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Cambodia's Aspirations to Become a Knowledge-Based Society

Perspectives of Cambodian University Students

Heng Kimkong



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**Cambodia's Aspirations to Become a
Knowledge-Based Society: Perspectives
of Cambodian University Students**

Heng Kimkong



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Abbreviations

ASEAN	Association of Southeast Asian Nations
ELT	English Language Teaching
HEIs	Higher Education Institutions
HEIP	Higher Education Improvement Project
HEQCIP	Higher Education Quality and Capacity Improvement Project
ICT	Information and Communication Technologies
MoEYS	Ministry of Education, Youth and Sport
OECD	Organisation for Economic Co-operation and Development
RGC	Royal Government of Cambodia
STEM	Science, Technology, Engineering, and Mathematics
TESOL	Teaching English to Speakers of Other Languages
TVET	Technical and Vocational Education and Training

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The views expressed in this study are the author's alone and are not necessarily the views of the Australian government, The Asia Foundation or CDRI.

Executive summary

Background

Cambodia envisages to become an upper-middle-income country by 2030 and a high-income country by 2050. The country also aspires to develop into a knowledge-based society (MoEYS 2014). To support these goals, it is crucial to consider the role of higher education institutions (HEIs), particularly universities, in training, research and service. However, research has shown that Cambodian higher education is faced with many challenges ranging from skills mismatches to fragmented governance to limited research capacity and stakeholder involvement (Heng and Sol 2022a; Kwok et al. 2010). Within this context, it is vital to examine the perspectives of higher education stakeholders, especially university students, regarding Cambodia's aspirations to become a knowledge-based society and how Cambodian universities can support such a vital goal.

Aims and research questions

This study is the outcome of a fellowship programme managed by the Centre for Educational Research and Innovation (CERI) of the Cambodia Development Resource Institute (CDRI). It aims to examine the role of Cambodian universities in supporting the country's aspirations to become a knowledge-based society from the perspectives of Cambodian university students. A knowledge-based society is defined as a society that relies on the acquisition, creation, utilization and dissemination of knowledge to enhance socioeconomic development (UNESCO 2016).

The study seeks to answer three research questions:

1. How do Cambodian university students perceive the concept of a knowledge-based society?
2. How do Cambodian university students perceive the role of Cambodian universities in supporting Cambodia to become a knowledge-based society?
3. What suggestions do Cambodian university students have regarding Cambodia's aspirations to become a knowledge-based society?

Methodology

This study was designed as a qualitative inquiry, guided by a constructivist view of reality and knowledge creation. It employed semi-structured interviews as a data collection tool, supported by document analysis. There were 20 university students (seven females) who participated in the one-on-one interviews. Among them, there were eight students with bachelor's degrees, eight with master's degrees and four doctoral degree students. Their ages were between 18 and 52 years old, and eight (40%) of them were enrolled in science, technology, engineering and mathematics (STEM) majors. These students were purposefully selected from four universities (three public and one private) in Phnom Penh, Cambodia's capital city. Four interviews were conducted face-to-face, and the rest (80%) were held via Zoom. The interviews were carried out in Khmer and lasted between 22 and 40 minutes. The data were assessed using thematic analysis, supported by qualitative data analysis software NVivo 12, while ethical guidelines were adhered to throughout the research.

Findings

The study found that Cambodian university students who took part in this research had a varied and limited understanding of a knowledge-based society. Some of them had never heard of the

term prior to participating in the interviews. The participants tended to associate the concept of a knowledge-based society with keywords such as education, knowledge, human resources, educated people and research. They believed that Cambodian universities had a moderate contribution to supporting the development of a knowledge-based society in Cambodia, although they also acknowledged positive developments in Cambodian higher education in recent years. The participants believed that universities should not only provide students with education, knowledge, and hard skills but also develop their character, morality, and soft skills. They offered several recommendations to help Cambodia realise its aspirations to become a knowledge-based society. The recommendations included improving education quality, improving facilities and resources, increasing higher education enrolment, promoting STEM education, providing capacity building for university teachers, providing internship opportunities for students, promoting research, developing a clear plan and policy for promoting research and education quality and promoting stakeholder involvement in Cambodian higher education.

Conclusion and recommendations

The study examined Cambodian university students' perspectives on Cambodia's aspirations to become a knowledge-based society. It answered three research questions that aim to understand how university students perceive the concept of a knowledge-based society, how they perceive the role of Cambodian universities in supporting Cambodia's aspirations for a knowledge-based society and what suggestions they have for Cambodia to realise this vision. In light of the findings, the present study has six recommendations as follows:

Invest in higher education

Although the Ministry of Education, Youth and Sport has increased funding in higher education to improve the sector in recent years, more investment is needed. The investment should focus on establishing an ecosystem that supports and improves teaching, learning and research. To improve the quality of teaching and learning, it is important to introduce reforms to the curriculum and assessment, improve teaching and learning facilities and provide capacity building opportunities for university teachers and staff. To promote research, it is essential to introduce and implement an academic career pathway, a proper reward system, a competitive research grant scheme and a research capacity-building programme.

Increase higher education enrolment

To develop a knowledge-based society, it is essential to build an educated or high-skilled workforce that can contribute meaningfully to Cambodia's aspirations for a knowledge-based society. Thus, concerned stakeholders, particularly the government and HEIs, including those providing technical and vocational education and training, should focus their attention on creating an enabling environment for a higher level of higher education enrolment. This can be achieved through various means, for example, establishing a clearer and smoother linkage between general education and higher education, as well as providing technical and/or financial support for high school graduates to better transition into higher education.

Provide capacity building for academic staff

With ample professional development opportunities that focus on teaching techniques, effective teaching methods, research and publication skills and other tailored or personalised training programmes, academic staff will be able to improve their knowledge and skills. When

academic staff or lecturers can increase their research engagement, their teaching will likely be better-informed by research. Therefore, they may provide higher quality or more up-to-date learning content to their students. This may in turn improve students' learning outcomes and employability after graduation. Therefore, it is imperative to provide in-service capacity-building and professional development opportunities for university teachers to enhance their teaching knowledge and skills, research capacity and ability to teach in 21st-century classrooms.

Provide internship opportunities for university students

Internship or on-the-job learning activities are essential to develop students into well-rounded and skill-equipped graduates needed to drive Cambodia's socioeconomic development. In addition, internship opportunities will contribute to establishing a better link between universities and industries, enabling each party to better understand their needs and limitations, which in turn makes it easier to improve the current level of university-industry linkages.

Promote research

With better research capacity, Cambodian universities and HEIs will be able to contribute more effectively to society, particularly in terms of producing new knowledge and stimulating innovation needed to drive socioeconomic development in the context of a knowledge-based economy. To promote research in Cambodian higher education, it is crucial to ensure a clear vision and policy for research, revise any existing research policies that do not provide clear steps in promoting research, introduce and implement mechanisms that encourage and/or support research, and create an environment that enables research to develop.

Promote stakeholder involvement in higher education

Finally, active involvement from concerned stakeholders, particularly the government, HEIs, think tanks, research institutes, the private sector and university lecturers are essential to improve higher education in Cambodia. If the vision to transform Cambodia into a knowledge-based society is not shared by all key higher education stakeholders, it will be difficult, if not impossible, to realise such a vision. Thus, greater efforts and actions are needed to promote stakeholder involvement and collaboration in higher education to make a difference in the sector and support Cambodia's aspirations to become a knowledge-based society.

1. Introduction

1.1. Background of the study

In the context of the global knowledge-based economy, knowledge is considered a key driver of productivity and economic growth. The World Bank is among the major international organisations that espouse the role of knowledge in accelerating socioeconomic growth and improving living standards. With the publication of its key texts, such as *Knowledge for Development* (World Bank 1999), *Higher Education in Developing Countries: Peril and Promise* (World Bank 2000), *Constructing Knowledge Societies: New Challenges for Tertiary Education* (World Bank 2002) and *Building Knowledge Economy: Advanced Strategies for Development* (World Bank 2007), the World Bank has begun to recognise the role of higher education in helping less developed countries to catch up with developed economies. Although some researchers are critical of the World Bank's policies on education, usually driven by a one-size-fits-all discourse and implemented in developing countries without much understanding of the local context (see Abu-Shawish, Romanowski and Amatullah 2021; Klees et al. 2012; Molla 2019; Regmi 2017; Rappleye and Un 2018; Shahjahan 2016), the role of higher education in contributing to accelerating economic growth has gained traction over the decades.

Given the role of higher education in economic development, universities in developing countries have found themselves in the spotlight as the institutions responsible for producing a highly-skilled labour force needed to drive economic growth. However, these universities, including those in Asian countries such as Cambodia, are generally faced with numerous challenges, including limited research capacity, insufficient state funding, low academic salaries, limited autonomy, lack of adherence to meritocratic norms, skills mismatches and limited academic freedom, among other challenges (Altbach 2009; Heng 2022b; Kwok et al. 2010).

Despite the challenges, the forces of globalisation and the growing trend toward the global knowledge-based economy have pushed many, if not all, developing countries to jump on the bandwagon to transform themselves into a knowledge-based society or economy (Heng 2022b). Cambodia is no exception. The country is envisaged to become an upper-middle-income country by 2030 and a high-income country by 2050 (Royal Government of Cambodia [RGC] 2018). In addition, driven by globalisation, economic competitiveness and neoliberalism, Cambodia has also begun to discuss its aspirations to become a knowledge-based society (Ministry of Education, Youth and Sport [MoEYS] 2014, 2019).

Within this burgeoning context, it is important to pause and ponder how Cambodia will be able to realise its aspirations to become a knowledge-based society, considering the many challenges facing its higher education sector, particularly concerning the issues of skills mismatches, limited academic or research engagement and fragmented higher education governance, among other challenges (Heng and Sol 2022a). Moreover, it is also important to examine the perspectives of key stakeholders, especially university students, about the concept of a knowledge-based society and the role of domestic universities in supporting Cambodia to realise this ambitious goal.

1.2. Research objectives

The present study is initiated to examine the role of Cambodian universities in supporting Cambodia's aspirations to transform itself into a knowledge-based society – a goal that is in alignment with Cambodia's development vision to become an upper-middle-income country by 2030 and a high-income country by 2050 (RGC 2018). This study investigates these

issues from the perspectives of Cambodian university students who are enrolled in bachelor, master and doctoral degree programmes at universities in the city of Phnom Penh. With a few exceptions (e.g., Eam et al. 2021; Heng 2022a; Nhem 2022, 2023; Peou 2017; You et al. 2023), the views of Cambodian university students are often overlooked in previous research while exploring various higher education-related issues, such as research involvement (Eam 2015; Heng, Hamid and Khan 2022b), research capacity (Kwok et al. 2010), research conceptions (Heng, Hamid and Khan 2022a), academic life (Chhaing 2022), pursuit of academic excellence (Oleksiyenko and Ros 2019), faculty engagement in higher education internationalisation (Tek, Nok and Chea 2022) and post-secondary education and training (Chea, Hun and Song 2021).

1.3. Research questions

This study is guided by three research questions:

1. How do Cambodian university students perceive the concept of a knowledge-based society?
2. How do Cambodian university students perceive the role of Cambodian universities in supporting Cambodia to become a knowledge-based society?
3. What suggestions do Cambodian university students have regarding Cambodia's aspirations to become a knowledge-based society?

1.4. Significance of the study

This study is significant for several reasons. Firstly, the study sheds light on Cambodian university students' perspectives of a knowledge-based society and the role of Cambodian universities vis-à-vis Cambodia's aspirations to become a knowledge-based society. This is, to the best of the researcher's knowledge, the first study that explores this topic. Secondly, the study contributes to the burgeoning literature on Cambodian higher education and post-secondary training (Chea et al. 2021; Eam et al. 2022; Khieng, Madhur and Chhem 2015; Un and Sok 2018). Thirdly, the study makes a valuable contribution to public policy discussions and offers policy recommendations that aim to enhance the quality of Cambodian higher education to produce highly-skilled human resources to drive socioeconomic development. Finally, the study is crucial for the author as an emerging education researcher to further develop and strengthen his research interest and skills. The study is also significant in helping to promote studies conducted by Cambodian researchers, which in turn contributes to promoting a culture of research and scholarly publication in Cambodia.

2. Literature review

2.1. The concept of a knowledge-based society or economy

The term 'knowledge society' or 'knowledge-based society' refers to a society that relies on knowledge of its well-educated citizens to drive innovation and economic growth (Ngamkajonviwat et al. 2015). Knowledge societies are those in which "knowledge is acquired, created, disseminated and applied to enhance economic and social development" (UNESCO 2016, 8). The term is sometimes used interchangeably with another common term 'knowledge economy' or 'knowledge-based economy' (see Carlaw et al. 2006; Eam 2022; Nokkala 2005). The latter term may have come into existence in the 1970s when the term 'post-industrial society' was coined and first discussed by Daniel Bell, an American sociologist, in 1973 (Bell 1973). In this working paper, these two terms, knowledge-based

society and knowledge-based economy, are used interchangeably despite their subtle differences (see Dyer 2012; Timsina 2010).

The concept of a knowledge economy is linked to at least three lines of enquiry, the oldest of which dated back to the early 1960s (Powell and Snellman 2004). First, it was “the rise of new science-based industries and their role in social and economic change” (200). Second, it was the discussion about how particular knowledge-intensive industries could boost growth in productivity. Third, it was about how some firms or organisations could produce and transfer knowledge through their learning and innovation systems. Powell and Snellman defined knowledge economy as “production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as equally rapid obsolescence” (201). They argued that a knowledge economy relied more on “intellectual capabilities than on physical inputs or natural resources” (201).

The Organisation for Economic Co-operation and Development (OECD) defined knowledge-based economies as “economies which are directly based on the production, distribution and use of knowledge and information” (OECD 1996, 7). In a knowledge economy or society, knowledge and innovation play a central role in economic growth as knowledge is “the key driver of competitiveness” (World Bank 2007, xiv). Godin (2006) noted that the term knowledge-based economy represented a new economy defined by at least two characteristics:

Firstly, knowledge would be more quantitatively and qualitatively important than before. Secondly, applications of information and communication technologies (ICT) would be the drivers of the new economy. (20)

Likewise, Eam (2022) defined a knowledge economy or society by looking at how knowledge objects, knowledge and learning functions, and knowledge infrastructure and learning systems are treated in society. As the author noted:

a knowledge economy and/or society is that which treats (1) *knowledge objects* (i.e. information, data, ideas, and other intellectual resources) as a valuable capital, commodity, or asset; (2) *knowledge and learning functions* (i.e. preservation, creation, innovation, translation, transmission, diffusion, application, management, and/or integration of knowledge) as the central process of work and life; and (3) *knowledge infrastructures and learning systems* (e.g. national innovation system, research and development institutions, knowledge-based production mechanism) as the key driving and navigating platforms for a nation to grow its economy and develop other social dimensions. (31-32, emphasis added)

Overall, a knowledge-based society or economy is one that relies on knowledge to drive economic growth and productivity. Knowledge plays a central role in boosting competitiveness and shaping economic activities. Therefore, in a knowledge-based society, it is absolutely crucial to invest in education, research and development to establish a functioning national innovation system supported by strong collaboration among government, industry and academia.

2.2. The trend toward a knowledge-based society

Over the last few decades, the trend toward developing a knowledge-based society has grown. Since the 1990s, major international organisations such as the OECD and the World Bank began to promote the development of knowledge-based economies, and many other countries across the world began to embrace the vision of becoming a knowledge-based society. This “becoming a knowledge society” phenomenon has been driven by globalisation and the growing recognition of the role of knowledge and higher education in contributing to social and economic development (World Bank 1999, 2000, 2007). According to the World Bank

(2007), knowledge plays three key roles: “knowledge as the (a) driver of competitiveness and productivity, (b) facilitator of welfare and environment, and (c) enabler of institutions and governance” (5).

Developed and developing countries differ not only in terms of capital, but also knowledge. For example, developed or rich countries have more knowledge about technology or know-how and knowledge about different attributes, such as the quality of products or workers (World Bank 1999). In this respect, developing countries need to work to narrow the knowledge gaps by focusing on three steps: acquiring knowledge, absorbing knowledge and communicating knowledge. These are explained by the World Bank (1999) as follows:

Acquiring knowledge involves tapping [into] and adapting knowledge available elsewhere in the world – for example, through an open trading regime, foreign investment, and licensing agreements – as well as creating knowledge locally through research and development, and building on indigenous knowledge.

Absorbing knowledge involves, for example, ensuring universal basic education, with special emphasis on extending education to girls and other traditionally disadvantaged groups; creating opportunities for lifelong learning; and supporting tertiary education, especially in science and engineering.

Communicating knowledge involves taking advantage of new information and communications technology – through increased competition, private sector provision, and appropriate regulation – and ensuring that the poor have access. (2-3, emphasis in original)

With the growing recognition of the significance of knowledge and the ability to create, use and disseminate knowledge for economic growth, as well as the trend toward developing a knowledge-based society, there has been a parallel trend toward world-class universities. The term ‘world class’ indicates that “a university is among the most prestigious and renowned academic institutions internationally” (Altbach 2007, 7). Altbach argued that all world-class universities are research universities, but not all research universities are world class. He defined research universities that are “at the nexus of science, scholarship, and the new knowledge economies” as “academic institutions committed to the creation and dissemination of knowledge in a range of disciplines and fields and featuring the appropriate laboratories, libraries, and other infrastructures that permit teaching and research at the highest possible level” (1).

As knowledge plays a central role in a knowledge-based society, the role of universities and other research-focused institutions, such as research institutes, centres or agencies where knowledge is primarily created through research has become more essential (Altbach 2007). In this regard, the role of education, particularly higher education, is fundamental to the ability of developing countries to develop into a knowledge economy and catch up with their developed counterparts. As the World Bank (2000) noted:

After all, education is associated with better skills, higher productivity, and enhanced human capacity to improve the quality of life. Education at all levels is needed if economies are to climb from subsistence farming, through an economy based on manufacturing, to participation in the global knowledge economy. (15-16)

With a growing trend toward the development of a knowledge-based society, more attention has been paid to the role of higher education and universities, as evidenced by the trend toward establishing research universities and world-class universities worldwide (Altbach and Balán

2007; Altbach and Salmi 2011; Liu, Wu and Wang 2021; Shin and Kehm 2013). Therefore, as Altbach (2009) argued, it may not be realistic for developing countries to aim to develop world-class universities like Harvard University or the University of Oxford; however, it may be reasonable to build “second-rank but quite distinguished research universities” (25) or regional research universities. This goal can be achieved through an emphasis on specific areas or fields of science and scholarship, depending on available resources, existing strengths and national or regional needs (Altbach 2009).

2.3. The role of universities in a knowledge-based society

A knowledge-based society relies on knowledge. It is a society that can produce, use and disseminate knowledge to generate economic growth and productivity. As David and Foray (2003) noted, “The ability to invent and innovate, that is, to create new knowledge and new ideas that are then embodied in products, processes and organisations, has always served to fuel development” (20). In a knowledge-based society, institutions that can create knowledge are indispensable. These institutions vary in types and forms. They can include HEIs, such as universities and institutes, research institutions, think tanks and so on. Among these institutions, universities are seen as the key knowledge producers. They are “central to the transition to modernity in Europe and America and later in the rest of the world” (Delanty 2001, 150). In addition, the role of universities as “a knowledge producing and disseminating institution” has become increasingly important for industrial innovation (Etzkowitz et al. 2000, 314). Most researchers and scientists are affiliated with universities. These knowledge workers are the drivers of new discoveries through their research. In some cases, there are key collaborators with non-university research institutes, such as think tanks. The collaboration between universities and research institutes is essential to create a platform where new research leads to new findings and discoveries, which in turn lead to innovation and modernity.

Traditionally, universities were the centres of training and education. They were established to “educate men for the legal, medical and religious professions” (Altbach 2008, 8). They focused on teaching, not research, and were limited to educating elite groups. It was only in the 19th century that universities were transformed into research institutions and their roles were more than just a place for learning and teaching. This transformation was driven by new developments in Germany initiated by Wilhelm von Humboldt, a German philosopher, who introduced an emphasis on research as one of the core functions of universities (Altbach 2008).

Nowadays, universities are the key engine of knowledge production and dissemination. They are the key players in the global economy (Breznitz 2014), and the producers of scientific knowledge needed for industrial innovation and development (Ferretti and Parmentola 2015). Universities are “the most important mechanism we have for generating and preserving, disseminating, and transforming knowledge into wider social and economic benefits” in a knowledge-based economy (Department of Business, Innovation & Skills 2009, 7). As Altbach (2013) noted, universities, particularly research universities, are “at the center of the global knowledge economy” (316). He added:

[Research universities] have especially crucial roles in the development of differentiated and effective academic systems – indeed, in making it possible for their countries to join the global knowledge society and to compete effectively in the sophisticated knowledge economies of the twenty-first century. (316)

With the growing trend toward world-class universities around the world, particularly those in North America, Europe, and part of Asia, the essential role of universities could not be

overstated. As Ferretti and Parmentola (2015) argued, universities can play at least three roles in supporting the innovation system of a country. They can:

1. enhance the regional knowledge base through their international academic networks, serving as gateways for local businesses to reach external knowledge,
2. adapt knowledge from extra-regional sources to produce new forms that are more appropriate for the local innovation system. In doing so, they reduce entry costs for new technologies and open windows of opportunity for catch-up processes, and
3. enjoy greater autonomy than do other regional actors, maintaining substantial levels of control over their financial, personnel, and academic affairs. (93)

On the whole, universities play a critical role in a knowledge-based society. As Eam (2022) argued, the roles of universities and other post-secondary institutions are “not partial or peripheral, but central and foundational” in the global knowledge-based societies (29). They serve as “one of the most important social engines that creates, innovates, translates, preserves, transmits, and diffuses knowledge” and “provide a trustable base for intellectual development, research, and innovation activities as well as national policy consultation” (29). Thus, it is essential to examine the roles of universities in their contributions to realising a knowledge society goal, particularly from the perspectives of university students whose views, as previously mentioned, are not well-represented in the literature on research and higher education development in Cambodia.

2.4. Preparing Cambodia for a knowledge-based society: Progress and challenges

In 2013, the Cambodian government introduced its development vision to transform Cambodia into an upper-middle-income country by 2030 and a high-income country by 2050 (RGC 2018). MoEYS also mentioned Cambodia’s aspirations to develop into a knowledge-based society (MoEYS 2014, 2019). In alignment with these goals, various initiatives have been introduced in recent years to enhance the quality of the Cambodian education system, including the quality of teaching and research in higher education (Heng 2020b; MoEYS 2015; Sot, Sok and Dickinson 2019). Notably, two projects – the Higher Education Quality and Capacity Improvement Project (HEQCIP) and the Higher Education Improvement Project (HEIP) – have been implemented to improve higher education in Cambodia. These two projects are worth USD115.5 million in total. HEQCIP valued at USD23 million was implemented between 2010 and 2017, while HEIP (USD92.5 million) has been implemented since 2018 and is expected to be completed in 2024 (Heng 2020b; Heng and Sol 2021; World Bank 2015, 2018). Although research by Rappleye and Un (2018) has indicated issues with one of the four components of HEQCIP (i.e., failure of a research grant scheme due to the World Bank’s misconceptualisation of the local context), initiatives such as HEQCIP and HEIP are greatly welcomed, as they can contribute to improving higher education in Cambodia.

Through efforts and initiatives introduced by different stakeholders, including the government, HEIs and development partners over the years, Cambodian higher education has seen rapid growth and expansion, particularly in terms of the number of HEIs and student enrolment. In the 1990s, for example, there were only around 10 HEIs with approximately 10,000 students (Un and Sok 2018). However, the latest data from MoEYS show that Cambodia now has 130 HEIs (82 are private institutions) supervised by 14 different ministries and two institutions. Student enrolment has also increased to approximately 200,000 in the academic year 2020-2021 (MoEYS 2022).

Despite the institutional expansion and increase in student enrolment, research has indicated that higher education in Cambodia faces many challenges, including low quality and skills mismatches (Madhur 2014; Peou 2017); fragmented higher education management and governance (Mak et al. 2019b; Sen and Ros, 2013); contradictions in Western-Cambodian cultural values (Sen 2019, 2022); weak stakeholder involvement and collaboration (Sam and Dahles 2017); limited research capacity (Eam 2015; Heng 2022b; Kwok et al. 2010); limited academic freedom and autonomy (Chet 2009; Heng 2020a; Sam, Zain and Jamil 2012); and a shortage of academic staff with PhDs (Kwok et al. 2010; Thun 2021).

Considering the above challenges, it is unclear how Cambodian HEIs, particularly universities, can contribute to preparing Cambodia to become a knowledge-based society and a more developed country in the next few decades. Moreover, given the frequent exclusion of the perspectives of university students in previous studies on this issue and the lack of research investigating this topic, it is not clear how university students, a key stakeholder in higher education, think about this important issue. There is, therefore, a significant gap of knowledge about how Cambodian university students perceive the concept of a knowledge-based society and the role of Cambodian universities in shaping the future of Cambodian society.

2.5. Stakeholders' perspectives on research and higher education in Cambodia

Considering the significant roles of research and higher education in contributing to building a knowledge-based society or economy (Considine et al. 2001), a brief review of the literature on stakeholders' perspectives, particularly those of university students, on research and development in Cambodia is necessary. Thus far, several studies have attempted to examine stakeholders' perspectives about research and higher education in Cambodia, with few focusing on university students' perspectives. Vann (2012), for example, examined the quality of Cambodian higher education from the perspectives of key local and international stakeholders, including students, university teachers and administrators, government officials and employers from the private sector and donor agencies. It was found that these stakeholders conceptualised the quality of higher education differently; however, Cambodian higher education was "characterized by irrelevant curriculum, a shortage of well-qualified teachers, inadequate resources, improper infrastructure, and poor governance and leadership in HEIs" (Vann 2012, 172). Nhem (2022) studied Cambodian university students' perceptions of quality in higher education. It was found that students understood higher education quality in terms of, in order of importance, staff-student mobility, availability of scholarships, job prospects, infrastructure, administrative support and university ranking. Nhem (2023) explored Cambodian university students' awareness of their lecturers' research and their own research learning experience. It was found that teaching and research were "sloppily linked at both the institutional and classroom levels" and that research was considered "secondary" to most lecturers (Nhem 2023, 64).

In a similar vein, Heng (2022a) investigated Cambodian youth's engagement in the knowledge sector, focusing on the challenges, opportunities and recommendations. While the study did not directly examine youth's perspectives on research or higher education, it explored their general views about youth's or university students' research involvement. The study found that there were three main types of challenges, including limited knowledge about research, an uncondusive environment for research and other personal and professional challenges. The opportunities included new initiatives, platforms, focus and support for research. Heng (2022a) also provided four recommendations to promote Cambodian youth's engagement

in the knowledge sector, focusing on the provision of research capacity building, practical research experience, publication support and support networks.

Research examining university lecturers' perceptions of research has gradually grown. Keuk (2015), for instance, investigated English Language Teaching (ELT) research in Cambodia through the perspectives and research practices of Cambodian university teachers. The results revealed that Cambodian ELT teachers held “unclear and confused conceptions of ‘teacher research’ and ‘research’” (viii). It was also found that research conducted by Cambodian ELT teachers lacked rigour and quality and that true communities of practice beyond the individual level were missing. Heng et al. (2022a) also found that Cambodian lecturers or academics had mixed and contrasting conceptions of research, “paid lip service” to research (8) and believed that research and teaching were closely connected. It was also found that the academics lacked meaningful connections or engagement with academic research.

Moore (2011) previously examined research conceptions and practices of Cambodian university teachers and found that the teachers had a modest level of engagement with research. They were mainly motivated to conduct research “to improve their teaching practices and professionalism” (97), and their research practices were constrained by a lack of time, institutional support, access to relevant literature and knowledge about research methods. Moore's (2021) recent study of research practices of Cambodian overseas-trained TESOL (Teaching English to Speakers of Other Languages) scholars showed similar results; that is, these scholars' research engagement was limited by time constraints, limited access to relevant literature and limited ability to read and write in English. These TESOL scholars also believed that TESOL research practices by Cambodian researchers were “below international standard” (Moore 2021, 8).

Kwok et al. (2010) investigated research capacities of Cambodian universities and found that several challenges constrained the development of university research in Cambodia. Some of the key challenges included “a paucity of well-trained researchers” (9), low academic salaries, lack of a clear system of academic career paths and limited research facilities, among other issues. A study by the Cambodian Institute for Cooperation and Peace (2016) similarly highlighted a number of barriers to research, including limited research funding, lack of academic promotion opportunities, low salaries for academics, heavy workloads, limited social appreciation for research and political pressure on research, among others.

More recent research by Ros and Oleksiyenko (2018), Oleksiyenko and Ros (2019), and Heng et al. (2022a, 2022b) has shown similar results. Faculty research in Cambodia is considerably impeded by a host of factors, ranging from policy misalignment across multiple levels (Oleksiyenko and Ros 2019) to limited knowledge about research on the part of the academics (Heng et al. 2022a). Other structural barriers such as low salaries, limited institutional support and incentives for research and the absence of a well-defined academic promotion system also impede research capacity (Heng et al. 2022b).

Despite their empirical findings, only a few studies included the perspectives of Cambodian students, particularly university students, in their investigations, leaving a considerable knowledge gap that needs to be filled, particularly when it comes to students' perspectives of Cambodia's aspirations for a knowledge society. In this regard, the present study was conducted to examine the perspectives of Cambodian university students regarding Cambodia's aspirations to become a knowledge-based society. Insights gained from this study will be useful for policymakers, practitioners and other stakeholders in Cambodian higher education, particularly in incorporating youth's or university students' perspectives in the collective efforts

to promote research and enhance the quality of higher education in Cambodia to prepare the country for a knowledge-based society and the global knowledge economy.

3. Research methodology

3.1. Research design

This study was designed as a qualitative inquiry, underpinned by constructivist views of reality and knowledge creation (Crotty 1998). According to Neuman (2014, 94), from a constructivist point of view, knowledge and reality are not “out there” waiting to be discovered; however, realities are multiple and are socially constructed through a dynamic interaction between the researcher and the research participant (Crotty 1998). The study aims to investigate the phenomenon of interest “in depth and within its real-world context” (Yin 2014, 16). The central phenomenon examined in this qualitative study is Cambodian university students’ perspectives of the concept of a knowledge-based society and the role of Cambodian universities in supporting Cambodia in transforming itself into a knowledge-based society

3.2. Research setting and participants

This study explored the perspectives of Cambodian university students in relation to the concept of a knowledge-based society and Cambodia’s aspirations to become one in the context of the knowledge-based economy. The participants or key informants for this study were Cambodian university students who were enrolled in bachelor, master and doctoral degree programmes in public and private universities in Phnom Penh, Cambodia’s capital city. To select the participants for the study, a purposive maximum variation sampling strategy was used (Patton 2015). The selection of the research participants was guided by key factors such as degree levels, gender, majors and university types. In so doing, a diverse range of perspectives and views from the participants were obtained – “an ideal in qualitative research” (Creswell 2013, 157).

Drawing on the concept of data saturation, defined as “the point in data collection when no new additional data are found that develop aspects of a conceptual category” (Francis et al. 2010, 1230), as well as the suggestions made by Guest, Bunce and Johnson (2006) and Francis et al. (2010) regarding how many interviews would generally lead to data saturation (i.e., Guest et al. suggested 6-12 interviews, while Francis et al. suggested 17 interviews in order to reach data saturation), the author planned to select 24 participants (eight for each group of students) for the in-depth interviews. However, due to the participants’ availability and willingness to participate in the study, only 20 participants were recruited for the interviews during fieldwork. Six potential participants who were invited for the interviews could not participate. Among the 20 participants who joined the interviews, seven were female and 13 were male. Eight participants were pursuing bachelor’s degrees, eight were enrolled in master’s degree programmes and four were doctoral students. Their ages ranged from 18 to 52. Eight interviewees (40%) were enrolled in STEM degrees. The other participants (60%) were pursuing degrees in social science majors such as education, English, international relations and tourism. Of the 20 participants, 13 were from three different public universities (Public 1-3) and seven were from a private university. One of the three public universities (Public 2) was a specialised university offering degrees in science and engineering, while the other two (Public 1 and Public 3) were comprehensive universities. Table 1 provides a summary of the participants’ profiles.

Table 1: Participants' profiles

Participant code	Gender	Age	Degree pursued	Major	Type of university	Work experience
P1	Female	21	Bachelor	International relations	Public 1	No
P2	Male	18	Bachelor	Engineering	Public 1	No
P3	Female	19	Bachelor	Engineering	Public 1	No
P4	Male	19	Bachelor	English	Private	1 year
P5	Female	21	Bachelor	International relations	Private	6 months
P6	Male	26	Bachelor	Tourism	Private	11 years
P7	Female	20	Bachelor	Science	Public 2	No
P8	Male	20	Bachelor	Science	Public 2	No
P9	Male	33	Master	English	Public 1	2 years
P10	Male	29	Master	Education	Public 3	6 years
P11	Female	29	Master	English	Private	10 years
P12	Male	28	Master	International relations	Private	2 years
P13	Male	25	Master	Engineering	Public 2	6 months
P14	Male	31	Master	Engineering	Public 2	7 years
P15	Male	22	Master	Engineering	Public 2	1 year
P16	Female	21	Master	Engineering	Public 2	No
P17	Male	52	PhD	Education	Private	30 years
P18	Male	34	PhD	International relations	Private	6 years
P19	Male	42	PhD	Education	Public 3	20 years
P20	Female	32	PhD	Education	Public 3	10 years

3.3. Data collection

The present study employed two methods of data collection: semi-structured interviews and document analysis. The in-depth, semi-structured interviews (see Appendix A for the interview protocol) were mainly conducted via Zoom, except for four interviews (P2, P3, P9 and P17) that were carried out face-to-face. The interviews were conducted in Khmer (the native language of both the researcher and the participants) and lasted between 22 and 40 minutes. All interviews were recorded through Zoom's recording function or telephone with the participants' consent. In addition to the interviews, relevant policy documents, such as the Policy on Higher Education 2030, Cambodia's Education 2030 Roadmap, Policy on Human Resource in Education Sector and the Education Strategic Plan 2019-2023, among others, were reviewed to gain a better understanding of the phenomenon under study.

The recruitment of participants was conducted through various communication channels such as email, telephone, Messenger or Telegram. The participants received explanations about the aim of the study and the nature of their voluntary participation before they decided to participate in the interviews. They were also given a consent form (see Appendix B) before the interviews started to ensure that they were fully aware of their rights as a research participant, how the collected data would be used and how their identity and anonymity would be protected.

3.4. Data analysis

To analyse the data, the researcher examined the documents to identify words, phrases and/or sentences that were linked to the concept of a knowledge-based society or knowledge economy.

All the recorded interviews were transcribed and translated into English by the researcher who is proficient in both Khmer and English. The process of transcription began after the completion of several interviews and followed the transcription process suggested by Richards (2003). Both deductive and inductive coding, considered to be mutually complementary (Gibbs 2007), were employed to facilitate the data coding. The qualitative data analysis software NVivo 12 was used to support data storage, analysis and retrieval.

The data collected were analysed using Braun and Clarke's (2006) thematic analysis – “a method for identifying, analysing and reporting patterns (themes) within data” (79). According to Braun and Clarke, the thematic analysis involves six phases or steps: (1) familiarising oneself with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing a report of the analysis. Following these steps, the interview transcripts were read and coded in NVivo 12. The initial codes were then examined to develop themes, which were in turn re-examined to develop fewer, major themes. The key themes were examined and refined in relation to the research questions. From this analytical process, several thematic categories were identified. They were then grouped into three major themes, namely (1) students' understanding of the concept of a knowledge-based society, (2) students' perceptions of the role of Cambodian universities and (3) students' suggestions on Cambodia's aspirations to become a knowledge-based society. It is worth noting that with some parts of the data, content analysis suggested by Dörnyei (2014) was used to provide the quantification of qualitative data for a more detailed analysis.

To protect the participants' identity, they were coded as P1, P2, P3 and so on (P = participant). To follow the principles of ethics in this study, the author followed suggestions of Saldaña (2013), including being rigorously ethical with the participants by treating them with respect; with the data by not ignoring those that are problematic; and with the analysis by maintaining research integrity. To minimise potential physical or psychological risks that might happen to the participants or other individuals, their views and private information was respected and not elicited during the interview.

3.5. Credibility and trustworthiness of the study

Drawing on Houghton et al.'s (2013) suggestions (i.e., using triangulation, member checking, reflexivity and thick descriptions) to ensure research rigour and to enhance the credibility and trustworthiness of the present research, the author conducted member checking with several participants regarding the transcripts of their interviews and triangulated the interview data with knowledge of Cambodian higher education and Cambodian university students. Reflexivity, an important strategy to ensure the quality of qualitative research, was practised by monitoring and reflecting on “the impact of [the author's] biases, beliefs, and personal experience on [their] research” whenever possible (Berger 2015, 220).

4. Findings

4.1. Students' understanding of the concept of a knowledge-based society

The data analysis showed that Cambodian university students who participated in this study had a mixed, varying and limited understanding of the concept of a knowledge-based society. Among them, four participants (P2, P3, P7 and P12), three of them were bachelor's degree students and one was a master's degree student, had never heard of the term. One participant (P10) said he had heard of the Khmer term for knowledge-based society but never heard of the English term. He said:

I have never heard about the English term, but I have heard about the Khmer term. I think it's related to politics and the economy. I often hear people talk about a knowledge-based society that makes the economy prosper. (P10)

Two participants (P9 and P11) said they had heard about the term knowledge-based society in high school. One said:

I have been hearing about the term since high school, since I was in grade 12. I heard about it more when I started university. (P11)

Six participants revealed they had either heard about the term when they began their university studies (P1, P5, P6, P8, P13 and P14) and six others had only recently heard about it (P15, P16, P17, P18, P19 and P20). The following quotes show when they heard about the term knowledge-based society.

I just heard about it in 2021 when I began to conduct research in order to write papers. (P1)

I have heard about it, but I have never checked its definition, so I'm not sure what it means. I have heard about it through textbooks since my freshman year. (P5)

I have heard about it recently from work in the lab. I think it's about commitment to do research. (P16)

I heard about it 4 to 5 years ago through MoEYS' policies. (P17)

When asked about what they think the term knowledge-based society means, many participants expressed hesitancy in defining it, but their answers pointed to two common words: education and knowledge. This is understandable, given the English name of the term 'knowledge-based society,' from which the participants drew to provide the definition for it. That is, they tended to define the term knowledge-based society as a society that depends on knowledge for development. For example, one student said:

I think it's a fancy word. I think it means a society that relies on knowledge that the citizens have. (P1)

Another student frankly said:

I'm not sure what it means by looking at the Khmer term. But with the English term, knowledge-based society is a society that values knowledge. It is a society where people receive education, and their profession is also based on education. (P5)

Other participants used the following keywords when defining knowledge-based society:

- Human resources (P2, P8, P11)
- Educated people (P3, P6, P7, P9, P11, P13, P14, P20)
- Knowledge and skills (P9, P10, P12, P15, P16, P17, P17, P20)
- Research (P16, P19)

For instance, P2 and P11 defined a knowledge-based society as follows:

It is a society that focuses on knowledge as a foundation for development. We will focus on the development of human resources from high school to higher education. Human resources are the capital of society. (P2)

It is a society that prioritises education. It's a society that relies on individuals who receive education and use their education to contribute to society. It relies on human resources that have education. (P11)

The student participants were also asked about the main characteristics of a knowledge-based society. Their responses pointed to a few common keywords highlighting the characteristics of a knowledge-based society, as summarised in Table 2.

Table 2: Keywords highlighting the characteristics of a knowledge-based society

Keywords for describing a knowledge-based society (# of mentions)	Exemplary quotes
Education (13)	<p>A knowledge-based society needs real education, not business-driven education. Education needs to ensure that graduates have knowledge and skills that meet the needs of the job market. Education is essential. (P10)</p> <p>Education is the most important. With quality education, it ensures people have knowledge and skills needed to drive socioeconomic development. (P20)</p>
Knowledge (6)	<p>A knowledge-based society needs training in many forms, not just education in schools but also in TVET (Technical and Vocational Education and Training). People need to have a good foundation of knowledge to contribute to society. (P18)</p>
Human resources (5)	<p>The most important thing in a knowledge-based society is the development of human resources. It focuses on education that has quality and starts as early as when students are at the age of 3. It's a society that focuses primarily on education. (P11)</p>
Research (3)	<p>The most important thing is knowledge. It depends on ideas and skills. I think research is also important in a knowledge-based society. It produces new knowledge that supports a knowledge-based society. (P1)</p>
Educational institutions (2)	<p>Educational institutions are the most important things in a knowledge-based society. To ensure quality education, trainers must be qualified and the teaching and learning content needs to have quality and be up to date. (P2)</p>

Overall, the concept of a knowledge-based society is understood by the participants as a society that relies on education, including knowledge and skills, as well as research that the citizens of a country have and use to develop their country.

4.2. Students' perceptions of the role of Cambodian universities

The students were asked a few questions that sought to understand their perceptions of the role of Cambodian universities in supporting Cambodia to become a knowledge-based society. Based on the data analysis, their perceptions were classified into three key themes: (a) providing education, knowledge and skills; (b) developing character, morality, and soft skills; and (c) playing a moderate role in contributing to building a knowledge-based society. These are discussed below.

Providing education, knowledge and skills

Most of the participants stated universities, particularly Cambodian universities, played a key role in building human resources needed to develop the country. In particular, they mentioned that the main roles of universities were to provide education, develop knowledge and skills and prepare students for the job market. As one participant stated, "Universities have a role

to transform people to become knowledgeable. They are like factories that produce human resources needed to develop the country” (P2). Other participants shared similar views about the role of universities:

Universities are a place to educate people to have knowledge to contribute to developing a society. (P12)

Universities are the place to provide education and prepare students for certain professions. (P13)

Universities are the place to produce graduates that meet social needs (P3)

The role of universities is to provide quality education, knowledge, and skills that meet the needs of the market. They have the role to build human resources in all fields. (P9)

Developing character, morality and soft skills

Despite the above-mentioned roles, participants argued that the roles of universities needed to go beyond the teaching of theoretical knowledge and hard skills. That is, universities needed to provide teaching and training on both hard and soft skills, theoretical and practical knowledge, and morality. As one of the participants stated, universities had the role to “provide education and training on morality, leadership and soft skills” (P10). Another participant argued that universities should “provide quality education” that was not limited to only theoretical knowledge, but also included real-life application (P11).

Likewise, one participant argued that Cambodian universities needed to do more than simply teach technical skills. He said that they needed to provide students with opportunities to develop their character and soft skills:

I think universities have a role to educate or teach students. Currently, some universities can only teach, not educate. I am only learning about my technical skills... Universities need to provide directions for the development of character and soft skills, such as communication, critical thinking, and creativity. (P2)

Other participants focused on the role of universities in developing students’ morality. For example, two participants said the following:

Universities should focus on moral development and ensure graduates can become qualified and full citizens. (P10)

Universities should promote morality among students and teachers. (P9)

Playing a moderate role in contributing to building a knowledge-based society

While the participants understood the roles of universities in contributing to building human resources and developing students’ knowledge, skills, character and morality, they expressed doubt regarding the quality of education provided by Cambodian universities. They also rated the contribution made by Cambodian universities to building a knowledge-based Cambodian society to be relatively moderate. For example, when they were asked, “To what extent do you think Cambodian universities support Cambodia to become a knowledge-based society?” a few of them (P8, P9, P11 and P16) believed that Cambodian universities could contribute around 70% toward supporting Cambodia’s vision for a knowledge society. Other participants (P1, P3, P6, P7, P10 and P17) saw Cambodian universities’ contributions to be average or about 50%. Two participants (P12 and P13) judged the contributions by Cambodian universities to supporting Cambodia’s aspirations for a knowledge society goal to be below 50%.

Those who believed that Cambodian universities had considerably contributed to building a knowledge-based society in Cambodia cited positive developments in the education sector, such as an anti-cheating grade 12 national examination policy introduced in 2014 and other recent progress, such as more focus on research and a gradual increase in research activities. Those who rated the contribution of Cambodian universities to building a knowledge-based society to be around 50% raised issues such as the lack of clear vision for the development of education quality and research from many university leaders, limited education quality, limited support provided to students, limited teaching effectiveness and poor research engagement among academic staff. Other participants who rated the contribution to be below 50% cited issues related to the influence of politics on education and the limited quality of education provided by some Cambodian universities.

However, in general, the participants tended to be convinced of the progress and efforts made by relevant stakeholders, such as the Cambodian government and HEIs, to improve the quality of education, particularly higher education, in Cambodia. They also pointed out that some universities, especially public ones and a select few private universities, had done their job well in supporting Cambodia to develop into a knowledge-based society. Other universities, especially private ones, were business-driven and did not perform their job well in contributing to building a knowledge-based society in Cambodia. As one participant observed:

Few universities can support the vision to become a knowledge-based society. Many focus on business and profit. Some policies to promote a knowledge-based society are overlooked. Many universities just focus on their survival... Some universities just accept all students into their programmes. There is no distinction between students. (P18)

It is worth noting that when it came to the role of Cambodian universities in supporting Cambodia to become a knowledge-based society, the participants barely mentioned research, indicating their understanding of the limited research capacity of Cambodian universities and academics as discussed in the literature. However, as will be detailed in the next section, the participants made a lot of references to research and the need to promote research when providing suggestions for concerned stakeholders to contribute to realising Cambodia's aspirations for a knowledge-based society.

4.3. Students' suggestions on Cambodia's aspirations to become a knowledge-based society

The final part of the interviews sought the students' ideas or suggestions for realising Cambodia's aspirations to become a knowledge-based society. In particular, they were asked to provide answers to the following questions: How can Cambodian universities support Cambodia in becoming a knowledge-based society? What do you think we need to do to strengthen the role of Cambodian universities in supporting Cambodia to become a knowledge-based society? What do you think concerned stakeholders should do to support Cambodia in becoming a knowledge-based society?

The analysis of their responses to these questions produced a number of suggestions that could be categorised into nine themes. They included improving education quality, improving facilities and resources, increasing higher education enrolment, promoting STEM education, providing capacity building, providing more internship opportunities, promoting research, developing a clear vision and policy, and promoting stakeholder involvement. Table 3 provides a summary of these suggestions.

Table 3: Suggestions for realising Cambodia’s aspirations to become a knowledge-based society

Suggestions for realising Cambodia’s aspirations to become a knowledge-based society	Exemplary quotes
Improving education quality	Universities should try to strengthen education quality and enhance skills development. (P8)
Improving facilities and resources	Universities should improve their teaching facilities. They need to create a good environment for learning and improve library resources. (P11)
Increasing higher education enrolment	It is important to increase student enrolment in higher education. We must ensure that students can complete secondary education. Dropouts tend to work in unskilled labour. (P14)
Promoting STEM education	The government should focus on promoting science and technology. STEM is important to help Cambodia catch up with Industry 4.0 and become a knowledge-based society. (P15)
Providing capacity building	We need to strengthen lecturers’ ability and professionalism... We need to build the capacity of teaching staff. (P1)
Providing more internship opportunities	Universities should create opportunities for students to practise... They should offer opportunities for first-hand experience or internships. (P15)
Promoting research	Universities should build reading and research habits among students... They should require students to do [write] a thesis, not just exit exams. (P9)
Developing a clear vision and policy	We need to have clear plans and have funds to support the implementation of policies. (P19)
Promoting stakeholder involvement	The Cambodian government has a vision to develop Cambodia to become an upper-middle-income country, so knowledge is essential. Achieving this goal requires involvement from all stakeholders. (P16)

Improving education quality

Many participants pointed out that to realise the vision to become a knowledge-based society, it is imperative for Cambodia to improve the quality of its education system, particularly higher education, so that graduates are equipped with relevant knowledge and skills to drive socioeconomic development and ensure the country can transform itself into a knowledge society. To achieve this aim, several participants stressed the need to improve or update the curriculum to ensure that students are provided with ample opportunities to develop practical skills that meet the market demands. Some of them stated that the curriculum was too old for 21st-century classrooms and was not compatible with online learning delivery or research-focused study programmes. They also suggested improving teaching methodologies, as traditional teaching methods are usually the default of educators, to promote effective teaching and quality education. As one participant put it:

It is important [for universities and lecturers] to improve the teaching standard and effectiveness so that graduates can have the knowledge and skills needed to contribute to building a knowledge-based society. (P8)

Improving facilities and resources

The participants also emphasised the importance of improving teaching and learning facilities and resources. Some of the participants who were in STEM majors lamented about the lack of facilities in their universities to allow them to take the full advantage of their studies. Others compared the facilities or resources provided by their university to those provided by their friends' universities, arguing that some universities could not provide the necessary facilities to support student learning. The following quotes highlight this point:

Some universities offer fewer contact hours. They have less practical time [for students] to practise using machines or laboratories. Other universities lack a good campus or facilities to support students' learning. (P13)

I study IT [information technology], but I study in a normal classroom with a whiteboard. I can barely find a socket to charge my laptop. Universities should create a conducive environment for learning. (P2)

Increasing higher education enrolment

Interestingly, a lot of students suggested increasing student enrolment, particularly enrolment in higher education. Some of them talked about the high dropout rate in secondary schools and the challenges in accessing higher education, especially for female students and those in the provincial or rural areas. P14, for example, elaborated that when students dropped out of school, they would be more likely to be involved in unskilled labour, preventing Cambodia from developing itself into a knowledge-based society. Another student (P5) suggested that MoEYS should try harder to promote higher education enrolment so that more students are educated, leading to more qualified human resources to drive Cambodia's socioeconomic development. She said:

Many students dropped out of school after Grade 12, especially female students... so MoEYS should try to promote enrolment in both general and higher education. (P5)

Promoting STEM education

Relevant to the need to improve higher education enrolment is the significance of promoting STEM education. A few interviewees were convinced of the role of STEM majors in contributing to economic development. None of the participants mentioned the role of liberal arts or social sciences, possibly indicating their understanding of the lack of students' enrolment in STEM fields in Cambodia. As one of them said, "STEM majors are important, but few [people] are enrolled in these majors" (P1). Another participant (P7) similarly stated, "We need STEM subjects but there's not much encouragement in STEM." In fact, the participants tended to understand the need to promote education and research in STEM fields to support Cambodia's aspirations to become a knowledge-based society. This understanding is reflected in the following quote.

We need to improve our education system and ensure that we can produce human resources that can meet the market demands. Society with knowledge is a developed society. We do not have enough human resources, particularly in STEM. (P8)

Providing capacity building

The need to provide capacity building to both university students and teachers received a lot of attention from the participants. Six interviewees (P1, P5, P9, P10, P12 and P17) specifically mentioned the importance of building the capacity of teachers and academic staff. They argued

that when teachers were qualified, their teaching would be more effective; as a result, they could significantly contribute to improving the quality of education. As P1 mentioned, there should be more opportunities for staff exchange programmes or other professional development activities so that university teachers would have the opportunity to develop their knowledge and skills, including teaching and research skills. Another student said:

Universities should recruit qualified lecturers. In addition, they need to train lecturers to be more qualified. When the teaching staff are qualified, the education quality will improve. (P10)

Providing more internship opportunities

Several participants in this study emphasised the need to provide more internship opportunities for university students to develop their knowledge and skills beyond what is offered in the university setting, as well as to ensure that students are well-qualified upon their graduation. They argued that students needed practical experience to enhance their knowledge and skills and prepare themselves for the future job market. Many participants also stated that they learnt a lot of theories but lacked real practice to bridge the theory-practice gap. In this respect, they suggested providing more internship opportunities to students. This can be done through an effective engagement mechanism to enhance university-industry linkages. As one participant said:

Cambodian universities should create opportunities for students to practise more. They should be given opportunities for first-hand experience or internship so that they can learn and improve their current level of knowledge through real practice. (P15)

Promoting research

In addition to the need to improve the quality of education through various activities and strategies, such as capacity-building and internship programmes, the student participants also saw the need to promote research in Cambodian higher education, particularly among university lecturers and students. Several of them (e.g., P1, P9 and P14) argued that research would promote Cambodia's innovation capacity and socioeconomic development. As a result, they suggested encouraging research and innovation activities by intensively focusing on research (P1), supporting student research (P11), supporting researchers and research teams (P4) and introducing research requirements to replace exit exams for bachelor's or master's degree students (P9). The participants also provided specific strategies to promote research, such as introducing research to students early (P11, P13), creating research competitions (P1, P7, P11 and P15), providing more research opportunities (P5, P6) and providing funds for research (P6, P11, P15 and P19).

Developing a clear vision and policy

Another suggestion worth highlighting is the need to establish a clear vision and policy to promote education quality and research activities. One student participant (P19) who also worked as a government official explained that it was imperative to have a clear policy that was accompanied with sufficient funding support. He argued that the policy could not just be "policy on paper." Thus, the government needs to have "a clear vision and target" to develop the education sector and human resources; such a vision or target needs to be supported by a well-defined allocation of funds. Another participant offered similar suggestions. For instance, he said:

If we have a clear vision to develop into a knowledge-based society, the government needs to develop a clear timeline on how to achieve the goal step by step. We also need to have a clear plan and disseminate such a plan to concerned stakeholders so they can take part in achieving the common goal. (P10)

Promoting stakeholder involvement

Finally, the student participants emphasised the need to promote stakeholder involvement in order to bring about positive changes to the education system in Cambodia. Stakeholders in Cambodian higher education included various actors, such as the government, HEIs, think tanks, research institutes, NGOs, the private sector, university lecturers and students. Regarding this suggestion, several participants pointed out that stakeholder involvement and collaboration were key to improving the quality of education, especially higher education, in Cambodia. As P16 suggested, “All stakeholders should continue their current work and try to do more to improve the quality of education in the Kingdom.” Another participant (P18) similarly suggested, “All stakeholders need to work together to develop our country to become a knowledge-based society.” He added, “Without involvement from all stakeholders, it’s impossible for Cambodia to become a knowledge-based society.” Another participant made the following comment:

We need support from all stakeholders to move Cambodia closer to the knowledge-based society goal. Thus, all key stakeholders need to collaborate with one another to support the aspirations to become a knowledge-based society. (P9)

Overall, the student participants recognised the need to promote the quality of education offered by Cambodian universities and HEIs. They also understood the significant roles of research and quality education in ensuring that university graduates are equipped with the necessary knowledge and skills needed to effectively strive in the job market and meaningfully contribute to building a knowledge-based Cambodian society.

5. Discussion

This study is guided by three research questions that seek to examine (a) Cambodian university students’ understanding of the concept of a knowledge-based society, (b) their perceptions of the role of Cambodian universities in supporting Cambodia to become a knowledge-based society and (c) their suggestions for realising Cambodia’s aspirations to develop into a knowledge-based society. As previously presented, Cambodian university students had mixed, varying, and limited understandings of the concept of a knowledge-based society. While some were familiar with the term, others, including a master’s degree student, revealed that they had never heard of it prior to their participation in this research. As a result, many of the participants were reluctant in providing their definition of the term and resorted to defining it based on the word ‘knowledge’ in knowledge-based society. That is, they used keywords such as education, knowledge, skills and human resources to define the term ‘knowledge-based society.’

This particular finding is the first of its kind when it comes to research into Cambodian university students’ perceptions of the concept of a knowledge-based society. As noted earlier (Section 1.2), the views of university students have often been overlooked by previous research that explores the issues concerning research and higher education in Cambodia, leaving a critical knowledge gap regarding how Cambodian university students understand their country’s aspirations for a knowledge society or other development goals. As university students and young people are considered the backbone of their nation, it is essential that their views or perspectives be examined and taken into consideration (Heng and Sol 2022b).

Nonetheless, this study has arguably paved the way for this line of enquiry. The study's findings regarding Cambodian students' understanding of the term 'knowledge-based society' seem to corroborate a recent study by Heng (2022a), who investigated Cambodian youth's engagement in the knowledge sector. Although this study and Heng's (2022a) research examined different topics, they both focused on Cambodian university students and/or youth, as well as their perspectives or experiences in knowledge-related matters (e.g., knowledge-based society and knowledge sector or research). Moreover, both studies found that Cambodian university students and youth had a limited understanding of the concept of knowledge-based societies and limited engagement with the knowledge sector. These findings point to a serious problem in the research landscape in Cambodia, where there are limited opportunities to develop research and publication knowledge and skills for young Cambodians (Heng 2022a). They also point to limited connections between research and teaching, particularly at the classroom level (Heng et al. 2022b; Nhem 2023).

This study also found the main perceived roles of Cambodian universities were to provide education, knowledge and skills, as well as develop character, morality and soft skills. The participants also made suggestions for Cambodian universities to promote research among lecturers and students. These roles in education and research are significant for universities to serve their purposes in a knowledge society where knowledge, research and innovation are key to driving socioeconomic growth and sustainable development. As discussed in the literature review section, the roles of universities and other HEIs are indispensable, as they contribute to generating and disseminating knowledge needed to accelerate innovation and development (Etzkowitz et al. 2000). In this sense, universities and HEIs in Cambodia need to reimagine their tripartite roles in teaching, research and service by increasing their knowledge-generating capacity so that they can better serve their society. To increase their research capacity, perhaps Heng's (2021) proposal for higher education reform, focusing on improving research policies, providing adequate institutional support for research, and categorising Cambodian universities into teaching-oriented and research-oriented universities, may be worth consideration.

However, as this study showed, the roles of Cambodian universities were perceived to be limited when it came to building a knowledge-based society. These findings indicate that Cambodian university students who participated in the present study understood the significant roles of universities in ensuring the development of both hard and soft skills among students, in addition to the need to develop their character and morality. The students were also aware of the issues constraining the development of higher education in Cambodia. For instance, they expressed doubt about the quality of education offered by Cambodian universities, rating the contributions of Cambodian universities to developing a knowledge-based society in Cambodia to be moderate. Their assessment of the contributions of Cambodian universities to building a knowledge-based Cambodian society reflects the many challenges affecting Cambodian higher education discussed in previous research (e.g., Heng et al. 2022a, 2022b; Kwok et al. 2010; Mak et al. 2019b; Sam and Dahles 2017).

Despite this, the participants also acknowledged the recent developments in Cambodian higher education (e.g., greater focus on research, a gradual increase in research activities) – findings that are consistent with recent research examining the development of research in Cambodian higher education (Heng 2020b; Heng and Sol 2021). For example, Heng (2020b) and Heng and Sol (2021) noted that there were new developments, such as the establishment of new academic journals and conferences, as well as the implementation of higher education projects (i.e., HEQCIP and HEIP), which offered hope for research and higher education development in Cambodia (see also Heng and Heng 2023).

This study also found a set of recommendations put forward by the participants to help Cambodia realise its aspirations to become a knowledge-based society. As shown in Table 3, these recommendations touched on various areas, including the need to improve facilities, resources and student enrolment, the importance of STEM education and capacity-building and internship opportunities. These are in addition to the need to promote research, establish a clear vision/policy and promote stakeholder involvement. These recommendations, albeit focusing on the development of a knowledge-based society, are consistent with those suggested by previous research dealing with research and higher education development in Cambodia, as seen in Heng et al. (2022a, 2022b), Keuk (2015), Kwok et al. (2010), Sam and Dahles (2017) and Vann (2012), among others. For example, Kwok et al. (2010) made several recommendations to promote the research capacity of Cambodian universities. They included championing or emphasising university research, developing academic career paths, upgrading research facilities and promoting stakeholder collaboration, among other recommendations. Some of these recommendations have also been raised by the participants in this study.

The recommendations from the student participants (Section 4.3) are useful for the Cambodian context and potentially that of other developing countries with similar characteristics. For example, researchers investigating the issues of research development in other developing contexts, such as China (Bai, Millwater and Hudson 2014), Tanzania (Fussy 2019), Thailand (Rungfamai 2017) and Vietnam (Nguyen 2013), have put forward similar suggestions for concerned stakeholders to promote research in their respective countries. As for the development of a knowledge-based society, UNESCO (2016) proposed a knowledge society model consisting of six systems, which included the government, education and research, economy, environment, InfoComm (i.e., ICT and technology) and civil society systems. This model and the recommendations discussed in this study should be examined and taken into account to support Cambodia's aspirations for a knowledge-based society.

6. Conclusion and recommendations

The present study has examined Cambodian university students' perspectives on Cambodia's aspirations to become a knowledge-based society. It is guided by three research questions that seek to understand how university students perceive the concept of a knowledge-based society, how they perceive the role of Cambodian universities in supporting Cambodia's pursuit of a knowledge-based society and what suggestions they have regarding Cambodia's aspirations. Overall, the study has found that Cambodian university students who participated in this study had a mixed and limited understanding of the concept of a knowledge-based society, with some of them having never heard of the term. They also tended to associate the concept of a knowledge-based society with keywords such as education, knowledge, human resources, educated people and research. In addition, they believed that Cambodian universities had a moderate contribution to building a knowledge-based society in Cambodia despite acknowledging recent developments in Cambodian higher education. The study also found a number of recommendations put forward by the student participants to help Cambodia realise its aspirations to become a knowledge-based society. These recommendations focused on, among others, improving facilities and resources, increasing higher education enrolment, providing capacity-building opportunities, promoting research and promoting stakeholder collaboration.

Considering the findings, this study has the following recommendations:

6.1. Invest in higher education

The Cambodian higher education sector has received a limited amount of investment from the government at less than 0.01% of the country's gross domestic product (Mak et al. 2019a). Although in recent years MoEYS has invested in higher education through HEQCIP and HEIP to improve the sector, more investment is needed. The investment should focus on establishing an ecosystem that supports and improves teaching, learning and research. To improve the quality of teaching and learning, attention needs to be paid to reforming curriculum and assessment, improving teaching and learning facilities, including library and ICT resources and providing capacity-building opportunities for both academic and non-academic staff. As for the improvement in research, the focus should be on establishing an academic career pathway, a proper reward system, a competitive research grant scheme and a research capacity-building programme.

6.2. Increase higher education enrolment

It is important to increase higher education enrolment, including in TVET. No doubt, to support the development of a knowledge-based society, an educated or high-skilled workforce is needed. Once more Cambodian people are educated or have received higher education or post-secondary education, it is likely that they will contribute more meaningfully to Cambodia's aspirations to become a knowledge society. At present, the higher education enrolment rate in Cambodia is below 20%, much lower than that of other member states of the Association of Southeast Asian Nations (ASEAN). This low higher education enrolment rate will have a long-lasting effect on Cambodia's sustainable development and its competitiveness in the global knowledge-based economy. Thus, concerned stakeholders, particularly the government and HEIs, should concentrate their attention on creating an environment or mechanism that facilitates a higher level of higher education and/or technical and vocational enrolment. This can be achieved through various means. For example, establishing a clearer and smoother linkage between general education and higher education, as well as providing technical and/or financial support for high school graduates to better transition into higher education.

6.3. Provide capacity building for academic staff

Although capacity-building is important for both university teachers and students, it is a must for the former. As this study has shown, the participants were convinced of the need to provide capacity-building and professional development opportunities to academic staff, so they can improve their knowledge and skills, particularly research skills. The capacity-building can focus on teaching techniques or methods, research and publication skills and other personalised and practical training programmes. It is widely known and empirically proven that many Cambodian lecturers conduct their teaching based on their experiences, not research (Heng et al. 2022b; Nhem 2023; Ros et al. 2020). The lack of research engagement among many of them means that their teaching may not be informed by research and therefore may not provide up-to-date information or educational content to their students (Heng et al. 2022b). This may in turn affect students' learning outcomes and employability after graduation. Thus, it is vital to provide in-service capacity building and professional development opportunities for university teachers to enhance their teaching knowledge and skills, research capacity and ability to teach in 21st-century classrooms.

6.4. Provide internship opportunities for university students

Internship opportunities are crucial to supplement what students have learnt in the classroom and provide them with hands-on experience to develop their practical knowledge and skills needed for the job market post-graduation. If opportunities for internships or other forms of on-the-job learning activities are adequate and students are encouraged and given ample opportunities to engage in them, they will develop into more well-rounded and skill-equipped graduates over time, potentially helping to address the issues concerning skills gaps in the Cambodian context. In addition, internship opportunities will help to establish a better link between universities and industries, so all parties, including universities, students and industries, are able to better understand their needs and limitations, making it easier to improve the current level of university-industry linkages.

6.5. Promote research

As the world is embracing a knowledge-based economy and more countries are inspired to develop into a knowledge-based society, the role of research could not be more indispensable. Research helps universities to fulfil their tripartite roles of teaching, research and service. Without research, the role of universities will be confined to teaching and service, not knowledge creation through research. This will in turn limit the contribution of universities to society, particularly in terms of producing new knowledge and stimulating innovation needed to drive socioeconomic development. Promoting research in Cambodia will take time and several steps (Heng 2022b; Heng and Sol 2021; Keuk 2015; Kwok et al. 2010). However, great attention should be paid to ensuring a clear vision and policy for research, mechanisms to encourage or support research, and an environment that is conducive for research. In particular, a long-overdue research policy that outlines institutional research requirements and incentive systems is urgently needed and should be effectively implemented.

6.6. Promote stakeholder involvement in higher education

Finally, it is imperative to promote stakeholder involvement in Cambodian higher education. As suggested by the participants, to develop a knowledge-based society, active involvement from concerned stakeholders, whether it be from the government, HEIs or the private sector, is required. If the vision to transform Cambodia into a knowledge-based society is not shared by all key stakeholders, it is inevitable that the vision may not be realised or effectively acted upon. This will lead to stagnation in the development of a knowledge-based society. To promote stakeholder involvement and collaboration in Cambodian higher education, suggestions made by Sam and Dahles (2017) are worth considering. They argued:

The government and donors need to play a leading role through policy and resource interventions for the [higher education] development and a key role in coordinating the interactions among the stakeholder categories. Industries and NGOs [non-governmental organizations] need to be active as supporting agents in providing inputs for HEIs to produce qualified graduates. Moreover, HEIs need to develop their staff capacity and mobilize their resources to build credibility in order to attract potential external funding sources and take initiatives for collaboration. (1780)

Heng (2020c) also offered suggestions on how to promote stakeholder involvement in Cambodian higher education. He divided key stakeholders into three levels: macro or national, meso or institutional and micro or individual. At the macro level, Heng suggested, the focus should be on clear and effective policies and visions. At the meso level, attention should be paid to creating a conducive environment for research and quality teaching. This involves

providing research funds and incentives, introducing research requirements and establishing a community of research practice to offer peer support on various aspects concerning teaching and research. At the micro level, it is crucial to provide a constant source of motivation that could trigger individuals' commitment, desire, and agency to contribute to improving their community and society.

7. Limitations and suggestions for future research

The present study has some limitations. First, since the study was designed as qualitative research, the findings are limited to a certain group of participants who took part in the interviews. Thus, this study's findings should be interpreted with caution. Second, the student participants were all based in Phnom Penh, so their views may not necessarily reflect the views of other students in the countryside. In addition, some participants did not understand the term 'knowledge-based society' well, so views were limited to their current level of knowledge and understanding. Third, this study also did not involve other types of participants, such as university leaders, lecturers and other higher education stakeholders such as representatives from NGOs or donor agencies; therefore, it was not possible to verify or assess the information gathered from the student participants and their assessments about the contributions of Cambodian universities to the development of a knowledge-based society in Cambodia. Fourth, the study did not include students from other types of HEIs, such as institutes or teacher education colleges or centres, leaving their views unrepresented in the findings.

Considering these limitations, this study makes the following suggestions for future research:

- Conduct a quantitative or mixed-methods study that (a) contains a large sample size of university students and/or (b) involves students from universities in both the city and the province, so the views of the participants with diverse backgrounds and experiences are represented.
- Conduct a study, whether qualitative, quantitative or mixed-methods, that includes other types of research participants, particularly university leaders, lecturers and/or policymakers at the national level, to understand their perspectives regarding Cambodia's aspirations to become a knowledge-based society.
- Conduct a study that involves students or teachers from other types of HEIs, especially teacher training centres or colleges, to examine their views on this issue and how they think about Cambodia's vision to become a knowledge-based society.
- Conduct a comparative study to assess the perspectives of different higher education stakeholders, including donor agencies, about Cambodia's aspirations to become a knowledge-based society and gather their inputs on how to realise such a vision.
- Conduct a study that explores concerned stakeholders' views about Cambodia's vision to become an upper-middle-income and high-income country to provide a nuanced understanding of how Cambodian people perceive this ambitious vision.
- Conduct empirical and philosophical research to understand whether Cambodia should embrace this American or Eurocentric development path, promoted by international organisations such as the World Bank, or if the country should instead capitalise on its own knowledge advantages and strengths, including traditional and cultural knowledge, to develop itself into an alternative knowledge-based society.

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Appendices

Appendix A: Interview protocol

Introduction

Dear participant,

Thank you for agreeing to participate in my research. My name is Heng Kimkong. I am currently a PhD Fellow at the Centre for Educational Research and Innovation at the Cambodia Development Resource Institute. I am conducting a research study that aims to understand (a) how Cambodian university students perceive the concept of a knowledge-based society, (b) how they perceive the role of Cambodian universities in supporting Cambodia to become a knowledge-based society and (c) what suggestions that they have regarding Cambodia's aspirations to become a knowledge-based society.

Seeking consent for the interview and the use of voice recorder

Before we begin the interview, I would like to tell you that the interview should last around or less than one hour, and I would like to record the interview for the purposes of data transcription and analysis. The recording of the interview will be used for research purposes only. If you do not mind being audio-recorded during the interview, can you please sign the consent form? If you would prefer not to be recorded, please sign the consent form all the same, but we will not record it, and I will take extensive notes during the interview.

I would also like to assure you that your personal details (name, university, etc.) will not be revealed to other people. That is, your responses to the interview questions will be strictly kept anonymous, and your identity will not be revealed in any reports or publications in the future. Thus, it is essential that you provide your honest, unbiased and authentic views, as they will enhance the credibility and trustworthiness of this research.

Key aspects of the interview

1. Personal background
 - a. University _____
 - b. Degree level _____
 - c. Major _____
 - d. Session/shift _____
 - e. Age (range) _____
 - f. Current occupation _____
 - g. Workplace _____
 - h. Hometown _____
2. Perspectives on the concept of a knowledge-based society
3. Perspectives on the role of Cambodian universities in supporting Cambodia to become a knowledge-based society
4. Suggestions regarding Cambodia's aspirations to become a knowledge-based society

Guiding interview questions

1. RQ1: How do Cambodian university students perceive the concept of a knowledge-based society?
 - a. Have you ever heard the term ‘knowledge-based society’? How and when did you hear about it?
 - b. In your opinion, what is a knowledge-based society?
 - c. What do we need the most in a knowledge-based society?
 - d. What do you think about Cambodia’s aspirations to become a knowledge-based society?
 - e. Do you think Cambodia can become a knowledge-based society in the next decade? Why or why not?

2. RQ2: How do Cambodian university students perceive the role of Cambodian universities in supporting Cambodia to become a knowledge-based society?
 - a. In your view, what is the role of a university?
 - b. What do you think about the role of universities in a knowledge-based society?
 - c. What do you think about the role of Cambodian universities in supporting Cambodia to become a knowledge-based society?
 - d. To what extent do you think Cambodian universities support Cambodia into become a knowledge-based society? Why do you think that?

3. RQ3: What suggestions do Cambodian university students have regarding Cambodia’s aspirations to become a knowledge-based society?
 - a. In your view, how can Cambodian universities support Cambodia to become a knowledge-based society?
 - b. What do you think we need to do to strengthen the role of Cambodian universities in supporting Cambodia to become a knowledge-based society?
 - c. What do you think concerned stakeholders (e.g., the government, higher education institutions, think tanks, research institutes, the private sector, lecturers and university students) should do to support Cambodia to become a knowledge-based society?
 - d. Do you have any final comments?

Conclusion

Thank you very much for your time and insights. I really appreciate your support. I wish you all the best.

Appendix B: Consent form

Consent Form For the participant

Project Title: Cambodia's Aspirations to Become a Knowledge-Based Society: Perspectives of Cambodian University Students

Researcher: Kimkong Heng, Cambodia Development Resource Institute

In giving my informed consent, I acknowledge that:

1. I understand the objectives of the research as explained to me by the researcher, and I have had an opportunity to seek clarifications and/or ask questions about the research study.
2. I understand that my participation is completely voluntary and that I can withdraw from the study at any time without having to provide any explanation.
3. I understand that I can request the researcher to destroy my responses and information that I provided if any concern arises.
4. I fully understand that my personal information, including my name and other identifiable information, will be kept confidential and anonymous.
5. I understand that pseudonyms or codes will be used to protect my identity.
6. I understand that my participation in this research is voluntary, and I will not receive any financial benefits for participating in the interview.
7. I understand that my responses may be used as quotes or other forms of data presentation in future research dissemination (e.g., publication) and that my identity will be anonymised.
8. I understand that my interview will be recorded and that I can ask the researcher not to record the interview if I wish.
9. I understand that if I have any complaints, questions or concerns about this research, I can contact the Cambodia Development Resource Institute via +855 23 881701 or cdri@cdri.org.kh.

Signature of the research participant: _____

Name of the research participant: _____

Date of signature: _____

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