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REVIEW PAPER

Knowledge Economy and Higher Education Institutions: A Review

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ABSTRACT

The centrality of knowledge has resulted in knowledge economy. Among the several sectors contributing in the development of such economy, education sector has emerged as one of key sectors. Further, the higher education institutions may have huge contributions to such economy. In return, the industry also provides various resources to the universities for effective creation and dissemination of knowledge that can help the industries to create sustainable businesses. The first objective of the study is to understand the relationship between the 'higher education institutions' and the 'knowledge economy.' Moreover, the academicians being a key stakeholder of the such institution, may be vital role in establishing a strong knowledge economy. Therefore, the study also aims to understand the contributions of academicians in knowledge economy and their knowledge sharing behaviour at the workplace. It has been found that universities may have huge impact on the knowledge economy through various contributions including providing feasible solutions to the socio-economic issues, innovation in the society and the industry, producing human capital for the industries, and positively impacting the GDP per capita of the nation. Further, based on extant literature, the study has identified some key factors that may affect the academicians' knowledge-sharing behaviour including 'attitude toward knowledge sharing','subjective norm', 'perceived behavioural control', 'intention to share knowledge', 'motivation to share knowledge', and 'organizational climate' with sub-dimensions 'organizational culture', 'ICT', 'innovation', and 'affiliation.'

HIGHLIGHTS

- Knowledge economy focuses on an education curriculum that promotes innovation, entrepreneurship, and socio-economic upliftment.
- In the contemporary knowledge-based societies, universities have become critical in achieving economic growth.
- A significant contribution of the university can be seen in the form of production of highly skilled knowledge workers who can be an asset for the economy.
- Industry-university collaborations create opportunities for both the parties and help them to remain relevant in the modern economy.
- The universities because of their infrastructure, employment, and commercial activities, may impact the GDP per capita of that geographical region.

Keywords: Knowledge Economy, Higher Education Institutions, Universities, Academicians, Knowledge Sharing Behaviour, Industry-University Collaboration

In the contemporary world, knowledge has become the main driver of economy (Sohail and Daud, 2009).The factors like Globalization and technological advancements have transformed the concept of economy into something called as

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"knowledge economy" (Hadad, 2017). Further, it is impossible to establish knowledge economy (KE) without creating, accumulating, disseminating, and reproducing knowledge that can enhance economic growth. With knowledge as a core element in their functionality, education sector has become an important component of KE which may act as a source of intellectual assets and help the countries in achieving competitive advantage (Kichuk *et al.* 2021). Moreover, the higher education institutions (HEIs) being at the top of the ladder in the education sector are vital in developing and sustaining such economy. According to Pinheiro *et al.* (2015), in the contemporary knowledge-based societies, universities have become critical in achieving economic growth. These institutions being an important part of KE, have taken up new goals and responsibilities (Broström *et al.* 2021). Valero and Reenen (2019) have mentioned in their study that the universities may impact economic growth in various ways. The countries are now focussing on collaboration between universities and industry for better innovation through knowledge and technology transfer (Weerasinghe and Dedunu, 2020).Further, knowledge being central in all these activities, knowledge management has become critical in the organizations across the industries. Knowledge management is widely acknowledged for the effective and efficient use of existing and new knowledge (Thrassou *et al.* 2012). Among such activities, knowledge sharing has been regarded a crucial one (Burnett *et al.* 2012). In HEIs, the knowledge of their academicians plays a major role in the growth and prosperity of such institutions (Singer and Hurley, 2005; Sohail and Daud, 2009). The knowledge sharing behaviour (KSB) of these academicians may significantly affect the knowledge management process within the organization and ultimately, in exchanging knowledge with the industry. In line to the potential role of HEIs in developing and sustaining KE, the present study attempts to examine the relationship between the universities and KE. Additionally, the study also aims to examine the KSB of the academicians in HEIs that can have some implications for KE.

Objectives of the Study

- To examine the relationship between the HEIs and the corresponding KE.
- To examine the role of university academicians in KE.
- To Identify the key factors responsible for KSB among the academicians working in HEIs.

Research Methodology

The present study is exploratory and qualitative in nature. This is a review-based study where various researches conducted in the similar area were consulted. The search and collection of the existing literature in the field of KE and HEIs were done using a systematic review across different databases covering the topics ofKE and universities, academicians in HEIs, knowledge management and universities/HEIs(Hannah *et al.* 2021; Tranfield *et al.* 2003). According to the literature search conducted by Hanna and Rowley (2008) for their study, an initial search was carried out using the key words knowledge economy, universities, academicians, knowledge management, and knowledge sharing. This was followed by conducting some additional search using the terms like economic impact of universities, higher education institutions in knowledge economy, academicians and knowledge economy, knowledge sharing among academicians. Further, as suggested by Hannah *et al.* (2021) and Tranfield *et al.* (2003), the dataset was filtered and refined using an elimination method. Some research works/articles were eliminated including non-peer reviewed publications; non-cognate publications; dissertations, and pre-publications. The research papers consulted to conduct the literature review are mainly from the databases like Elsevier, Springer, Taylor & Francis, Sage Publication etc. Some of the high-quality journals referred for the review are 'Economics of Education Review,''Innovation: Organization and Management,''Industry and Higher Education,''Journal of Business Economics,''Journal of Knowledge Management,''VINE,''Journal of Applied Psychology,' 'Computers in Human Behaviour' etc.

Defining Knowledge Economy

Over many decades, the knowledge economy concept has progressively become a key source of economic growth (Hadad, 2017). The concept of KE came into existence in the late 1950s and early 1960s because of two scholars, Drucker (1959) and Machlup (1962).It is an amalgamation of knowledge

and economy which is also interchangeably called as knowledge-based economy, modern economy, and new economy (Hadad, 2017). The Organization for Economic Cooperation and Development (OECD), in 1996, gave the first formal definition of KE as "economies which are directly based on the production, distribution, and use of knowledge and information." Further, Druker (1998) described it as"the arrival of knowledge management and knowledge workers by replacing manual workers, or in other words, the shift from physical abilities to mental abilities."Powell and Snellman (2004) defined it as "production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence."

Knowledge Economy and Universities: An Interdependent Relationship

The knowledge economy has substantially changed the education system with contemporary knowledge requirements (Ponomarenko *et al.* 2018). Such economy focuses on a curriculum that promotes innovation, entrepreneurship, and socio-economic upliftment. It is no longer the age of conventional teaching and learning methods where the practices lacked practicality, rather it is age of ever-changing learning environment with continuous insights from societal and economic requirements for creating a competitive and sustainable economy. Various studies have suggested that a part from the conventional knowledge that the students, faculties or researchers receive in the education system, they must get continuous training, retraining and advanced training for timely knowledge refinement, knowledge improvement, and knowledge enhancement (Prokopenko *et al.* 2018; Tkachenko *et al.* 2019). The institutions whose involvement is critical in such scenario are the universities whom we also call as higher education systems. The HEIs have become more relevant with the arrival of KE and knowledge society (Bratianu, 2014). The HEIs that are involved in the knowledge exchange activities are benefiting a large part of the population by creating new scientific knowledge and contributing to a sustainable society (Weerasinghe and Dedunu, 2020). However, there is dearth of research highlighting the economic aspects of HEIs (Valero and Reenen, 2019). The next section identifies the literature where the varied nature of contributions and impacts are discussed.

The modernisation of HEIs has resulted in the establishment of new research and innovative universities. Such institutions have high potential to grow in the modern economy (Kichuk *et al.* 2021). Their demand has increased among various stakeholders due to their research and development activities. Moreover, the research performance of the universities is assessed by the benefits it provides to the society through its research (Broström *et al.* 2021). Their funding sources have been largely tagged to their competitive performance (Malik, 2018). The universities, as their third mission, are actively participating in commercialising their research outputs and partnering with the society (Broström *et al.* 2021). The HEIs have the potential to handle the important socio-economic issues at local level in various ways like developing economic strategies, connecting the teaching and research priorities to the social and economic needs, and endorsing people participation, and societal well-being (Bejinaru and Prelipcean, 2017). Many HEIs have setup 'technology transfer offices (TTOs)' to manage the patenting and licencing issues. Additionally, 'university incubators,''accelerator facilities,' and 'collaborative research centres' have also been setup by the universities to support the entrepreneurial ventures and industry-relevant research of researchers and students (Åstebro *et al.* 2012; Knudsen *et al.* 2021). These studies suggest that the modern HEIs in KE have a wide range of contribution at various levels through their research and innovation activities. These levels may include local community, society, industry, and regional or national economy.

Another aspect where a significant contribution of the university can be seen is the production of highly skilled knowledge workers who can be an asset for the economy. According to Valero and Reenen (2019), universities best contribution to KE is their ability to produce the human capital, which is a key element of a nation's development and economic growth (Sianesi and Van Reenen, 2003). In present times, the HEIs have become more diversified and many new institutions have been introduced to meet the labour market needs (Malik, 2018). Barrett (2019) have suggested that the HEIs are perceived as change agents that can produce

knowledgeable graduates and further, bring healthy competition in the global economy. According to Kichuk *et al.* (2021), the universities' research activities are vital in the formation of intellectual capital that further results in the development of new knowledge and contributes in the societal and entrepreneurial activities as well. Such human capital may have a long run impact on the industries they join and act as an ever-lasting resource for developing a sustainable KE. Furthermore, there are positive spillover effects of the universities to their geographical regions and neighbouring areas. Valero and Reenen (2019) have found a positive relationship between the region's GDP per capita and the HEIs functioning in that region. They have estimated that a 10% increase in the number of universities results in 0.4% higher future GDP per capita.

The Industry-University Collaboration

In a knowledge-based economy, it is imperative to discuss the exchange taking place between the HEIs and the industry. The HEIs are facing huge resource pressure due to novel knowledge development that is pushing them to partner with the industry to remain relevant and competitive in all learning fields (Ankrah and Tabbaa, 2015). Rybnicek and Königsgruber (2019) have suggested that industry-university collaborations are becoming increasingly significant and the key stakeholders like governments, policymakers, researchers, and practitioners should ensure such collaborations and their successful implementation. Some studies have termed industry-university collaboration as the interaction between HEIs and industry for promoting knowledge promotion and exchanging technology (Bekkersand Bodas Freitas, 2008; Siegel *et al.* 2003). Additionally, researchers working in HEIs can get innovative research topics and monetary backing as well (D'Este and Perkmann, 2011). Academic research contributes in the development of many new products or processes. On the other hand, universities also get benefits from the industry in terms of industry funds, equipment, and income from licencing and patenting (Barnes *et al.* 2002). It is evident from the extant literature that the industry-university collaborations create opportunities for both the parties and help them to remain relevant in the modern economy. Such collaborations are a win-win situation for both with exchange of multiple resources like capital, knowledge, technology, innovation, and human capital. This can be better understood by the classifications of industry-university collaboration provided by various scholars. Chen (1994) provided a classification based on the period of relationship and the flow of technology. Santoro and Gopalakrishnan (2000) provided four forms of University-Industry Collaborations, including 'research support', 'cooperative research', 'knowledge transfer', and 'technology transfer'. Further, Ankrah and Tabbaa (2015) present data more comprehensive classification with six forms, including, 'Personal informal relationships', 'Personal formal relationships','Third Party-Institutional consultancy', 'Formal Targeted Agreements', 'Formal Non-Targeted Agreements', and 'Focused Structures.'

University Academicians and Knowledge Economy

In KE, employment is there for highly skilled workers called as 'knowledge workers' whose demand is ever increasing (Drucker, 1993). According to Hadad (2017), The human resource who owns, practice and spread knowledge are central to the knowledge-based economy. Therefore, there should be synergy between three key factors of such economy including people, knowledge, and technology. In context of HEIs, the academicians i.e. the Professors may be counted as knowledge workers as they possess expertise in a specific field of study. These institutions are knowledge-intensive organizations where intellectual capital is dominant to any other physical capital. This is because of the key function of such institutions are all knowledge related including creation, transfer, transformation, and distribution of knowledge (Bratianu, 2014, 2015). Weerasinghe and Dedunu (2020) have mentioned that the scholars of HEIs like academicians and researchers are key stakeholders of the university-industry collaborations with crucial parts like creating knowledge and further, transferring knowledge to the industry. Further, according to Vries *et al.* (2018), the academic assignment of the University Professors aims to develop fresh knowledge that can benefit the academic as well as the industry. It requires knowledge sharing from both sides for various purposes like identification

of key problems, developing feasible solutions, and creation, transfer, and implementation of knowledge or technology. While discussing the university-industry knowledge exchange, an academician's contribution may be in form of 'joint research,''contract research,''human resource mobility,' and 'training'(Weerasinghe and Dedunu, 2020). Based on above discussion, it is evident that the university academicians perform a crucial role in knowledge creation and dissemination, within the institution, as well as outside the institution like the society, local communities, and the industry.

Academicians and Knowledge Management in Higher Education Institutions

The previous sections discussed the relevance of HEIs in KE. The extant literature focused on how the universities and the industry are interdependent for knowledge exchange. It is evident from the discussions that in the industry-university collaboration, the academicians perform a key role in all processes. Moreover, in the knowledge exchange process, 'knowledge sharing' is an important component of the entire knowledge cycle. Sohail and Daud (2009) have mentioned that KSB has a substantial role in HEIs. It can provide a competitive advantage for the institution if implemented sensibly. Sharing of knowledge may be an integral part of the industry-university collaboration but only when there are funds or incentives allocated to such sharing. In case of academicians, they may not involve in knowledge-sharing in informal collaborations or when some performance assessment is not there. In such situations, the behavioural factors may decide whether an academician will get involved into knowledge sharing or not. Additionally, it is not possible to force such behaviour into any individual's personality. It can't be controlled and no organization can put it under employees' contracts (Prabhakar *et al.* 2018). Hence, the factors that could be responsible for knowledge sharing among the knowledge workers in HEIs should be identified. Identifying various potential factors can help an institution in incorporating an effective knowledge-sharing environment. While discussing the factors, it is important to note that such behaviour can be impacted at individual and organizational levels. Some studies have focused on KSB at the individual level (Lin, 2007; Skaik and Othman, 2014), whereas some have considered the individual and organizational factors both (Bock *et al.* 2005; Gagné, 2009; Lee and Hong, 2014; Lin, 2007; Prabhakar *et al.* 2018). This study will attempt to discuss and understand the factors at both levels.

At the individual level, KSB of the employees across different sectors has been majorly discussed using the 'Theory of Planned Behaviour' (Alwreikat, 2021; Lee and Hong, 2014; Liu *et al.* 2021; Pahrudin *et al.* 2021; Razak *et al.* 2016; Safa and Solms, 2016). Further, the theory has also been used by a few researchers in the field of higher education (Ayub *et al.* 2021; Skaikand Othman, 2014). Due to its wide acceptance and suitability in varied contexts, this study has also used the same theory to understand the various factors inhibiting KSB among academicians. The Theory of Planned Behaviour (TPB) extends the Theory of Reasoned Action (TRA). In TRA, Fishbein and Ajzen (1977), identified three factors: '*attitude,''subjective norm,'* and '*behavioural intention'* to predict someone's behaviour. Further, Ajzen (1991) developed TPB because someone's intention cannot be the sole determinant of actual behaviour. The model discusses the social influence and the resulting human behaviour. In addition to the factors given by TRA, the TPB model introduced *perceived behavioural control* as the fourth factor based on non-volitional behaviour (control) exhibited by an individual. Therefore, based on these models, the present study identifies four key factors: *'attitude,' 'subjective norm,''perceived control,' and 'behavioural intention'* to determine KSB among academicians. The next section discusses these factors in detail.

Attitude: Attitude has gained attention from practitioners and researchers across the realms as it helps determine an individual's behaviour (Safa and Solms, 2016). Ajzen (1991) has described it as the extent of a person's favourable or unfavourable behaviour assessment. Hepler (2015) has described it as "a psychological tendency that extends from an extremely negative to an extremely positive." The individual's attitude toward an object (a person, place, idea, event, group, organization) is developed based on some experiences (Shropshire *et al.* 2015). Hence, based on some past or present experience, a person may exhibit positive/negative or favourbale/unfavourable behaviour toward an object. In the context of knowledge-sharing, attitude

strengthens the individual's behavioural intention to get involved in the knowledge-sharing behaviour (Alajmi, 2011; Sun and Scott, 2005). Therefore, the present study chooses '*attitude toward knowledge sharing'* as the first factor in determining KSB.

Subjective Norm: Subjective norm describes a person's behaviour based on social pressure and the opinion of relevant others. Ajzen (1991) has defined it as "the individual's perceived social pressure to perform or not to perform a given behaviour." According to Li *et al.* (2010), it refers to people's opinions, perceived to be important by the individual, regarding engaging in a particular behavioural pattern. Further, Chennamaneni (2006) has described it as an employee's beliefs what the relevant others like the supervisor, peer group, top management, think of him/her to exhibit the behaviour of interest. In the knowledge-sharing context, subjective norm determines an individual's beliefs regarding the important others' views on his/her KSB (Skaikand Othman, 2014).

Perceived behavioural control*:* It focuses on someone's capacity to exhibit a particular behaviour (Ajzen and Madden, 1986). It refers to a person's insights regarding the easiness or difficulty in engaging in a behaviour (Safa and Solms, 2016). An individual may or may not possess the ability to get involved in the behaviour of interest, ultimately affecting their behavioural intentions and actual behaviour (Cox, 2012).

Intention: According to Safa and Solms (2016), an individual's behaviour is made up of three elements, viz. beliefs, desires, and intentions. Lee (2014) has defined intention as "a mental state that shows a commitment to executing a particular action now, or in the future."A person's intention to perform a behaviour is the first step toward getting involved in actual behaviour. In terms of KSB, the variable can be named as '*intention to share knowledge*.'

Razak *et al.* (2016) have stated that the organizations must determine the stimuli and mechanism that can drive employees to share their valued knowledge with others. Therefore, inspiring them to perform KSB is an imperative task for the organizations. Ryan *et al.* (2010) have suggested that the motivations related to employees' needs and expectations can inspire them to exhibit a particular behaviour. It characterises the motive behind an individual's actions, needs, and desires. In other words, it prompts an individual to act in a particular way (Safa and Solms, 2016). Additionally, several studies (Park *et al.* 2014; Wang and Hou, 2015; Wang and Noe, 2010) have discussed two types of motivation: 'extrinsic' and 'intrinsic.'The extrinsic motivation arises from outside the individual, i.e., from some external actions like some kind of reward (Lai and Chen, 2014). It is sourced from an individual's benefits in return by exhibiting KSB like promotion, incentives, etc. (Park*et al.* 2014; Wang and Hou, 2015). The 'intrinsic motivation' derives from the interest or enjoyment an individual feels by performing a particular behaviour (Safa and Solms, 2016). Such motivations are not based on any external reward and arise from the pleasure and satisfaction an individual gains by engaging in KSB (Hau *et al.* 2013). Thus, it can be said that intrinsic motivation is based on internal rewards like pleasure, satisfaction, self-worth, interest, and curiosity, which makes it more sustaining and long-lasting in comparison to extrinsic motivation. Hence, this study identifies '*motivation to share knowledge'* as a vital dimension in determining KSB with sub-dimensions: extrinsic and intrinsic motivation.

At the organizational level, it is essential to discuss the work environment prevailing within the organization so that the factors promoting or creating barriers in KSB of the employees can be identified. A healthy and motivating work environment is required within the universities for the smooth flow of information and knowledge within the organization. Such environment may further result in a more robust knowledge exchange system between the HEIs and the industry, ultimately impacting KE. Various studies have suggested that while discussing the work environment, the organizational climate is the factor that acts as a multidimensional construct and allows extensive evaluations of the existing environment (Ali and Patnaik, 2014; Iljins *et al.* 2015; James and James, 1989). It may include various dimensions like organizational culture, physical environment, infrastructure, resources, innovation, employees' perceptions regarding individual job assignments and teamwork, etc. (Iljins *et al.* 2015; Prabhakar *et al.* 2018; Sohail and Daud, 2009). Concerning knowledge-sharing, an organizational culture promoting knowledge is

a prerequisite for the effective and efficient flow of knowledge among its employees (Kazi, 2005). Such culture can be developed and sustained by establishing trust and team identification among the members of the organizations (Bijlsma-Frankema *et al.*2008). Additionally, organizations should focus on building and continuous development in technology-based systems (Cabrera and Cabrera, 2002; Riege, 2005). These technology-based systems enabled a prolific and useful technology for academic institutions known as 'Information and Communication Technology' (ICT) (Hendriks, 1999). Therefore,*organizational climate* is another key factor with sub-dimensions *organizational culture, ICT, innovation, and affiliation.*

Based on the above discussions, the present study has identified following factors that could be majorly responsible for KSB among the academicians: 'attitude toward knowledge sharing,''subjective norm,''perceived behavioural control,''intention to share knowledge,''actual knowledge-sharing behaviour,''motivation to share knowledge (extrinsic and intrinsic),' and 'organizational climate (organizational culture, ICT, innovation, affiliation).'The extensive review of studies suggests that the HEIs should focus on the factors discussed above as they have major implications for the knowledge exchange process within and outside the HEIs.

DISCUSSION AND CONCLUSION

The present study highlighted two important aspects of KE. The first aspect dealt with the relationship between HEIs and KE while the second one focused on contribution of academicians in the knowledge exchange process through KSB. In line to the first objective, the extant literature suggested that there is an interdependent relationship between them. In KE, knowledge is the core element and all stakeholders of such economy focus on creation, consumption, dissemination, sharing, transformation, and reproduction of knowledge. The universities whose entire functioning is based on this core element become a central character in the development of such economy. The review of studies suggested that the contributions of HEIs to KE can be huge. The first contribution may be in form of conducting research that can address the socio-economic problems of the society and local communities. These researches should be action-oriented that can provide feasible solutions to the societal problems and build a sustainable society. The second contribution can be the production of human capital who can fulfill the ever-increasing demand of knowledge workers in KE. Such human capital, with their latest knowledge and training, may increase the productivity of their organizations, come up with fresh ideas, and bring innovation in their respective industries. The third contribution can be in form of universities coming up with patents, licensing, and innovation with their research and development activities. Another important contribution is that universities because of their infrastructure, employment, and commercial activities, may significantly affect the 'GDP per capita' of that geographical region. While discussing such contribution, the industry's role is equally important and that is when the role of industry-university collaboration comes into play. The study has found that in such collaborations, the industry facilitates the universities with research funds, innovative research directions, machines, equipment, and work stations. Such output can be the result of various forms of industry-university collaborations including 'Personal informal relationships,' 'Personal formal relationships,' 'Third Party-Institutional consultancy,' 'Formal Targeted Agreements,' 'Formal Non-Targeted Agreements,' and 'Focused Structures.'The second objective aimed to understand the role of academicians in HEIs' contribution to KE. The extensive review of studies suggested that the university academicians may be considered as key knowledge workers in KE. These academicians are a vital part of the universities' intellectual capital who are responsible for creating valued human capital and bringing innovation. Further, the study identified the factors critical in establishing KSB among academicians in HEIs. Based on extant literature, certain factors, namely 'attitude toward knowledge sharing,''subjective norm,''perceived behavioural control,''intention to share knowledge,''actual knowledge-sharing behaviour,''motivation to share knowledge' (extrinsic and intrinsic), and 'organizational climate' (organizational culture, ICT, innovation, affiliation), have been identified. The HEIs need to focus on developing an organizational climate conducive to knowledge-sharing practices. To achieve this, the organization should establish

an influential knowledge-sharing culture, promote affiliation and innovation, and set the latest ICT systems into its premises. These institutions must develop the infrastructure, resources, and opportunities fortifying academicians' ability to share their knowledge. Moreover, this is evident that knowledge sharing within HEIs could be a core element for the organizational growth. As the academicians are the knowledge reservoirs and one of most important stakeholders of any educational institution, developing effective KSB among them may lead to various positive outputs like innovation and organizational performance including economic and social performance. Such knowledge sharing environment may help the institution in achieving the ideal of a learning organization.

REFERENCES

Ajzen, I. 1991. The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, **50**(2): 179-211.

Ajzen, I. and Madden, T.J. 1986. Prediction of goal-directed behaviour: Attitudes, intentions, and perceived behavioural control. *Journal of Experimental Social Psychology*, **22**(5): 453-474.

Alajmi B.M. 2011. "The intention to share: Professionals' knowledge-sharing behaviours in online communities". Doctoral thesis, The State University of New Jersey.

Ali, A. and Patnaik, B. 2014. Influence of organizational climate and organizational culture on managerial effectiveness: An inquisitive study. *The Carrington Rand Journal of Social Sciences*, **1**(2): 1-20.

Alwreikat, A. 2021. Sharing of Misinformation during COVID-19 Pandemic: Applying the Theory of Planned Behaviour with the Integration of Perceived Severity. *Science & Technology Libraries*, pp. 1-19.

Ankrah, S. and Omar, A. T. 2015. Universities–industry collaboration: A systematic review. *Scandinavian Journal of Management*, **31**(3): 387-408.

Åstebro, T., Bazzazian, N., and Braguinsky, S. 2012. Startups by recent university graduates and their faculty: Implications for university entrepreneurship policy. *Research Policy*, **41**(4): 663–677.

Ayub, N., Ahsan, M.H.B. and Azman, N.S.B. 2021. Factors Determining Blended Learning Rceptiveness Among Malaysian Academicians. *Labuan Bulletin of International Business and Finance (LBIBF)*, **19**(1): 118-133.

Barrett, B. 2019. The Dual Roles of Higher Education Institutions in the Knowledge-Economy. *International Journal of Multidisciplinary Perspectives in Higher Education*, **4**(1): 74-88.

Bejinaru, R. and Prelipcean, G. 2017. Successful strategies to be learnt from world-class universities. In *Proceedings of the International Conference on Business Excellence*, **11**(1): 350-358.

Bekkers, R. and Bodas Freitas, I. 2008. Analysing knowledge transfer channels between universities and industry: To what degree do sectors also matter? *Research Policy*, **37**: 1837-1853.

Bijlsma-Frankema, K., de Jong, B. and van de Bunt, G. 2008. Heed, a missing link between trust, monitoring and performance in knowledge intensive teams. *The International Journal of Human Resource Management*, **19**(1): 19-40.

Bock, G.W., Zmud, R.W., Kim, Y.G. and Lee, J.N. 2005. Behavioural intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly*, **29**(1): 87-111.

Bratianu, C. 2014. Intellectual capital of the European universities. *In* Dima, A.M. (Ed.), *Trends in European higher education convergence* (pp.24-43). Hershey, PA: IGI Global.

Bratianu, C. 2015. *Organizational knowledge dynamics: Managing knowledge creation, acquisition, sharing, and transformation.* Hershey: IGI Global.

Broström, A., Buenstorf, G. and McKelvey, M. 2021. The knowledge economy, innovation and the new challenges to universities: introduction to the special issue, *Innovation,* **23**(2): 145-162.

Burnett, S., Pedersen, S., Smith, R. and O'Neill, A. 2012. Venting, joining and educating: motivations for knowledge sharing in the UK police blogsphere, *Business Information Review,* **29**(1): 57–63.

Cabrera, A. and Cabrera, E.F. 2002. Knowledge-sharing dilemmas. *Organization Studies*, **23**(5): 687-710.

Chen, E.Y. 1994. The evolution of university-industry technology transfer in Hong Kong. *Technovation,* **14**: 449-459.

Chennamaneni, A. 2006. *Determinants of knowledge-sharing behaviours: Developing and testing an integrated theoretical model*. The University of Texas at Arlington.

Cox, J. 2012. Information systems user security: a structured model of the knowing-doing gap. *Computers in Human Behaviour,* **28**(5): 1849-1858.

D'este, P. and Perkmann, M. 2011. Why do academics engage with industry? The entrepreneurial university and individual motivations. *The Journal of Technology Transfer*, **36**: 316-339.

De Wit-de Vries, E., Dolfsma, W.A., van der Windt, H.J. and Gerkema, M.P. 2019. Knowledge transfer in university–industry research partnerships: a review. *The Journal of Technology Transfer*, **44**: 1236-1255.

Drucker, P.F. 1959. Long-range planning-challenge to management science. *Management Science*, **5**(3): 238-249.

Drucker, P.F. 1993. The rise of the knowledge society. *The Wilson Quarterly*, **17**(2): 52-72.

Fishbein, M. and Ajzen, I. 1977. Belief, attitude, intention, and behaviour: An introduction to theory and research. *Philosophy and Rhetoric*, **10**(2).

Gagné, M. 2009. A model of knowledge-sharing motivation. *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management*, **48**(4): 571-589.

Hadad, S. 2017. Knowledge economy: Characteristics and dimensions. *Management dynamics in the Knowledge economy*, **5**(2): 203-225.

Hanna, S. and Rowley, J. 2008. An analysis of terminology use in place branding. *Place Branding and Public Diplomacy*, **4:** 61-75.

Hanna, S., Rowley, J. and Keegan, B. 2021. Place and Destination Branding: A Review and Conceptual Mapping of the Domain. *Eu. Manage. Rev.*, **18**: 105–117.

Hau, Y.S., Kim, B., Lee, H. and Kim, Y.G. 2013. The effects of individual motivations and social capital on employees' tacit and explicit knowledge sharing intentions. *International Journal of Information Management*, **33**(2): 356-366.

Hendriks, P. 1999. Why share knowledge? The influence of ICT on the motivation for knowledge sharing. *Knowledge and Process Management*, **6**(2): 91-100.

Hepler, J. 2015. A good thing isn't always a good thing: dispositional attitudes predict non-normative judgments. *Personality and Individual Differences*, **75**(0): 59-63.

Iljins, J., Skvarciany, V. and Gaile-Sarkane, E. 2015. Impact of organizational culture on organizational climate during the process of change. *Procedia-Social and Behavioural Sciences*, **213**: 944-950.

James, L.A. and James, L.R. 1989. Integrating work environment perceptions: Explorations into the measurement of meaning. *Journal of Applied Psychology*, **74**(5): 739.

Kazi, A.S. (Ed.). 2005. *Knowledge management in the construction industry: A socio-technical perspective*. Igi Global.

Kichuk, Y., Kunchenko-Kharchenko, V., Hrushchynska, N. and Zhukova, Y. and Yarish, O. 2021. Intellectual Capital of Institutions of Higher Education in the Knowledge Economy. *Journal of Optimization in Industrial Engineering*, Special issue 2021: 159-166.

Knudsen, M.P., Frederiksen, M.H. and Goduscheit, R.C. 2021. New forms of engagement in third mission activities: A multi-level university-centric approach. *Innovation: Organization and Management*, **23**(2): 209–240.

Lai, H.M. and Chen, T.T. 2014. Knowledge sharing in interest online communities: a comparison of posters and lurkers. *Computers in Human Behaviour*, **35**(0): 295-306.

Lee, H.S. and Hong, S.A. 2014. Factors Affecting Hospital Employees' Knowledge Sharing Intention and Behaviour, and Innovation Behaviour. *Osong public health and research perspectives*, **5**(3): 148-155.

Lee, W.K. 2014. The temporal relationships among habit, intention and IS uses. *Computers in Human Behaviour*, **32**(0): 54-60.

Li, H., Zhang, J. and Sarathy, R. 2010. Understanding compliance with internet use policy from the perspective of rational choice theory. *Decision Support Systems*, **48**(4): 635-645.

Lin, H.F. 2007. Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower*, **28**(3/4): 315-332.

Liu, Y., Shi, H., Li, Y. and Amin, A. 2021. Factors influencing Chinese residents' post-pandemic outbound travel intentions: an extended theory of planned behaviour model based on the perception of COVID-19. *Tourism Review*, **76**(4): 871-891.

Machlup, F. 1962. *The production and distribution of knowledge in the United States*. Princeton, New Jersey: Princeton University Press.

Malik, R.S. 2018. Educational Challenges in the 21st Century and Sustainable Development. *Journal of Sustainable Development Education and Research,* **2**(1): 9-20.

OECD, 1996. The knowledge-based economy. Retrieved from chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://one.oecd.org/document/OCDE/GD%2896%29102/En/pdf

Pahrudin, P., Chen, C.T. and Liu, L.W. 2021. A modified theory of planned behavioural: A case of tourist intention to visit a destination post pandemic Covid-19 in Indonesia. *Heliyon*, **7**(10): e08230.

Park, J.H., Gu, B., Leung, A.C.M. and Konana, P. 2014. An investigation of information sharing and seeking behaviours in online investment communities. *Computers in Human Behaviour,* **31**(0): 1-12.

Pinheiro, R., Langa, P.V. and Pausits, A. 2015. One and two equals three?: The third mission of higher education institutions. *European Journal of Higher Education,* **5**: 233–249.

Ponomarenko, T., Khudolei, V., Prokopenko, O. and Klisinski, J. 2018. Competitiveness of the information economy industry in Ukraine. *Problems and Perspectives in Management*, **16**(1): 85-95.

Powell, W.W. and Snellman, K. 2004. The knowledge economy. *Annu. Rev. Sociol.*, **30**: 199-220.

Prabhakar, G.V., Reddy, P.R., Savinkina, L.A., Gantasala, S.B. and Ankireddy, S.2018. Influence of organisational culture dimensions on knowledge management processes in higher educational institutions. *International Journal of Knowledge Management Studies*, **9**(1): 51–71.

Prokopenko, O., Holmberg, R. and Omelyanenko, V. 2018. Information and communication technologies support for the participation of universities in innovation networks (comparative study). *Innovative Marketing*, **14**(3): 17-29.

Razak, N.A., Pangil, F., Zin, M.L.M., Yunus, N.A.M. and Asnawi, N.H. 2016. Theories of knowledge-sharing behaviour in business strategy. *Procedia Economics and Finance*, **37**: 545-553.

Riege, A. 2005. Three-dozen knowledge-sharing barriers managers must consider. *Journal of Knowledge Management*, **9**(3): 18-35.

Ryan, S.D., Windsor, J.C., Ibragimova, B. and Prybutok, V.R. 2010. Organizational practices that foster knowledge sharing: Validation across distinct national cultures. *Informing Science*, **13**: 139.

Rybnicek, R. and Königsgruber, R. 2019. What makes industry–university collaboration succeed? A systematic review of the literature. *Journal of Business Economics*, **89**(2): 221-250.

Safa, N.S. and Solms, R.V. 2016. An information security knowledge sharing model in organizations. *Computers in Human Behaviour*, **57**: 442-451.

Santoro, M.D. and Gopalakrishnan, S. 2000. The institutionalization of knowledge transfer activities within industry—university collaborative ventures. *Journal of Engineering and Technology Management*, **17**: 299-319.

Siegel, D.S., Waldman, D.A., Atwater, L.E. and Link, A.N. 2003. Commercial knowledge transfers from universities to firms: Improving the effectiveness of university—industry collaboration. *Journal of High Technology Management Research*, **14**: 111—133.

Sianesi, B. and Reenen, J.V. 2003. The returns to education: Macroeconomics. *Journal of Economic Surveys*, **17**(2): 157-200.

Shropshire, J., Warkentin, M. and Sharma, S. 2015. Personality, attitudes, and intentions: Predicting initial adoption of information security behaviour. *Computers & Security*, **49**: 177-191.

Singer, P. and Hurley, J.E. 2005. The importance of knowledge management today. *ALA-APA Library Worklife Home*, **2**(6): 1-3.

Skaik, H.A. and Othman, R. 2014. Investigating Academics' Knowledge-sharing behaviour in United Arab Emirates. *Journal of Business and Economics*, **5**(1): 161-178.

Sohail, M.S. and Daud, S. 2009. Knowledge sharing in higher education institutions: Perspectives from Malaysia. *The Journal of Information and Knowledge Management Systems*, **39**(2): 125-142.

Thrassou, A., Vrontis, D., Chebbi, H. and Yahiaoui, D. 2012. A preliminary strategic marketing framework for new product development. *Journal of Transnational Management*, **17**(1): 21–44.

Tkachenko, V., Kuzior, A. and Kwilinski, A. 2019. Introduction of Artificial Intelligence Tools into the Training Methods of Entrepreneurship Activities. *Journal of Entrepreneurship Education*, **22**(6): 1-10.

Tranfield, D., Denyer, D. and Smart, P. 2003. Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British J. of Manage.*, **14**(3): 207-222.

Valero, A. and Van Reenen, J. 2019. The economic impact of universities: Evidence from across the globe. *Economics of Education Review*, **68**: 53-67.

Wang, S. and Noe, R.A. 2010. Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, **20**(2): 115-131.

Wang, W.T. and Hou, Y.P. 2015. Motivations of employees' knowledge-sharing behaviours: A self-determination perspective. *Information and Organization*, **25**(1): 1-26.

Weerasinghe, I.M.S. and Dedunu, H.H. 2021. Contribution of academics to university–industry knowledge exchange: A study of open innovation in Sri Lankan universities. *Industry and Higher Education*, **35**(3): 233-243.

Yih-Tong Sun, P. and Scott, J.L. 2005. An investigation of barriers to knowledge transfer. *Journal of Knowledge Management*, **9**(2): 75-90.