Research Article

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Graduate School Management Characteristics to Ensure Production of Quality Graduates for Sustainable Competitiveness

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Abstract

With modern society impacted by globalization, declining birth rates and technological advancement, higher education institutions struggle to produce graduates ready to enter the workforce in adequate quality and number in an increasingly competitive atmosphere. In countries such as Thailand, outdated instruction and social inequalities add further complication. This study aims to examine the management characteristics of such institutions that will effectively promote graduate production and competitiveness in the digital era. Data was collected using Ethnographic Delphi Future Research, with interviews and questionnaires conducted with specialists in the fields of education and management. Results from information gathered and analyzed underline the necessity for supplementing graduate education with information systems technology and digital resources and aligning curricula and practices to meet the demands of industries in need of future manpower. The research identified mechanisms and policies with which higher education management can encourage new knowledge creation through research and provide accessible and convenient avenues for learning to enhance institutional competitiveness and help shape improved, intelligent, better qualified and more marketable human resources for future generations.

Keywords: educational management, graduate students, higher education, human resources

1. Introduction

The increasingly rapid evolution of global society in modern times has resulted in the need for organizations, both public and private, to intensively increase their capacity for competitiveness. In Thailand, the current push for societal change under the vision of "stable, sustainable, prosperous" calls for the development of large-scale economic transformation to foster a knowledge- and value-based economy with a focus on advanced technology. Competitive advantage depends on access to and development of specialized skills and technological innovation able to quickly meet the needs of the organization (Strategic and Public Relations Group, 2016). Applying innovations and advanced technology to the overall management process will revolutionize industries, especially

through the training of personnel to improve skills and become high performing and intelligent workers possessing expertise to strive in the modern world and the adaptability to effectively continue to prosper when faced with future challenges (National Productivity Institute, 2016a).

As modern developments have set forth changes in all aspects of society across the globe, education must itself evolve to keep pace with changes in science, technology, economics, politics and so forth. The workforce for a knowledge-based society depends on a highly educated, highly trained and expert worker, and higher educational institutions must endeavor to not only produce quality graduates to meet evolving market demands but also to improve institutional quality to attract the best candidates for enrollment (Štimac & Šimić, 2012).

Education must also address the ramifications of modernization's effect on the way of life for both individuals and communities, such as societal problems and inequities. Creating a system to deal with changing mores, values and lifestyles involves sustaining societal progress in terms of scientific advancement and job creation. Therefore, the development of knowledgeable individuals to enter the workforce is crucial, despite these intellectuals being produced from a growing number of differing sources.

Along with technical skills and practical ability must exist the moral integrity to weather and take advantage of change in the context of globalization, and the future management of education in Thailand must be adjusted accordingly to account for this. The sustainable development of education should include in its objectives ethics and equality while promoting health, environmental responsibility, diversity and respect for culture, peace and human security (Mongkolwanich, 2011). The purpose of this study is to explore the management characteristics applicable to higher education that will increase competitiveness by instilling graduates with the following: 1) respect and cultural preservation, 2) recognition and appreciation for the environmental, economic, social and cultural differences in societies and individuals, 3) sufficiency and socially responsible consumption as part of the global community, 4) ability to assess and manage socio-cultural differences and resulting risks, 5) understanding and desire for justice and balance, and 6) understanding of their roles, rights and responsibilities as members of society.

2. Literature Review

Higher education institutions in Thailand are state-recognized organizations that play an important role in providing the education necessary to prepare people to be effective in their careers. This production of human resources is in service to society's sustainable development. Graduates must have qualifications easily recognized and deemed desirable by employers and higher education institutions must employ not just educational but also management practices that will ensure students be of high quality. The management of higher education institutions is of great importance in the modern competitive age, and must focus on the recognizable quality of graduates not only in the eyes of the nation, but also abroad (Tuanthongae, 2008). The primary mission of higher education management is the production of graduates, especially postgraduate students who are vital to the development of the country in both the short and long term. For schools in Thailand, the teaching and learning process is based on the standardized curriculum for graduate schools as promulgated by the Ministry of Education, with an emphasis on high level education and the creation of new knowledge through the development of student research capacity (Ministry of Education, 2015).

Internationally, many innovations are being made in the academic field, especially in the management of higher education, with emphasis on new approaches to teaching and learning. Many countries emphasize that learners be proactive and give priority to working in a collaborative nature as well as promoting diversity and providing avenues for lifelong learning. In Europe, a resolution called the European Higher Education Agreement of 1998 was reached between the Ministers of Education from France, Italy, Germany and the United Kingdom, which aimed to create a European Higher Education Area by the year 2010 to promote European higher education as attractive and competitive to other countries and facilitate the exchange and mobility of students and educational personnel between schools from different countries. This was the catalyst for the Bologna Declaration, from which the Bologna Process has ushered in major reforms to the

European higher education system, creating a European credit transfer system and an international standard for academic qualification (Department of European Affairs, 2012). The aim was to streamline European higher education in order to establish consistent standards and foster convenient transfer of study between countries. Higher education management systems need to be modified between countries, as each country has its own educational norms and structures, such as duration of study and the qualifications received. These not being directly comparable, problems arise as students transfer to schools in other countries, making cooperation among higher education institutions necessary (Van Der Wende, 2000). Across the Atlantic, to address higher education quality assurance in the United States of America, The Council for Higher Education Accreditation (CHEA) is responsible for coordinating and setting standards for the accreditation of higher educational institutions (Nakornthap, 1997), affecting graduate level study by assessing post-secondary institutions' performance and maintaining appropriate standards for the ease of credit transfer much like the Bologna Process in Europe. A nongovernmental accreditation organization, CHEA focuses on academic quality, such as accountability, institutional development, resources, procedures and practices (Eaton, 2006).

To produce more marketable graduates in Thailand, the key is to ensure quality in higher education to fully meet the needs of the country while remaining credible to the people. The standards for higher education institutions consist of: 1) the standards of the potential and availability of education and 2) the standards of the higher education institutions themselves, and the implementation of the mission of higher education institutions must include the production of graduate research in academic service to society, the arts and culture, the production of graduates in accordance with characteristics reflecting each institution's focus and set goals, transparency and accessibility with clearly distributed information and curricula, promotion of activities on the part of the faculty, and development of learning both within the curriculum and beyond to meet the needs of students (Ministry of Education, 2011). Supervised by the Office of Higher Education under the national Ministry of Education, Thailand's higher education institutions have extensive activities involving numerous personnel and considerable budget subject to each institution's distinct contexts and history. The administration of higher education institutions naturally differs from that of other organizations. Although higher education institutions are diverse in their established processes, goals and overall role in addressing the development of human resources in the country, their administrations have important characteristics in common. The most important principle amongst these characteristics concerns the management of personnel, primarily the faculty, who are at the core of each institution's academic quality and institutions, whether government or of the private sector, must adapt and develop not only their organizations but the people that power them.

In modern times, higher education has become more and more accessible and democratized, no longer solely within the purview of academic elites, as an increasing amount of universities now compete for enrollment and are engaged with issues not only pertaining to academics but also those relevant to government, politics, business and industry (Sum & Jessop, 2013). With education transforming to become less isolated and introverted, the need for collaboration and formation of networks has become essential. Research generation and international rankings have taken priority among institutional goals, making increased interactions and partnerships with outside parties necessary. Students must be equipped with the ability to further the research of others to find new perspectives and administrations need to foster beneficial partnerships for added value (Gibbons, 1998). Higher education institutions face pressure to produce graduates who will meet the needs of society, but what the market requires has evolved from clearly defined skill sets to a more well-rounded and adaptable knowledge base. While a graduate degree was once of great value in the road to employment, what is attractive to employers in a knowledge-based economy is the ability to be a transformative lifelong learner and demonstration of potential for expertise beyond the confines of a single major field of study (Harvey, 2000). Interdisciplinary studies and the incorporation of skills acquired from myriad fields will make graduates more marketable and knowledge management in higher education must account for the integration of previously separated disciplines (Bajunid, 2004). How well students are taught is undoubtedly a primary component in the general quality of education and curricula. Practices as well as infrastructure must

support making the student experience a holistic one, providing avenues for meaningful interaction with faculty, opportunities for active collaboration and an institutional environment equipped with well-designed, student centered facilities (Azman, Ali, Tamuri & Jelas, 2005). Institutions must provide adequate spaces not only for learning but also for research as its importance increases in respect to institutional standing, with consideration given to the physical, educational and social needs of those dedicated spaces' users (Yusof, Hashim & Kian, 2016).

Increased lifespans and low birthrates have resulted in the aging of the world's population, according to the United Nations. As of 2009, children and the elderly have outnumbered the working-age population in Thai society, and 2017 marked the first time in history that the elderly population became the majority (Jittinand & Kulnaksiri, 2017). In 2018, the working-age population in Thailand decreased, resulting in a related decrease in the total output of the country. The decline in the number of new workers entering the labor market due to decreases in population as well as performance has resulted in reduced productivity. Just to maintain previous levels of productivity, the productivity of the diminished labor force must be increased. While this can be achieved through technology and the import of skilled workers from abroad, higher education institutions can play their part in boosting labor force productivity by improving their education, training and motivation to ensure their efficiency and mastery of technology. The development of labor quality through education will help to maintain the productivity of the labor force and potentially expand it through increased knowledge and efficiency. The institutions in Thailand's higher education echelon, comprised of 176 universities, colleges, governmental institutions, state and private institutions, must meet the demand to improve the quality of the workforce and ready their graduates for the careers that await them. Competitiveness has increased for Thai higher education institutions as, since 2015, such institutions have been facing a significant drop in enrollment with many seats left unfilled. In 2017, applicants deemed by the admission system as eligible to enroll numbered less than the total seats available within the system (Council of University Presidents of Thailand, 2017) and this lack of enrollment will result in the future cessation of operations and closure for some universities (Ippoodom, 2017). An aging society brings with it problems that contribute to shortages of personnel in many occupations. As the rate of new births decreases, the number of potential students is insufficient for the survival of many schools and as a result many Thai higher education institutions have experienced a decrease in enrollment and become unable to produce adequate numbers of quality graduates (Sakvoravit, 2016).

3. Conceptual Framework

This study examines the nature of higher education management in respect to graduate production, competitiveness and sustainability. Data was collected through EDFR (Ethnographic Delphi Future Research) from the opinions of experts in the field of higher education and the results of this research can be used to predict productivity in graduate studies according to the declining trend of the Thai population. As a result, the number of undergraduate students has declined, directly impacting graduate education and production and it is therefore imperative that management in higher education institutions meet the needs of society to ensure competitiveness and sustainability by addressing the quality and relevance of curricula, instructors, infrastructure and practices to attract students and generate quality graduates ready to join the workforce.

4. Methodology

This study is a future research based on the Ethnographic Delphi Future Research (EDFR) technique (Poonpatarachewin, 2009), with Round 1 being a semi-structured interview covering curricula and instruction, conducted with specialists possessing educational and administrative knowledge. Purposive Sampling was the method used in specialist selection, with the sample group consisting of 21 participants divided into (1) specialists holding the positions of Vice President, Assistant to the President, Dean and Director, and (2) experienced specialists in educational administration from King Mongkut's Institute of Technology Ladkrabang, the Institute of Future Studies for Development, the Chulabhorn Graduate Institute at the Chulabhorn Royal Academy of

Science, the Faculty of Medicine at Siriraj Hospital from Mahidol University, the College of Education at Dhurakij Pundit University, the Office of the Education Council, the Peera Brothers Company, Limited and the Industrial Estate Authority of Thailand.

The results from the Round 1 interviews were analyzed and synthesized to develop 5-level questionnaires which were then distributed to the 21 specialists to assess trends within and affecting the management of postgraduate graduates, with results based on the EDFR technique. Round 2 consisted of further analysis of the results, with the basic statistics gathered from mode, median and interquartile range being used to develop the Round 3 questionnaire based on EDFR technique which was sent to the same 21 specialists to confirm consistency regarding management and production of graduates for competitiveness and sustainability, such as levels of competition and sustainability, to be used in future scenarios. The basic statistics used to analyze the results were: frequency, mode, median, interquartile range and the difference between mode and median (Mo-Med).

5. Results

Research results from the EDFR process derived through specialist interviews and responses to tailored questionnaires are at a top level, with the most consistent levels of opinion about higher education management characteristics that ensure production of quality graduates for sustainable competitiveness (Table 1).

Ranked by consensus, these characteristics include 1) support for teaching and learning with network infrastructure and accessible Internet / Wi-Fi, 2) books, journals, articles, research, and academic resources available digitally in e-Book / data file format, 3) support for the use of information technology, web-based and mobile applications, 4) development of curricula in accordance with requirements from industry, 5) management of teaching and learning to develop practical knowledge and research to support economic and social development, 6) adherence to Eastern Economic Corridor government policy, 7) measurement of instructors' achievements and application of problem-solving and innovation and 8) analysis of data for each course to determine retention rates.

Table 1: Results from EDFR

rank	characteristic	f n=21	Med	Mo	IQR
1	support for teaching and learning with network infrastructure and accessible Internet / Wi-Fi	18	5	5	0.00
2	books, journals, articles, research, and academic resources available digitally in e-Book / data file format	15	5	5	1.00
3	support for the use of information technology, web-based and mobile applications	12	5	5	1.00
4	development of curricula in accordance with requirements from industry	12	5	5	1.00
5	management of teaching and learning to develop practical knowledge and research to support economic and social development	11	5	5	1.00
6	adherence to Eastern Economic Corridor government policy.	14	4	4	0.50
7	measurement of instructors' achievements and application of problem-solving and innovation	13	4	4	1.00
8	analysis of data for each course to determine retention rates	12	4	4	1.00

6. Discussion

Survey responses show support for digital communication technology in teaching and learning, especially through use of the Internet and implementation of comprehensive, conveniently accessed Wi-Fi networks ($f= 18$, $Mo= 5$, $Med= 5$), with most experts favoring optimizing Internet service through an infrastructure network able to supply widespread coverage. The availability of

Internet Wi-Fi networks will provide students with convenient access to vast resources of information online and allow them to better manage their own learning freed from the constraints of access to physical stores of information. The system allows institutions convenient avenues of content management, digital distribution and follow-up study. The Internet is also a valuable tool that makes possible and facilitates long-distance learning and much research supports the notion that, guided by creative instructors, students will be able to effectively use the Internet as a vital component in their studies (Buabangplu, 2011). The Internet's decentralizing nature therefore extends educational opportunities to higher and sustainable levels. In addition, most experts have consistent consensus in support of texts, books, journals, articles, research articles and the like being provided in the form of conveniently accessible e-Books or digital files ($f=15$, $Mo=5$, $Med=5$) as well as the provision and use of information technology or web based resources ($f=12$, $Mo=5$, $Med=5$). Teachers increasingly need to find innovative ways to impart knowledge and foster student understanding and in modern times the demands of the digital age necessitate the creation of content in various media, such as mobile applications, as alternative sources of information for learners to learn from and means for them to solve problems by seeking solutions themselves. Students in the digital age must develop the skills to find their own sources of information from online media and this requires teachers to creatively apply digital technology in their instruction, making use of powerful tools such as social media to benefit learners as avenues for information distribution and review. Applied to education and managed correctly, technology can help address the challenges to building a sustainable future for learners in a competitive world (Poonsawat, 2017). However, the application of technology needs to be done carefully and appropriately, as adoption and implementation of technology simply for technology's sake brings much risk and progress should not mean abandoning tried and true practices. Overzealousness in bending to economic pressure can potentially yield detrimental effects on education itself and it is important for management to temper the use and implementation of technology with prudence and respect for what has come before. Thus, while technological advancement is beneficial and inevitable, it should be looked upon as a natural continuation and not a disruption, as something that can enhance the academic experience and not a replacement, and institutions need to possess the wisdom to know when the application of technology is appropriate and when it is not (Clegg, Hudson & Steel, 2004). When implemented, technology based measures need to have proper vision, processes, support and monitoring. For example, while e-learning initiatives can offer plenty of opportunities in networking and knowledge sharing, responsible parties need to be established to ensure quality and institutions must have support systems for both faculty, such as incentives and allowances, and students, such as online resources and credit transfer convenience (Leem & Lim, 2007).

The revision and improvement of curricula to be in line with the direction of demands from manufacturing industries using advanced technologies, following the established S-Curve and newly formed S-Curve goals of the country (Ministry of Industry, 2016) will also support productivity and potentially increase the number of graduates entering various industries in Thailand ($f=12$, $Mo=5$, $Med=5$). The development of the country requires cooperation from all sectors, be they public or private, and accelerating the process will require innovation and distribution of wealth by means of developing knowledge and the creation of new technologies in manufacturing. For Thailand's industries to reach this potential, education must instill in future workers the expertise to create significant economic value. New technologies and innovations are necessary for this development and the new S-Curve will reflect this. The ability to grow in the future will be enhanced by curricula that aims to increase the productivity of graduate students, whose proper development and preparation will enhance sustainable competitiveness if the New S-Curve is accordance with changes in products and technologies in industries such as aviation and logistics, biofuels and biochemicals, as well as Thailand's flourishing digital and medical hub industries. Both the first and the new S-Curve include industries with the potential to drive the country's economy to future new heights and to create an S-curve, a new engine of growth that will push the country's many industries, including finance, banking, universities and research institutes, into the modern digital era and beyond. Universities play a substantial role in contributing graduates to enter the workforce who are important to national development in both the short term and the long term. According to criteria set for graduate programs in 2015, the graduate level covers the management of advanced

education seeking and the creation of new knowledge through the development of students' research capacity. Higher education prepares people for careers and the teaching and learning process at this level must consider the preparation of needed manpower as well as research into practical knowledge to support economic and social development ($f= 11$, $Mo= 5$, $Med= 5$). Experts see higher education as contributing graduates into the manufacturing sector using advanced technology in line with the S-Curve targets of for the country's development. The S-curve and the New S-curve will be developed in accordance with the policies related to the production and development of the Thai workforce.

The 12th National Economic and Social Development Plan for 2017 to 2021 will focus on Thailand's human resources development. At present, the country is facing challenging problems in areas of productivity, competitiveness and educational quality, all affected by social inequality and strong concepts and principles for planning and development are essential. To become a sustainable and prosperous society, its people must be at the center of participatory development and planning principles should be based on both the economic status and social aspects of the country. This includes changing contexts to better the future image of Thailand by raising the competitive edge and helping citizens break out of middle-income traps to become upwardly mobile both financially and socially. Also essential are the promotion of research, development of labor productivity, encouragement of strong entrepreneurship and digital commerce, infrastructure investment, restructuring of production, systemic reform to create a high-quality society, and facilitating people of all ages to reach their potential in support of economic growth. Education must be geared towards quality, both in product and in life. People-centered development approaches are conducive to living in an aging society. This framework for developing human resources surely affects educational development strategies by making necessary the raising of knowledge and skill levels to international standards and forcing higher education and vocational education to be in line with the labor market both quantitatively and qualitatively. Research and development to build national intellectual capital must be supported and education's important role in producing graduates to meet these goals must be recognized (Office of the Secretary of the Council for Education, 2010).

Responses from specialists also reflect consistent agreement on the Eastern Economic Corridor (EEC) as a project aimed at upgrading the area and with government policy towards the industrialized economy ($f= 14$, $Mo= 4$, $Med= 4$), which envisions The Eastern Economic Zone becoming a "World-Class Economic Zone" supporting industrialization of the Super Cluster and the development of target industries as the driving force for the next 20 years, replacing the former Eastern Seaboard. It is expected that investment in the EEC will stimulate the economy, lead to expansion and attract tourists, thereby creating new jobs, a new tax base and an increase in the revenue base (Suteerachart, 2018). New employment opportunities in industry and services will enhance the workforce. Advanced technologies and innovations must be applied to the whole system of higher educational management to develop highly qualified human resources (National Productivity Institute, 2016b).

In addition, specialist respondents consistently agreed on the need for measurements in terms of instructor achievements ($f= 13$, $Mo= 4$, $Med= 4$). Criteria may include qualifications, national and international certifications, subject and content knowledge, academic or professional reputation and recognition and English proficiency. Effective, problem-solving teachers help to produce graduates capable of acting as thinkers, designers, analysts, and creators. Teachers must be prepared, demonstrate critical thinking skills and possess effective teaching techniques. They must be qualified to perform empirical research which can be used for interdisciplinary research and bring new knowledge from the published research to apply to teaching. This in turn encourages students to follow suit in their approach to academic work.

Also necessary is the analysis of student data for each course to determine retention rates ($f= 12$, $Mo= 4$, $Med= 4$). Continuously analyzing student enrollment and retention rates will allow management to further support and regulate how graduates meet the curriculum requirements. Instruction, physical facilities and other resources must be consistent with the number of learners. If enrollment is low or the retention rate inconsistent with the institution's education plan, the production of graduate students both presently and in the future may be adversely affected.

Worldwide, and especially in Asia, the race for prestige and ranking among universities is intense, but in the pursuit of becoming “world-class universities” common ground must be reached in terms of what that title actually means. Standards are being established internationally, but higher education institutions need to avoid simply adopting western policies without giving adequate consideration to conditions specific to their own local areas (Deem, Mok & Lucas, 2008).

7. Conclusion

To produce qualified graduate students in this competitive age, it is important to select learners according to established characteristics, such as knowledge of language, calculation, reasoning, intelligence, virtue, and self-awareness. However, students' educational journeys need to be supported by the institutions they attend. Management of higher educational institutions must provide adequate and appropriate instruction, culture, environment and resources to push future generations to not only demonstrate acquired knowledge but to seek out and create new knowledge. Learning must be designed to allow students to attend classes to increase their knowledge of diverse backgrounds, races, religions and share myriad ideas. To accomplish this, education must be supplemented by practices, technologies and innovations that will make learning accessible, inclusive, expansive and convenient. The graduates of tomorrow will share their experience, work, research and expertise beyond borders as digital advances make possible a global community of learning for the benefit of not just separate nations but for all mankind.

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