The Role of Higher Education Leaders in Building Human Capital in Cambodia

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Abstract. The study has two main objectives: (i) to formulate roles and competencies for higher education institution (HEIs) leaders to best prepare Cambodian graduates to achieve Cambodia's vision, (ii) to propose appropriate strategies for HEI leaders to achieve the vision. The research design: Qualitative approach was the main supplemented by the quantitative method and Modified and Policy Delphi was chosen because it best met the study objectives. RQ1, RQ2, RQ3 and RQ4 were developed from an extensive literature review related to the study. 65 panelists with heterogeneous characteristics: sex, nationality, qualification, working seniority, specialization, was invited to join four rounds of the Delphi. To understand the situation analysis of Cambodian HEIs, SWOT Interplay was also used. From the finding, there was a moderate agreement (W=0.378), strong agreement (W=0.667), strong agreement (W=0.640) and moderately agreed (W=0.451) in Q1, Q2, Q3 and Q4 respectively. "leadership quality and capacity" and "strong leadership competency" are the prime concerns for HEI leaders to build highly qualitied human capital. There has a strong positive correlation (r =0.571, p = 0.000) between "strong leadership competency" and "Personal Excellence ability".

Index Terms- Human capital development, higher education institution, leadership, economic growth, competency, vision.

I. Introduction

The world trend (IR 4.0, the 21st century skills) and other driving forces such as regional market competition causes Cambodia to well-prepared. According to the World Economic Forum (2015), an estimated 65% of kids enrolling in primary education today will end up working in jobs that have not been created yet. Automation and artificial intelligence (AI) are the change agents in IR4.0 that will make certain groups of employees redundant, replacing them with new workers with the needed skills or with machines that do the job cheaper. According to the World Economic Forum (ibid) on the trends of the future, 2025 and beyond it shows that: (i) 10% of people will be wearing clothes connected to the internet, (ii) 80% will have unlimited (sponsored) backup space in the cloud, (iii) 80% of the world's population will have Internet presence, (iv) 90% of world's population will own a smart phone

and will have internet access, (v) 10% of all vehicles on the roads will be driverless and (vi) more than 50% of home appliances will be connected to internet.

According to the World Bank (2022), before the Covid-19, Cambodia blossomed economically over the two decades. As a result, Cambodia reached lower middle-income status in 2015 and set its plan on attaining upper middle-income status by 2030. Between 1998 and 2019, Cambodia's economy grew at an average annual rate of 7.7%, making it one of the fastest-growing economies in the world. Thanks to garment exports and tourism post-pandemic, Cambodia's economic recovery has gained momentum, but remains uneven. It is noted that while travel and tourism have improved, the sector remains well below pre- Covid-19 levels. The economy is projected to grow 4.8 percent in 2022, upwardly revised from a forecast of 4.5 percent in April, underpinned by merchandise exports and domestic economic activity. Foreign direct investment (FDI), while diversified, remains affected by China's zero Covid-19 policy. Cambodia's export-oriented manufacturing sector is expected to face headwinds from a less favourable external environment reshaped by slowdowns in the United States and China. In addition, energy and food price hikes due to the war in Ukraine are expected to weigh on household budgets and slow poverty reduction. To blunt the impact of high inflation on vulnerable households' welfare, the government is considering additional fiscal interventions. Over the medium term, the economy is expected to grow around 6 percent annually as the new investment law and free trade agreements help boost investment and trade.

Cambodia has recently redefined the poverty line, using the most recent Cambodia Socio-Economic Survey for 2019-2020. The national poverty line was USD2.70 (in October 2022). Under the new poverty line, about 18 % of the population is identified as poor. The poverty rates vary considerably by area from the lowest in Phnom Penh (4.2 %), to other urban areas (12.6 %), and the highest in rural areas (22.8 %). Over the period 2009-2019/20, the poverty rates declined by 1.6 % percentage points a year, driven substantially by rising labor, especially wage earnings. However, the Covid-19 pandemic led to increases in unemployment, poverty, and inequality. The scale-up of social assistance to poor and vulnerable households, launched in June 2020, has moderated income losses. The increase in the poverty rate in 2020 is projected to have been limited to an increase of 2.8 percentage points. Poverty nevertheless remains higher than pre-pandemic levels.

In terms of human capital, Cambodia has made considerable strides in improving health outcomes, early childhood development, and primary education in rural areas. Despite this progress, human capital indicators lag other lower middle-income countries. In the 2021-2022 academic year, net enrolment rates for primary, lower secondary, and upper secondary education (both public and private) reached 93 %, 46.7 %, and 28.6 % respectively. Key reforms are needed for Cambodia to sustain pro-poor growth, foster competitiveness, sustainably manage natural resource wealth, and improve access to and quality of public services. Cambodia continues to have a serious infrastructure gap and would benefit from greater connectivity and investments in rural and urban infrastructure. Further diversification of the economy

will require fostering entrepreneurship, expanding the use of technology, and building new skills to address emerging labor market needs. Boosting investments in human capital will be of utmost importance to achieve Cambodia's ambitious goal of reaching middle-income status by 2030. (World Bank, 2022)

Given some economic constraint, the Cambodian government has initiated and developed several policy, framework and guideline aiming at improving the living standard of people through fostering the country economic growth. These are: The Rectangular Strategy - Phase IV vision 2030/50, Guideline on Preparing the Financial Strategic Plan 2023-2025, Digital business strategies; National Policy on Science, Technology and Innovation 2020-2030; Cambodia's Economic and Social Digital Policy Framework 2021-2035; Cambodia Governmental Digital Policy 2022-2035; Agricultural Development Policy 2021-2030; Roadmap on Tourism Rehabilitation & Promotion in/ post Covid19 2020 2025. Cambodia has been experiencing two-digit growth in its economy for the last several years. The remarkable economic growth and political stability undoubtedly bring the country opportunities to revitalize its social sector. Education is one of the prioritized sectors of the country. As a result of integrated efforts, education has been viewed as a success story in Cambodia's reforms. In terms of HEI situation, as of August 2022, there are 130 HEIs in Cambodia, of which 82 are private. While these HEIs are under the supervision of 16 different ministries and institutions, MoEYS is in charge of 82 HEIs, with 198,363 students (98,535 females) enrolled in the school year 2020-2021 (MoEYS, 2022).

Higher education plays a significant role in bridging students to the career path they wish to pursue and equipping them with the necessary knowledge and skills to perform effectively in the workplace. However, in Cambodia, the limited quality and the ineffectiveness of HEIs have constrained graduates' potential, leading to many issues such as skills mismatches, work-life conflict, and job dissatisfaction.

This study is to ascertain the qualities of higher education institution leaders do to build the right human capital to achieve the above vision.

1. Statement of Problem

Although, Cambodia's economy growth has a good trend: 7.8% (1997-2014), 6.8% (2017), 5.4% (2022), 6.6% (2023) (World Bank, 2018 and RCG, 2022), to reach Cambodia's vision 2030/2050 there needs a strong commitment and strategic plan, especially building strong human resources and human capital (HR/HC). According to the World Bank Group (2018), to become an upper-middle income country by (Vision for 2030), Cambodia's GDP must reach USD 3,896. Similarly for reaching the high income country (Vision 2050), Cambodia's GPD must reach US$12,056. In addition, to become an upper-middle income country by 2030, Cambodia's economy needs to keep growing at an annual rate of 7% and needs to move towards more technology-based manufacturing (RGC, 2015).

Therefore, to achieve the vision 2030/2050, Cambodia needs highly productive human capital (HC) and Higher education institutions (HEI) are the places where Cambodian HC is built. Unfortunately, Cambodian Human capital is still shortage in

terms of education and skills. As stated by ADB (2018) of the 10.3 million active labor force, mostly of them are with low-skills, low wage jobs, inadequately prepare graduates for further studies or labor market. Also there has been a mismatch between numbers of qualified graduates from HEIs compared to the labor market needs (Paradise R, 2022).
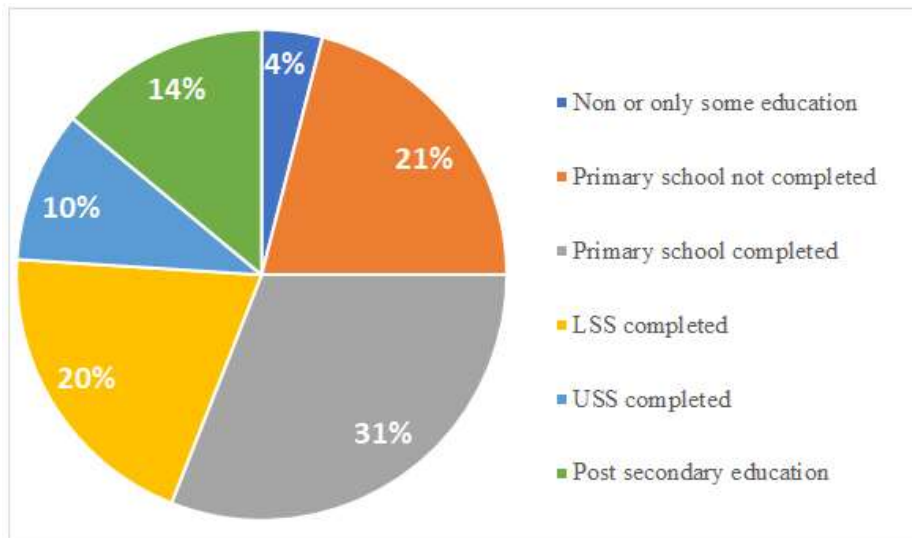

Figure 1: Educational attainment of the labour force, aged 15-24 (2017)

Source: ADB (2018). Asian Development Outlook 2018 Update. Maintaining Stability Amid Heightened Uncertainty. ADB, Manilla

The world is now at the dawn of the Fourth Industrial Revolution, shaped by globalization, the unfolding technological transformation, triggered by the confluence of emerging technology breakthroughs, covering wide-ranging fields such as artificial intelligence (AI), robotics, the Internet of things (IoT), autonomous vehicles, 3D printing, nanotechnology, biotechnology, material science, energy storage and quantum computing. The new revolution will have a big impact on how the new generation will be educated in order to get them prepared for future job market (Schwab, 2016). According to research from the World Economic Forum (WEF), 35% of the skills necessary to get a job today will be different ten years from now. The Fourth Industrial Revolution will mean that, over the next ten years, a third of the skills the economy needs will change due to automation.

A child today will have to change jobs at least seven times over the course of their lives – and five of those jobs don't exist yet. It is therefore impossible to predict which "hard skills" children in today's classrooms will need for jobs their future jobs. A survey of 900 companies confirmed that soft skills are the most relevant for the future. These skills include teamwork, knowledge of digital tools, an understanding of rules and regulations, responsibility and commitment. The jobs that even artificial

intelligence can't replace will be those that require strong human character traits. The workers will need a positive attitude to relearn and adapt to new situations as old skills become obsolete (Thomson, 2016). Therefore, the rapidly changing technologies and economic and political landscapes of the world require that education and skill policies should take center stage. Education and skills will have significant impact on individuals' and societies' capacity to adapt to the changes and to take advantage of the opportunities brought about by globalization (Woessmann, 2011). Education therefore is an important factor in the access and exploitation of available science and technology, thus for long-term economic growth in Cambodia. Educated populations provide the types of labor force necessary for industrial development. Cognitive skills and non-cognitive skills are important for productivity and social outcomes. (Hang Chuon Naron, 2017 p.6)
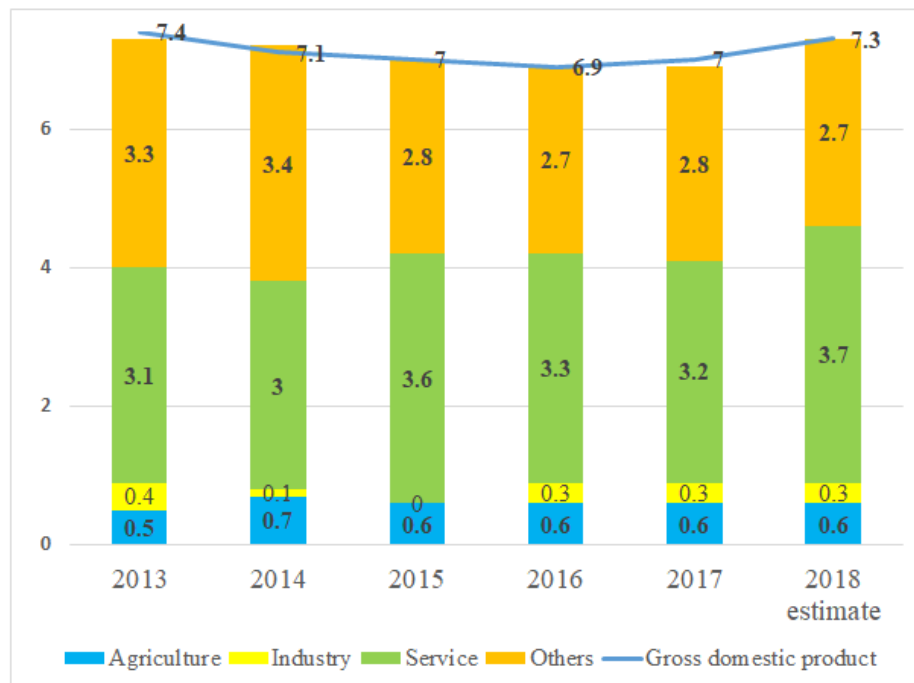

Figure 2: Contribution to Cambodian GDP growth by sector in Cambodia 2013-2018

Source: Ibid

3. Research Objective
The main objectives of the study are as follows:
- To roles and competencies for HEIs leaders to best prepare Cambodian graduates to achieve the country's vision
- To propose strategies for HEI leaders to best prepare the students to achieve the country's vision.

4. Research Questions
- This study attempts to answer the following four questions:
- What are the key roles of HEI leader in building qualified human capital (HC)?
- What are the key challenges faced by leaders of HEIs in building qualified HC?
- How do leaders of Cambodian HEIs best prepare the students to achieve the country's vision?

5. Significance of the Study

First, the policy makers from the Royal Government of Cambodia (RGC) and other ministries, especially the Ministry of Education, Youth and Sport (MoEYS); Ministry of Labor and Vocational Training (MLVT); and Ministry of Industry, Science, Technology and Innovation. Findings from this study will help them to identify and formulate better and appropriate policies and strategies to deal with key challenges to reaching the country's vision 2030/2050.

Second, HEI (leaders, lecturers, staff, and students): Findings from this study will help them to identify key challenges and to develop strategies to achieve the vision 2030/2050.

Third, researcher/scholars: Findings from this study will help them to develop the whole study and respond to the higher education in Cambodia.

Fourth, the next young generation: Findings from this study will help them to be as the main sources for next developing.

Last, the whole nation, i.e., Cambodian citizens: Findings from this study will help them to apply as the important findings).

II. Literature Review

1. Human Capital Development

According to Robbins (1932), the Economics of education is the study of choice under conditions of scarcity time and purchasing power are scarce, so families and public sector deciding about the education of their children and workers will consider how much money they will spend on education and for how long. Education is an increase in skills, knowledge and understanding of individuals. The production of those skills and knowledge provide the citizen an opportunity cost (price) and a choice to be made to achieve the desired level of education of a country's population. In addition, McMahon (2009), stated that Economics of education is concerned with the ways in which decisions are made which affect this stock of knowledge and skill both for individuals demanding education, and the teachers and institutions providing this service. The demand model for education is based on the human capital theory. Human Capital is the knowledge, skills and attributes acquired by investment in education and health throughout the lifecycle. Knowledge and skills can be acquired through formal education such as different schools levels from primary to secondary school and university or higher education institutions (HEI), and also through additional learning at home, on-the job training and lifelong learning.

2. The role of Higher Education

The importance of education for development has been recognised at an international level and almost needs no debate. According to the UN (2000), the universally agreed Millennium Development Goals (MDGs) aims at achieving the universal primary education, and the specific target was to attain, by 2015, "that all children can complete a full course of primary schooling, girls and boys". As the MDGs mainly focus on primary education, there are some criticisms of this specific goal because it seems to neglect post-primary and specifically Higher Education. With the MDGs expired at the end of 2015, the new Sustainable Development Goals (SDGs) has replaced them as new targets for the future of international development. The SDGs were first officially discussed at the United Nations Conference on Sustainable Development as the goal related to education is not only focusing on primary education but to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (Goal 4). Given an importance of Higher Education goes beyond economic considerations, there are a variety of reasons for considering the key role of Higher Education in the socio-economic development of the countries. Burchi (2006) views education plays an instrumental role via economic production and social change and he summarises that "The basic idea is that being educated improves rural people's capacity to diversify assets and activities, to access information on health and sanitation, to enhance human agency in addition to increasing productivity in the agricultural sector; these are all essential elements to ensure food security in the long-run". Tilak (2010), considers that Higher Education is closely related to human development indicators, which reflect other dimensions of human poverty, as it has demonstrated with its contribution to the reduction of infant mortality or increases of life expectancy. Thus, there is a mix of basic ethical, humanistic and political reasons that could justify the investment in Higher Education in developing countries, based on the human development approach.

Most literatures providing supporting evidence on the role of Higher Education in socio-economic development comes from the Human Capital Theory, and has two basic approaches: Micro and Macro level. For the micro level, it estimates the rate-of return to investment in education while the Macro ones estimate the contribution of Higher Education to growth. The research by Azcona et al., (2008) found that many countries there is a low level of funding in research and development at higher education (HE) sector, and as a result, many graduates enter the labour market unqualified and untrained with the knowledge and skills for available jobs. In addition to higher education graduates enter the labour market unqualified; Wang (2012) found that employers need graduates in possession of skills such as: team work, problem solving, creative thinking, communication (including foreign languages), writing, negotiation, ICT, leadership and autonomy.

The rates of returns generated by HE sector are significant in helping the country's economic growth. The role of HE in the socio-economic development process of a country is crucial, both from the human capital theory or the human

development paradigm. Macro and micro level studies show that HEI in developing countries could act as engines of social mobility, innovation, and economic growth.

4.2 Cambodian higher education

The Cambodian higher education (HE) system is a mixture of several different educational models. The most obvious features of the present system are a legacy of the French colonial period and the Soviet system introduced by Vietnamese after 1979. Later, the unregulated growth of the private sector as a result of the national shift towards a market economy has resulted in massification mostly following a North American model (open access, self-selection by students) (Watson, 2002).

Even though the education system that was created by the French and then expanded by King Norodom Sihanouk was officially abolished by the Khmer Rouge regime, much of the educational ideology from that time has remained in the minds of present day administrators who belong to the generation that received their education during the 1960s. French influence can still be seen in the preference of senior administrators for highly selective exams in which a very small number do extremely well and most students score around an average mark. After the Khmer rouge regime, it was the period to rehabilitation of education sector including HEIs. It was then that a popular slogan was used:

"Those who know more teach those who know less, and those who know less teach those who do not know"

After the Cambodia had changed from a socialist to a democratic system through the UN- sponsored election in 1993, there was a radical change in the country's political and economic situation when the higher education (HE) begun its gradual reforms including the introduction of privatisation in the HE sector. Later, with an increase of foreign investment and economic reforms in the country there is a big demand of human resources and human capital. Since that time, the privatisation of HE has seen a gradual growth in the enrolment of high school students, leading to an expansion of higher education institutions.

The Ministry of Education, Youth and Sport (MoEYS) in its Education Strategic Plan (ESP) 2019-2023 set three key policy objectives for higher education namely: (i) Increased access and equity of enrolment opportunity to realise the RGC's pro-poor policy; (ii) Quality assurance and improvement at both institutional and system levels; and (iii) Strengthened institutional management and development.

As Cambodia is moving from a low-income to a middle-income status, it will significantly need the HC who equip with soft-skills combined with technical and vocational skills, for employment and entrepreneurship (Naron, H.C, 2022b). However, the Cambodian education system is facing the following challenges of producing quality citizenship namely: (i) the knowledge, technical, soft and life skills of the Cambodian graduates are not responsive to the level of social and economic

development of Cambodia, (ii) Young people migrate to the urban areas and overseas and are not committed to the sustainable development of their communities, (iii) Cambodian economy is small and open and is therefore facing the impact of global challenges, such as climate change, global terrorism and backlashes against globalization. (iv) As member of ASEAN, Cambodia is required to be integrated into the region and the world. Cambodian graduates must learn to appreciate divergent cultures and values (Ibid). Another source of difficulties for HE has been the RGC focus on improving primary and secondary education in line with the adoption of the Education For All agenda in 1990. On one hand HEIs are expected to modernise and respond to the demands of an emerging market economy; and on the other hand they are meant to fulfil the government's public responsibility to provide free higher education to the most able students, and achieve both without significant government support. As a consequence of this decision tertiary, institutions are expected to become increasingly self-funding and to orient their courses to market needs (Pit C. & David F., 2002).

3. Capital Development in Cambodian Higher Education

Although, Cambodian education has been much progressed but the education system requires much more improvement amidst the country's transformation towards becoming a digital economy (SET, 2000). Cambodia is currently embarking on a digital transformation. The RGC's Rectangular Strategy (2018, Phase IV) argues that the country needs to prepare for the digital economy and the Fourth Industrial Revolution in order to diversify its economy and identify new potential sources of growth. Without preparation, the country may not be able to realize its vision of transitioning into an upper-middle-income country by 2030 and a high-income country by 2050.

Under the RGC's National Strategic Development Plan (NSDP), and the Education Strategic Plan (ESP), Cambodia has an ambition to develop Human Capital (HC) to lead the transformation of Cambodia to an upper-middle income country by 2030 and a developed country by 2050 (Naron, H.C, 2022b). The key factor in the coming years, as Cambodia is moving from a low-income to a middle-income status, it will significantly increase the number of youth and adults with strong literacy, numeracy and soft-skills combined with technical and vocational skills, for employment and entrepreneurship (Ibid).

III. Methodology

1. Research Design

As the objectives of the study are to formulate the roles and competencies for Higher Education Institution (HEI) leaders to best prepare Cambodian graduates to achieve the country's vision as well as to propose strategies for HEI leaders to deal with challenges in building qualified Human capital (HC), thus Modified Delphi or Policy Delphi is selected as the most appropriate research technique and the best choice for the study. According to Franklin and Hart (2007), the Delphi Method is

considered a hybrid of both quantitative and qualitative research because both statistical and qualitative data are used.

2. Setting and Participants

Regarding the selection of experts for a Delphi study, choosing the appropriate individuals is the most important step of the process and the selection is generally dependent upon the disciplinary areas of expertise required by the specific issue (Hsu & Sandford, 2007). Therefore, the criteria to select the experts are those that have the relationship with the key issue of HE interventions and thus capable of contributing helpful inputs for higher education institution (HEI) leaders. The experts selection are HEI senior academics direct beneficiaries of HEI programmes or programme managers who have been selected because of their experiences concerning HE interventions for both are practitioners for the past 10-15 years. Thus the Delphi panel finally comprised 65 practitioners in the HE sector as well as other fields.

As a Delphi is concerned with the opinion of experts, random sampling of the general population is usually inappropriate (De Meytrick, J, 2003 & Keeney et al., 2011). Thus, it is important to engage participants/ experts/ panelists who have high-level knowledge and understanding of the issues; can provide input that is relevant, widely recognised and verifiable; have a sense of vision, interest and commitment; and bring in a wide variety of viewpoints (De Meytrick, J, 2003 & Linstone et al., 2002). Experts do not necessarily require specialist knowledge of the entire issue – they may be bringing in highly specific knowledge of one facet of the topic being explored (Linstone et al., 2002).

The careful selection of participants is the cornerstone of a successful Delphi, and has been a source of significant criticism, due to the high risk of creating bias via a non- representative sample Keeney et al., 2011).

3. Data Collection

The main source of data for this study came from the four rounds of Delphi with 65 panelists who were educational policy makers, experts and senior officers of the Ministry of Education, Youth and Sport (MoEYS) and HEIs. In the interview protocol, there were six sections addressing the following areas: (i) Roles of HEIs in economic development of the country, (ii) Key roles of HEI leader in building qualified human capital, (iii) Key challenges faced by leaders of HEIs in building qualified human capital and (iv) Strategies for Cambodian HEIs leader to best prepare the students to achieve the country's vision.

The design of the initial questionnaire was based on three main premises. First, the questions incorporate the key topics identified both on the theoretical framework and on the methodologies for assessing HEI leaders'roles/ functions and competencies. Thus, the questionnaires are based upon an extensive review of the literature. Second, the questionnaires had to be brief and simple to facilitate the work of experts and maintain the motivation of the participants who should only spend

between 40-60 minutes in each round to complete the survey.   Third, the questionnaires were designed with both closed and open option as to explore quantitative and qualitative approach to request the experts to provide specific evidence about their views on the questions/items asked.

The Delphi Pilot survey was conducted from 01 July to 30 July 2022, followed by the four rounds of Delphi conducted from 03 August 2022 to 25 February 2023 as follows:

- The Delphi Round 1: From 03 August to 05 September 2022. After Round 1, the data were analyzed to formulate the questionnaires/survey for Delphi Round 2.
- The Delphi Round 2: From 10 September to 07 November 2022. After Round 2, the data were analyzed to formulate the survey for Delphi Round 3.
- The Delphi Round 3: From 10 November 2022 to 05 January 2023. After Round 3, the data were analyzed to formulate the survey for Delphi Round 4.
- The Delphi Round 4 (Final Round): From 10 January to 25 February 2023. After Round 4, the data were analyzed and interpreted for the report Delphi Round 4.

4. Data Analysis

There are different approach, possibilities and applications of measures that could vary in accord with the aim of the study, sample, survey structure and so on. In this study, although the main focus is on qualitative but both quantitative and qualitative data analyses were employed. One of the characteristics of the Delphi technique is the suitability of a variety of statistical analysis techniques to interpret the data (Dalkey, 1972).

The data analysis involved qualitative data since open-ended questions to solicit experts' opinions and to provide examples. In addition, the statistical analysis also used to supplement the qualitative in terms of objective and impartial analysis and summarization of the collected data (Hsu & Sandford, 2007) while the qualitative analysis allow for more in-depth views of the items/ questions asked.

$$W = \frac{12R}{m^2(k^3 - k)}$$

$$R = \sum_{i=1}^{k} (R_i - \bar{R})^2$$

IV. Findings

1. Participant Profiles

There were 65 participants or panelists of whom 11 (or 17%) were females and nine (or 14%) were foreigner professors engaged in the study. Their ages varied

from 30 to over 60 years old. In terms of qualification, all panelists hold at least bachelor's degrees and up to PhD and professor. In terms of working positions, four of them have the title as excellences in the organization/ ministry/ university. Table 9 shows the details.

Table 9.The Panelists' Particular

Qualification or Degree	Position								Total	F
	Vice president / Rector	Dean	Vice Dean	Director of Dept.	Deputy Director of Dept.	Head Office	Lecturer	Others		
BA	-	-	-	-	-	-	2	18	20	9
MA	-	1	-	2	3	5	11	-	22	2
PhD	3	3	1	3	6	1	4	2	23	0
Total	3	4	1	5	9	6	17	20	65	11

Findings

The panelists are categorized by sectors (public, private, NGO/IO), professions, working seniority, age groups, and organizations they are working as follows:

- 16 panelists work in the public sector
- 41 panelists work in the private sector or NGO

Professional Experts

- 28 panelists specialized in education
- 6 panelists specialized in human resource
- 5 panelists specialized in teaching English as a foreign language or teaching English to Speakers of other languages (TEFL/TESOL)
- 5 panelists specialized in academic
- 4 panelists specialized in administration
- 4 panelists specialized in others
- 3 panelists specialized in management
- 1 panelists specialized in finance and business
- 1 panelist specialized in assessment/evaluation

Working Seniority

7 panelists have been working less than 5 years in their field of specialist
11 panelists have been working from 6 to 10 years in their field of specialist
26 panelists have been working from 11 to 20 years in their field of specialist
13 panelists have been working more than 21 years in their field of specialist

Age Groups

- 12 panelists were below 30 years old
- 21 panelists were between 31 to 40 years old
- 13 panelists were between 41 to 50 years old

- 10 panelists were between 51 to 60 years old
- 1 panelist was above 61 years old.

Organizations/ Ministries/ Firms that the Panellists Currently Working
- 7 panelists work in the Ministry of Education, Youth and Sport
- 5 panelists work in other ministries
- 3 panelists work in the provincial/municipal authorities
- 5 panelists work in the private firms/ business/ Non-Governmental Organization (NGO)/ International Organization (IO)
- 27 panelists work in the higher education institutions (HEI) including Institute of Foreign Languages (IFL), Royal University of Phnom Penh (RUPP), National Institute of Education (NIE) and other universities
- 10 panelists work in the international institutions / centres.

Results (Box 2): The role of HE
Box 2.Findings from Delphi Round 1 or Delphi Round 2 Questionnaires

N	Items
1	Roles of HEI in economic development of country: Research Question 1 (RQ1)
	In this part, from one open-ended question in Delphi round 1, the qualitative data analysis (coding and thematic) generated six patterns of answers. These are: (i) Producing the workforce (or human resource/capital/digital): which is further divided into three sub-groups: (a) the driving force of the country's economic development, (b) dealing with present and future local/regional/global challenges and labor markets, (c) increasing the productivity/boosting output and propelling growth in the wider economy (ii) Boost graduates' earning power: i.e., graduates whose equipped with their right knowledge and skills enable them to: (i) demanding higher salaries, (ii) making significant contributions to the revenue/growth of their organization, (iii) contributing to the country's economic growth. (iii) The best learning platform: which is further divided into three sub-groups: (i) creating intensive knowledge and skills through learning, (ii) pushing the development, (iii) higher skills through learning enables learners to work at different organization, thus, contributing to economic development of a country. (iv) Increase employability: which is further divided into three sub-groups: (i) providing and increasing employability/ job opportunity, (ii) creating new jobs

	through the collaboration between education and other sectors (private/public institution, factories/ industries/ enterprises/ associations/ entrepreneurs), and (iii) securing the desired work in the highly-competitive job market.
	(v) Improve economic prosperity and social cohesion: which is further divided into two sub-groups: (i) providing learning opportunities for diverse learners to build the new skills needed and changing demand for the society, thus improve economic, (ii) high educated people having ability to create something news/ more modern, innovation system, enhancing quality of life, addressing significant social and international concerns, thus contribute in improving the country' economic prosperity
	(vi) Build research capacity to drive innovation: which is further divided into three sub-groups: (i) sources of power and creativity/innovation, (ii) research to identify skills gaps and the needs of stakeholders, (iii) research builds foundation of the economic competitiveness/ wealthy of localities/nations/regions/world.
	The aim is to refine these roles in Delphi Round 3 via the rating and reasons to support their ratings
2	Roles/ functions of HEI leaders (RQ2)
	In this section, the Panellists' answers/ views in Delphi Round 1 were analyzed using: Mean, mode, standard deviation (SD), census level, suggested revision/combined (See Appendix 3, A3.4)
	In Delphi Round 2, one new item was suggested added to the Delphi Round 1 (6 groups). It was the combination of the 6 old items:
	(i) 1.Planning, 2.Organizing, 3.Leading/ Motivating, 4. Controlling
	(ii) 1.Planning, 2.Organizing, 3.Commanding, 4. Coordinating, 5. Controlling
	(iii) 1.Planning, 2.Organizing, 3.Staffing, 4.Directing, 5.Coordinating, 6.Reporting, 7.Budgeting
	(iv) 1.Planning, 2.Organizing, 3.Commanding, 4.Directing, 5. Monitoring
	(v) 1.Interpersonal, 2.Informational,3.Decision

	(vi) 1.Planning, 2.Initiating, 3.Supporting, 4.Informing, 5.Evaluating (vii) 1.Planning, 2.Organizing, 3.Leading/motivating, 5.Controling/ commanding/ directing, 6.Coordinating/ supporting, 7.Monitoring/ Evaluating. The aim is to get the Panellists refine/sharpen the important roles of HEI leaders in Delphi Round 3 by asking to select only element from the new number (*No. vii*) and reasons to support their selection
3	Ideal competencies of HEI leaders [to build HC to reach Cam's vision 2030/50] (RQ2)

	The same as No.2 above, in this section, the Panellists' answers/ views in Delphi Round 1 were analyzed using: Mean, mode, standard deviation (SD), census level, suggested revision/ combined (See Appendix 3, A3.4)
	
	In Delphi Round 2, the 27 proposed items in Round 1 were reduced to 15 items. The 15 items are: Eight new items + seven old items. (See Appendix 3, A3.4)
	
	To rate individual rate & reason (give R1 group rate, M, Mo, sd, % consensus, suggest to revise)
	
	      The eight new items are:
	
	      1.Lead academic study/ work
	
	      2.Lead /manage physical resource & facilities
	
	      3.Promote stakeholder & network liaison "local, international" incl. client, alliance
	
	        networks, partners, association, alumni…)
	
	      4.Overseeing institution administrative work
	
	      5.Educational research and innovation incl. strategic/critical thinking
	
	      6.Instructional leadership ability (including Teaching methodology, leading
	
	        organization,…)
	
	      7.Leading /managing the financial resource and business-like activity (for the public
	
	        institution)
	
	      8.Educational Monitoring & Evaluation

	The seven old items are:
	
	    1. Leading /managing the human resource (HR) section
	
	    2.ICT competence
	
	    3.Educational leadership Management
	
	    4.Personal Excellence ability
	
	    5.Stafff professional development
	
	    6.Professional ethics
	
	    7.Adminsitative leadership
	
	The aim is to get the Panellists refine/sharpen the important competencies for HEI leaders in
	
	Delphi Round 3 by asking to rate from 1 to 7 (Definitely relevant =7, relevant =6, slightly relevant=5, no idea=4, slightly not relevant=3, not relevant=2, definitely not relevant=1) and reasons to support their selection.

4	Current practices of HEI leaders (RQ3) In this section, there are two sub-sections: (i) Competencies frequency used by HEI leaders, (ii) key challenges faced by HEI leaders in building qualified Human Capital (HC)
	a.Frequency of competency used by HEI leaders: The same as No.3 above, the 27 items in Delphi Round 1 were reduced to 15 items The same as No.2 above, in this section, the Panellists' answers/ views in Delphi Round 1 were analyzed using: Mean, mode, standard deviation (SD), census level, suggested revision/ combined (See Appendix 3, A3.4) The aims are to get the Panellists to (i) give the rate with reason; (ii) compare their perceived importance versus their view the frequency used by HEI leaders, (iii) more refine the items in Delphi Round 3.
	b. Key challenges faced by HEI leaders in building qualified HC: (RQ3) In this part, from one open-ended question in Delphi round 1, the qualitative data analysis (coding and thematic) generated ten patterns of answers related to key challenges faced by HEI leaders in building qualified HC. These are: (i) Leadership quality and capacity: which is further divided into five sub-groups: 1) low academic qualification, 2) no clear visions for some units under institutions, 3) poor change management (strategic role, innovation…), 4) low

professional ethics (personality quality, unbalance working wage/rate/fee (of staff/ lecturer)…, 5) political influence/ interference: mainly depends on the top leaders

(ii) Client service quality: e.g., late responding to students' service/ request/ needs ...

(iii) Research & Development (R&D) and Innovation practice/ support: which is further divided into four sub-groups: 1) lack research & innovation related to local/ regional labor market needs/ requirement, 2) limited staff with ICT high competence, 3) most leaders do not care or involve more in research and innovation, 4) decisions are mostly made based on observation/ individual experience and personality rather than empirical ones.

(iv) Stakeholders' commitment and involvement: which is further divided into three sub-groups:1) students' low commitment and certificate-driven, 2) parental inactive engagement/ commitment), 3) weak alumni network

(v) Human resource (HR) management: which is further divided into three sub-groups: 1) misplace the right person to their right position, 2) ineffective HR functions e.g., recruitment qualified candidates, staff retention/motivation, 3) shortage of high quality staff (meet the set standards ..)

(vi) Team spirit & best practice/sharing: which is further divided into three sub-groups: 1) weak team management to achieve common goals, 2) poor sharing ideas/best practice, 3) individual benefits outweigh the team

(vii) Teaching & learning support: which is further divided into three sub-groups: 1) inappropriate tools/material in teaching /learning e.g., technology supports student-centered learning, 2) academic challenge/ low demand-driven e.g., inappropriate curriculum/ textbooks/ library, 3)medium students' learning outcomes

(viii) Infrastructure and facilities: which is further divided into three sub-groups: 1) poor building/facilities/ infrastructure/ standards, 2) poor working condition, 3) poor and small campus environment

(ix) Financial problem: which is further divided into four sub-groups: 1) low staff's salary, 2) low students' tuition fee, 3) decline of students' enrolment & increasing of competitors, 4) shortages of sources of investment fund from the

	public/donors/partners for infrastructure /modern facilities/ staff development/ R&D
	(x) Network cooperation/linkage: It is limited/inactive engagement with related sectors
	(private sector, labor market,…) in developing human capital.
	The aims are to get the Panellists to (i) give the rate with reason, (ii) more refine the items in Delphi Round 3.
5	How HEI leaders do to build highly qualitied HC (RQ4)
	In this part, from one open-ended question in Delphi round 1, the qualitative data analysis (coding and thematic) generated ten patterns of answers related to how HEI leaders do to build qualified HC. These are:
	(i) Strong leadership competency: which is further divided into four sub-groups: 1) build high leadership/management capacity include emotional intelligence, 2) lead by example (including upgrading own capacity in research, innovative, ICT, staff support through ongoing coaching …), to inspire and motivate others, 3) have high professional ethics (morality, loyalty, treat staff fairly), 4) empowers staff to service the clients, create new products and innovation, 5) have a passion for the work they do.
	(ii) Set clear institution's vision and prioritized work: which is further divided into three sub-groups: 1) set HEI's vision, mission, goal (VMG) in-line with the local/ national/ regional/ global trend, 2) ensure well-alignment of MVG among units under the institution, 3) well align curriculum (lower school levels, labor market demand).
	(iii) Support Research & Development (R&D) and Innovation: which is further divided into three sub-groups: 1)introduce and apply ICT integration in all aspects of the institution (admin, teaching, learning), 2) promote and support the creativity and innovation culture, 3) ensure all staff have ICT competence, 3) advocate, promote and encourage the use of digitalization (human digital, government digital, …).
	(iv) Human resource (HR) management: which is further divided into four sub-groups: 1) recognize and provide awards (promotion, monetary/ in-kind rewards, badges ..,) to outstanding staff, 2) recruit a diverse workforce and

ensure staff retention, 3) forecast demand-supply of staff in institution, 4) take care of staff well-being/ safety/ health.

(v) Teaching & learning support: which is further divided into five sub-groups: 1) appropriate use the academic source (curriculum, textbooks, learning/ teaching materials-international standards, 2) apply up-date/ effective teaching techniques, 3) proper use of lecturers based on their qualification /levels, 4) facilitate and help students (include conducive learning environment), 5) increase students' enrolment (local & international) with quality.

(vi) Infrastructure and facilities: which is further divided into three sub-groups: 1) invest on needed infrastructure/ modern facilities to meet the set standards, 2) improve working condition, 3) provide free internet access in campus.

(vii) Financial resource: which is further divided into two sub-groups: 1) secure financial resources for institution prioritized development activities (e.g., research & innovation projects, modern infrastructures, professional development…), 2) scenario analysis building analysis (e.g., send staff to train overseas vs. invite expert to come, balance an increase the tuition fee to attract afford qualified students with equity.

(viii) Network cooperation/linkage: It is to expand network/partnership with all key stakeholders to students' benefit (workshop, sharing sessions, social event, exhibition, internship, exchanged program, community engagement. …).

(ix) Professional development for all staff: which is further divided into two sub-groups: 1) ensure regular professional development of all staff (including leaders) to meet the set standards, 2) promote a lifelong learning culture & best practice sharing in the institution/ network.

(x) Focus on quality productivity/services: which is further divided into three sub-groups: 1) quality of students learning outcomes are the top priority, 2) ensure quality assurance of the product (qualification issued to graduates), 3) focus on social benefit (quality first) rather than a business, 4) balance institution political engagement with institution's VMG.

The aims are to get the Panellists to (i) give the rate with reason; (ii) more refine the items in Delphi Round 3.

Table 2.Delphi Round 2: Data Analysis of key Challenges faced by HEI leaders in building qualified HC

5b	Key challenges faced by leaders of HEIs in building qualified human capital	Panel R2 (Mean)	Panel R2 Mode	Panel R2 (SD)	Panel R2 Consensus level	N
5.b1	Leadership quality & capacity: 1.low academic qualification, 2. no clear visions for some units under institutions, 3.poor change management (strategic role, innovation…).4) low professional ethics (personality quality, unbalance working wage/rate/fee (of staff/ lecturer)…,5.Political influence/ interference: mainly depends on the top leaders	6.32	7	1.029	91%	56
5.b2	Client service quality: e.g., late responding to students' service/ request/ needs..	5.49	6	1.215	80%	55
5.b3	Research & Development (R&D) and Innovation practice/ support: 1.Lack research & innovation related to local/ regional labor market needs/ requirement, 2.limited staff with ICT high competence, 3.Most leaders do not care or involve more in research and innovation, 4.decisions are mostly made based on observation/ individual experience and personality rather than empirical ones.	5.89	6	1.003	88%	56
5.b4	Stakeholders' commitment & involvement: 1.Students' low commitment and certificate-driven,2.parental inactive engagement/ commitment), 3.weak alumni network	5.60	5a	0.935	89%	55
5.b5	Human resource (HR) management: 1.Misplace the right person to their right position, 2) ineffective HR functions e.g., recruitment	5.66	6	1.014	82%	56

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	qualified candidates, staff retention/motivation, 3) shortage of high quality staff (meet the set standards)					
5b6	Team spirit & best practice/sharing: 1.Weak team management to achieve common goals, 2.Poor sharing ideas/best practice, 3.individual benefits outweigh the team	5.71	6	1.149	82%	55
5.b7	Teaching & learning supports: 1)inappropriate tools/material in teaching /learning e.g., technology supports student-centered learning, 2.academic challenge/ low demand-driven e.g., inappropriate curriculum/ textbooks/ library, 3.medium students' learning outcomes	5.39	6	1.107	77%	56
5.b8	Infrastructure and facilities: 1.poor building/facilities/ infrastructure/ standards, 2.poor working condition, 3.poor and small campus environment	5.56	6	1.067	76%	55
5.b9	Financial problem: 1.Low staff's salary, 2.low students' tuition fee, 3.decline of students' enrolment & increasing of competitors, 4.Shortages of sources of investment fund from the public/donors/partners for infrastructure /modern facilities/ staff development/ R&D .	5.82	6	0.993	89%	56
5.b10	Network cooperation/linkage: 1.limited/inactive engagement with related sectors (private sector, labor market,…) in developing human capital	5.62	5	1.194	76%	55

Results (Table 24): How HEIs do to build human capital

Table 3.Delphi Round 3: Data Analysis of how do HEI leaders do to build qualified HC

5. How do HEI leaders do to build highly qualitied human capital?	Rank based on total scores in Round 3 (N=63)
Strong leadership competency: 1.Build high leadership/management capacity include emotional intelligence, 2.Lead by example (including upgrading own capacity in research, innovative, ICT, staff support through ongoing coaching …), to inspire and motivate others, 3.Have high professional ethics (morality, loyalty, treat staff fairly), 4.empowers staff to service the clients, create new products and innovation, 5.have a passion for the work they do	1
Set clear institution's vision and prioritized work: 1.Set HEI's vision, mission, goal (VMG) in-line with the local/ national/ regional/ global trend, 4. ensure well-alignment of MVG among units under the institution, 5.Well align curriculum (lower school levels, labor market demand)	2
Support Research & Development (R&D) and Innovation:1.Introduce and apply ICT integration in all aspects of the institution (admin, teaching, learning, tasks...), 2.Promote & support the creativity and innovation culture, 3.Ensure all staff have ICT competence, 3. Advocate, promote & encourage the use of digitalization (human digital, government digital, …)	3
Human resource (HR) management: 1.Recognize and provide awards (promotion, monetary/ in-kind rewards, badges ..,) to outstanding staff, 2.Recruit a diverse workforce and ensure staff retention, 3.Forecast demand-supply of staff in institution, 4.Take care of staff well-being/ safety/ health	8
Teaching & learning support: 1.Appropriate use the academic source (curriculum, textbooks, learning/ teaching materials-international standards), 2.Apply up-date/ effective teaching techniques, 3.Proper use of lecturers based on their qualification /levels, 4.Facilitate and help students (include conducive learning environment), 5.increase students' enrolment (local & international) with quality	10
Infrastructure and facilities: 1. Invest on needed infrastructure/ modern facilities to meet the set standards, 2.improve working condition ,3 Provide free internet access in campus	5
Financial resource: 1.Secure financial resources for institution prioritized development activities (e.g., research & innovation projects, modern infrastructures, professional development…), 2.Scenario analysis building analysis (e.g.,	6

send staff to train overseas vs. invite expert to come, balance an increase the tuition fee to attract afford qualified students with equity	
Network cooperation/linkage: 1.Expand network/partnership with all key stakeholders to students' benefit (workshop, sharing sessions, social event, exhibition, internship, exchanged program, community engagement. …)	9
Professional development for all staff: 1.Ensure regular professional development of all staff (including leaders) to meet the set standards, 2.Promote a lifelong learning culture & best practice sharing in the institution/ network	4
Focus on quality productivity/services: 1.Quality of students learning outcomes are the top priority, 2.ensure quality assurance of the product (qualification issued to graduates), 3.Focus on social benefit (quality first) rather than a business, 3.Balance institution political engagement with institution's MVG	7

Discussion

Suggestions for Future Research

Looking into the future, there are many potential areas for further research on this topic which give more insight to the study. These are:

First, the next research can be conducted on similar topic but focusing on different locations/sectors/ fields. For example, in the provinces or other ministries/ sectors such as the Ministry of Labour and Vocational Training (MLVT), Technical and Vocational Education and Training (TVET), Ministry of Industry, Science, Technology and Innovation (MISTI).

Second, the Modified/ Policy Delphi together with other literature inputs can facilitate and build a Theory of Change in the fields/ organizational/ sectors which may provide a general framework and links among other elements: inputs, process, outputs, effects, and impacts and time frames.

V. Conclusion

The study findings are not only having an implication on Cambodia higher education sector, in particular HEIs, but also on the government policies/ strategies. The implications of the findings can help three key groups of educational key stakeholders: Policy makers, HIE, and researcher/scholars. First, the policy makers from the Royal Government of Cambodia (RGC) and other ministries, especially the Ministry of Education, Youth and Sport (MoEYS); Ministry of Labor and Vocational Training (MLVT); and Ministry of Industry, Science, Technology and Innovation (MISTI). Findings from this study clearly show that roles of Higher Education (HE) in economic development of the country are to produce the workforce. Second, Findings from this study show that Planning is the most important roles the for HE

institutions (HEI) leaders. The top ideal competencies of HEI leaders are leading academic study. Leadership quality and competencies are both the key challenges currently faced by HEI leaders in their HEIs, thus the first thing that HEI leaders should do in order to build qualified HC and to improve the Research and development (R&D) and innovation in their HEIs. Third, researcher/scholars: Findings from this study will help them to have more insight of the theoretical and methodological used in the research, especially Normal Delphi, Modified and Policy Delphi.

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