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A Review on The Role of Technology Leadership in Teaching and Learning at Higher Learning Institutions in Post COVID-19

Ermeey Bin Abd Kadir[1*]

[1]Student Affairs Unit, Universiti Teknologi MARA, Cawangan Terengganu, 23000, Dungun, Terengganu, Malaysia.
Email: ermee461@uitm.edu.my

CORRESPONDING AUTHOR (*):
Ermeey Bin Abd Kadir
(ermee461@uitm.edu.my)

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ABSTRACT

When it comes to technology leadership (TL), this paper reviews and discusses how important it is for the community in higher learning institutions (HLI) to be technology leaders, especially in teaching and learning post-COVID-19. Leadership issues in higher learning institutions are looked at in institutional development, faculty development, and student management. TL person can play a role in these areas. Another topic is how technology changes how HLI is run post-COVID-19. It includes a description of how technology changes how the higher institution is run. Increasing public awareness of the necessity for TL managers and doctorate students should aim at administrative leadership positions for current policy formation, strategic planning, administration, assessment, and institutional development implementation; and a discussion of the necessary skills and tactics for becoming a technology leader. Attributes of TL professionals should do more than just run distribution units or provide essential services. A prerequisite to drive change in institutional growth, employ technology in the learning process, manage resources, and collaborate effectively with academics to plan education. TL should be able to collaborate with institutional leaders on policy and planning for the deployment of instructional technology, faculty development, and institutional development. The positions that allow TL able to do this. The selected TL persons have formal training in technology in education, instructional media, instructional technology, instructional systems, communication in education, and all their related areas. They have also had previous job experience., so they are called Technology Leadership professionals.

Contribution/Originality: This paper contributes on the knowledge of leadership post COVID-19. Detail reviews and discussion on the important of technology leadership role in higher learning institution is highlighted. The role should be able to collaborate with institutional leaders for the deployment of instructional technology, faculty, and institutional development.

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1. Introduction

The fundamental question is not if but how and by whom higher learning institutions will be reformed (Gómez Galán, 2020). The introduction of new technological innovations, fueled by the advancement of the computer and communication technologies popularity, has significantly altered the landscape of technology use in education. These shifts are particularly noticeable in higher learning institutions during and post Covid-19 (Alturki & Aldraiweesh, 2022; Cochrane & Stretton, 2022; Marks & Thomas, 2022; Pal, 2022). Currently, a considerable transition how teaching and learning are full steam ahead as colleges and universities adapt to internal and external changes (Ahmed & Opoku, 2022; Crawford & Cifuentes-Faura, 2022; Salam et al., 2022) and the requirements of a quickly changing community (Côté et al. 2020) Several major innovations in higher learning institutions include: requiring every student to have a laptop computer, incentivising lecturers to incorporate technology into their classes, campus wireless networks, and multimedia-equipped classrooms. While technology breakthroughs are not new, the velocity of change is hastening the transition to a knowledge-driven future for which many schools and institutions are unprepared (Huang et al., 2022; Maritz et al., 2022; Udeogalanya, 2022; Vineeth et al., 2022).

Rapid technology advancements that we are experiencing all around us today are influencing higher learning institutions and radically altering society's educational demands (Broo et al., 2022; Sayaf et al., 2022). Initial opposition to the adoption of new technology in higher learning institutions appears to be waning. The implications of the changes caused by HLI's technical innovations are becoming increasingly visible. Change is not a new occurrence; most businesses encounter it regularly. Change is unavoidable in a higher learning institution. The primary question is not if but how and by whom higher learning institutions will be reformed (Xiong et al., 2022). Things cause part of the change outside of the person (Waligóra & Górski, 2022). As Rand-Giovannetti et al. (2022) and Simms (2022) have emphasised, HLI education is a complicated and disorderly social structure. The complexity of HLI education has influenced how and approach the new invention was adopted.

Similarly, the effect of technology advancement has altered the way HLI operates. Innovations have touched several areas, including faculty development in using technology in the classroom, creative learning, and technology management in higher learning institutions. A policymaker in higher learning institutions attempts to manage the change process as effectively as possible.

Faculty play a critical role in adopting educational technology, as the changes brought about by such innovations influence both students' learning and the lecturer's teaching. Assisting lecturers with technology integration has always been one of the most important issues for higher education institutions when it comes to information technology (Al-Maskari et al., 2022; Porras, 2022). Such as audiovisual services and instructional media centres that help faculty do their jobs better in the classroom, faculty development centres, and centres for teaching excellence also change their structure and technology to meet campus needs more focused on educational technology. Managers in these divisions are confronted with a twofold challenge: managing a dynamic transformation process while also managing educational technology innovation (Nurmamatovich, 2022; Zhang et al., 2022). Mahlangu and Moloto (2022) and Law (2022) say that educational leaders must successfully comprehend the change process to lead and manage the current transition. To support lecturers and administrators in this

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process, a Technology leader can function as a catalyst for adopting and using technology to enhance teaching practices and learning processes.

2. Technology Leadership in practices

Dwivedi (2022) state in the research on the responsibilities of technology leader in the early year 2022 if there would be many in this profession who will ascend to leadership roles. According to Nworie (2022) and Shohel et al. (2022), many colleges and universities are looking for people who know how to use educational technology in their jobs. Most of those jobs are for teaching technologists, but a few are for people who want to be in charge of higher-level technology jobs. There might be a person who is the director, dean, or vice president of an academic computer unit. Kanafina (2022) says that teaching and learning technologists are progressively being employed in higher learning institutions, and Love and Maiseroulle (2022) classified several current teaching and learning technologist job listings in recent research. According to Azimovna and Ilkhomovna (2022), managerial roles in higher learning institutions are being marketed. The part is unprecedented and may be linked to the technological revolution. However, whether these roles, particularly those for senior managers, directors, deans, and assistant vice presidents, are filled by TL experts is a critical topic.

2.1. Current leadership

Many master's and doctorate-level computer technology graduates appear to accept jobs as instructional designers or faculty teaching roles at colleges and universities with titles linked to their fields of study (Nworie, 2022). As a result, many stayed in their "traditional" jobs throughout the early phases of the technology revolution rather than taking on responsibilities to promote or influence innovation adoption in HLI. The conventional job is not to argue that their places are insufficient for leadership; somewhat, they may be limited in their power to guide educational policy concerns and promote change. Current TL employment can serve as a stepping stone to higher-level administrative and policymaking positions, which provide a platform for a more meaningful effect on higher education change. The technological revolution has generated a demand for teaching and learning technologists in nearly every area of the economy, including higher learning institutions. According to Dickerson (2022), "in reality, we are seeing strong indications of administrative acknowledgement (with) position announcements for a director or dean to oversee a composite of campus-wide educational technology programmed." That is fantastic news for those who work in this industry.

Furthermore, teaching and learning technologists are being employed in higher learning institutions at a steady rate; yet, the duties, tasks, and credentials necessary for these jobs are not well defined. The same question persists in these roles held by certified TL. It will be intriguing to watch if these positions are filled by technology-related graduates or academic members from other areas while they are advertised. Anecdotal information reveals that many of those in these jobs lack an academic background in technology related to teaching and learning. Faculty from different disciplines appear to dominate administrative leadership and management jobs at colleges and universities and in faculty development areas. Policies and decisions involving integrating technology into the classroom, assisting faculty in improving their teaching, and the instructional development process across all academic disciplines in institutions of higher learning are not made by individuals with a background in related technology.

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A review of faculty and instructional development programmes was conducted in the higher learning institution, Chan and Luk (2022) observed that leaders in certain fields seem to come from among the faculty, regardless of their main academic field or what they have done in the past. The study backs up the idea that professors who are experts in their fields take on leadership roles at universities. They have little or no training in leadership, technology, or how to teach and learn (Amitai & Van Houtte, 2022; He et al., 2022). Most have no formal training as educational technologists. As a result, faculty nominations to top posts may be the product of faculty and higher education administrators' long-held perceptions about the functions. Whereas academics have retained a prominent position as academic leaders, computer and information technology persons deliver services to assist instruction (Dwivedi, 2022). There appears to be little opportunity for professors to negotiate or share duties. Higher education administrators do not appear to have showed a sufficient awareness of the roles or capabilities TL person.

2.2. The Need for Leadership

At any level, a TL person in higher learning institutions plays a vital role in guiding faculty innovations, cooperatively with administrators and academics, and taking the lead in the push to transform instructional technology in HLI. While a few TL persons have moved to senior positions in colleges and universities, established institutional rules and practices particular to higher education create hurdles to overcome (Cozza & Parnther (2022). As the transition develops, faculty will require training in essential skills for teaching and learning and technology, assistance throughout the development process and consultation on the proper integration of media and information technologies.

Evaluating HLI's instructional development, educational technology, faculty development, and media services programmes reveals a need for programme leadership and management. A problem has been identified by Bilal et al. (2019). The research identifies three elements that explain why teaching and learning technology has not realised its full promise. First, there is a lack of people who can lead and moderate the people, groups, and interests who have a stake in the teaching and learning technology sector. The research also stated that a significant managerial leadership chasm has yet to be crossed. Management is one of five areas in the instructional technology professionals, according to A'mar and Eleyan (2022). According to Al-Mamary (2022), it is critical to stay up with such changes and implement cutting-edge technology in all aspects of life due to speedy technological advances. Recent research by Nicola(2020) stated that a study deficit addresses effective leadership of academic style through social learning and overcoming the challenges they must face. Wittenstein (2022) also found similar results where strong leadership was a significant feature in all companies where technology was successfully employed for channelling decisions.

A well-managed instructional development process and the technology used in instruction and faculty training will lead to better use and better teaching and learning processes for students and faculty. Management implies leadership, and because of their location in leadership roles, TL persons are favourably positioned as change agents, particularly in the use of technology in education. Teaching and learning technologists can use technology to make a big difference in how schools work because they know how to change the way schools work, use instructional systems, and use learning technologies. According to Prasetyo et al. (2022), technology and educational reform or restructuring are "inextricably" intertwined, and just installing technology in schools cannot result in educational change. The required adjustments cannot occur in isolation or by adopting

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new technology. Change is best accomplished from inside the higher learning institution sector. As new technologies are introduced, there is a demand in education for systemic thinking. In HLI, introducing innovation and managing change requires individuals who have established credibility within the institution, understand the quirks of academic environments, support the role and use of technology, respect the instructional design process, and possess change management skills.

The emphasis in this article is on leadership. The significance of managerial duties and other tasks played by TL persons is very important to the success of the learning project. Management and leadership seem to be the same thing, but many people say that leadership gives a wider perspective, fosters a holistic view of issues, broadens vision, and encourages looking at issues from a systemic point of view. In contrast, management does the same and provides enhanced chances for change promoters and agents working for the organisation's benefit and those that will appeal to organisational stakeholders. Management, while equally excellent, tends to focus on minutiae and compartmentalise in their work surroundings. People are influenced and motivated by the leader's inspiring examples, whether they see them directly or indirectly. Leaders are supposed to change an organisation's culture by coming up with new ideas. Sharma and Jain, (2022) say that leaders' success is based on their ability to understand and change workplace cultural norms and values. When followed, the leader's path benefits the business and, in this case, higher learning institution.

2.3. Characteristics of a TL person

Because of their expertise and experience, it is believed that TL person can collaborate successfully with faculty to improve instruction in higher education and manage educational technology transformation in higher education. When it comes to initiating and executing the change in higher education, TL persons can serve as change sponsors, change agents, and change champions. They can co-exist as collaborators in the search for instructional development and technology integration in education, rather than being perceived as invading the faculty area of instructional delivery. To handle this issue more effectively, the necessary measures to prepare responsibilities, functions, and TL people's abilities in instructional design and change management. As students, they learn how to make instruction and performance better with the help of technology and media. Furthermore, how to teach and learn with help from media and design an educational system. Change management, organisational product, and management courses are added to specific curricula. These abilities enable them to assess problems systemically and comprehensively and deliver suitable responses.

3. The Technologist as a Change Promoter in Higher Learning Institution

Colleges and universities should hire a technologist as a change promoter to help them manage or implement successful technological change projects. People who know the institution seem to be looking at the same thing. Edem Adzovie and Jibril (2022) say that the best way for HLI is to have a person in charge of all educational technology issues, probably as part of a larger unit for teaching and learning. This job will work with the information technology group and other on-campus groups to manage instructional technology, run faculty training, and design better instruction for students. According to Amann et al. (2022), leadership is the bedrock of change. Arici and Uysal (2022) assert that technological leadership is inextricably tied to innovation, requiring special attention. While most leadership roles entail dealing with change, technology leadership

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is nearly entirely focused on new processes, rules, and circumstances. The person thought about the possible benefits of good technology leadership, like better student achievement, better attendance and less attrition, better vocational preparation for students, more efficient administrative operations, and less academician burnout and turnover. A good thing to add to the list is more lecturers' support and training. For educational technology leadership, having a clear picture of how the TL person will apply innovation in a way that will make the most difference for the institution is a must. The implication for the person who is the TL person is that only when they are inspired and move into leadership roles can they have the power to help the higher learning institution adopt new technologies more quickly.

3.1. Considering a Career in Leadership

It is in the best interests to aim for leadership roles when they become available. A recent finding stated that recent job postings in HLI (Batırlık et al., 2022; Razani, 2022) that leadership jobs are increasingly becoming available. Martinez's, (2022) research elaborated that many technology experts assess and create systems for students but have very little experience building for themselves.

Being in the correct leadership position will allow the TL person to operate as change agents and advocates and as change promoters. Being a promoter has the advantage of initiating change. A change promoter is a person or organisation with power who legitimises a change (Harris, 2022). Furthermore, a change agent is a person or organisation enacting desired change. In HLI, examples include the chancellor, vice president, dean, and program/division director.

TL people appear to have played the roles of change advocates and targets for a long time. Some people teach and inspire academics and other people to use technology as advocates. As targets, they move or change their positions when there is a new wave of technology for education. They have lacked the authority to start, plan, implement, and analyse the technological change in these positions' teaching and learning environment, partially because they do not play the sponsor role in the change process.

A clear vision of how technology in teaching and learning innovation will be implemented to achieve the desired changes must be for the institution's greatest benefit. Change is a critical criterion for technology leadership. Agreeing to Jamali et al. (2022), the capacity of leaders to understand and affect corporate cultures determines their performance. A leader's responsibility entails more than just resource management. In contrast to a manager, who may operate in compartments, a leader is more holistic and views challenges from a systemic viewpoint. Leaders should influence an organisation's culture by developing fresh visions for organisational progress appealing to essential stakeholders. The inference is that when a TL person approaches this leadership level, they will be able to wield the necessary influence to enable the effective deployment of educational technology systems in higher education.

3.2. Transitioning to Leadership

3.2.1. Consequences

The dual function of the TL in instructional design and leadership implies additional obligations and necessitates the development of new skill sets. (e.g., consulting, project

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management, and change management) which may not be included in the technology course curriculum and new knowledge areas not generally linked with teaching and learning technology (e.g., administrative work in higher education, educational theory, and educational policy). With the proper preparations, the person may have a significant impact on transforming educational environments through technology.

Acquiring leadership roles when they become available requires preparation for the TL person. Although the fundamental abilities are because of their training, they must regularly refresh their skills, particularly in management and leadership, to compete for vacant opportunities. Given the ever-changing dynamics of today's work world, including higher learning institutions, the necessity for ongoing skill updating and learning of new abilities is critical (Hamlin, 2022). The skill requires a behavioural shift for persons aspiring to leadership or administration roles in TL, moving away from traditional instructional designer skills and competencies and acquiring talents that will propel them to leadership positions. Both active TLs and TL programme graduates must be aware of the requirements for the new leadership roles and prepare accordingly. It should be emphasised that progressing to leadership positions will provide obstacles and roadblocks.

3.2.2. Advantages

When TL person advances to leadership positions, they gain many benefits. The institution, teachers and students will all benefit from this collaboration. The methods that are anticipated to be implemented will help the individual institutions progress their missions. We will address these issues from a comprehensive and holistic approach to technology adoption, faculty development concerns, and the production of instructional materials. Individuals who grasp the implications of policies in the field and the repercussions of faulty policies will be involved in policy issues in these areas. The candidate will assist in creating greater linkages among campus groups interested in using technology in teaching and learning.

4. Recommendations: Preparing for leadership in teaching and learning technologies

Before taking on any leadership job, the TL person must be appropriately equipped with diverse interpersonal skills and management and leadership competencies (Kwiotkowska et al., 2022). Outside of the typical limitations of educational technology, topics in organisational transformation and theory, higher learning institution administration, educational theory and policy, workforce education, and management science and approach should be included in academic or professional preparations.

4.1. TL course

Students who want to meet the changing expectations can enrol on educational technology courses. The courses must emphasise skills that will enable graduates to take on leadership responsibilities and perform better in higher education. A track may need to be developed in addition to the criteria for preparing students for faculty posts. Such courses need to be designed to assist students in developing the necessary abilities in leadership, management, and knowledge of organisational structures (Shrader et al., 2022), change management, educational system design, and project management. According to Nworie (2022), Individuals interested in professions in higher education

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should be technologically competent and interpersonally skilled. These might be met by cooperating with other departments/programs to provide appropriate courses or conduct workshops and seminars. These will not be included at the expense of the programmes' primary instructional development objective. Instead, it will be in addition to all of the competencies traditionally associated with educational technology programmes.

4.2. TL Undergraduates

Undergraduates in TL modules who want to be in leadership positions after graduation can start preparing early for their degrees. Awareness of existing roles, job descriptions, and entrance criteria and attending appropriate courses. They must possess the specific abilities required of teaching and learning technologists. It will assist them in staying current with trends and positioning themselves for desired jobs.

4.3. TL Person

Technology leadership will result in a broadening of the duties of a person. It will shift from service support positions to responsibilities with a comprehensive approach to instructional and technical problems. TL person will need to be prepared to deal with the issues successfully. Being active in professional growth, pursuing a higher degree if required, having a vision, supporting current superiors, developing a strategy for the new job path, and staying current in the field are two techniques to prepare.

5. Conclusion

Due to technological advancements and other related impacts, such as the COVID-19 pandemic, each college and university has a distinct culture that identifies or distinguishes them. Similarly, units inside the corporation referred to as subsystems, display different cultures because of their vocation. Because higher learning institutions are such a complex social system with several interrelated subsystems, every change brought about by new educational technology will impact elsewhere. Complex processes necessitate the involvement of experts who are well-versed in the underlying systems and are capable of providing a complete intervention. We believe that a TL person can substantially contribute to higher learning institutions in this transition period.

Issues with technology use are becoming more common as more organisations make large expenditures on information technology. Many did not have any guidelines or instructional technology plans when universities began using new technologies due to the pandemic. When new media first emerged, many institutions appeared to lack a strategy to use new technology in education. The lesson to be learnt is that just having a variety of technology does not equate to an excellent education. Similarly, utilising technology as a supplement or afterthought may not result in the desired learning outcomes. Having a good technology plan and working with faculty to adapt courses to meet the new delivery methods would benefit the teaching and learning process and advance the institution's aim under the guidance of specialists. With the right person in place, colleges and universities will be well on their way to realising the promise of technology in this expanding era of education, the post-COVID-19.

Increased engagement of TL in teaching and learning technology and other service areas would benefit higher learning institutions as it works to improve faculty teaching,

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technological capabilities, and, as a result, student learning. In light of current developments, technology executives need to be prepared to deal with individuals from the sector making their way into leadership and management positions. The practitioners gradually rise through the ranks, taking on leadership roles in various departments.

It is intended that this article would raise the attention of technologists, teachers, and students to the importance of aspiring to leadership positions in higher education. As a result, graduates programmed in teaching and learning technology may establish institutional leadership and administration specialities. An increase in the number of technology trained administrators and academics interested in leadership at colleges and universities would benefit the discipline. Whether or whether those persons are at the helm of the technological revolution of higher education, it will proceed. College and university stakeholders will gain if graduates embrace crucial leadership roles that have a lasting influence on the next generation of college students and academics.

Many job postings for instructional technologist positions tend to highlight hardware and software capabilities more than instructional design skills, and in some cases, no instructional design skills are specified. The reason is most likely due to a lack of awareness of the duties and tasks of the experts. The sets of skills and abilities they contribute. The experts in leadership positions can assist in addressing such issues and working toward the standardisation of job descriptions for technology leadership professions. Technology leadership will also assist in searching for and selecting qualified people to satisfy the institutions' demands.

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