RETROSPECTIVE ANALYSIS AND ANTICIPATION OF CURRICULUM DESIGN FOR FUTURE SOUTHEAST ASIA

*[1]Zainun Mustafa, [2]Farida Nurhasanah, [3]Saedah Siraj, [4]Deva Nanthini Sinniah, [5]Shah Jahan Assanarkutty & [6]Wan Nor Adzmin Mohd Sabri

[1] Fakulti Sains dan Matematik, Universiti Pendidikan Sultan Idris,

35900 Tanjong Malim, Perak, Malaysia.

[2] Mathematics Education Department, Sebelas Maret University,

Jawa Tengah 57126, Indonesia.

[3] Faculty of Education, University of Malaya,

50603 Kuala Lumpur, Malaysia.

[4,5,6] Southeast Asian Minister of Education, Regional Centre for Education in Science and

Mathematics (SEAMEO RECSAM), 11700 Gelugor, Penang, Malaysia.

*Corresponding author: zainun.m@fsmt@upsi.edu.my

ABSTRACT

Background and Purpose: The curriculum design underwent chronological pattern adjustment globally; however, the alterations are heavily contextualized. Therefore, this article is aimed to understand how futuristic curriculum design is perceived in South East Asia (SEA). The understanding of how futuristic curriculum design is perceived in the past is achieved through retrospective examination of published documents. After identifying past trends, anticipation from historical trends refer to a systematic projection of how the curriculum would be constructed for the future generation in the SEA region.

Methodology: This study presents an in-depth bibliometric analysis and visual scientific mapping of 2733 published documents in a reputable database. To examine how a futuristic curriculum is regarded throughout time, temporal, geographical, institutional, partnership and keyword mapping were quantitively analyzed. The succession of events in the past and the emerging keywords visible in the

present were then qualitatively assessed in order to anticipate what is viewed as future curriculum in SEA.

Findings: According to the findings, the design of the futuristic curriculum has changed since the 1980s in terms of 1) centricity, 2) measured dimensions, 3) technological advances to support the 4) learning dynamics between internalization, regionalization and localization. Based on past and current trends, it is anticipated that curriculum design for the future will be 1) centered on an individual as a unit of a larger society, 2) focuses on measuring the tangible and intangible one's performances using indicators by benefitting the technologically advanced 3) seamless and self-regulated learning.

Contributions: The findings and recommendations of this article serves as the baseline evidences in curriculum design in SEA education ecosystem to inform pedagogy and policy by exploring new areas of research and fostering the evidence-based knowledge in education.

Keywords: Future studies, Southeast Asia, foresight, bibliometric, anticipatory.

1.0 INTRODUCTION

Generally, the main components of designing a curriculum are very specific such as goals and objectives, methodologies of instructional deliveries and assessments that are arranged in manual-like documents or schemes, which could serve as the guidelines for the educator. Curriculum design, on the other hand, is the mental model of learning arrangement including learner characteristics and representation of how knowledge transfer or skill transfer occurs from theory to practice. Curriculum design is various according to the philosophical underpinning and situational contexts such as the national agenda, politic, social, economy, cultural backgrounds, environment milieu and global matrices (Barrot, 2021; Sreng & Sao, 2018; Vera Cruz, Madden, & Asante, 2018). Since the global curriculum started to be re-imagined and critically discussed (Sorensen, Ydesen, & Robertson, 2021), the idealisation of what is perceived as a future curriculum needs to be regionalised in the context of South-East Asia (SEA) as this region has its own unique identity and challenges. Therefore, the adaptation of a globally pre-determined curriculum needs to be avoided. Curriculum design for future or futuristic curriculum for SEA should be designed based on research findings on the future

studies approaches including trends, events and their respective impact on the targeted learners in a specific region. This paper aimed to identify the trend of perceived idea about of future curriculum over time in SEA based on several emerging indicator from the literature.

2.0 LITERATURE REVIEW

There is no general agreement on a definition of the curriculum; therefore, it is often difficult to maintain a clear focus on the essence of a curriculum concept when there are a plethora of definitions of it in the literature. Before delving into the concept of curriculum design from the bibliometric perspective, it is important to first look at the etymological origin of the curriculum. According to N-Gram viewer, the earliest documents stated the 'curriculum' in English was in 1945 in the 'Early Schools and School-books of New England' (Littlefield & Volumes, 1545). This classic book remarked on the author's critics of pedagogical approaches in the curriculum, which referred to page-to-page memorisation as the custom method of learning Latin grammar. Termed as 'curriculum', the book's discussion demonstrated that the curriculum was established earlier by educational authorities as to the 'custom' for practices at that time. Another interesting point in the book is that the author mentioned the importance of the Latin language as a medium of education and law and therefore, the adaptation of Latin words into English gained attraction for the knowledge dissemination on a larger scale. In another classic dictionary of a similar era (Veron & Waddington, 1575), the translation of Latin to English refers 'curriculum' (related to the verb 'currere', which means "'action of running, course of action, race, chariot," equivalent to curr(ere) "to run") to a 'course' or 'track' that must be followed. Therefore, from the etymological perspective in the sense of education where learning is the primary activity, the most obvious interpretation of the term curriculum is as a course, trajectory, or "plan for learning" with two important elements: content for knowledge acquisition and method of knowledge dissemination.

From the historical perspective, as shown in the N-Gram viewer, there are several other documents recorded in 1500-1600 showing international and national level efforts in constructing quality education curriculum for mass learning according to subjects and disciplines. From the discourse of curriculum during 1600-1900s, the curriculum design at that time was somewhat prescribed in the custom structure revolving around the act of advancing a lesson without much room for flexibilities and dynamics. However, the surplus of evidence in the curriculum design spike in the 1900s. Since the national public schools are geared toward providing quality education in the 1950s, the curriculum was reformed by the rationale-oriented design popularised by Tyler in 1949. The design of the curriculum is based on the intention of

the learning as it often starts with the vision, objectives or goal to be achieved. The curriculum design resonates with the targeted objective set before learning activities. That is, once objectives (or standards or essentials or competencies) are specified, they shape every aspect of a curriculum, its assessment and instructional materials (Gamson, Eckert, & Anderson, 2019).

One of the most difficult parts of improving a curriculum is figuring out how to balance all of the different parts of a curriculum. The curriculum representation ranges from a simple design with three major elements: content, purpose and learning organisation to an elaborated design with ten elements including the rationale, objectives, content, learning activities, teacher role, material and resources, learning group, location and assessment (Van den Akker, 2007). Owing to the complex process involved in designing curricula, most national standard curricula were revised to update certain elements rather than redesign the curriculum. Standards that remain stagnant, unrevised or unevolved will do more to maintain the status quo than to educate pupils for the future. Therefore, the curriculum is periodically revised to improve the fragments components rather than reforming the whole. However, recently, there was an attempt to redesign the curriculum at a global level.

Among the suggestion was the call to shift away from the predetermined directional learning into self-navigation through unfamiliar contexts based on points of orientation toward the individual and collective well-being, which is known as the Learning Compass (Hughson & Wood, 2020). To meet the dynamics, the OECD 2030 adapted Bronfenbrenner's bioecological ecosystem curriculum design by highlighting the learners as biological interaction of social and environment and at the same time emphasising the application of the Sustainable Development Goals (SDGs) lens strategically by proposing the OECD's Learning Framework. The OECD's attempt however has stirred the debate in the academia. For instance, Auld and Morris (2021) narrated that global competence implicated in the OECD's framework is adapting industrial-bench-marking and labour market-oriented. In the same article, Auld and Morris (2021) also debated the development of the country report by the local expert under the stewardship of OECD's analyst yielding diverse and often contradictory lessons by a tie back into the OECD's and PISA indicators. In another instance, Hughson and Wood (2020) argued that the OECD's framework denies the importance of disciplinary knowledge and links it to market relevance. The robust engagement and meaning-making based on global standards require the check and balance of what is perceived by the futuristic curriculum at the national and at least regional level. As portrayed by the concern of (Auld, Rappleye, & Morris, 2019),

the culture, identity and tradition of Southeast Asian countries are overshadowed by a standard quantitative yardstick adapted from European perspectives.

3.0 RESEARCH DESIGN

A bibliometric analysis was conducted on the 28th of February 2022 to identify the trends of the studied topic: ("future" OR "futuristic") AND (curriculum) in the Scopus database. From the global trend search, the documents were then extracted to cap the ten SEA countries namely, Malaysia, Singapore, Indonesia, Thailand, Philippines, Viet Nam, Brunei Darussalam, Laos, Myanmar, and Timor Leste.

From the extracted documents, only 3.7% of documents were found in the area of future curriculum from Southeast Asia (n: 2,733) compared to those found globally (N: 74,744). To make the analysis more comprehensive, the analysed documents included articles (n: 1,800), conference papers (n: 537), reviews (n: 224), book chapters (n: 120), books (n: 24), editorials (n:11), (n: 9), short surveys (n: 4) and letters (n: 3) written in English. Notably, the removal of non-English journals and articles necessarily resulted in a bias favouring publications published in Scopus-indexed journals from English-speaking nations. As a result, this analysis may have overlooked some prominent figures and studies contextualised in non-English-speaking regions. Another methodological limitation is that the document extraction was based on the algorithm according to the search string, which caused some important articles to be missed out sometimes due to the use of different terms. The data were analysed using Perish and Publish software, Excel, VOS Viewer and Data Wrapper. Then, the title and abstract of the documents were manually coded to understand the critical insight of the major trends and phenomena.

4.0 ANALYSIS AND DISCUSSION

From the bibliometric analysis, the retrospective trends of temporal, geographical, institutional, partnership and keyword mapping were quantitively analysed to understand futuristic curriculum in specific decades. Then, the series of events in the past and the emerging entity visible in the present were qualitatively analysed to anticipate what is perceived as future curriculum in past, present and extrapolation of the future.

4.1 Temporal Trends (Time Series Analysis)

As this study focused on the Southeast Asian country, the further analysis focused on the 10 SEA countries' documents. From the yearly publications, the earliest documents on the topic were in 1978 and the temporal trends increased gradually for 44 years as the graph (Figure 1).
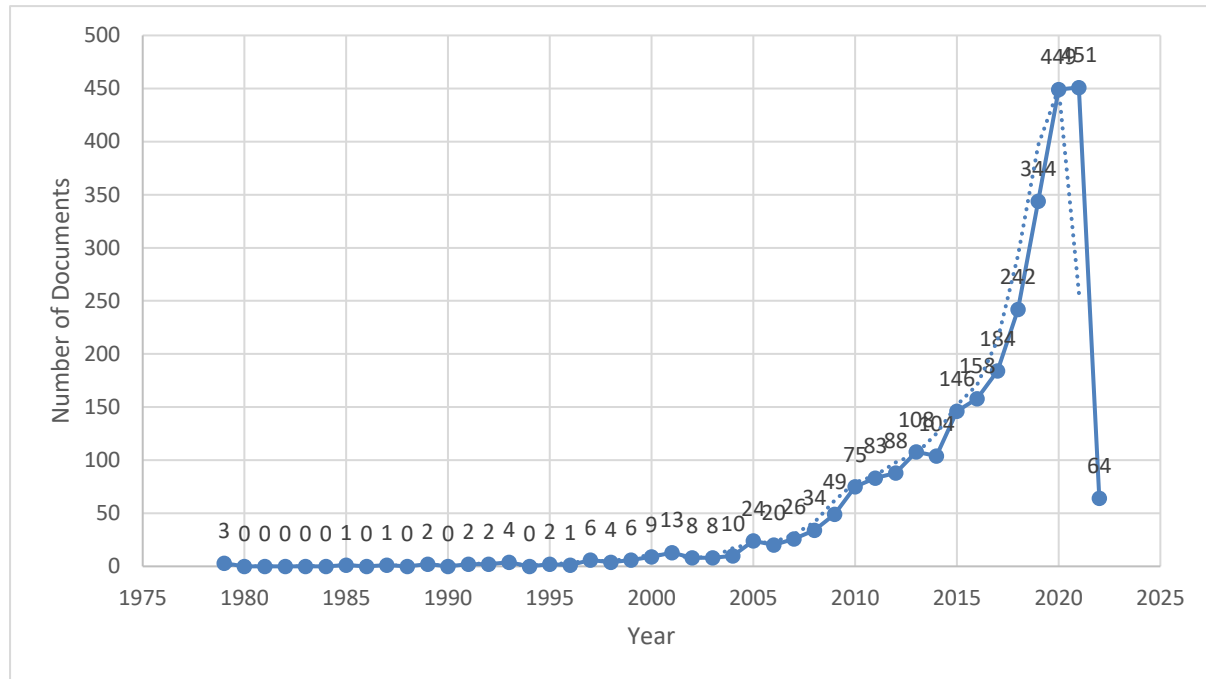

Figure 1: Temporal trends

4.2 Geographical Distribution

In terms of geographical distribution, the articles discussing the mentioned topic in decreasing order were: Malaysia (n: 1153), Singapore (n: 547) and Indonesia (n: 544) were leading in the studied topics where the documents were indexed in Scopus database. This was followed by the Philippines (n: 160) and Vietnam (n: 115). Finally, Brunei (n: 13), Laos (n: 5), Myanmar (n: 5), Cambodia (n: 3) and Timor-Leste (n: 1) published less than 20 documents related to the future curriculum since 1978. The map (Figure 3) shows the distribution of published documents according to the SEA countries.
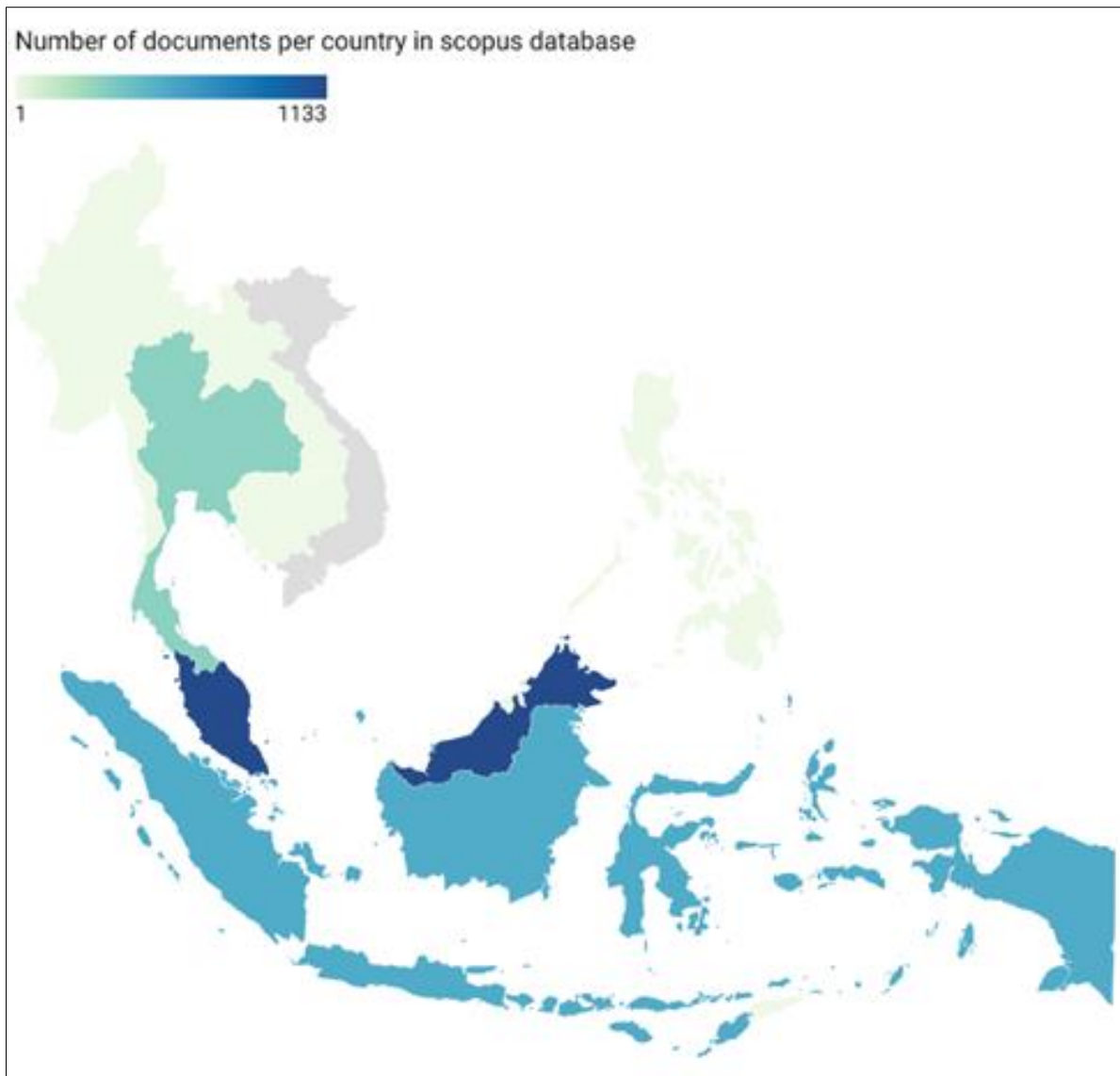
Figure 2: Distribution map

4.3 Network Analysis

From the individual country distribution, the network analysis was conducted according to the co-authorship of the extracted documents. Thirteen links appeared indicating partnerships of the authors from the linked countries. In the diagram, no network was developed from Timor-Leste, indicating that the document was developed without partnership with any SEA countries. The overall network can be viewed in the Figure 3.
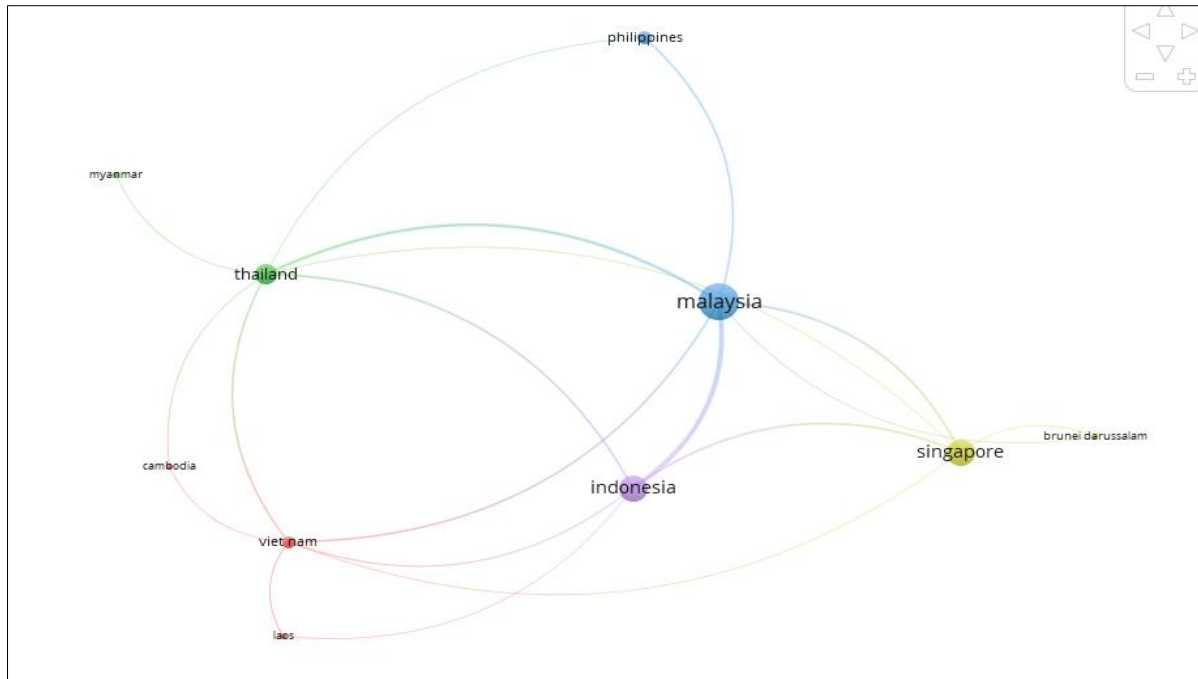
Figure 3: SEAwise co-authorship network

However, the data pattern revealed an interesting finding when the co-authorship was extended beyond the context of the SEA. The authors have established a huge network globally within 107 countries. The most co-authorship of SEA in this topic was from the United States (N:124), Australia (N: 113), United Kingdom (N: 81), China (N: 48), Canada (N: 25), Netherlands (N: 19), New Zealand (N:21), Italy (N: 14), Hong Kong (N: 39) and South Africa (N:14). The complexity of 1030 links of the network can be observed in the diagram (Figure 4) below.
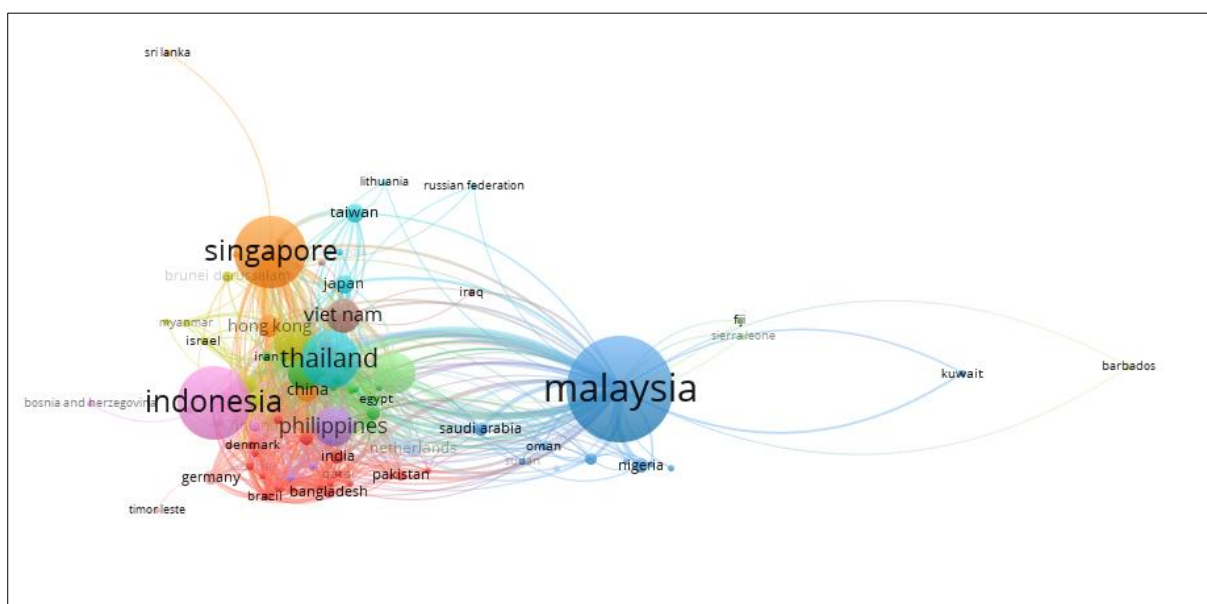

Figure 4: Globalwise co-authorship network

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4.4 Institutions

The most active institutions in the topic studied were National University of Singapore (n:221), Nanyang Technological University (n:220), National Institute of Education (n:173), Universiti Malaya (n: 149), Universiti Kebangsaan Malaysia (n:134), Universiti Teknologi MARA (n:123), Universiti Sains Malaysia (n:114), Universiti Teknologi Malaysia (n:114), Universiti Putra Malaysia (n:100), International Islamic University Malaysia (n:66), Universiti Pendidikan Sultan Idris (n:58), Universiti Utara Malaysia (n:46), Universitas Pendidikan Indonesia (n:45), Universitas Negeri Malang (n:42) and Chulalongkorn University (n:41).

4.5 Keywords

The title and keywords analysis shows signs and indicators that exist within the framework of search strings for the topic under study. The list involved 34725 words including teacher education program, Facebook, group work, thinking skills, design process, library, active learning, entrepreneurship, students perception, curiosity, thinking skills, mother, experimental, industry needs, hots, generic skills, industrial training, computational thinking, ethics, critical analysis, learning material, adaptability, mobility, mobile technology, social skills, English proficiency, teaching material, classroom setting, experiential learning and social skills. The long list of keywords was then arranged to identify the major trends. The cumulative keyword networks are as the diagram (Figure 5) below.
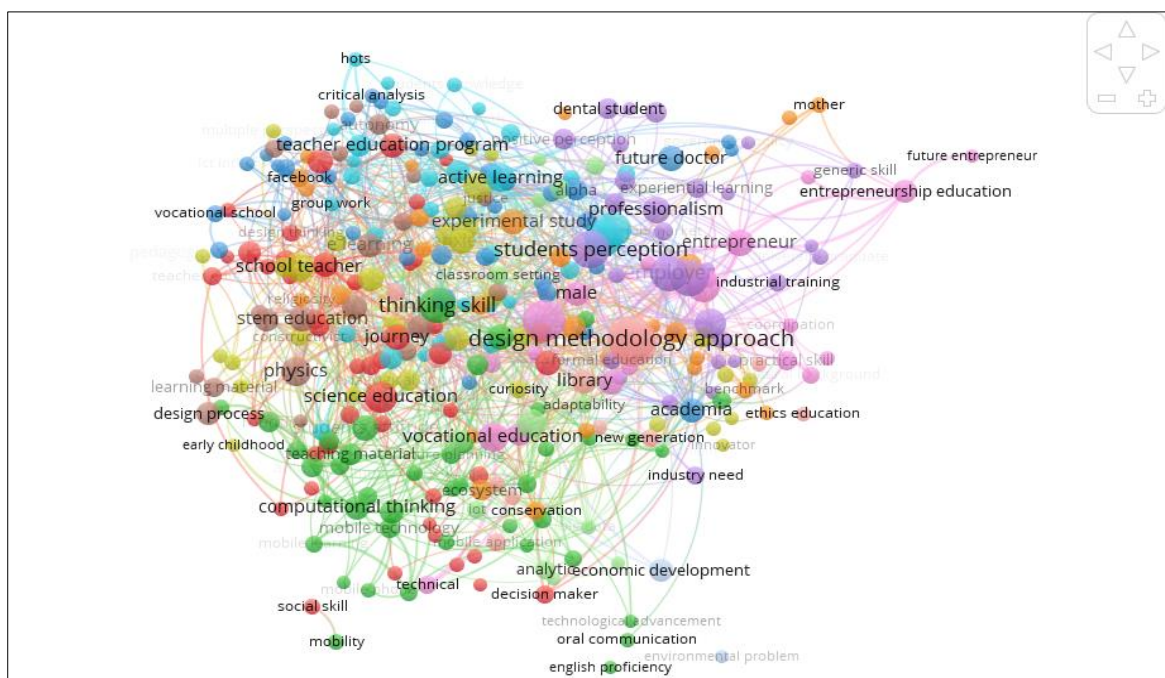
Figure 5: Keywords network

4.6 Emerging Themes Related to the 'Curriculum Design for Future' in Past Studies

The pool of keywords was then analysed to identify the emerging themes in the extracted articles. The emerging themes studied were learning approaches, learner competency, content knowledge, teaching and learning tools and component related to the curriculum design. The themes were then categorised into a matrix according to the ten-years gap (Table 1) as the table below.

Table 1: Emerging themes

Duration	Number of documents	Learning approaches	Measured competency	Content knowledge	Teaching and learning tools	Curriculum component	Remarks
2013-2022 (10years)	2250	e-learning (n: 94) blended learning (n: 26) online learning (n: 25) ubiquitous/mobile learning (n:10) problem based learning (n: 37) seamless learning (n:3) active and collaborative learning (n: 11) self-regulated learning (n:4)	perception (n:50) attitude (n:59) decision making (n:40) motivation (n:39) knowledge (n:37) skill (n:37) critical thinking (n:29) leadership (n:28) communication and interpersonal skills (n:69) problem solving (n:20) religion (n:24) computational thinking (n:15) awareness (n:21)	Sustainable Development (n: 41) STEM (n: 36) Education for Sustainable Development (n: 14) Global citizenship (n:8) Disciplinary based (n:2114), religion (n:5)	social media (n: 28), educational technology (n: 21), information technology (n: 21), virtual reality (n: 23), educational robots and artificial intelligence (n: 24)	curriculum development (n: 21), outcome assessment- (n: 19), education program (n: 14) and pedagogy (n: 19).	The major events related to Industry 4.0 (n: 18) and Industrial Revolutions (n: 15) are prevalent in the documents.
2003-2012 (10years)-	**417**	e-learning (n:18) problem based learning (n:11) distance learning (n:4) m-learning (n:8)	attitude (n:9) communication and interpersonal communication (n:20) motivation (n:7)	Sustainable Development (n:11) Citizenship (n:3) Disciplinary based (n:403)	information science and technology (n:36) internet (n:10) courseware (n:13)	education program (n:12) curriculum development (n:11)	na

		outcome-based learning (n:5) self-directed learning (n:3) game-based learning (n:4)	innovation (n:6) problem solving (n:6) decision making (n:5) integration (n:5) soft skills (n:5) religion (n::2)		technical presentations (n:7) virtual reality (n:7) information and communication technologies (n:8) religion (n::4)	program development (n:6) measurement, evaluation and assessment (n:21)	
1993-2002 (10years)	53	problem based learning (n:4) authentic learning (n:1) competency-based education (n:1) distance learning (n:1)	standard (n:3) communication (n:4) decision making (n:1)	Agenda 21 (n:1) core curriculum (n:1) education for sustainability (n:1) global change education (n:2) Disciplinary based (n:48)	information and communication technology (n:4) informatics (n:2) computer (n:3) internet (n:2) information science (n:3)	education program (n:4) societies and institutions (n:3) campusless learning programmes (n:1) classroom management (n:1) collaboration program (n:2)	na
1983-1992 (10 years)-	8	computer based learning (n:1)	attitude (n : 2) motivation (n : 1) safety (n : 1)	Disciplinary based (n:8)	courseware and tutorware (n : 2) information science (n : 1)	classroom management (n : 1) curriculum integration (n : 1)	The discourse is more on the sociodemographic factor such as gender, geographic distribution, ethnic or racial, social environment

1978-1982 (4 years)-	6	na	Career-related(n:1)	Mathematics (n:1) Medical (n:5)	na	Course content (n:1), behavioral (n:1)	

Based on the Table 1, it was found that from 1978 to 1982, most of the documents that discussed future curriculum at that time were related to quality medical education. However, during that period, only one document suggested the need for a better approach to Mathematics education by emphasising the need for a better career for mathematicians in the Philippines (Nebres, 1979). In the article, the concern was highly related to compensation and funding to encourage the society for higher learning. Therefore, the future curriculum design at that time was quality career-oriented design.

From 1983 to 1992, the discourse on the future curriculum in SEA was more on the sociodemographic factor in terms of gender, geographical distribution, ethnicity/race and social environment. The concern of marginality among the citizen based on the sociodemographic resonated with the call for a just national education reform at that time in the SEA region. Apart from that, two documents were found to discuss the potential and challenges of using the computer as a learning tool as a prospective future curriculum. The document from Singapore discussed self-paced learning using courseware (Tan, Voon, & Rajendran, 1989) and one document from Malaysia listed the computer-assisted language learning methodology (Daud, 1992). Both articles focused on the way computer-generated multimedia learning resources and usage that could be manifested in the teaching and learning process. From the career-oriented curriculum design before 1983, the call for a future curriculum was then shifted to promote equality and just through national education. In the same vein, the use of computer technology in education through multimedia started to be labelled as 'futuristic'.

In the subsequent years from 1993 to 2002, the discourse on the future curriculum has become more divergent in the quest for curriculum reform using many standards and guidelines for systematic benchmarking (Azila, 2002; Bhattacharya, 2001; Gendeh, 2002) through the use of computer in learning, integration of East/West knowledge (Disayavanish & Disayavanish, 1998), valuing soft skills and competency alongside the content knowledge (Boo & Pong, 2001; Johari et al., 2002). This means that at this period, the curriculum was attached to certain quantifiable indicators' ability to showcase certain predetermined criteria, which allow much systematic comparison to one another. Therefore, the cognitive, skills and affective aspects are acknowledged as the outcome of a curriculum but attached to certain numerical values.

At the same time, problem-based learning started to be seen as a future curriculum design in tertiary education (Gwee & Tan, 2001). The extension of using the computer as a learning tool was another interesting idea from Thailand through the prospect of teacher-less and campus-less learning programmes by highlighting the collaborative work and remote learning facilities. The futuristic idea at that time was regarded as 'rhetoric' in the paper where ironically, the idea was mainstreamed after 30 years. The use of computers as silo learning tools in the form of multimedia courseware started to include the concept of information communication technology (ICT). The potential use of computer as information technology and communication in the teaching and learning started to be explored intensively and regarded as the future of education ecosystem. Therefore, the concept of distance education began to be considered from 1993 to 2002. Notably, the term 'tele' such as telecommunication, telecentre, telemedicine and telepharmacy also emerged during the mentioned period (Harris et al., 2001; Rahman et al., 2002; Sulistyo-Basuki, 1999). As communication technology allows humans to be globally connected, the curriculum content also changed into a global theme alongside the individual-disciplinary based curriculum. For instance, Agenda 21, core curriculum, education for sustainability and global change education started to be discussed as universal curriculum content in SEA.

However, from 2003 to 2012, the curriculum contents started to dispute/converge into the concept of sustainable development and citizenship. At the same time, the use of ICT as a learning medium (i.e: e-learning, distance learning and mobile learning) and its derivatives from computer-assisted learning such as game-based learning started to be critically discussed as a huge potential in the future in the scientific literature (Rahman et al., 2002).

Problem-based learning started to be cascaded into the school-level learning ecosystem as compared to tertiary before this. Besides, outcome-based learning and self-directed learning started to emerge (Hashim, 2008; Oloruntegbe, 2010; Ross, 2012; Timothy et al., 2010) as a new future. The term 'smart' also started to become a new 'prefix' in terms such as smart devices and smart-schooling (Ong & Kenneth, 2009) indicating the advancement of creative use of digital technology including automation, connectivity and internet of things to be incorporated in education as well. As the previous decades emphasised 'standard', during 2003-2012, more than 60 documents discussing future curriculum emphasised wider competency such as creativity and innovation, attitudes, personal and interpersonal skills, thinking skills, motivation, decision making, problem solving and religious principles interrelated with the curriculum for future. Competency, as compared to the standard, is somewhat related to showcasing the predetermined criteria in circumstances.

The trends in the latest 10 years (2013-2022) of future curriculum contents were further enhanced with the internationalisation by focusing on Sustainable Development, STEM, Education for Sustainable Development and Global citizenship, which are linked to the information communication technology reaching through the interconnected world. Having that being said, the context of ICT-based learning was discussed in 1147 documents and approached from various angles not limited to e-learning, blended learning, online learning and ubiquitous/mobile learning. The exploitation of ICT in the future curriculum includes the linking of various educational technologies, social media, information technology, virtual reality, educational robots and artificial intelligence.

The major events related to Industry 4.0 and Industrial Revolutions are prevalent across the disciplines foreseen to be impacting curriculum design as well. Ironically, as documents highlighting the potential of ICT for future curriculum, at another point, there is an active discussion on the concept of seamless learning and self-regulated learning, which started to emerge in these 10 years back. The concept of seamless learning proposes that the learning occurs at any instance and the self-regulated learning acknowledges the learners' autonomy and personal learning environments of their own learning experiences (Serhan & Yahaya, 2022). At the same time, several existing concepts in the previous decade such as problem-based learning, as well as active and collaborative learning started to be critically discussed. As such, the learning outcome also resolved beyond content mastery and further looked into the competency as in the previous decades, but with the upsurge in leadership, computational thinking and religious values alongside the affective aspects, thinking skills and soft skills.

4.7 Anticipation of Curriculum Design for Future Southeast Asia

From the bibliometric analysis, there was a large gap in the published articles co-authored by SEA countries through global partnerships related to the future curriculum in SEA. The high penetration in global readership will open for more appreciation, as well as reduce the judgement and bias of what is perceived as the future curriculum for SEA's people. At the same time, the identity of SEA should be petrified in curriculum design through systematic research activities without blindly adopting the other systems. With the science community working in SEA to reduce the barrier to scholarship knowledge transfer, the research finding from SEA could be published in reputable open databases as well. This solution is quite challenging since the majority of SEA countries use their native languages nationally. Therefore, the indexed database should be more acceptive of non-English discourse.

The scientific research network map shows that more strategic research collaboration needs to be encouraged for mutual knowledge transfer among SEA countries. The comparative discussion needs to be initiated and published for a global readership. The huge counter-interaction at the global level will better inform the global communities of the strength, unique identity, rich culture, co-existing religion and history to be included and acknowledged. The dispute about the curriculum for the future should be better clarified rather than taking short term resolutions in terms of curriculum revision. From the finding, four important aspects were anticipated for the future SEA curriculum.

1.   Evolution of learning approaches

The most obvious trend in the evolution of learning approaches that are deemed futuristic is that it always started to be introduced in higher education, and then gradually included in the school curriculum in the following decades. For instance, the concept of problem-based learning or distance learning emerged in 1993-2002 in the higher education context, but in the next decades (2003-2012), a similar concept was discussed in the school. A similar trend was found in distance learning, evaluation of competencies, enrichment of learner experiences and even the technological tools.

Therefore, in the initial years of adapting certain changes into school level discussion, the adaption is quite absurd as the schools need to scale down the idea according to learners' cognitive levels. As time pass by, recently, the focus of learning approaches is on human potential by acknowledging the different potential of a human as an individual and a unit of a global society. Learning approaches that are considered futuristic are personalised, autonomous, seamless and less structured, as these trends are also noticed in the literature pertaining the higher education from 2003 to 2012.

2.   The aims and purpose of the curriculum are toward much enrich competence-based curriculum or new term of a learning trajectory for learning outcomes that might occur

The learning outcomes are now oriented to achieve the learner competencies, rather than previously considered as the golden rules: the standard goal. Nevertheless, the learning outcomes are gauged through national examinations by external examiners through predetermined standards, and later competencies that are now measured by the teacher periodically alongside the standard examination after 5-10 years of schooling.

The learner competencies depend on national standards, but the discourse on future curriculum now glides to context and situation to apply the competency according to the learner's current potential/strength and challenges. Likely, the future curriculum design might consider that rather than measuring the competencies, the curriculum outcome measurement will consider the tangible and intangible performance based on the learner's latent potential. At the same time, it is anticipated that the standard national examination might occur with a huge transformation shift from examining competencies and standards of a learner towards making sense of learner latent potential through tangible and intangible performance. As the way curriculum outcome has shifted for more learner spectrum, the concept of the standard at a certain point might be abolished.

3.   The content of learning is dynamics in terms of internationalisation, regionalisation and localisation.

As the previous years were actively moving towards globalised content that is presumably fueled by the globalised testing, the learners are considered as a unit person but interconnected to locality, regionality and globality. However, the concepts of this interconnection purported that learners in Southeast Asia are similar to other places without clear attribution of culture, identity and tradition possessed by this region. Without clear sense-making, the effort on adapting SDGs, ESDs and GCs in the future curriculum will lead to abandoning the rich local wisdom, historical identity, custom, culture and religious harmony that are implacable in this region for quite a long time. Therefore, the concern on highlighting future curriculum design seems to progressively address the global and universality without clear coherence on the individual selfhood with the social identity, culture and history. Like all the global content, such SDGs, ESDs and GCs are not legally binding and countries are expected to take ownership to establish their own national framework. Therefore, it is very important to ensure that this concept is infused organically without enforcing these universal concepts directly or indirectly through the curriculum. This means that the curriculum content for future curriculum needs to carefully adapt to the global content without neglecting the essence of self-hood as a Southeast Asian person.

4.   Technological tools are always perceived as futuristic tools for teaching and learning.

As the learning approaches and centricity change constantly across the studied period, the learning approaches that are always considered futuristic are focused on holistic humanistic development with technological assistance. Since the competency also includes tangible and intangible performance, the use of technology will also be extensive as it can measure unintentional behaviour. As we can see through historical perspectives, the 'futuristic' technology started with the use of computers in-silo as information technology, then connected through networks, followed by the digital presence and virtual communication. Today, technology for education uses immersive mediums (i.e virtual meetings and social media), benefitted the data and knowledge resources (i.e web resources and open data), non-physical space (i.e virtual and mobile) and learning tools (ie quizzes and games). As such, the new trends of much-extended use of digital technology regarded as futuristic learning involve the use of the digital technology that is extensive but tailored to the learning needs such as in seamless and self-regulatory learning approaches. This means that digital technology is widespread with switching and customisation according to individuality.

Alongside this outstanding pattern, the use of digital technology as perceived for long as a 'futuristic curriculum' will be continued to be used in teaching and learning. However, several other issues related to this trend are the need to include the ethics in deploying this technology to better acknowledge the issue related to the energy needs to support such widespread use of technology, the affordability of the use of technology among the learner in SEA and the student privacy during teaching and learning process. These are some emergent factors that need to be included in curriculum design for future generations.

5.0 CONCLUSION

From the analysis and discussion, the curriculum for future SEA needs to be updated to meet the changing society and aspirations of Southeast Asia. The existing curriculum design is pre-pandemic and caters for the traditional schooling system; however, the use of technology in education has spiked during the pandemic but is yet to be concluded since the transformation is still taking place recently.

In summary, personalised, autonomous, seamless and less structured learning approaches are deemed futuristic. Learning outcomes are now directed around achieving

learner competencies focus on the learner performances. The concept of standard examination will be continuously re-structured in the way educational outcomes have evolved for a wider range of learners. In terms of globalisation, regionalisation and localisation, the dynamic of the learning content depends on the respective SEA countries' policy itself. Therefore, it is suggested that future curriculum content knowledge must carefully embrace global agenda while maintaining the essence of self-hood as Southeast Asian individuals. The future curriculum design also needs to consider the learners as unique individuals with latent potential and challenges tailored with the tangible and intangible performance indicators. The rhetoric of future curriculum also suggested that curriculum should empower the learners through seamless and self-regulated learning with a customised adaptation to the digital learning technology and related ethics in using this technology for school-going children.

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