analysis of data obtained from interviews and document analysis, this essay uncovers the strategies, challenges and outcomes of the change management process.

Theme 1: leadership and team coordination
The first theme that emerged from the analysis is leadership and team coordination. Effective leadership was a critical factor in managing the transition to online teaching in both institutions. The program leaders demonstrated their leadership skills by proactively informing their teams about the impending changes, discussing potential solutions and coordinating the efforts of their team members. For instance, in Institution A, the program leader stated, “We need to be proactive in this situation. I’m appointing three of our younger lecturers who are proficient in Blackboard to guide the rest of the team.” Similarly, in Institution B, the program leader suggested, “Let’s use our weekly meetings to share best practices and experiences. We can learn from each other and make this transition smoother.” These actions underscore the importance of effective leadership and team coordination in managing change, particularly in times of crisis.

Theme 2: training and skill development
The second theme is training and skill development. Both institutions emphasized the need for continuous learning and skill development to prepare lecturers for online teaching. In Institution A, the program leader informed the team, “I’ve liaised with the Academy Quality department. They will provide training on online tools for synchronous and asynchronous class delivery.” In contrast, in Institution B, the program leader acknowledged, “We are fortunate that our team is already well-versed in digital and computer technology. This will make our transition to online delivery much smoother.” This theme underscores the importance of continuous learning and skill development in adapting to change.

Theme 3: adaptation to new assessment methods
The third theme is adaptation to new assessment methods. The shift to online teaching necessitated changes in assessment methods. Both institutions adapted to this change by implementing higher-order thinking questions in their assessments. In Institution A, the program leader proposed, “We need to brainstorm possible assessment methods for online teaching. Let’s also organize training sessions on the use of the Respondus Lockdown Browser.” In Institution B, the program leader suggested, “We should prioritize student welfare during this transition. Let’s encourage voluntary interview sessions for subject evaluations.” This theme highlights the need for flexibility and innovation in adapting to new assessment methods.

Theme 4: resource management
The fourth theme is resource management. The program leaders had to manage resources effectively to facilitate online teaching. In Institution A, the program leader assured the team,
“I’ve liaised with the department director and the IT service department. They will help us source the necessary hardware and equipment for online teaching.” In Institution B, the program leader confirmed, “All lecturers are already equipped with laptops, and the IT department is prepared to lend out additional equipment if needed.” This theme emphasizes the importance of effective resource management in ensuring a smooth transition to online teaching.

Theme 5: work culture and environment
The final theme is work culture and environment. The shift to online teaching brought about changes in the work culture and environment. In Institution A, the program leader emphasized, “We need to demonstrate mutual understanding and flexibility in our working culture during this transition.” In Institution B, the program leader suggested, “Let’s use key performance indicators (KPIs) to measure our progress during this change. It will help us stay focused and motivated.” This theme highlights the need for a supportive work culture and environment in managing change.

Therefore, the thematic analysis reveals that effective leadership, continuous training and skill development, flexibility in adapting to new assessment methods, effective resource management and a supportive work culture and environment are crucial in managing the shift to online teaching. These themes, illustrated through the dialogues of the program leaders, provide valuable insights into the strategies and challenges of change management in the context of online teaching during a pandemic. They also underscore the importance of preparedness, adaptability and resilience in navigating change. As the educational landscape continues to evolve, these findings can inform future strategies for managing change in educational institutions.

Similarities and differences in the role of curriculum leaders
From the data findings presented above, several similarities and differences are being identified in the role of curriculum leaders between Institution A and Institution B. Some similarities had been indicated from the interviews and document analysis of both institutions. The most apparent similarity highlighted in the role of the two curriculum leaders shall be the management of the online learning shift. Both the program leaders stood up and brought together the team to discuss the unprecedented shift to online platforms delivery overnight during the announcement of complete lockdown in March 2020. Moreover, the changes to online assessments have brought forward the discussion between the program leaders and lecturers in the design and preparation of the assessment methods. The participants from both institutions claimed that they came up with the application of assessments that involved higher-order thinking skills of the students. Another similarity is the weekly updates and meetings held by the program leaders and lecturers on the students’ learning progress. In addition, program leaders and lecturers shared, brainstormed and exchanged ideas in improving the online teaching and learning approach during the weekly staff meeting sessions. Although the data indicated the similarities in the duties of the program leaders in preparing the curriculum teaching and learning approach, the program leader of Institution B displayed more emphasis on the students’ learning welfare than the program leader in Institution A. There are several reasons that cause the program leader of Institution A to skew away from prioritizing the students’ welfare.

This shall highlight some differences in the role of the program leaders in Institution A compared to Institution B. As mentioned by the program leaders and lecturers of Institution B, they are constantly being trained and attend upskilling programs provided by the teaching and learning unit of the institution in handling online delivery. The participants of Institution B claimed that they are knowledgeable, well-prepared and even provided with necessary hardware and equipment beforehand to handle any foreseeable conditions like the instant shifting to online
teaching and learning, which helped to provide a smooth transition during the change. Preparations from Institution B have certainly reflected tremendous differences compared to what the program leader of Institution A had to administer for the change to be successful. Due to the lack of preparation before, the program leader of Institution A had to liaise with other training departments and appoint internal instructors to provide coaching and tutoring to his subordinates in terms of how to use different teaching software and prepare for online delivery. Besides that, the program leader of Institution A had to comprehend the absence of proper equipment and hardware to deliver online learning activities. He declared that some lecturers still had to receive working laptops from the school even though he had suggested to the higher authority. With much effort, he had to supply his subordinates with some webcams for sharing purposes to deliver their synchronous classes. Overall, the data indicated that the program leader of Institution A had to divide the time for several different activities such as preparation of teaching equipment and training the lecturers, focusing on the teaching, learning and assessment activities and keeping track of students’ progression. In contrast, the program leader of Institution B could solely focus on the curriculum change.

Discussion
The findings of this study align with previous research and theories on change management and leadership in higher education. The role of leadership in managing change, particularly in the context of the shift to online learning due to the COVID-19 pandemic, has been highlighted in several studies (Edge et al., 2021; Mirzaian and Franson, 2021; Whittaker and Pearson, 2021). The findings of this study further underscore the importance of effective leadership in managing the transition to online teaching and learning.

The theme of leadership and team coordination aligns with the principles of the McKinsey 7S Model, which emphasizes the interconnectedness of various elements in an organization, including leadership and team coordination (Cox et al., 2019). The program leaders in both institutions demonstrated effective leadership by proactively informing their teams about the impending changes, discussing potential solutions and coordinating the efforts of their team members. This proactive approach to leadership aligns with the McKinsey 7S Model’s emphasis on the importance of leadership in managing change.

The theme of training and skill development is consistent with the McKinsey 7S Model’s focus on skills as a critical element in an organization’s design (Jollyta et al., 2021). Both institutions emphasized the need for continuous learning and skill development to prepare lecturers for online teaching. This focus on skill development aligns with the McKinsey 7S Model’s emphasis on the importance of skills in managing change.

The theme of adaptation to new assessment methods aligns with the principles of Kotter’s 8-Step Change Model, which emphasizes the importance of flexibility and innovation in managing change (Edge et al., 2021; Kang et al., 2020; Kotter and Cohen, 2012). Both institutions demonstrated flexibility in adapting to new assessment methods, which is consistent with Kotter’s emphasis on the importance of flexibility in managing change.

The theme of resource management aligns with the McKinsey 7S Model’s focus on systems as a critical element in an organization’s design. The program leaders had to manage resources effectively to facilitate online teaching, which is consistent with the McKinsey 7S Model’s emphasis on the importance of effective systems in managing change.

The theme of work culture and environment aligns with the principles of both the McKinsey 7S Model and Kotter’s 8-Step Change Model. Both models emphasize the importance of a supportive work culture and environment in managing change (Edge et al., 2021; Kang et al., 2020; Cox et al., 2019; Kotter and Cohen, 2012). The shift to online teaching brought about changes in the work culture and environment, highlighting the importance of a supportive work culture and environment in managing change.
The similarities and differences in the role of curriculum leaders between Institution A and Institution B provide valuable insights into the strategies and challenges of change management in the context of online teaching during a pandemic. These findings can inform future strategies for managing change in educational institutions.

Implications for research, practice and/or society
The findings of this study have significant implications for research, practice and theory, particularly in the context of leadership and curriculum change management at the higher education institute level.

Research implications
This study provides a rich, qualitative exploration of the strategies and challenges faced by program leaders in managing the shift to online teaching during the COVID-19 pandemic. Future research could build on these findings by conducting similar studies in other educational contexts or countries to compare and contrast the strategies and challenges faced by program leaders. Additionally, future research could also employ quantitative methods to measure the effectiveness of different strategies in managing the shift to online teaching. This could provide a more comprehensive understanding of the factors that contribute to successful change management in educational institutions.

Practice implications
The findings of this study provide valuable insights for program leaders, educators and policymakers in managing change in educational institutions. The themes identified in this study – effective leadership, continuous training and skill development, flexibility in adapting to new assessment methods, effective resource management and a supportive work culture and environment – can serve as a guide for program leaders in managing future changes in their institutions. Moreover, the strategies employed by the program leaders in this study, such as forming a powerful coalition, providing training on online tools and prioritizing student welfare, can be adopted or adapted by other program leaders in managing change.

Theory implications
This study contributes to the theoretical understanding of change management in educational institutions. It provides empirical evidence that supports the applicability of Kotter’s 8 Step Change Model and the McKinsey 7S model in managing the shift to online teaching. The findings of this study suggest that these models can serve as useful frameworks for program leaders in navigating change in their institutions. The results collected also point the possibility of constructing a more comprehensive model for more effective management, by combining and reconstructing the steps of these two models, since the institutions do not apply the exact linear steps of each of these models. Moreover, this study also highlights the interplay between different elements of change management, such as leadership, team coordination, training, skill development, assessment methods, resource management and work culture. This underscores the complexity of change management in educational institutions and the need for a holistic approach in managing change.

Conclusion
This comparative study has highlighted several imperative roles of the two curriculum leaders of the computer science program. The contrastive analysis elaborated on the previous
A section of this paper presented the respective role and management practices executed by the program leaders of the two different institutions, in line with Education 4.0 of the 21st century. Institution A’s program leader devoted his time to both the students’ welfare and progression and the subordinates’ training and foundation and equipment preparation for online deliveries. The program leader of Institution A personally invested in some equipment as a temporal solution to overcome the issue of hardware equipment shortage for online delivery. Furthermore, the program leader has appointed lecturers under his team to serve as an internal training team, apart from liaising with other training departments to guide the rest of the subordinates. As for the program leader of Institution B, she has primarily emphasized the welfare of the students as the lecturers under her supervision showed full competencies and readiness in online teaching and learning. Thus, no precipitated training or equipment preparations are required for the team.

Nevertheless, both program leaders showed their enthusiasm in pondering on the situations and solutions in delivering teaching and learning activities online. The weekly meetings on the students’ progress and staff discussion on improving online delivery have helped to lay out and achieve the goals and milestones of online delivery. All the team members are given the shared knowledge and teaching approach, pedagogy and alternative assessment methods, which serve as plausible solutions to the shift toward online learning. In short, it can be deduced that findings on the role of the program leaders and their management abilities have exhibited their professionalism and responsibilities in handling the change toward online delivery. The similarities and differences in role and management manifested from the findings have brought forth the possible implications and recommendations for future studies and practices.

References


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