DOES ANY RESEARCH GAP ON EDUCATION STARTUP (EDTECH) IN INDONESIA

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Abstract:
The purpose of this study is to identify research gin on educational stastartups Indonesia. There were five proposed research questions: (RQ1) publication trends; (RQ2) publishers which published the most articles; (RQ3) researcher who was productive; (RQ4) the most cited article titles; and (RQ5) publication network map. The design research was quantitative with a descriptive approach. The research method uses a literature review with bibliometric analysis. The research data was from the Google Scholar database. Data analysis was done using VOSviewer software. The resindicatecates: (1) publications with the theme Education Startup (EdTech) in Indonesia were 49 articles; (2) KhazanahIntelektual was the publisher which publishes the most article on Education Startup (EdTech) in Indonesia; (3) Nurkholifatul Maula was the productive researcher (4 articles); (4) the paper written by Faulinda Ely Nastiti and AghniRizqiNimal Abdu entitled "Indonesian Education Readiness to Face the Era of Society 5.0" was the most cited (261 citations); and (5) there was only one cluster has the opportunity to be a research gap related to Education Startup (EdTech) in Indonesia. The results indicate there was a research gap, so future research has the potential to be renewable research on management science and digital entrepreneurship.
Keywords: *Research Gap, Education Startup, EdTech, Management, Digital Entrepreneurship*

INTRODUCTION

The transformation of access to information through technology has an impact on the growth of e-business (Syafril, 2019). With the rapid development of technology and the internet, more businessmen were interested and starting to set up startup companies. The development of startups in Indonesia comes at the same time as the growth of the internet. The growth of the internet was a driving force for the development of startup businesses in Indonesia. The rapid development of startups in Indonesia, so every year and even every month many new startup founders (owners) keep maturing. According to StartupRanking data for 2022, Indonesia has more than 2,488 startups, and it was in the sixth largest position in the world. The very rapid development of startups in Indonesia indicates startup companies were very promising, but before achieving success, several startup companies have a journey that was not short to achieve it.

Startups were startup companies that were constantly looking for repeatable and measurable business models (Blank, 2013). Startup means a startup was designed to create products or services in the midst of extreme uncertainty, so startups face changing market conditions with a very high level of uncertainty (Ries, 2011). Founders must continue to be creative to develop their company so it can continue to be accepted in society. Startup as a new business with an original initiation initiated by its founder by focusing on high growth, risk/profit, measurability, and being able to lead the

market (Kidder & Hoffman, 2012).

Startup companies were usually still in the process of developing and researching to find the right market. However, the development of increasingly sophisticated technology has made more and more technology-based startup companies emerge. Startups were better known as companies engaged in technology and websites. Startups were synonymous with startups using information technology in their products (Baskoro, 2013). If it does not use information technology elements, the business was only referred to as Small and MediuEnterpres (SMEs).

The educational startup is a type of business that focuses on providing education, with main activities on learning or education. The new era of Educational Technology (EdTech) has brought changes for humans to gain knowledge and expertise in achieving success in life. EdTech was a technology used in developing and implementing tools (software and hardware) to promote education. Educational startups have introduced various methods that can make the education system more effective, efficient, and accessible to all parties. Education systems around the world (including Indonesia) have undergone significant changes with the presence of EdTech which was manifested in the form of an educational startup business model. Educational startups have a great opportunity to see educational inequality (Maula, 2019).

Several research regarding educational startups in Indonesia indicates educational startups were developing and continue to be creative in providing learning services based on the growing interest in using the internet in Indonesian society, offering various conveniences in the learning process without space and time limits (Syafril, 2019); make it easier for people to apply and develop their skills (Tristiyanto et al., 2020); make it easy for teachers to teach, interact with students, monitor student activities in groups, and carry out evaluations (Usman, 2016); improve students' innovative thinking skills to compile research ideas, make it easier for students to find references, and develop scientific methods (Maula, 2022); as well as maximizing online learning systems during a pandemic (Hignasari, 2021).

There was still a lack of studies on Education startups (EdTech) in Indonesia in terms of management science and digital entrepreneurship, which was not linear with the rapid growth of the education startup business. In this regard, this study will conduct a study of research gaps in Educationstartupsp (EdTech) in Indonesia using a systematic review. The purpose of this research was to identify research gaps in educational startups in Indonesia. There were five research questions proposed: (RQ1) publication trends; (RQ2) the publisher who published the most articles; (RQ3) productive researchers; (RQ4) the most cited article titles; and (RQ5) publication network map. The results were expected to provide implications for future research on Education Startup (EdTech) in Indonesia related to management science and digital entrepreneurship. Management science cannot be separated from various perspectives as philosophies that were mutually integrated as one unit in the synergy of the management process (Yulianto, 2021).

RESEARCH METHODS

The research design uses a quantitative descriptive approach. The research method uses a literature review with bibliometric analysis. Bibliometric analysis was an approach to examine the evolution of research domains, including topics and authors, based on the social, intellectual, and conceptual structures of scientific disciplines (Donthu et. al, 2021). This study uses publication data from the Google Scholar database. Google Scholar was a service from Googlthat e allows users to search for educational references and scientific research in various formats that can be scientifically accounted for (Istiana, 2016). The advantages of Google Scholar were: ease of access, cost efficiency, storage space, time, and as a media publication. Google Scholar was chosen because it was one of the largest databases which provide scientific literature, both journals and other publications that have been validated.

The search for reference data was limited to the following criteria: (1) the type of bibliography used (title, journal name, author's name, year of publication, publisher, number of citations, and abstract); and (2) the keywords used were "Education Startup (EdTech) in Indonesia". Research data was obtained using Publish and Perish, and analyzed using Excel. Analysis of publication trends uses VOSviewer, which was the software used to create maps based on network data, visualize, and explore maps (Yulianto&Iryani, 2023). Data analysis techniques use descriptive statistics, the process of transforming data in tabular form, so it was easy to understand and interpreted (Yulianto, 2016). Descriptive statistics only describe and analyze data groups, without making conclusions to generalize to larger data groups.

RESULTS AND DISCUSSION
RQ1. Publication trend

Based on searches on the Google Scholar database, it indicates fluctuating. Research on Education Startup (EdTech) in Indonesia began in 2016 with 1 article published on the Google Scholar database be entitled "Edmodo-Based E-learning in Teaching English at the Accounting Department of Samarinda State Polytechnic" written by Usman BV, published in the EKSIS Journal. Figure 1 illustrates the trend of publications on Education Startup (EdTech) in Indonesia
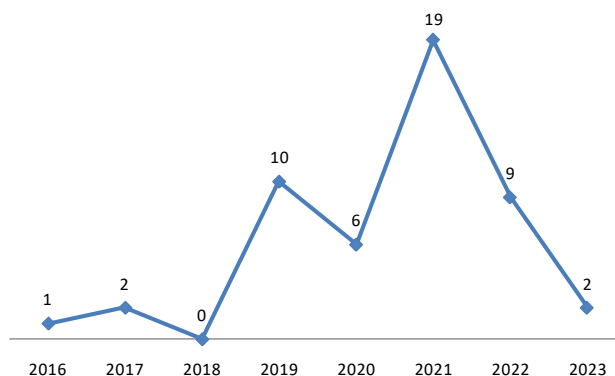
Figure 1. Publication trend

The development of research on Education Startup (EdTech) in Indonesia indicates fluctuating, it will be a significant increase in 2021 (19 articles). However, the period before and after 2021 indicates a decrease in the number of scientific publications on Education startups (EdTech) in Indonesia. At the beginning of 2018, there was a significant decline in article publications. The findings of this study indicate research on Education Startup (EdTech) in Indonesia was still lacking and it has a high chance of becoming a renewable study.

RQ2. Publishers which publish the most articles

Based on search results using the keyword Education Startup (EdTech) in Indonesia, indicates there were 49 scientific publications during 2016-2023. Pub The publishionich published the most articles on overdue startups (EdTech) in Indonesia wewashazanahIntelektual (4 publications). Intellectual Khazanah was the Jambi Province Balitbangda media which contains scientific articles as a result of research, review and/or literature review, the scope and focus of which were in the fields of government and review of regulations, government policies and regional development, politics, economics, health, agriculture, finance, and environment. Articles in the Intellectual Khazanah can be as policy papers and policy recommendations. Intellectual Khazanah has been registered on the Garuda-Ristekbrin portal, and indexed on the CrossRef System, so all articles have a DOI number. The findings indicate there were still very few articles on Education Startup (EdTech) in Indonesia, even though it has the opportunity to be published by quality publishers. Table 1 illustrates publishers which have published the most article on Education Startup (EdTech) in Indonesia.

Table 1. Publishers which publish the most articles

Publisher	Paper (Author, Year)
Khazanah Intelektual	1 Analisis Pengaruh Eksternal Pada Perusahaan Start-Up Bidang Pendidikan: Penggunaan Teknik Analisis Pest Di Cv. Big Edu Indonesia (Nurkholifatul Maula, 2022)
	2 The Role Of The Startup of "Big Edu Indonesia" in improving Research Esearch Ability Of Students In High School (Nurkholifatul Maula, 2022)
	3 Peran Startup "Big Edu Indonesia" Dalam Meningkatkan Kemampuan Riset Siswa Di Sekolah Menengah Atas (Nurkholifatul Maula, 2022)
	4 Pengaruh Eksternal Pada Perusahaan Start-Up Bidang Pendidikan : Penggunaan Teknik Analisis Pest Di CV. Big Edu Indonesia (Nurkholifatul Maula, 2021)
UIN Syarif Hidayatullah Jakarta	1 Pengaruh Getok Tular (Word of mouth) dan citra merek terhadap Kepercayaan Merek dan Dampak terhadap Keputusan penggunaan Zenius.net (Puji Utami, 2019)
	2 Evaluasi kepuasan pengguna aplikasi quipper menggunakan metode End-User Computing Satisfaction (EUCS) (Isma Haya Fauziyah, 2022)

RQ3. Productive researcher

Based on searches with the keyword of Education Startup (EdTech) in Indonesia, it indicates the author who was actively researching of Education Startup (EdTech) in Indonesia was Nurkholifatul Maula from Yogyakarta State University, she has 4 articles. Table 2 illustrates productive researchers of Education Startup (EdTech) in Indonesia.

Table 2. productive researcher

Author (Affiliation)	Article	Year	Cites	Publisher
Nurkholifatul Maula (Universitas Negeri Yogyakarta)	Strategi Pemasaran Perusahaan Start-Up Pada Bidang Pendidikan Di CV. Big Edu Indonesia	2019	0	CR Journal
	Analisis Pengaruh Eksternal Pada Perusahaan Start-Up Bidang Pendidikan: Penggunaan Teknik Analisis Pest Di CV. Big Edu Indonesia	2020	4	Khazanah Intelektual
	Pengaruh Eksternal Pada Perusahaan Start-Up Bidang Pendidikan : Penggunaan Teknik Analisis Pest Di CV. Big Edu Indonesia	2021	0	Khazanah Intelektual
	Peran Startup "Big Edu Indonesia" Dalam Meningkatkan Kemampuan Riset Siswa Di Sekolah Menengah Atas	2022	0	Khazanah Intelektual

The findings of this study indicate there were only a few researchers who published articles on Education startups (EdTech) in Indonesia. The results iindicatethere was a great opportunity for researchers to conduct studies on Educationstartupsp (EdTech) in Indonesia, especially related to management science and digital entrepreneurship because the productivity of researchers to carry out publications was still lacking.

RQ4. The most cited paper

Based on a search using the keywords of Education Startup (EdTech) in Indonesia, the paper written by Faulinda Ely Nastiti and AghniRizqiNimal Abdu in 2020 entitled "Indonesian Education Readiness to Face the Era of Society 5.0" was the most cited, 261 citations. Table 3 illustrates the most cited paper.

Table 3. The most cited paper

Cites	Title	Authors	Year
261	Kesiapan pendidikan Indonesia menghadapi era society 5.0	Faulinda Ely Nastiti, Aghni Rizqi Nimal Abdu	2020
18	Intensi Berwirausaha : Sebuah Konsep Dan Studi Kasus Di Era Revolusi Industri 4.0	Taruli Serefina Simatupang	2021
15	Analisa Pemanfaatan E-Learning Menggunakan Data Statistik Pengguna Aplikasi Startup Pendidikan Selama Wabah Pandemi Covid-19	Roza Liszulfah, Zulherman	2021
14	Analisis Strategis Public Relations Zenius Dalam Upaya Membangun Branding Sebagai Platform Mitra Belajar Daring	Khansa Faadilah, Agus Naryoso, Joyo NS Gono	2019
12	Ruangguru', Digitalisasi Pendidikan Antara Capaian Nilai Dan Pengembangan Karakter Melalui Interaksi Sosial	Elsa Putri Ermisah Syafril	2019
12	E-Learning Berbasis Edmodo Dalam Pengajaran Bahasa Inggris Pada Jurusan Akuntansi Politeknik Negeri Samarinda	Usman BV	2016

The findings of this research indicates many researchers have cited the theme of Education Startup (EdTech) in Indonesia as referindicateence material. It indicates research on Education Startup (EdTech) in Indonesia has a great opportunity to be used as the main reference source for research related to management science and digital entrepreneurship.

RQ5. Publication network map

Co-occurrence analysis includes keywords which were similar to each other and based on the same topic, but was not exact. In bibliometric analysis, the co-occurrence of keywords was used to reveal the relevance of research themes from the scientific fields studied, management science and digital entrepreneurship. Using VOSviewer to generate a co-occurrence network on Education Startup (EdTech) in Indonesia. Figure 3 illustrates network visualization.
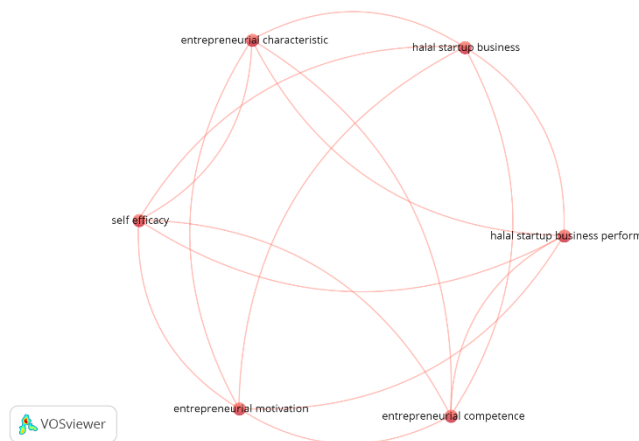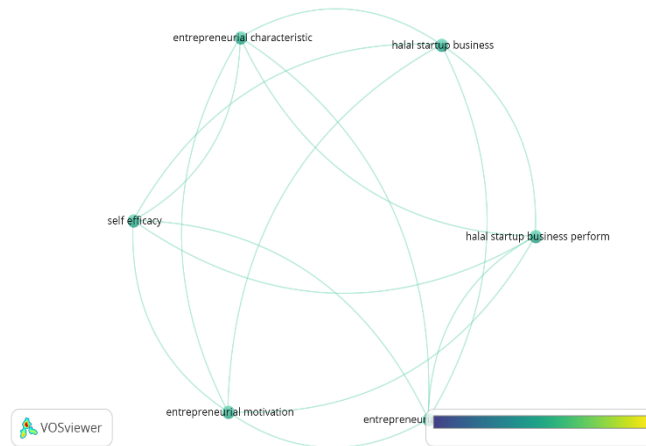

Figure 1. Network visualization

The results of network visualization in figure 1 indicate there was 1 cluster consisting of 6 items: entrepreneurial characteristics, entrepreneurial motivation, entrepreneurial competence, self-efficacy, halal startup business, and halal startup business performance. Links were not so strong wand ere scattered in clusters marked with small dots. The small circle indicates there was still little research on Education Startup (EdTech) in Indonesia, and it has the potential to carry out renewable research.

Overlay vizualization to identify and detect research gaps on Education startups (EdTech) in Indonesia. The results of the bibliometric analysis through Publish or Perish metadata imported into Vosviewer produce an overlay visualization. The results

indicates the colors at the nodes represent keywords in the year of publication. The dark blue color indicates the publication of the article around 2016, and the yellow colorindicates the publication of the article around 2023. Figure 2 illustrates the vizualization overlay.

Figure 2. Overlay vizualization

Based on the visualization overlay illustration, it indicates the keyword of Education Startup (EdTech) in Indonesia has a green node, which means the article was published around 2020-2022. The title with the keyword Education Startup (EdTech) in Indonesia in green was related to several items in the cluster. It means there were opportunities to conduct research on these keyword themes because there were only a few and it was still new to publishing with the theme of Education Startup (EdTech) in Indonesia.

Density visualization was an item that was marked the same as the item that was visible. Each item point has a colour that depends on the density of the item. It identifies the colour of a point on the map depending on the number of items related to other items. Density visualization was useful for obtaining an illustration of the general structure of a bibliometric map by identifying which items were considered important for analysis. Through density visualization, the keywords that were most used in a publication can be interpreted. Figure 3 illustrates the density visualization.
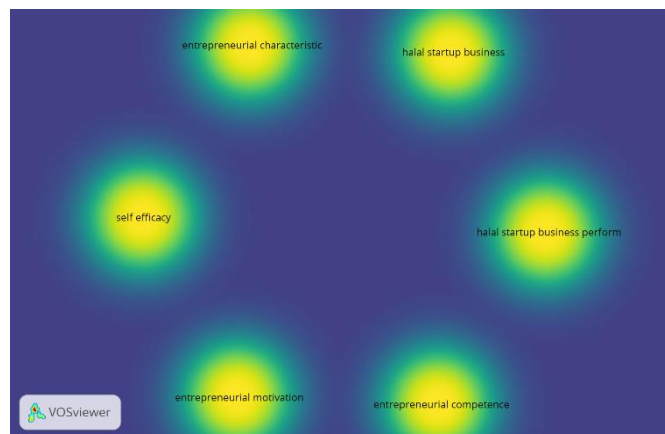
Figure 3. Density visualization

Figure 3 indicates the density visualization which was the result of a bibliometric analysis using all articles on Education Startup (EdTech) in Indonesia. The results of the density visualization illustrate that each point has a colour which indicates the density of the items at that point. Colour categories range from blue to green to yellow. The greater the number of items around the dot and the higher the

weight of the items, so the closer the dot's colour was to yellow. Conversely, the smaller the number of items around the point and the lower the weight of the items, so the closer the colour of the point was toblue. Based on the illustration, density visualization indicates the highest weight: entrepreneurial characteristic, entrepreneurial motivation, entrepreneurial competence, self-efficacy, halal startup business, and halal startup business performance. It means there were opportunities to conduct renewable research by taking these items as a sub-theme for further research related to the theme of Education Startup (EdTech) in Indonesia.

CONCLUSION

The purpose of this research was to identify research gaps on educational startups in Indonesia. The results indicated: (1) 49 articles published with the theme of Education Startup (EdTech) in Indonesia; (2) KhazanahIntelektual was the publisher which publishes the most article of Education Startup (EdTech) in Indonesia; (3) Nurkholifatul Maula as a productive researcher (4 articles); (4) the paper written by Faulinda Ely Nastiti and AghniRizqiNimal Abdu entitled "Indonesian Education Readiness to Face the Era of Society 5.0" received the most citations (261 citations); and (5) only one cluster has the opportunity to be a research gap related on Education Startup (EdTech) in Indonesia.

This research results have implications for further research, because the theme of Education Startup (EdTech) in Indonesia was under-researched and there were potential research gaps. Several items in the cluster (entrepreneurial characteristics, entrepreneurial motivation, entrepreneurial competence, self-efficacy, halal startup business, and halal startup business performance) can be correlated with the Education Startup (EdTech) in Indonesia, so it can be a novelty for future research related to management science and digital entrepreneurship.

The limitation of this research was the use of the database only on Google Scholar. Several databases can be used for future research: Scopus, PubMed, SINTA, Croosref, Microsoft Academic, and Web of Science. If using a combination of these databases, future research will be more varied in detecting research trends on Education Startup (EdTech) in Indonesia. This research only uses literature reviews with bibliometric analysis. It was recommended for future research use meta-synthesis and meta-analysis approaches.

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