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Knowledge Management in E-learning Practices

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Abstract

Electronic learning (E-learning) is a media or facilitator of the learning process within an organization. It is used as a competency development process for the employee in organization. Creating an e-learning in organization requires a management of knowledge that circulates within the organization. Therefore, every organization must have management of existing knowledge, which is referred to as knowledge management (KM). Therefore, it is a set of principles, processes, organizational structures, and technological applications that help people share and leverage their knowledge to be matched with business goals This has puts focus and responsibility on individuals such as knowledge employees, and on holistic KM. KM is foundational to the sharing and application of knowledge, underscoring its vital role in contemporary business sustainability. Leveraging KM principles, organizations can systematically capture, structure, and reuse knowledge assets, thereby enriching learning experiences within e-learning platforms. Consequently, e-learning emerges as a vital tool for KM, fostering a culture of learning and bolstering an organization's competitive edge."

Keywords: Knowledge, Knowledge Management, E-Learning, Knowledge Economy, System

Introduction

Malaysia's knowledge economy refers to an economic model that emphasizes the generation, dissemination, and application of knowledge as key drivers of economic growth and development. This transition towards a knowledge-based economy aims to harness intellectual capital, innovation, and technology to enhance productivity, competitiveness, and sustainable development across various sectors. One prominent citation that illustrates Malaysia's commitment to developing a knowledge economy is the National Higher Education Strategic Plan (PSPTN) 2015-2025. This strategic plan outlines Malaysia's vision to transform its higher education sector to be more globally competitive and aligned with the demands of a knowledge-based economy. It emphasizes initiatives such as increasing research and development (R&D) investments, fostering industry-academia collaboration, enhancing the quality of education and research, and promoting innovation and entrepreneurship. Additionally, Malaysia's Economic Transformation Programme (ETP) and the subsequent National Transformation Programme (NTP) emphasize the importance of transitioning towards a knowledge-based economy to drive Malaysia's economic growth and achieve high-

income status. These strategic documents reflect Malaysia's concerted efforts to build a knowledge economy by investing in human capital development, research and innovation, technology adoption, and creating an enabling ecosystem for knowledge creation and dissemination.

In the new millennium, the concern of the Malaysian government in developing the nation based on knowledge economy has become more apparent. Furthermore, the government has to focus on development and management of human capital (Laili & Khairul, 2012; Suffian, 2014). Therefore, the government and organizations are urged to develop a more knowledgeable organization, especially in terms of managing resources and providing services to the public. This knowledge is valuable since it leads to the effective and timely development of products based on in-depth knowledge of customer needs and that the collective value of knowledge assets increases with the sharing the knowledge (Davenport & Prusak, 1998). The process of learning in the organization today is a very important. Successful organizations are organizations that can capture the value of learning from all the knowledge that exists within the organization. The organization can capture all the knowledge that exists in it, by making a management of knowledge / knowledge itself. Marr and Schiuma (2001) said, it is very critical for management to better understand how to combine and deploy knowledge resources in order to improve the most critical company's performance. Thus, it leads to the concept of Knowledge Management (KM). KM helps organizations in emphasizing the spirit of learning in organizational culture. For that KM is made as the foundation to assist the learning process for every employee within the organization. The process of applying KM is very helpful in realizing the learning process that is formed through an e-learning model. E-learning enables every employee in the organization to make learning as a culture in it. Before knowledge is formed into material learning materials to be disseminated and required in an organization (e-learning), it is necessary to manage such knowledge first.

Knowledge Management (KM) plays a critical role in enhancing e-learning practices, offering numerous benefits that improve the quality, accessibility, and efficiency of educational experience. KM ensures the development of a centralized repository of knowledge resources. This repository allows learners to easily access a wide range of educational materials, such as lectures, reading materials, case studies, and multimedia content. Centralized access to information reduces redundancy and ensures that learners and educators can quickly find relevant resources. KM facilitates collaboration among students and educators. By creating a platform where knowledge can be shared and discussed, it promotes collaborative learning. Discussion forums, collaborative projects, and peer reviews are enhanced through effective KM practices, allowing learners to benefit from diverse perspectives and collective expertise.

Through effective KM, e-learning platforms can offer personalized learning experiences. KM systems can track individual learner's progress, preferences, and performance, enabling the creation of customized learning paths that cater to each student's unique needs and learning style. KM aids in the efficient organization and retrieval of information. By using KM tools like content management systems, search engines, and indexing techniques, learners can quickly find the information they need without wasting time. This efficiency is crucial in e-learning, where the ease of information retrieval can significantly impact the learning experience. KM ensures that valuable knowledge is retained and transferred effectively within an educational institution. This is particularly important in scenarios where educators or subject matter experts leave the organization. KM systems capture their knowledge,

making it accessible to future learners and educators, thus preserving institutional knowledge.

KM supports the continuous improvement of e-learning content and practices. By collecting and analyzing feedback from learners and educators, KM systems help identify gaps in knowledge, areas for improvement, and opportunities for new content development. This feedback loop ensures that the e-learning environment remains dynamic and responsive to the needs of its users. KM makes it easier to scale E-learning programs. As the number of learners grows, KM systems can handle the increasing volume of information and users without compromising the quality of education. Scalability is essential for institutions looking to expand their reach and impact through online education. KM supports lifelong learning by providing a framework for continuous knowledge acquisition and skill development. E-learning platforms can offer ongoing access to educational resources and professional development opportunities, encouraging learners to engage in lifelong learning practices.

KM ensures that e-learning content complies with educational standards and regulations. By maintaining accurate records and documentation, KM helps institutions meet accreditation requirements and adhere to industry standards, ensuring the credibility and quality of their educational offerings. KM is integral to the success of E-learning practices. It enhances the organization, accessibility, and quality of educational content, supports collaboration and personalized learning, and ensures the continuous improvement and scalability of e-learning programs. Implementing effective KM practices in e-learning environments can lead to more engaging, efficient, and impactful educational experiences for learners and educators alike.

Understanding e-Learning

E-learning is a form of education that utilizes electronic media ('e') to support the teaching and learning process, encompassing all learning activities, whether conducted individually or in groups, synchronously or asynchronously. According to Naidu (2003), e-learning includes all educational activities carried out by individuals or groups, either online or offline, and synchronously or asynchronously, using networked or standalone computers and other electronic devices. The electronic media mentioned here refers to technology-based media. Using electronic media to support the learning process means that learners do not need to be face-to-face. Instead, computer media and learning materials are delivered through electronic means. Additionally, e-learning facilitates collaboration among students or between students and teachers, who act as mediators in the learning process, allowing them to form learning groups. This can be implemented regardless of location and time constraints. Below are some forms of activities conducted in e-learning (Naidu, 2003).

The traditional learning process is gradually adapting to the currents of borderless technological advancement in today's world. The revolution in computer-based learning and applications, along with the use of computers, has progressed rapidly day by day, eventually leading to the introduction of the technical-based concept of e-learning to effectively provide educational knowledge to students. With the current developments, contemporary workers opt to continue their studies using online learning methods or e-learning. It is undeniable that this method is widely utilized by distance learners. However, many are still unaware of how to start because online learning contrasts with face-to-face meetings. Teaching and learning online, or e-learning, is not unfamiliar in universities, especially through the virtual learning, which is closely aligned with today's generation, along with heutagogy (self-directed learning) and peer-oriented learning. Online education provides students with the flexibility of not

needing to physically attend classes but instead fully utilizing online learning. Some institutions also adopt a "blended mode" approach, combining online and face-to-face instruction (Littlejohn et. al., 2021). Certain educational institutions require attendance at least once a month, while others provide freedom for students to choose whether to attend or not. With this method of online education or e-learning, students have much freedom in determining their learning schedule according to their individual time availability. Unlike traditional classes where lecturers and students need to be physically present, online classes utilize the latest technology applications to conduct teaching and communication between students and lecturers, even if they are in different locations. The teaching and learning methods will utilize any online-accessible application to facilitate students and lecturers. Most institutions provide learning materials accessible through the internet, allowing students to access necessary references for learning both in and out of class.

The Covid-19 pandemic has indeed had a significant impact on socioeconomics as well as the field of education worldwide (Rampal, 2020; Nambiar, 2020). Therefore e-learning has become something familiar to us since the Covid-19 pandemic struck the world (Finlay, Tinnion, & Simpson, 2022). This situation has drastically forced teachers and students to change their Teaching and Facilitation methods by conducting them online. The process of delivering knowledge carried out through digital platforms such as Google Meet, Zoom, WhatsApp, Telegram, and others. There are numerous platforms available for conducting online learning, but implementing it is not as easy as we might think, as there are constraints or challenges associated with online learning that need to be addressed (Ejdys, 2021). Some of the significant challenges include the lack of devices for learning, an unconducive environment, the level of technology usage skills among teachers, and students' attitudes during e-learning sessions.

Individualized self-paced e-learning online

Individualized self-paced e-learning online *is a* situation where an individual conducts a learning process by accessing the content resources (content resources) through intranets or the internet. Typical of this first form of activity is an example where a student learns through internet media or uses the internet as a source of data / resources.

Individualized self-paced e-learning offline

Individualized self-paced e-learning offline is *a* situation in which an individual performs a browsing activity by accessing the database of intended material or offline learning material (not connected to intranet or internet media). Typical forms of this activity are using materials that are already stored in hard disk media, cd / dvd, etc.

Group-based e-learning synchronously

Group-based e-learning synchronously *l*eads to situations where a group is composed of students and works in real-time learning through intranet and internet media. In this typical, it also includes text-based event conferencing and one or two-way communication by using audio & video conferencing. Examples of these activities are two or more students who collaborate through real-time chat or audio & video conferencing.

Knowledge Management and E-Learning

Knowledge is often perceived as a wealth of information, but a more precise definition includes know-how and know-why. A useful metaphor is baking a cake. Analyzing the particles

of the molecules provides data, which isn't very useful for most purposes—you might not even recognize it as a cake. A list of pastry ingredients is information, more useful because it gives context, enabling an experienced chef to potentially make a cake. The recipe represents explicit knowledge, detailing how to bake a cake. However, even with a recipe, an inexperienced chef might struggle to make a good cake. In contrast, a person with relevant knowledge, experience, and expertise—tacit knowledge that isn't easily documented—can reliably produce excellent cakes from recipes (Gurteen, 1999). It's important to note that productive knowledge requires information. Knowing how to make a cake isn't enough; you need a list of ingredients. Additionally, determining what cakes to make requires information on consumer preferences (Azizi, et al., 2023).

Polanyi (1967) defines explicit knowledge as knowledge that can be expressed in numbers and words. This type of knowledge is easily shared formally and systematically through data, specifications, manuals, and so on. In contrast, tacit knowledge includes deep understanding, intuition, and hunches, which are often difficult to formalize and share. Explicit knowledge is frequently transferred among employees through reports, financial budgets, policies, etc. Tacit knowledge, however, needs to be converted into explicit knowledge to be shared effectively. This conversion must be managed carefully to retain the essential aspects of the knowledge. Nonaka (1994) identified four methods to transform tacit knowledge into explicit knowledge: socialization, externalization, internalization, and combination.

Socialization

Socialization is the sharing of hidden knowledge between individuals, usually through joint activities, not verbal or written instructions. This is one of the main teaching methods that underlie the concept of mentor-students. Both allow newcomers to see how others think (Becerra-Fernandez & Sabherwal, 2001).

Externalization

Externalization involves the expression of hidden knowledge and its conversion to a comprehensive form that is easier to understand (Becerra-Fernandez & Sabherwal, 2001). Externalization involves techniques that help express ideas or images as concepts of words or visuals (Nonaka, 1994). For example, conventional learning methodologies require externalization of the professor's knowledge as an initial step in student learning (Raelin, 1997).

Internalization

Internalization is the conversion from explicit knowledge to hidden knowledge. The condition is that individuals must recognize relevant knowledge in the organization's explicit knowledge, embrace it as their own, and combine it in their basic knowledge. This is the theory of learning behind "on-the-job-training" and "understanding by doing".

The combination

Combination involves converting explicit knowledge into a more complex set of explicit knowledge. Focusing on communication, diffusion, integration, and systemization of knowledge, combinations contribute to knowledge at the group level as well as at the organizational level (Nonaka, 1994).

In building a KM we need a strategy that can achieve to capture knowledge. There are three aspects that are important in building a strategy for KM:

People
The role of people here is very important to contribute as a producer of knowledge itself and disseminator of knowledge. If the human aspect is not considered properly, which means moving the human aspect as the main supporter, then KM will fail in practice. This is because the purpose of KM itself will not succeed without the support of human factors (humans are the knowledge itself).

Process
Process is a matter that is related to the process of capturing the values of knowledge into a media and then distributing it to each individual for reuse, "Transfer of knowledge".

Technology
Technology becomes a tool in a sufficient element of the people and processes to run correctly. The technological aspect is an enabler of KM, such as a tool to regulate incoming knowledge, store the knowledge incorporated into a KM system (KMS). If the technology aspect is only independent, the success of a KM will not be achieved, because the technological element is only a supporting tool for the process of transmitting knowledge and supporting dissemination and knowledge from the human element (people). This means that the technological elements cannot stand alone without the other two elements.

Knowledge management (KM) and e-learning are interconnected concepts that both focus on the creation, dissemination, and utilization of knowledge. While KM encompasses a broad range of practices aimed at efficiently managing an organization's intellectual assets, e-learning specifically refers to the use of electronic media and information technology to facilitate learning processes (Phan, 2023). The integration of KM and e-learning can lead to significant enhancements in how organizations and educational institutions capture, store, and disseminate knowledge. Organizations can integrate KM systems with e-learning platforms to enhance employee training programs. For instance, new employees can access an e-learning module that includes both formal training materials and informal knowledge resources, such as best practices and expert advice, stored in the KM system. Universities and schools can utilize KM to manage academic content and research findings, making them available to students and faculty through e-learning platforms (Zhang, & Chen, 2018). This approach not only enriches the learning experience but also ensures that the latest knowledge and research are incorporated into the curriculum. Professionals can engage in e-learning courses that draw on KM resources, allowing them to stay updated with the latest developments in their field. This combination supports lifelong learning and helps individuals maintain their professional competence.

From the elements of the strategy above, if it is associated with e-learning, each of these elements has similarities to the application of e-learning itself within an organization (Martin et al., 2019). In an organization that wants to move the learning process through electronic media (e-learning), an effort is needed in empowering the learning process within the organization. The learning process must be made as effective as possible so that all functional areas within the organization can contribute to the success of the flow of knowledge. Then,

the creation of a learning organization atmosphere must be implemented by the organization so that each employee can acquire existing knowledge and improve their competencies.

To start a learning process, it must begin with people. The human element here means that organizations must be able to impose a new behavior within the organization. In general, the employees in an organization are already in a zone called the "comfort zone". This safe zone, is very influential on the culture of employees in the organization, meaning that every employee only performs its functions in the day-to-day operational activities of the organization and so on without having an intuition to desire more progress / change from one condition to another. They only know what their current job is without requires them to improve their competence to improve organizational performance and improve it in an increasingly dynamic environment today. However, the safe zone is an obstacle in every organization to develop the learning process. Therefore, KM is created by starting from the first aspect, namely people. Cultural and behavioral changes in organizations must be driven vigorously so that each learning process can be carried out in line with the wishes of the organization. Changes in the mindset of each employee in the organization are very important, in response to the current dynamic changes in the environment. This understanding must be obtained by each employee so that they can move from a "safe zone" to a change in organizational culture, namely a learning culture.

Then the second step in KM is creating a process of transmitting knowledge in organizations, so that organizations can capture any knowledge that passes through it. The creation of this process is important so that employees can precisely channel / share knowledge, collaborate and communicate with other employees easily Maghssudipour et al (2020) therefore the process of knowledge transmission ("knowledge transfer") can be achieved. This is needed because information technology assistance can act as a supporting media in carrying out this second part (process). The existing technology must be able to facilitate each knowledge exchange within the organization. This is because, the process of retrieving the knowledge can be reused by other individuals, and technology must facilitate communication and collaboration within the organization.

In a process of electronic learning (e-learning), there is a need to carry out the content of the learning process within the organization (Centobelli et al., 2019). The content is obtained through the knowledge input process in KM. Every knowledge that is entered through the organization's KMS, is already knowledge traffic in it, so that every employee who contributes to the creation of a condition of gathering and managing knowledge that is getting richer as time goes by can be used to increase the competency of all employees in in each functional area of the organization. From the knowledge that passes through KMS of an organization, it can be formed a grouping in accordance with existing knowledge, then a categorization of the knowledge will be made to fit the courses desired by the organization, which aims to train and learn the process so that knowledge can be acquired by the employee. Each course formed by the organization can measure the level of competence possessed by each employee so that the competencies possessed by each employee can increase according to the needs of the organization in responding to business challenges in the era of globalization with increasingly competitive dynamic.

Viewed from the picture, the relationship between KM and e-learning is a cycle, means that a process in KM will not stop. If more knowledge is stored, the richer and more detailed knowledge the organization has. In line with the development of stored knowledge and the increasing level of collaboration between employees, employees are familiar with the learning organization. With the creation of a learning culture within the organization, the

manager of an organization can easily instruct their employee to be involved in the learning process in electronic media (e-learning). Along with the increase in knowledge in KM organizations, the material wealth possessed for online learning increases within the organization. Thus, managers can easily form a course that is tailored to the needs of the organization in increasing the capability of each individual within the organization. The acquisition process can quickly and precisely implement as well as the formation of collaboration between each individual and group such as training chat rooms, forums, and other forms that support the communication process for learning. It aims to improve the competencies of each individual in the organization. In addition, the function of e-learning in organizations can easily find out the level of performance that each employee has at this time. Due to that, a step can be taken that can give more value to each individual to increase its capabilities. This process is called evaluation. The above process continues to form a cycle that will not stop and KM supports the creation of an effective online learning process (e-learning).

Challenges in Organizing E-learning

Practices e-learning in organizations is not as easy as imagined. Precisely the biggest obstacle in moving e-learning is not the technology that is owned or the process of managing knowledge that exists in the organization (Nazul, 2020). The biggest obstacle turned out to be in the human aspect (people). To make the online learning process successful in accordance with the goals of the organization, it is necessary to carry out civilizing in the learning process for each individual within the organization. Changing the paradigm of each individual is a difficult thing to do because each individual human being has obstacles to his future. In general, employees argue that if the knowledge possessed is incorporated into a system and can be reused, their existence in the organization will be threatened. Besides, the culture that exists within the organization (apart from feeling threatened) is 'comfort zone' as explained above before. The security that each person has (people) makes it difficult to respond to changes because it occurs outside the increasingly dynamic. For this reason, organizations must find ways to move their human element.

At present the managerial level must make a regulation that requires every employee in the organization to carry out the learning process with online facilities that have been provided by the organization. The existing employees are made accustomed to donating the knowledge they have for the benefit of the organization. Besides it must also be given a deep understanding of the importance of the success of learning within the organization which is useful for them in improving their competencies. A statement regarding this competency must be conveyed to each employee so that it is useful for them to develop themselves to respond to the challenges of the era that are increasingly high in competition. By familiarizing with the learning culture in the organization, the success of the e-learning activity will succeed. This is useful for achieving organizational goals with regards with the perspective of learning in the organization to answer any changes that exist in the environment outside the organization (Krishnamurthy, 2020). Furthermore, in the learning process, an explicit knowledge can be used as tacit / knowledge acquired by employees, communication or collaboration is needed to improve the employees understanding of other material or material. These features of collaboration and communication include: forums, e-mail, chat tools, audio & video conferencing. To get the expected learning process, to support all components in the learning management system, there is a single portal to access learning materials (e-learning course). Employees in an organization who wants to do the learning

process can enter the portal to start the course. And this is a part that must exist in a learning management system.

Conclusion

The relationship between knowledge management and e-learning is symbiotic. By integrating KM practices with e-learning technologies, organizations and educational institutions can enhance the creation, dissemination, and utilization of knowledge. This integration supports more effective learning experiences, fosters collaboration, and drives continuous improvement. As both fields continue to evolve, their convergence will likely become increasingly important in maximizing the value of knowledge and learning in various contexts. In building a learning culture within the organization through electronic media, there is a need for a knowledge control. This knowledge must be captured and organized and distributed to all employees in the organization. In conducting a learning media formation, KM is a major aspect lead to online learning (e-learning) within the organization. An organization must be able to build KM because it can drive online learning. To build a culture of learning in organizations, KM literature suggests that people are part of the success of online learning in organizations. Thus, managerial must be able to direct each employee to learn (driver for lesson, not driver for people). If a culture of learning has been formed, then the learning process in the organization will automatically run well.

Learning processes are a tool used in forming a good KM. So, an e-learning will not run alone without KM, because e-learning is part of KM (e-learning is a knowledge management system). In the end, starting from KM and then forming e-learning, the desired results of the organization were obtained in increasing competitiveness of competitors by utilizing e-learning as a medium to improve the competency and capability of each individual employee within the organization that was driven by the role of KM in the organization. The practical implication of this paper can be materialized through future research undertaking by linking the conceptual relationships between e-learning components and KM process that can allow a learning organization to promote knowledge innovation and nurture its knowledge assets.

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