

Intellectual Capital and Knowledge Management in Higher Education: Concept, Implementation, and Barriers

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ABSTRACT

Intellectual capital has developed into an intriguing concept that is frequently debated by academics and professionals and has been shown to improve the performance of all types of businesses, including institutions. Through a systematic literature review, this research is expected to enable reflection on the critical role of intellectual capital management in establishing an organization's competitive advantage in higher education and the essential part of knowledge management and socialization opportunities in the development of social thinking in higher education institutions and organizations. Ten articles published in national and international journals were selected to analyze thematically as the research data. The findings report that intellectual capital management lays the groundwork for strategic planning and the commercial success of modern educational institutions. Rethinking processes and fostering knowledge formation, particularly concerning their impact on functional strategies, is critical for academic administrators to increase their competitive advantage, the strength of internal organizational structures, and the effectiveness of educational programs.

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1. INTRODUCTION

Significant changes have occurred in the new paradigm of higher education. Among the changes is the possibility for universities and other governmental institutions to offer higher education on the territory of the Unitary State of the Republic of Indonesia. The issues that colleges must address in order to remain competitive in an increasingly globalized world are innovative collaboration, technological adaptation and mastery, and intellectual asset management (Ningsih, 2013). These obstacles contribute to the establishment of the requirement for intellectual capital implementation. Intellectual capital implementation is supposed to benefit educational institutions by allowing them to determine the strength of their resources in reusing current information and accelerating the generation of new knowledge from existing knowledge. Intellectual capital is critical to the organization's survival and

competitiveness (Prasojo et al., 2017). As information disseminators and collectors, universities play a critical role in managing their intellectual assets to build innovative, adaptive, and superior companies in this period of increased competition (Prabowo, 2010). While knowledge cannot be quantified easily, it cannot be denied that knowledge is a valuable asset that can help differentiate one individual from another in higher education. Creating and spreading information is a more significant aspect of increasing competitiveness (Sopandi & Sa'ud, 2016). However, Salo (2011)'s study on knowledge management in education in Indonesia demonstrates that Indonesia has a large number of educational institutions. Nonetheless, few organizations have adopted knowledge management as a strategic vision for achieving comprehensive goals.

From the very beginning of the study of applied administration, intellectual capital was manifested in all the actions of life, in the most complex decisions, and even in the survival of the human species; however, it is only recently that organizations and their managers have realized its influence and implications for business outcomes (Widiyaningrum, 2014). With the advancement of social development and intense reformulation in labour relations, the extraordinary currency of the so-called information age or information society into intellectual capital and its consequent application in talent management in organizations regardless of size and segment of action constitutes knowledge in the great focus of building excellence—successful competitive organization (Kuryanto & Syafruddin, 2008). To better understand their intangible assets, companies are experimenting with a variety of methods to gauge anything from their employees' human capital to their internal and external systems' levels of support and interest from customers to the quality and timeliness of their services. Tacit knowledge, talent management, and complementing abilities make up this form of capital (Rupidara, 2008). "Knowing how to be" was brought into the business lexicon so that the organization could concentrate its efforts on enhancing efficiency when it came to educating its staff. When it comes to corporate success, knowledge-based assets must be examined very carefully (Soetrisno, 2016).

Having good people is not enough. Still, it is important to use new skills effectively to strengthen business strategies and keep a long-term competitive advantage. Putting knowledge out into the world makes it more valuable to the product or service, which means that knowledge socialization makes it more valuable to the people who use it. Investment capital can be more valuable than the investment itself (Randa, 2012). Influence, cultural environment, positive and negative conditions, and many other factors all play a role in how knowledge is shared with other people. People, in their social interactions, build their knowledge and then share it with other people in society (Gea, 2011). Work in an organization where you have to think about managing your intellectual capital and keeping your knowledge. You will have to think about how to change your internal strategy (Huda & Martanti, 2018). Knowledge management creates systems and processes that help people get and share intellectual assets. Eventually, these systems and processes show how much knowledge is used, making it a competitive advantage from success. When a company has a good knowledge base, it shows that it's not just a set of products or services but a group of people who know how to get things done (Sisca et al., 2021). Meanwhile, intellectual capital is the key to a company's competitive advantage with its target customers because it creates important and unique skills and makes them better at what they do (Anshori, 2013).

Human capital is formed with people's talents and skills; its strategic use to promote fundamental differences depends on the management structure of each organization. Therefore, it is necessary to adapt the organizational management model into a democratic and creative mould, focusing on developing its employees' skills (Lepak & Snell, 1999). The indisputable fact is that successful companies become aggregated knowledge and education organizations, enhancing and developing organizational learning through intelligent management processes. In this sense, envisioning new management technologies in higher education institutions almost returns to the goal of knowledge construction. In this case, human capital management is fully committed to increasing intellectual capital and implementing it more and more with a plan that focuses on optimization and full implementation (Prasojo et al., 2017).

Colleges and other institutions are nothing more than associations of people with a clear purpose and based on fulfilling the role of gathering and applying knowledge. They achieve greater efficiency and effectiveness in management to fulfil their goals. Fulfil their mission. Companies are in this aspect (Fadhli, 2020). Thus, intellectual capital becomes a fundamental concept to focus on in the future. In this framework, knowledge managers become an absolute priority for organizations seeking success (Kasmawati, 2017). This new intellectual capital perspective shows that it is necessary to offer collaborators a challenging job, a stimulus that continually adds new experiences and expertise to its collaborators to retain and develop knowledge. The company's knowledge and enhancement are their most significant asset; therefore, they need to implement a clear human resource strategy to promptly conquer and retain their talent motivation. Above all, develop and implement properly through organizational tools based on a practical perspective.

Previous studies concerning intellectual capital and knowledge management in higher education institutions have been found in different settings across nations (see Antosova & Csikosova, 2011; Abu-Rumman, 2019; Iqbal et al., 2018; Ling, 2013). This implies that this topic has taken considerable attention from researchers because it has a beneficial influence on the global competitiveness of higher education institutions. Realizing this importance, the current study highlights the concept, implementation, and barriers to such practices. This study is expected to contribute to higher institution practitioners developing their intellectual capital and knowledge management quality.

2. METHODS

Following the research objectives, a systematic literature review is the appropriate type of research to seek the answer. The design is applicable because this study tries to see the pattern of higher education efforts in implementing the intellectual capital and knowledge management for global competitiveness from the published literature. Therefore, the researchers conducted a literature search from several digital platforms, such as google scholar and <https://e-resources.perpusnas.go.id/>. The researcher also visited other sites such as ScienceDirect, Taylor & Francis, and EbscoHost. The keywords used to find out the articles were 'intellectual capital', 'knowledge management', 'global competitiveness', and 'intellectual capital and knowledge management in higher education'. From the search, the researchers sorted 32 papers published in international and national journals. Eventually, after learning the abstracts, only 10 scientific papers were selected as the research data. The analysis of the data was conducted thematically (Braun & Clarke, 2014), beginning with getting to know to the data until reporting the interpretation results in the form of emergent themes.

3. FINDINGS AND DISCUSSION

From the data analysis process, three primary themes have emerged, namely the commitment of educational institutions, knowledge management as the implementation of intellectual capital in higher education, and knowledge management barriers and challenges in higher education. To see the big picture of the concept, the following table provides such information.

Table 1. The overview of the data analysis results

Elements	Writers and year of publication	Concept Summary
The commitment of Educational Institutions	Budiastuti, 2012; Djatola, 2021; Iqbal et al., 2018; Ulum, 2012	Individual's development, political commitment, systematized autonomously concerning educational institutions,

Elements	Writers and year of publication	Concept Summary
		innumerable possibilities and available variants.
Knowledge Management as Implementation of Intellectual Capital in Higher Education	Hendawan, 2019; Mubarok, 2018; Narimawati, 2011; Rahayuningtyas & Triana, 2017	knowledge creation, creativity, innovation, exchange, and transfer, enabling institutions to restructure and strengthen their functions.
Knowledge Management Barriers and Challenges in Higher Education	Al-Kurdi et al., 2016; Barbosa et al., 2016	irrespective of the sector, the lack of culture transfer, upgrade the technology infrastructure to serve the identification, creation, distribution, and measurement of knowledge.

The commitment of Educational Institutions

The educational process must be committed to the individual's total development; Learning to be should prepare students to develop independent and critical thinking and formulate their value judgments so that they can decide for themselves in the face of the different scenarios' life presents. It also means developing the freedom to think, discriminate, feel and imagine to enhance their talents and abilities and become masters of their destiny. Another substantial factor to consider is the political commitment that education has to society, which is why constant reflection is needed on what it has and what it wants to provide. From the concrete social practices of students and the real possibilities of the pedagogical approach of teachers and other teaching professionals, a concern arises for finding new paths for education. Now, if this quest for pedagogy is the process through which humans become fully human, schools have the task of enabling new generations to access a world of systematic, organized, and scientific knowledge. Therefore, the central theme of school pedagogy is organizing. Process and find a form that suits its purpose. In this context, content does not represent the center of the process because it is reproduced from social relations and is systematized autonomously concerning educational institutions (Djatola, 2021).

Systematic knowledge confronts pedagogy with the following problem: how to transform knowledge into a means of easy assimilation by a new generation, that is, by those who participate in some way in its production as social agents, in a prescribed form of learning, considered a consequence of historical trajectories. In other words, the social production of knowledge is historical, human heritage, and the problem of pedagogy allows new generations to take, without the need to repeat the process, the knowledge produced and developed by humanity (Ulum, 2012). Talking about the socialization of knowledge presupposes existing knowledge, but this does not mean that it is static or complete. It is knowledge prone to the transformation that depends on social agents' control. Consequently, the possibility of articulating pedagogical proposals whose point of reference is in the development and evolution of society and not its static maintenance.

From a sociological point of view, culture determines the structural design of a society in which all patterns, values, and beliefs have a language relationship and in which organizations cannot occupy a particular place as an epistemological system. Thus, human values such as meaning, dedication, commitment, and symbolic representation form relationships in which teaching and sharing are part of the main structure. Therefore, organizational culture is analyzed through the culture of the

company's environment and its subcultures; In this sense, innumerable possibilities and available variants are perceived, a defining element in organizations seeking competitive performance (Budiastuti, 2012).

Knowledge Management as Implementation of Intellectual Capital in Higher Education

Changes in the global economy and the environmental movement demand that higher education keep up with the pace of progress. This circumstance necessitates the focus of colleges on the creation of intellectual capital in the form of knowledge, creativity, and innovation (Rahayuningtyas & Triana, 2017). The OECD (2009) argued that higher education fosters and drives globalization in the face of this predicament. To be competitive in a global knowledge-based economy, a country's workforce needs to be well educated and have access to cutting-edge research and innovation capabilities. It enables cross-cultural communication and cooperation. The flow of ideas, students, staff, and financing across borders and advancements in information and communication technology is transforming the higher education landscape. As the market's power grows and new competitors enter the fray, cooperation and competition are becoming increasingly intertwined.

To respond to global changes, universities must contribute to improving the quality of all their collaborators, seeking to promote the creation of new knowledge, which will become the intellectual capital for innovation. The recent changes require universities to adopt programs that generate innovation (Narimawati, 2011).

For this reason, research is a source of knowledge creation in universities and is transversal in the function of teaching and counselling so that new learning transfers occur between teachers and students; In the first example, the teacher prepares their class with scientific production, using scientific articles, book chapters, and reviews; therefore, it is associated with the teaching function. Second, research projects enable links between the business sector and the social environment with universities, building on the creation of Spin-offs whose importance lies in the development of new technologies, the result of quality jobs, the ability to generate high added value in economic activities and contribute to regional development, which enhances the outreach function.

The above is essential in knowledge management because learning is considered vital in the knowledge business (Mubarok, 2018); therefore, they strive to have a competitive and sustainable advantage in Higher Education. This organization seeks to be the best in scientific, technological, and humanistic training and generate practical knowledge through its teaching, research, and extension functions to provide better services.

Knowledge management becomes essential in higher education institutions, especially in the phases of knowledge creation, exchange, and transfer, enabling them to restructure and strengthen their functions (Hendawan, 2019). However, despite its importance, previous research in several countries worldwide has shown that these types of organizations do not have a clear knowledge management strategy, which prevents them from achieving significant improvements in their processes. Universities are considered companies distinguished by their intangible products. Therefore, all knowledge management concepts and principles can be applied and generate knowledge naturally (Oliva & Kotabe, 2019).

In this study, the author proposes a knowledge management model for higher education that starts from the research function and is integrated with the teaching and counselling function through 4 essential phases, namely:

- a. Initially, the model starts from the research function through the knowledge identification phase, which consists of making learning visible through two activities, internal and external sources. The first consists of conducting a bibliometric analysis that identifies research groups and pathways, leaders and researchers, and numbering publications by area or department. The second refers to a collaborative network of external experts of which researchers, teachers, and administrators are a part.

- b. After the bibliometric analysis identifies individuals with varying tacit and explicit knowledge, activity one is carried out: Person-to-person learning to absorb knowledge from various sources. Conduct surveys, interviews, and focus groups to gain the experience and talent of instructors, researchers, and administrators. This process includes social networking tools such as Flickr, Facebook, and YouTube. This has led to SharePoint technology tools such as storytelling and digital narrative examples, which are a trend in the learning transfer process. As a result of the preceding paragraph, the college established independent research, academic, and administrative groups, to design each assignment schedule that allows for compilation, classification, and feedback knowledge. This action produces articles, scientific papers, and administrative documents.
- c. The next stage corresponds to the distribution of explicit learning through articles, scientific papers, and administrative documents, which should be stored by different ICT tools, such as digital platforms such as SharePoint that enable collaborative work and transfer of academic learning. The office's other tools are scientific repositories and databases such as Scopus, Web of Science, and IEEE; and intranets; and learning management tools such as Moodle.
- d. Finally, the knowledge measurement stage is related to human, structural, and relational capital indicators. The dimension evaluates the expertise of experts and the technological tools and infrastructure that the department has for the development of scientific production, which leads to the establishment of relations with the State and the productive sector to carry out collaborative agreements for the benefit of society.

Knowledge Management Barriers and Challenges in Higher Education

From the previous explanation, it has been highlighted that knowledge management is an essential process in the operation of any organization, irrespective of the sector in which it carries out its activities. In the case of certain universities, such management becomes a source of sustainable competitive advantage, which is essential to stand out in this complex sector (Waskito, 2014). However, putting this process into practice is not an easy task for this type of institution, mainly because some organizational and technological difficulties limit the achievement of significant results in this aspect.

Some limitations are related to knowledge capture, as the large amount of information generated within the college remains gray as it is not stored formally. However, it can be helpful to other members of the academic community if codified in open repositories. In addition to this, the lack of a culture of knowledge transfer can be added, which fosters physical and virtual spaces where students can store, consult, and disseminate the knowledge generated in their academic work.

Another difficulty that universities face is that research departments do not have adequate infrastructure and human resources to generate new knowledge and some incentives reserved for researchers in return for their efforts to increase scientific production. Likewise, there are cases where the selfishness and arrogance of many researchers favour the hoarding of knowledge, preventing its transfer for the benefit of institutions. If employees are unwilling to share and transmit knowledge throughout the organization, knowledge management efforts will be in vain (Al-Kurdi et al., 2018).

The lack of adequate technology infrastructure is one of the limitations of knowledge management in higher education, given that information and communication technology is an indispensable resource in this process. In some institutions, libraries do not have an ideal technology platform that allows them to articulate the knowledge produced by the academic community, causing inconvenience when disseminating the various expertise developed. Similarly, it was identified that there is a lack of virtual spaces and platforms where the entire academic community can interact with the knowledge generated in institutions (Jones et al., 2009).

To overcome all these challenges, the chancellor and chairperson in the college must be the first to take ownership of the knowledge management strategy and are willing to implement it throughout the organizational structure and align it with institutional goals. It is the directors who, from leadership positions, must establish the conditions for adequately managing knowledge in every substantive

function of the institution. In this case, to strengthen the identification, creation, and distribution of knowledge, universities are advised to develop physical and virtual spaces where students can store and share the knowledge generated in the classroom. In academic work, students develop projects, research papers, essays, and other documents, which can be used by other institutional members and actors from the external sector who can give actual application to the information (Barbosa et al., 2016).

On the other hand, to address the existing problems in the research field, universities should allocate a more significant contribution to strengthening human and technological resources to serve this substantive function. In addition, the stimulus structure needs to be designed to motivate the researcher to create new knowledge and be involved in the implementation process. Stimuli can be financial and social because many researchers want to contribute to solving social problems through their work. Likewise, there are challenges to removing barriers to selfishness among researchers and fostering an environment where knowledge and experience are transferred naturally.

Finally, universities are challenged to upgrade their technology infrastructure to serve the identification, creation, distribution, and measurement of knowledge. Students, teachers, and administrators need the availability and use of Information and Communication Technology to be actively involved in knowledge management. Facing this aspect, Toro & Joshi (2013) asserted that universities have many technological resources, such as intranets, blogs, learning management tools such as Moodle, wikis, chat sessions, discussion forums, repositories, databases, and academic networks. Microsoft Apps, Dropbox, Google Docs, Mindmeister, and Google Apps, accompanied by online training, interaction, and learning, can facilitate the knowledge management process in teaching, research, and extension functions.

CONCLUSION

In higher education institutions, which are natural knowledge generators, intellectual capital and knowledge management become critical when considering the competitive environment these organizations operate. From the substantive functions of teaching, research, and extension, Higher Education generates and transmits knowledge to students, teachers, researchers, administrators, public and private sectors, and other interest groups, which are required to manage it properly to get results in its institutional performance. Through a variable conceptual approach, this study proposes that the concept of knowledge management consists of four fundamental phases: Identification, creation, distribution, and measurement, which are successfully adapted to the reality of higher education and become the basis for developing the proposed model of knowledge management. In this theoretical reflection. In summary, this study demonstrates the concept, implementation, and barriers of intellectual capital and knowledge management as strategic tools for universities to generate sustainable competitive advantages in their teaching, research, and extension functions; however, the implementation process may not be successful if it does not create the necessary conditions. Future researchers are encouraged to conduct action research in particular institutions to develop intellectual capital and knowledge management practices in Indonesian higher education institutions.

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