Research on lifelong learning in Southeast Asia: A bibliometrics review between 1972 and 2019

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Research on lifelong learning in Southeast Asia: A bibliometrics review between 1972 and 2019

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Abstract: Lifelong learning (LLL) is an evolving field that is expected to contribute to attaining Sustainable Development Goals in education in the 21st century. In line with this expectation, research on LLL in Southeast Asia has been promoted in recent years. The main objective of this study was to investigate the development of scientific publications on LLL in Southeast Asia. We assessed 491 articles and books published between 1972 and 2019, located in the Scopus database, using bibliometric analysis. The results illustrated the current status of LLL research in Southeast Asia and described the research topics investigated during those 47 years. Publications on LLL in Southeast Asia have grown steadily in the 21st century, especially since 2015. Besides the contributions from Anglo-American scholars, indigenous researchers have also played an essential role in developing LLL in Southeast Asia. In recent years, e-learning, education for sustainable development, and the learning society are the dominant topics that have reshaped LLL research in Southeast Asia.

Subjects: Education - Social Sciences; Teaching & Learning - Education; Adult Education and Lifelong Learning; Continuing Professional Development;

Keywords: Lifelong learning; bibliometrics; Southeast Asia; science map; review; SDG

1. Introduction

A rapidly changing world has motivated regular updating of knowledge to respond to the ongoing challenges. Lifelong learning (LLL) is supposed to help people improve their knowledge and skills and remain relevant. The Commission of the European Communities (2000) identified LLL as “all learning...
activity undertaken throughout life, with the aim of improving knowledge, skills, and competences
within a personal, civic, social and/or employment-related perspective” (p. 3). According to Hasan
(2012), LLL can be understood as a process of learning throughout life. LLL not only improves
individual advantages but also contributes to social development via the creation of productive and
innovative communities and strengthens the economy (Laal & Salamati, 2012).

Since the second half of the 20th century, UNESCO has released a series of reports focusing on LLL
(Jarvis, 2009). These reports have provided an overview of the concept, content, and evaluation of
LLL. Up to 2006, the Institute for LLL operated under the auspice of UNESCO to promote LLL together
with informal and non-formal education (ILO, 2004). In 2012, the United Nations Rio+20 summit in
Brazil agreed to design new goals to pursue the Millennium Development Goals for global develop-
ment in the 21st century, called Sustainable Development Goals (SDGs) (United Nation, 2017). One of
the main aims of the SDGs is universal education, which will provide support for ending poverty,
improving well-being (SDG1), and providing quality education (SDG4) (Griggs et al., 2013). LLL, indeed,
plays an essential role in sustainable education in the 2030 Agenda for Sustainable Development.

For the Southeast Asian region, in particular, the 11 member countries started to focus on LLL in
the early 2010s by issuing the ASEAN 5-Year Work Plan on Education (ASEAN, 2011). To promote
LLL, SEAMEO (Southeast Asia Ministers of Education Organization) shared four programmes that
would support this strategy. They focused on sharing resources that support education systems,
strengthening national educational strategies; improving education systems, training teachers at
all educational levels, and expanding cooperation between universities and social organizations to
create educational opportunities for all people (ASEAN, 2011).

In line with the agenda set by the region, some countries in Southeast Asia, including Vietnam,
Thailand and Malaysia, also initiated their own policies and programmes focusing on LLL to create
learning societies (D. B. Pham et al., 2020; Yorozu, 2017). As a result, education scholars from
Southeast Asia started to shift their attention to LLL as a new research topic. Nevertheless, to date,
there have been relatively few studies on LLL in Southeast Asian countries (Ahmed, 2009; Bax &
Hassan, 2003; Kumar, 2004; Yorozu, 2017). Despite the limited number of publications on LLL in
Southeast Asia, these authors tried to expand their research to present LLL as an effective strategy
to support education in this area. Their research topics described the current situation of LLL in
Southeast Asia (Aziz & Ahmad, 2019; Tran et al., 2019) or explored how LLL applying in reality (Le,
2018; Lopez, 2019; Phornprapha, 2015; Sadik, 2018; Tan, 2017). Given this, the aim of this study
was to provide an overview of LLL research in Southeast Asia countries up to 2019. We explored
the influential authors, outlets, and countries that have had a sustained impact on LLL in
Southeast Asia. In addition, we also established the trends in LLL literature and topics that can
provide a focus for the future. To address these research purposes, we used bibliometric analysis of
the Scopus database, which is one of the largest academic databases worldwide. Specifically, our
research aimed to answer the following questions:

• What are the overall volume, growth pattern, and geographical distribution of publications on
LLL in Southeast Asia?
• Who and what are the most prominent authors, publications, and outlets (journals/book
series) in the field of LLL in Southeast Asia?
• What are the key themes in the extant literature on LLL in Southeast Asia?

Our paper is constructed as follows. In the next section, the concepts of LLL in the extant literature
are reviewed. In the third section, we introduce the dataset collection and methodology for this
analysis. Next, the Results Section presents answers to our research questions. We then discuss
the limitations and implications of our research before presenting our conclusions.
1.1. The concept of lifelong learning

LLL was firstly introduced in the Faure report, produced by UNESCO (Platt, 1973), in which LLL is conceptualized as the organizing principle of education worldwide. It was identified based on the assumption that education is a tool for “each man’s right to realize his own potential” (Platt, 1973). World Bank, OECD, and other international organizations tried to develop this concept to promote the development of education toward the culture, social, and international solidarity goals (Atchoarena, 2021; Elfert, 2015). However, this concept has encountered significant obstacles to achieving its goals. These challenges stem from the incompleteness of the LLL concept and the difficulties in implementing it in practice, for example, the delay of the education institutions (Atchoarena, 2021; Elfert, 2015; Tuijnman, 1996). Along with the evolution of a global socio-economic structure, scholars and educators also introduced different definitions of LLL. For instance, Delors (Delors, 1996) stated that LLL continues lifelong in all spheres of life. The OECD (Organisation of Economic Co-operation and Development) defined LLL as “all purposeful learning activity from the cradle to the grave, that aims to improve knowledge and competencies for all individuals who wish to participate in learning activities” (OECD Education Committee, 2001, p. 2). The International Labour Office (ILO, 2000) argued that LLL is a learning process for acquiring knowledge and professional skills throughout life; or more simply, it is all that an individual can learn throughout life (ILO, 2004). Jarvis (2006) defined LLL as “the combination of processes throughout a lifetime whereby the whole person—body (genetic, physical and biological) and mind (knowledge, skills, attitudes, values, emotions, beliefs, and senses)—experiences social situations, the perceived content of which is then transformed cognitively, emotively or practically (or through any combination) and integrated into the individual person’s biography, resulting in a continually changing (or more experienced) person” (p. 134).

According to London (2011), LLL can be modelled from the perspective of psychology and adult education. LLL research also includes “policies on and practices in schooling as well as adult education, and much beside including aspects of informal as well as formal learning across the life course” (Morgan-Klein & Osborne, 2007, p. 1). Laal (2011) divided LLL into four parts in human life from newborn to the end of life. LLL is also mentioned in other fields such as economics (Zajda, 2011), management (Campbell & Armstrong, 2013), and technology (Sharples, 2000). In brief, LLL research themes were conceptualized by researchers depending on their various fields of expertise. Therefore, the terms of LLL also be subjected to multiplicity of use and interpretation. Besides the traditional definition of Faure (1972), the current LLL concepts focus on promoting the learning process to support individuals to adapt, accept, and self-adjust to the changes of the environment, the processing of globalization, and technological revolution. The concepts of LLL developed by contemporary scholars are based on traditional concepts, driven by social and economic development, and with differences among scholars (Bagnall, 2009; Ng, 2013).

Nowadays, this concept presents a different approach compared with the earlier LLL concept (Schuetze, 2006). The earlier LLL concept emphasized the role of the government, social organizations, and educational institutions, while the current concept extended to the importance of informal education, focusing on individual learning. This change is based on the diversity of learning forms in the digital world and the transformation of traditional education (Schuetze, 2006). Finally, the concepts of LLL tries to remind us of the idea that education establishing a future humanistic and equal world.

1.2. Methodology

1.2.1. Bibliometric analysis

Bibliometric analysis is well-known thanks to its effectiveness in analysing scientific publications (Cao et al., 2020; Chahrou et al., 2020; H.-H. Pham et al., 2021; Hallinger & Kovačević, 2019; Hallinger & Nguyen, 2020; Kakouris & Georgiadis, 2016). It provides systematic information that describes quantitative publications. A bibliometric analysis helps researchers to determine the trends of research over extended periods. Moreover, bibliometric analysis shows researchers’ contributions, relationship patterns, and the growth of publications and citations year by year.
(Ganjihal & Gowda, 2008). Bibliometric analysis was thus a suitable approach to use to address our research questions. The relational technique of co-word analysis allowed us to explore the LLL topic structure, pointing out hot topics and also revealing research trends (Zupic & Cater, 2015). Co-occurrence keywording shows the most common keywords that appear in papers (Callon et al., 1986). It is based on the assumption that if two keywords appear in documents, these documents have the same topic and are related to each other. This approach is commonly used in the bibliometric analysis (Hallinger & Kovačević, 2019; Köseoğlu et al., 2015; Liu & Mei, 2016).

1.2.2. Data

Our research was based on Scopus database, which is one of the most significant scientific databases (D. B. Pham et al., 2020). According to Elsevier (Elseviers, 2020), in 2020, Scopus covered over 23,452 peer-review journals, more than 852 book series, and over 9.8 million conference papers in all scientific disciplines. To identify the articles that related to our topic, we focused on two keywords: “lifelong learning” and “ASEAN”. For further detail, alternative keywords were chosen for search queries. Specifically, apart from “lifelong learning”, the following relevant keywords were selected: “education permanent”, “further education”, “continuing education”, “adult education”, “learning society”. Regarding location, the names of 11 Southeast Asian countries were included in the search queries. With regard to timeline, we terminated our search period at the end of 2019. We only selected publications written in English. Thus, the following search query was used to derive a primary database from Scopus:

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TITLE-ABS-KEY (("lifelong learning" OR “life long learning” OR “education permanente” OR “further education” OR “continuing education” OR “adult education” OR “recurrent education” OR “liberal education” OR “education proper” OR “learning society” OR “education professional retraining” OR “adult learning” OR “continuing professional development” OR “Education, Professional, Retraining” OR “Education, Dental, Continuing”) AND (“Indonesia” OR “Philippines” OR “Vietnam” OR “Thailand” OR “Myanmar” OR “Malaysia” OR “Cambodia” OR “Lao” OR “Singapore” OR “Timor Leste” OR “Brunei” OR “South-Eastern Asia” OR “Asia” OR “Indochina”) AND (LIMIT-TO (SUBJAREA, “SOCI”)) AND (LIMIT-TO (DOCTYPE, “ar”) OR LIMIT-TO (DOCTYPE, “ch”) OR LIMIT-TO (DOCTYPE, “bk”)) AND (EXCLUDE (PUBYEAR, 2021) OR EXCLUDE (PUBYEAR, 2020)) AND (LIMIT-TO (LANGUAGE, “English”)).
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The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was applied to ensure the quality of the document search processing (Moher et al., 2009). Our search yielded an initial 1139 documents. We subsequently excluded 600 documents after screening based on the documents’ content.

All duplicated records and conference papers were removed. Finally, 491 documents, including journal articles and books/book chapters, were obtained for final analysis. The following fields relating to each document were recorded in the final data: article identity number, article title, source journal, cited relationship, authors, institution, country, link of the document, and publication year.

The final data were exported for analysis using R and VOSviewer software. The R Biblioshiny package was used to describe the number of publications per year by country, author, or source and to calculate the number of citations. VOSviewer software was used to provide a deep perspective on the relationship between regularly used keywords (Mergó et al., 2018). We created social network maps of keywords that emerged in different sources by focusing on co-occurrence analysis. Co-occurrence keyword analysis or co-word analysis is recognized as an effective means to identify research themes (Wang et al., 2017). It is claimed to identify the “hot topics” in LLL research according to the development of each keyword (Lozano et al., 2019). Finally, we used Bradford’s Law to identify our core sources: the journals in which most of the papers relevant to our topic are published.
1.3. Results

1.3.1. Volume, growth pattern and geographical distribution

This section provides the results of our analysis. To answer the first research question, we analysed 492 documents including 370 articles, 20 books and 102 book chapters that related to LLL from 1972 to 2019. The starting year for this analysis was 1972 because this was the first time that an LLL-related document was published in Southeast Asia. The document, entitled “Village midwives in Malaysia” was authored by Peng et al. (Peng et al., 1972).

Based on the growth trends in publications on LLL in Southeast Asia between 1972 and 2019 as shown in Figure 2, we divided the LLL in Southeast Asia knowledge base into three periods:

- 1972–1990: ignorant period, during which LLL in ASEAN seemed to be overlooked by scholars and only 15 documents were published (3.1% of the total publications between 1972 and 2019);
- 1991–2004: emergent period, during which LLL in ASEAN started to attract some attention from scholars and 49 documents were published (10% of the total publications);
- 2005–2019: growing period, during which LLL in ASEAN received significant attention from scholars: 427 documents were published (86.9% of the total publications).
These longitudinal data indicated that in the first period, there were only on average 0.8 documents published per year. The respective figures for the second and the third periods were 3.5 and 28.4 documents per year. Overall, the productivity of the literature was 10.45 published per year and the production trend in LLL was 10.6%. Focusing on the last 5 years, from 2015 to 2019, the literature productivity was 42.6 publications per year, which was higher than the overall productivity (between 1972 and 2019) by a factor of almost 5. The number of publications in recent years was comparable with the total number of publications in the emergent period. However, as shown in Figure 1, even in the growth period, the annual trends in publication of LLL-related documents were not stable. For instance, the number of LLL-related documents published in 2009 was 33, a sudden growth from 15 documents in 2008. However, in 2010, the figure felt to only 16. The publishing patterns of 2008–2010 seemed to repeat in the following years.

Figure 3 shows the geographical contribution to LLL in ASEAN. Authors from 54 countries have (co)authored at least one publication on this topic. Surprisingly, three out-of-region countries, including Australia (76 publications), the US (95 publications) and the UK (66 publications) were found to be the most productive countries beside two ASEAN countries Malaysia (131 publications) and Thailand (62 publications). These five countries contributed more than half of the total published documents. In addition to Malaysia and Thailand, Singapore and Indonesia are ASEAN countries that have also made a significant contribution to this topic. However, in total, Southeast Asian countries made a minor contribution, with only 274 documents (38.9%).

1.3.2. The most prominent authors, publications and outlets
Many LLL-related documents in Southeast Asian region were co-authored by authors from Southeast Asian countries, in collaboration with colleagues in other countries. Given this, in the list of LLL-related documents in Southeast Asia, we found not only authors from Southeast Asian countries but also authors from other countries. Overall, there were 1014 authors who participated in the production of papers on LLL in Southeast Asia. Table 1 lists the top 20 most cited authors publishing on LLL in ASEAN by total articles and citations according to the Scopus database. Most of the authors from developed countries, accounting for 60% of the total, came from North American, Europe, and Australia. ASEAN researchers accounted for 34%, primarily from Singapore, Thailand, Malaysia, and Indonesia, and 6% were from China. Of the top 20 authors, only one (Roger Boshier from the University of British Columbia, Canada) received more than 100 citations, and 10 authors received more than 10 citations. The second most cited authors are Deborah Hennessy and Carolyn Hicks from the University of Birmingham, with 47 citations.
Next, we tried to identify the most impactful articles published in this field. Table 2 presents 15 documents with the highest numbers of citations from 1972 to 2019. As indicated, most of these have been published since 2005. There were only two documents published between 1972 and 2004. Moreover, only 4 authors listed in Table 1 appear in Table 2: Ng Pak Tek (Singapore), Imas Maesaroh (Australia), Sumalee Sungsri (Thailand) and Pierre Walter (Canada).

Table 3 lists 10 outlets (edited books/book series) with the highest number of LLL-related articles in Southeast Asia. The outlet with the highest number of publications (18) was the International Review of Education: Journal of Lifelong Learning. This was also one of the oldest journals involving in publishing on LLL in Southeast Asia, with the first publication released in 1984. The second most important outlet of LLL-related material in Southeast Asia was a book series, Education in the Asia-Pacific Region, with 16 related publications. This was also one of only two book series appearing in the top 10 outlets (the other is Lecture Notes in Educational Technology). With regard to the scope of the top journals/book series, our findings revealed that 4 of the 10 journals focused specifically on LLL, whereas the numbers are 3, 2, and 1 for “education in general”, “other subjects in education” and “social sciences in general”, respectively.

1.3.3. Key themes in the extant literature on LLL in Southeast Asia

Here, we used co-occurrence analysis to determine the LLL research structure and predict future research trends. Keyword co-occurrence plays a vital role in bibliometric analysis research as it quickly reveals popular research topics and allows monitoring of research trends in the scientific knowledge domain (Cheng et al., 2018; Gan & Wang, 2015). Figure 4 provides the co-occurrence analysis results from VOSviewer. In this map, the node’s size represents the number of keyword occurrences in the database, and the links between two nodes indicate a relationship between them. In total, there were 1179 keywords that appeared in all 491 analyzed publications. To establish the relationships between them, only keywords that appeared more than three times were selected. Using this criterion, only 75 keywords met our threshold and are presented in the resulting map. The most common keywords were as follows: lifelong learning (62), continuing professional development (23), Thailand (16), adult learning (14) and higher education (13). The keyword “lifelong learning” also had the highest total link strength. Overall, ten sub-clusters are presented in Figure 4. As indicated, the sub-clusters represent the most relevant and popular keywords in LLL in Southeast Asia. For example, in the Adult Education sub-topic the main
| Rank | Author       | Affiliation                      | Nationality | H-index | LC  | GC  | NP | PY  |
|------|--------------|----------------------------------|-------------|---------|-----|-----|----|-----|
| 1    | Ng Pak Tek   | Nanyang Technological University | Singapore   | 3       | 10  | 29  | 4  | 2009|
| 2    | Maesaroh I   | Curtin University of Technology  | Australia   | 2       | 6   | 21  | 4  | 2009|
| 3    | Hennessy D   | University of Birmingham         | The UK      | 3       | 3   | 47  | 3  | 2006|
| 4    | Hicks C      | University of Birmingham         | The UK      | 3       | 4   | 47  | 3  | 2006|
| 5    | Genoni P     | Curtin University of Technology  | Australia   | 2       | 6   | 21  | 3  | 2009|
| 6    | Wang VCX     | California State University      | The US      | 2       | 10  | 14  | 3  | 2008|
| 7    | Azman H      | National University of Malaysia  | Malaysia    | 1       | 8   | 13  | 3  | 2011|
| 8    | Murugaih P   | Science University of Malaysia    | Malaysia    | 1       | 4   | 13  | 3  | 2011|
| 9    | Harris R     | University of South Australia    | Australia   | 2       | 3   | 10  | 3  | 2013|
| 10   | Henschke JA  | Lindenwood University            | The US      | 2       | 4   | 10  | 3  | 2012|
| 11   | Sungsri S    | Sukhothai Thammathirat Open University | Thailand  | 2       | 3   | 8   | 3  | 1984|
| 12   | Elsey B      | University of South Australia    | Australia   | 1       | 4   | 5   | 3  | 2002|
| 13   | Valdez NP    | President University             | Indonesia   | 1       | 1   | 4   | 3  | 2016|
| 14   | Huang R      | Beijing Normal University        | China       | 1       | 2   | 3   | 3  | 2016|
| 15   | Boshier R    | University of British Columbia   | Canada      | 2       | 2   | 118 | 2  | 1985|
| 16   | Walter P     | University of British Columbia   | Canada      | 2       | 4   | 43  | 2  | 2007|
| 17   | English LM   | St. Francis Xavier University     | Canada      | 2       | 6   | 39  | 2  | 2002|
| 18   | Abbas T      | University of Warwick            | The UK      | 2       | 2   | 32  | 2  | 2002|
| 19   | Hilan A      | independent consultant           | Indonesia   | 2       | 0   | 33  | 2  | 2006|
| 20   | Kawonal Y    | Indonesian Nurses Association     | Indonesia   | 2       | 1   | 34  | 2  | 2006|

Note. LC: number of citations in analysed dataset; TC: number of citations in Scopus database; PY: publication year for the first document, NP: number of publications.
| Rank | Author | Title                                                                 | Keyword                                                                 | Source                                                                 | Document type | LC | TC |
|------|--------|----------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------|----|----|
| 1    | Kumar  | Lifelong Learning In Singapore: Where Are We Now?                     | NA                                                                     | International Journal of Lifelong Education                            | Article       | 8  | 19 |
| 2    | Maesaroh I | An Investigation of The Continuing Professional Development Practices Of Indonesian Academic Libraries | Academic Libraries; Continuing Professional Development; Human Resource Management; Indonesia | Library Management                                                    | Article       | 3  | 10 |
| 3    | Ng, P. T. | An Examination of Lifelong Learning Policy Rhetoric And Practice In Singapore | NA                                                                     | International Journal Of Lifelong Education                           | Article       | 3  | 11 |
| 4    | Han S   | Asian Lifelong Learning In The Context Of A Global Knowledge Economy; A Task Re-Visited | Adult Education; Asian Financial Crisis; East And Southeast Asia; Global Knowledge Economy; Lifelong Learning; Nonformal Education | Asia Pacific Education Review                                        | Article       | 2  | 4  |
| 5    | Maesaroh I & Genoni P | Education and Continuing Professional Development For Indonesian Academic Librarians: A Survey | Academic Libraries; Australia; Continuing Professional Development; Indonesia; Librarians | Library Management                                                    | Article       | 2  | 9  |
| 6    | Shakir  | Soft Skills at The Malaysian Institutes Of Higher Learning           | Communication And Analytical Skills; Graduates; Institute Of Higher Learnin; Soft Skills | Asia Pacific Education Review                                        | Article       | 2  | 80 |
| 7    | Dhirathiti N | Lifelong Learning Policy for The Elderly People: A Comparative Experience Between Japan And Thailand | Lifelong Learning For The Elderly; Lifelong Learning In Japan; Lifelong Learning In Thailand | International Journal Of Lifelong Education                           | Article       | 2  | 3  |

(Continued)
| Rank | Author                                      | Title                                                                 | Keyword                                                                 | Source                                                                 | Document type | LC | TC |
|------|---------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|----------------|----|----|
| 8    | Lee and Morris (2016)                       | Lifelong Learning, Income Inequality and Social Mobility In Singapore | Income Inequality; Lifelong Learning; Low-Income; Singapore Policy; Skills Upgrading | International Journal Of Lifelong Education                             | Article        | 2  | 7  |
| 9    | Walter P (2007)                             | Activist Forest Monks, Adult Learning and The Buddhist Environmental Movement In Thailand | NA                                                                     | International Journal Of Lifelong Education                             | Article        | 1  | 14 |
| 10   | Sidhu Kg, Kaur S & Fook Yc (2011)           | Developing Learner Autonomy In the Esl Classroom Through The Use Of Learning Contracts | Esl Classroom; Evaluating Learning; Learner Autonomy; Learning Contracts; Lifelong Learning; Strategy Training; Teacher Perceptions | Pertanika Journal Of Social Science And Humanities                     | Article        | 1  | 5  |
| 11   | Grimes P (2013)                             | Considering The Continuing Development Of Inclusive Teachers: A Case Study From Bangkok, Thailand | Buddhism; Case Study; Consultant-Researcher; Culture; Ethnography; Inclusion; Inclusive Schools; Inclusive Teachers; Thailand | European Journal Of Special Needs Education                             | Article        | 1  | 7  |
| 12   | Idrus H, Dahan Hm And Abdullah N (2014)      | Integrating Soft Skills In The Teaching Of Hard Sciences At A Private University: A Preliminary Study | Engineering; Hard Sciences; Soft Skills; Technical Skills              | Pertanika Journal Of Social Science And Humanities                     | Article        | 1  | 3  |
| 13   | Luka I & Sungsri S (2015)                   | Lifelong Learning Strategies And Practice In Latvia And Thailand      | Best Practice; Challenges; Lifelong Learning; Lifelong Learning Policy | Policy Futures In Education                                            | Article        | 1  | 4  |

(Continued)
### Table 2. (Continued)

| Rank | Author | Title | Keyword | Source | Document type | LC | TC |
|------|--------|-------|---------|--------|---------------|----|----|
| 14   | Sung J & Freebody S (2017) | Lifelong Learning In Singapore: Where Are We? | Adult Learning; Career; Delors Framework; Lifelong Learning; Measurements; Skills Mastery; Skillsfuture | Asia Pacific Journal Of Education | Article | 1 | 6 |
| 15   | Tan (2017) | Lifelong Learning Through The Skillsfuture Movement In Singapore: Challenges And Prospects | Challenges; Lifelong Learning; Prospects; Singapore; Skills | International Journal Of Lifelong Education | Article | 1 | 6 |

Note. LC: number of citations in the analysed dataset; TC: number of citations in Scopus database.

### Table 3. The most impactful outlets for research on LLL in ASEAN between 1961 and 2019

| SJR 2019 | Source | Publisher | Scope | TC | NP | PY |
|----------|--------|-----------|-------|----|----|----|
| 0.388    | International Review Of Education: Journal of Lifelong Learning | Springer Netherlands | LLL | 67 (9) | 18 | 1984 |
| NA       | Education In The Asia-Pacific Region | Springer | Education in general | 9 (71) | 16 | 2014 |
| 0.436    | International Journal Of Lifelong Education | Routledge | LLL | 109 (4) | 15 | 1985 |
| 0.165    | Pertanika Journal Of Social Sciences And Humanities | Universiti Putra Malaysia | Social Sciences in general | 16 (40) | 12 | 2015 |
| 0.202    | Lecture Notes In Educational Technology | Springer International Publishing AG | Other subjects in education | 6 (89) | 11 | 2016 |
| 0.478    | Asia Pacific Education Review | Springer Netherlands | Education in general | 128 (3) | 10 | 2007 |
| 0.919    | International Journal Of Educational Development | Elsevier BV | Education in general | 81 (7) | 8 | 2000 |
| 0.549    | Asia Pacific Journal Of Education | Routledge | Education in general | 34 (23) | 7 | 2009 |
| 0.732    | Adult Education Quarterly | SAGE Publications Ltd. | LLL | 396 (1) | 6 | 1985 |
| 1.208    | Human Resources For Health | BioMed Central Ltd. | Other subjects in education | 54 (10) | 6 | 2006 |
| 0.274    | Australian Journal Of Adult Learning | Adult Learning Australia | LLL | 8 (75) | 6 | 2011 |

Note. TC: number of citations in Scopus database; PY: year of publication of the first document; NP: number of publications; SJR: referred in scimagojr.com at 03:15 PM 9 September 2020.
keywords were pedagogy, andragogy, adult learner, experiential learning, mobile learning, distance education. The keywords soft skills, problem-based learning, employability, career development related to the sub-topic Career Education; and the most common keywords for Continuing Professional Development in Higher Education were continuing professional development, community of practice, reflective practice, teacher training.

Figure 5 shows the most popular topics and research trends in LLL in ASEAN over the past 15 years. The keywords with lighter colours designate a current focus point. Our results indicate that LLL research in Southeast Asia has investigated e-learning, education for sustainable development and the learning society. Along with the education for development sub-topic the keywords showed particular attention being paid to Education Development, Education for Sustainable Development, Sustainability, Equity. The e-learning sub-topic related to keywords such as Mobile learning, Distance education, Distance learner, Learning strategies and finally, the sub-topic Learning Society was represented by keywords including Learning society, Learning city, Nonformal education, Adult learning.

2. Discussion
This is the first research using applied bibliometric analysis and science mapping to illustrate the knowledge base of LLL in Southeast Asia. We analyzed 492 publications indexed in Scopus related to our research scope. The 20 most frequently cited authors list showed that the three most important authors in terms of citations are Roger Boshier, Deborah Hennessy and Carolyn Hicks. Their research publications represent the “Lifelong Learning Theory”. They did not directly contribute to this topic, but their work became “standard referencing” for the researchers contributing to the LLL field in ASEAN. The list of 15 publications with the highest citations showed the contributions of indigenous
Figure 5. Temporal overlay for author keywords based on co-occurrence analysis in the period between 1961 and 2019 (75 keywords; at least three occurrences with each keyword).

Researchers such as Prem Kumar (Singapore), Ng Pak Tek (Singapore), Roselina Shakir (Malaysia) and Nopraenue Dhirathiti (Thailand). The main topics of their research were the current position of LLL in their countries (Dhirathiti, 2014; Kumar, 2004; Ng, 2013) and strategies to promote LLL in education (Shakir, 2009). The most active journals publishing in the LLL field, along with Scopus data, highlighted the broad range of LLL in multiple educational research topics such as education policy (e.g., *International Review of Education: Journal of Lifelong Learning*, *International Journal of Lifelong Education*), educational research in Asia and the Pacific (e.g., *Education In The Asia-Pacific Region*, *Asia Pacific Education Review*, and *The Asia Pacific Education Review*), adult education (e.g., *Adult Education Quarterly*, *Australian Journal Of Adult Learning*), and health education (e.g., *Human Resources For Health*).

In recent years, LLL in Southeast Asia emphasized Education for development, E-learning, and Learning Society. These sub-topics also show the similarities with the development of LLL meanwhile supporting individuals to adapt to the world’s changes, globalization, and the development of science and technology. London (2011) concluded that LLL is an effective way to promote change in education in the light of changes in the world. He predicted that education would change along with the scientific revolution and economic development. Educators will act as facilitators to promote students’ self-development. People will undertake continuous learning linked to personal experiences. The rapidly economic growth in Southeast Asian countries since the second half of 20th century has turned some countries in this region into developed countries (Singapore, Brunei) or middle-income countries (Malaysia, Thailand, Vietnam, Philippines) (Asia Development Bank (ADB), 2008; Lim, 2009). Southeast Asia’s working-age population plays a vital role in the global economy currently and in the future (Bloom et al., 1999; Walmsley et al., 2017). However, mainly labor sources in this area are unskilled workers. They cannot keep up with the quality and experience of the market requirement. Therefore, they miss opportunities to access better jobs and improve their income. The main reasons are economic development, globalization, rapid urbanization, Southeast Asia countries’ history, and social characteristics (Booth, 1999; Chen, 2018; Kassim et al., 2019). Current education policies and systems cannot solve this problem, even hindering economic development (Booth, 1999). LLL is expected to
accelerate the transformation of the education system in Southeast Asia’ countries towards training and supporting an adaptable workforce; thereby increasing income, well being, solving socio-cultural issues, and achieving sustainable development goals in the future (ASEAN, 2011; Kassim et al., 2019; Liu et al., 2019; Thang et al., 2019).

Finally, globalization has created a geographically dispersed working and learning environment, and has also supported the expansion of multicultural learning trends. E-learning, education for sustainable development and the learning society were the important keys to exploring and supporting LLL not only from an economic perspective but also from the point of view of society and communities. These topics are closely related to traditional research topics such as non-formal education (Hossain, 2016; Intarat et al., 2017; Liu et al., 2019; Sugiyama et al., 2016), teaching and learning strategies (Dahl & Millora, 2016; Dhosah & Pruekpramool, 2016; Sadoux, 2018; Tharmabalan, 2016). These sub-topics also focus on adult education (Creak, 2018; Le, 2018; Sadik, 2018), continuing professional development (Mampane, 2017; Phornprapha, 2015) in the same vein with the need to develop the quality of labor resources in Southeast Asia for economic development and income enhancement (Kassim et al., 2019; Lee & Morris, 2016; Ng, 2017; Tan, 2017). Another topic that should continue is LLL for sustainable development to support SDG4. LLL plays an essential role in achieving SDGs, so this research topic should focus on in the following years. Finally, from the authors’ point of view, e-learning needs to continue researched and implemented in the coming years. The emergence of the Covid-19 pandemic in the past two years has caused tremendous changes in traditional education practices. Online learning has become the predominant mode of learning in the world, including Southeast Asia. Future research needs to explore the difficulties in implementation, changes in teaching and learning strategies, and effectiveness of this method. In coming years, these sub-topics: e-learning (Foley, 2021; Kurawa, 2021; Lands & Pasha, 2021; Pannen, 2021; Thongmak, 2021), education for sustainable development (Culala & De Leon, 2019; Hoang et al., 2020; Kurawa, 2021; Zuhairi et al., 2020) and the learning society (Kim et al., 2021; Lands & Pasha, 2021; Park & Kim, 2020; Zuhairi et al., 2020) are continuing to develop in Southeast Asia to boost LLL.

3. Conclusions
In this paper, we provide the first systematic scientific information about the literature on LLL in Southeast Asia. The results show that the number of publications on LLL in Southeast Asia has grown in recent years, especially between 2015 and 2019. These results may reflect the importance of LLL in the UN’s SDGs and the support from SEAMEO in 2015 to develop LLL in Southeast Asia (ASEAN, 2011; United Nation, 2017). Authors from developed countries have made significant contributions to the study of LLL in Southeast Asia. Of the Southeast Asian countries, Malaysia, Singapore and Thailand are among the most productive with regard to LLL research. Malaysia is the country with the largest number of publications. Singapore has a publishing system focusing on LLL development, with key authors such as Pak Tek Ng and Prem Kumar. Vietnam, Brunei and Timor Leste are countries in Southeast Asia that have had no LLL publications listed in the Scopus index.

Our study shows that Roger Boshier was the most influential author on LLL in Southeast Asia and the most important publication was “Lifelong Learning In Singapore: Where Are We Now?” (Kumar, 2004). In addition, the most important journal was the International Review Of Education: Journal of Lifelong Learning (Elsevier).

The co-citation analysis results also indicate the diverse and comprehensive topics relating to LLL from multiple perspectives such as policy, teachers and teacher education, and higher education. However, because of the diversity of topics, the material dealt with by authors varies and the levels of co-citation are not high. Our analysis shows the most common thematic research areas and reflects the changing trends in this field according to keyword citation analysis. Topics that have been popular in recent years are e-learning, education for sustainable development and the learning society.

Finally, although Southeast Asian countries encourage development and promote LLL, it appears that studies on LLL in Southeast Asia have only begun to grow in recent years. We expect to see
further studies focusing on LLL, promoting regional education to meet the UN’s sustainable development goals and adapt to a changing world.

4. Limitations and recommendations for future studies
This study has some limitations that need to be addressed in future research (Vuong, 2020). One limitation of bibliometric analysis is that it only generally describes the intellectual structure of the research topic (Kakouris & Georgiadis, 2016; Nylander et al., 2020; Wang et al., 2017). Our analysis describe a part of emerging themes and the contribution of the previous research on the development of LLL in Southeast Asia. Bibliometric analysis cannot allow us to analyze the details of an LLL topic and assess the quality of each piece of research. Furthermore, bibliometric also do not reflect exactly the influence of a paper on the topic according to Matthew effect (Zitt, 2005). Therefore, further studies are necessary to overcome this limitation.

In addition, the database used in our study is incomplete. We used the Scopus dataset for our analysis. Even though the Scopus dataset is one of the largest scientific databases globally, there are many critical scientific documents related to LLL in ASEAN that are not indexed in Scopus. Furthermore, this database ignores scientific documents that are not in English, the primary language of science. Co-citation analysis can partially overcome this limitation while analysing the references located in the database.

Finally, as mentioned before, the bibliometric analysis cannot fulfill the conceptualization of the LLL in Southeast Asia topic. The selection of the analytical database and the interpretation of the results are based on the author’s subjective opinion (Gan & Wang, 2015; Hallinger & Nguyen, 2020; Zupic & Cater, 2015). It requires a broad background in the field and different perspectives to provide a more general overview of the research topic.

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