

INVESTIGATING FACTORS AFFECTING THE ADOPTION OF BYOD IN EDUCATIONAL SECTORS: A STRUCTURED LITERATURE REVIEW APPROACH

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Abstract: *The study on the adoption of Bring Your Own Device (BYOD) in education is increasingly significant, following the latest trend of using diverse technological devices for teaching and learning purposes in multiple environments. It is crucial to identify the factors that facilitate the implementation of Bring Your Own Device (BYOD) in schools and universities, thereby enhancing the benefits of BYOD-based teaching and learning for a wider audience. This systematic review used the literature from the three online databases of SCOPUS, Web of Science, and Emerald Insights. The researchers employed the searching strategy using a specific search string, applied certain inclusion and exclusion criteria, selected the relevant articles, conducted the eligibility study, applied the quality appraisal of the article using the MMAT tools, and finally performed the extraction and analysis process of 17 selected articles published between 2018 and 2023. This study reveals that technological infrastructure, instructors' competency, comprehensive BYOD policy, and stakeholders' readiness play crucial roles in encouraging educational institutions to adopt BYOD. The findings suggest insights for educational-related stakeholders when deciding on implementing BYOD policies in their institutions.*

Keywords: *BYOD, education, adoption factor, systematic review, technological infrastructure, BYOD policy, stakeholder' readiness, instructor's competency.*

Introduction

The Bring-Your-Own-Device (BYOD) trend was first introduced in 2009 by Intel Corporation, which acknowledged the new trend among its staff to connect their own devices to the company network while at work (Burns-Sardone, 2014). The BYOD phrase was coined to refer to the situation where organizations' members use their personal devices for work purposes, carrying gadgets like laptops, tablets, and smartphones to be used in performing their work-related or professional duties (Wani et al., 2022). Employees are allowed to access business information and do their tasks using their personal mobile devices under the BYOD policy (Cho et al., 2021). The habit of employees carrying personally owned gadgets to work has evolved into a regular practice in recent years, accepting the significant influence of this technique, which provides organisations with numerous advantages by lowering hardware costs and raising production (Palanisamy et al., 2020).

It has been mentioned that the industry with the largest percentage of BYOD users is education (Musarurwa et al., 2019) portraying situations when students brought a personally owned gadget to school or learning institutions for instructional purposes (Nuhoglu Kibar et al., 2020). The education community accepted BYOD to enhance learning activities, educators can restructure assignments, expand, and improve interaction in person or online with the students. BYOD can boost student learning engagement, whereby students may learn, create, share, and collaborate at anytime and anywhere (Rosman et al., 2022a). Additionally, BYOD was believed to promote the growth of 21st-century skills like digital literacy, creativity, and innovation, as well as enhanced communication and peer collaboration (Nuhoglu Kibar et al., 2020). Rosman et al. (2022b) reported in their study that there are four (4) antecedents: technological readiness, person readiness, contextual readiness, and organizational that underlie the adoption intention of BYOD. Information technologists are increasingly urging schools to infuse ICTs into the classroom through initiatives such as BYOD as a method of minimising computerisation costs (Mawere et al., 2022).

Study Background

Prior to this systematic review study, the main researcher conducted literature searches in the two main scholarly databases, SCOPUS and Web of Science, in September 2023. The searches were for systematic literature review articles and conference proceedings related to BYOD. The keywords that were used in these searches were "Bring-Your-Own-Device OR BYOD" and "Systematic literature review OR systematic review OR structured review." The effort has found that none of the selected structured literature review studies focused on the adoption factors of BYOD in the education environment. The majority of them discussed BYOD-related studies focussing on policy-based issues, technological security, and privacy in various settings, including the general context as well as organisational and educational aspects (Ahmed, et al., 2022; Al-Azazi, 2022; Ayedh M et al., 2023; Cho et al., 2021; Hartmann, 2017; Herrera et al., 2017; Jamal et al., 2020; Kadimo et al., 2018; Mayayise, 2023; Moyer, 2013; Oktavia & Probowo, 2017; Palanisamy et al., 2020); Ratchford et al., 2022; Rosli et al., 2022; Wani et al., 2020).

Therefore, this study is conducted to fill in the gap for the need to identify the factors of BYOD adoption in educational settings using a systematic literature review approach. This paper is structured as follows: The introduction gives the background of BYOD, the study background and the objective of this study. The subsequent sections are divided into the research methodology, followed by the results and discussion section before we highlight the significance and the study's future enhancement, and finally end with a conclusion.

Objective

This is a systematic literature review paper that was conducted to fulfil the objective of identifying the adoption factors of Bring-Your-Own-Device (BYOD) in an educational setting. Using organised, transparent, and reproducible techniques at each stage of the process, a systematic literature review seeks to discover and synthesise relevant research in its entirety (Mohamed Shaffril et al., 2021). This study posed a research question: What are the adoption factors of Bring-Your-Own-Device (BYOD) in the education sector?

Research Methodology

Data Searching

A systematic literature review is a process that incorporates all extant research literature that is relevant to a particular topic or needed to answer a given research question (Kitchenham & Charters, 2007). This study carried out a systematic literature review (SLR) by following the guidelines in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) proposed by Page et al. (2021). We focused on following the guidelines for a systematic literature review, which include having a defined goal for the review, having several people evaluate the articles, having explicit inclusion and exclusion criteria, and considering different points of view. We conducted a literature study to determine what was known and what remained to be discovered in relation to our study's objective to identify the adoption factors of Bring-Your-Own-Device (BYOD) in the education sector.

Systematic Searching

Three major online databases have been made the grounds for searching our literature, namely SCOPUS, Web of Science, and Emerald Insight. Searches were conducted on the 14th of September 2023 in the SCOPUS and Web of Science databases and on the 17th of September 2023 in the Emerald Insight database. The result of the searching was that the SCOPUS database gave 46 documents, the Web of Science retrieved 44 documents, and the Emerald Insight revealed 153 documents.

This study then moved to the second step, when the researchers applied specific inclusion and exclusion criteria to database screening to ensure more relevant documents were used for the study. The study made the year of publication range from 2018 to 2023, with English as the publication language and types of documents specified to only the conference proceedings and journal articles as the filtering criteria in all the databases. Thus, there were eleven (11) relevant documents left from the SCOPUS, fourteen (14) documents left from the Web of Science, and seventy-two (72) articles from the Emerald Inside. That means using the automation tools or the database filtration function has resulted in the removal of thirty-five (35) documents retrieved from the SCOPUS, thirty (30) from the Web of Science, and eighty-one (81) from the Emerald Insight, for a total of 146 documents removed.

The next step is the eligibility study as the second layer of screening, whereby the main researcher has done the skimming process of the titles, abstracts, and keywords of all the documents. For the SCOPUS searches, nine articles were selected after this second screening process, whereby three articles were removed because they were not relevant to the field (not related to the educational setting or BYOD). Web of Science documents eventually left seven articles after four duplicates were found (redundancy with SCOPUS documents) and three irrelevant documents were removed from the list. The Emerald documents finalised the selected thirteen documents after this second screening applied to the search results. All these selected twenty-nine documents were then downloaded, and the full text documents were set ready to be analysed by the second team of researchers for the quality appraisal process.

Article Quality Appraisal

Article quality assessment in a systematic literature review study is strongly emphasized. After completing the systematic search process, all selected articles cannot be directly reviewed; they must be evaluated for quality. Article quality assessment can be done through two methods: either quantitative or qualitative (Petticrew & Roberts, 2008). It is necessary to review the remaining papers from the eligibility procedure to make sure that the technique is of high quality and devoid of bias. Utilising instruments, scales, checklists, or standard forms is one of the most popular methods for evaluating the quality of publications. (Mohamed Shaffril et al., 2021)

This study used the Mixed Methods Appraisal Tool (MMAT) version 2018 to conduct the quality appraisal of the documents. For the assessment stage of systematic mixed studies reviews, that is, reviews containing studies using mixed methodologies, quantitative, and qualitative approaches, the MMAT is considered a relevant and crucial appraisal tool for this study. Two researchers who have the most experience in research and publications have been given the task of doing this quality appraisal process independently. Two articles out of twenty-nine (29) documents that did not pass the screening level (not suitable for the study since they are the article review type of paper) are then removed from the study, and therefore the researchers eventually did the quality appraisal on the rest of the twenty-seven (27) documents.

According to Petticrew and Roberts (2008), the answers obtained from assessment tools, scales, and checklists allow the writer to divide the quality of the article into three levels, namely high, moderate, or low. Applying to this principle, it was found that twenty-six documents were rated as high quality, while one document was rated moderate quality by the two reviewers. However, for any study that uses the MMAT tool, computing an overall score based only on the ratings for each criterion is not enough. To better explain the quality of the included research, it is advised to provide a more thorough description of the ratings for each criterion (Hong et al., 2018). Table 1 provides the simple criteria of the research types for the analysed documents using the MMAT scales, together with the level of quality assessed as either high (H), medium (M), or low (L).

Table 1: Result of the articles' quality appraisal.

Article ID	Title of Article	Quality (H-M-L)	Research Methodology
01	A comparative study between a computer-based and a mobile based assessment usability and user experience	High	Quantitative randomized controlled trials
02	Advantages and disadvantages of regularly using a laptop computer in class, in primary and secondary schools and in higher education from the point of view of preservice teachers	High	Mixed methods
03	Are we ready for Education 4.0 within ASEAN higher education institutions? Thriving for knowledge, industry and humanity in a dynamic higher education ecosystem?	High	Mixed methods
04	Covid-related educational policies in action: a system dynamics view	High	Qualitative
05	Examining the roles of students' beliefs and security concerns for using smartwatches in higher education	High	Quantitative descriptive
06	Experiences of information literacy and mobile technologies amongst undergraduates in times of COVID. A qualitative approach	High	Qualitative
07	From Industry 4.0 to Education 4.0: acceptance and use of videoconferencing applications in higher education of Oman	High	Quantitative non-randomized
08	Student perceptions on using cell phones as learning tools Implications for mobile technology usage in Caribbean higher education institutions	High	Quantitative descriptive
09	The perceptions of master and bachelor students on the performance of private higher education institutions – an empirical study in Malaysia	High	Quantitative descriptive
10	To couple or not to couple A case study of institutional legitimacy relating to SaaS applications in two universities	High	Qualitative
11	Understanding the role of the bring-your-own-device policy in medical education and healthcare delivery at the University of Botswana's Faculty of Medicine	High	Qualitative
12	Understanding user experience in bring your own device spaces in the library	High	Mixed methods
13	Utilizing mobile-learning and CAP(E) lesson framework in improving the productive skills of learners in a hybrid environment	High	Mixed methods
14	Adoption and use of smart devices as clickers in classrooms in higher education	High	Mixed methods
15	An assessment of BYOD control in higher learning institutions: A Namibian perspective	High	Qualitative

16	Design and adoption of Bring Your Own Device (BYOD) in smart classroom	High	Quantitative
17	Secondary school teachers' perceptions of BYOD among learners within the classroom	High	Qualitative
18	Students' behavioural intention and challenges to bring your own device (BYOD) in higher education during COVID-19 and beyond	High	Mixed methods
19	Teaching art and design in a digital age: challenges facing Ugandan teacher educators	High	Qualitative
20	Technology for Learning: How Do Medical Students Use Technology for Education?	Medium	Quantitative descriptive
21	Using smartphones as a social constructivist pedagogical tool for inquiry supported problem-solving: an exploratory study	High	Quantitative descriptive
22	Key Factors to Implement BYOD in Schools	High	Mixed methods
23	BYOD implementation model in Malaysian schools: The perception and readiness of parents, schools, and teachers	High	Mixed methods
24	Discovering user acceptance of bring your own device (BYOD) in higher education	High	Quantitative randomized controlled trials
25	Implementation and Comparative Analysis of Mobile Phone Application for Learning and Teaching in Mechanical Engineering Education	High	Quantitative descriptive
26	Mobile seamless learning in primary education: a case study on second grade students in Greece	High	Qualitative
27	Perceived impact of BYOD initiatives on post-secondary students' learning, behaviour and wellbeing: the perspective of educators in Greece	High	Quantitative descriptive

Figure 1 shows the flow diagram of systematic processes regarding database searching, record screening and eligibility filtration, quality appraisal, and selection.

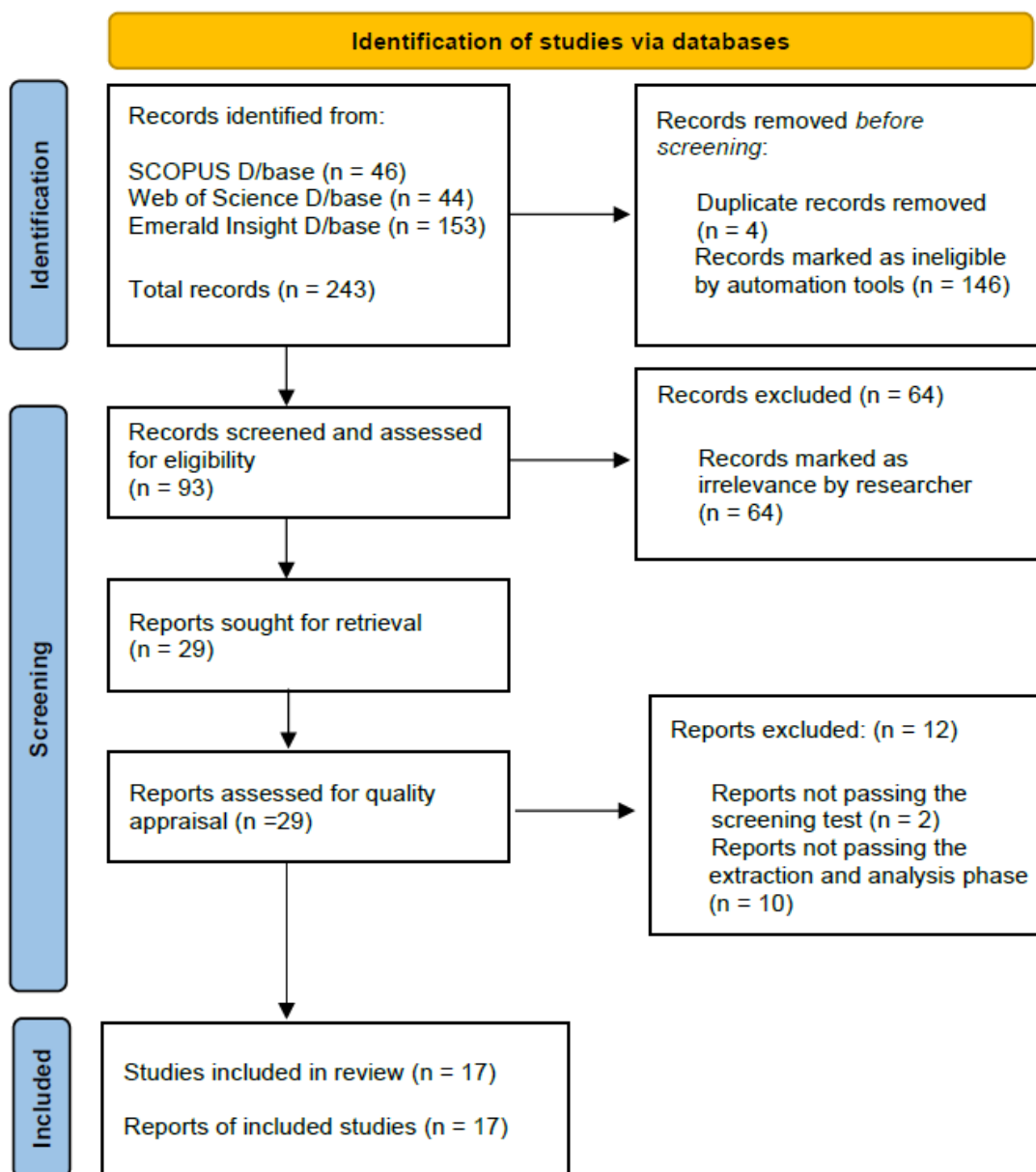


Figure 1: PRISMA Flow diagram of databases searching, records screening and eligibility filtration, quality appraisal and selection

Data Extraction and Analysis

This study employed qualitative analysis of data, using the method of thematic analysis to find patterns in past research findings. Thematic analysis involves the identification of prominent or recurrent themes from the collected data of selected previous studies and summarising these data under thematic headings (Braun & Clarke, 2006). A review matrix was developed based on preliminary data using the headings author(s), type of document (journal or conference), objective(s) of study, source (online database), country (location or main author), context (description of the study area or levels of educational settings), sample size, theory or theories adopted by the study, factors (constructs studied for BYOD adoption), limitations (unexplored areas for future studies), and other related issues on BYOD. Table 2 illustrates the information extracted from the selected articles.

Table 2: Data extracted from each study.

Extracted data	Description
ID	Article's number (given by the researcher)
Study Title	The article's title
Researcher/s	Researcher's name and affiliation
Types of Publication	Journal article or conference proceedings paper
Source	Database for this study either SCOPUS, Emerald or Web of Science
Country	Location of the main author, study area, any institutional or academic settings
Context	Description of field of study area, and any institutional or academics contexts
Methodology	Research methodology - using quantitative, qualitative or hybrid
Sample	The sample's approximate size
Theory	Theory/ies that the publication has embraced
Factors	Studying constructs
Limitations	Undiscovered areas for future research

Three other researchers worked independently on the extraction of the required information from the twenty-seven documents using the review matrix. Every researcher needs to fill out the review matrix table to identify the required information from the articles. The second check was done by the main researcher on all the extracted items from the selected documents. We went through the procedure again to make sure we did not miss any important details. The thorough reading of these articles has resulted in the removal of ten papers due to the irrelevance of the contents to identify the factors related to BYOD implementation; thus, the following discussion on the results only focused on seventeen selected articles. The documents removed were those with the IDs 03, 04, 06, 07, 08, 10, 19, 20, 21, and 26.

Findings and Discussion

The process of an iterative review of abstracts and full texts of all the selected 17 articles during the extraction and analysis procedures has found several facts regarding the publications. Thirteen articles are from journal publications, and four of them are proceeding papers. The publications considering the origin of the main authors came from various countries as follows: three from South Africa, two from Malaysia, two from the UK, one from Vietnam, one from Australia, one from India, one from Botswana, one from the USA, one from Namibia, one from Cyprus, one from China, one from Greece, and one from Israel. These articles were published between 2018 and 2023: two in 2018, five in 2019, two in 2020, three in 2021, three in 2022, and two in 2023.

The documents which were analyzed have revealed that there are similarities between the factors contributing to the adoption of BYOD in schools as well as in higher education settings. Four documents were related to research done in the school setting (Othman et al., 2020; Yeop et al., 2018) ; one document discussed both school and university settings (Zilka, 2021), while the rest twelve documents were research done at the university level. Basically, there are two articles that directly discuss the adoption factors of BYOD in the school setting (Othman et al., 2020; Yeop et al., 2018), whereas other articles indirectly give information on the adoption

factors of BYOD. One of the articles that conducted a study in government secondary and primary schools found a few relevant factors for the implementation of BYOD, which are infrastructure, safety, knowledge, community, health, and culture. This paper discussed all the identified factors and proposed a model to implement BYOD at school. The researchers have decided to divide the findings of the analysis into four main themes: technological infrastructure, curriculum readiness, stakeholders' readiness, and supportive policy, as represented in Table 3.

Table 3: Selected themes and related studies.

No	Theme	No of Occurrences	Reports ID
1	Technological Infrastructure Covering the issues of internet access, user-friendly technology, and network security.	4	12, 17, 22, 23
	1.1 Internet Access Provision of school Wi-Fi or any other method of providing internet access to the institutional members, especially the students and instructors.	9	4, 14, 17, 18, 22, 23, 24, 25, 27
	1.2 User- Friendly Technology Teaching and learning technologies to be used either technologies provided by the school or university such as a learning management system common to all, as well as personal devices of students and instructors.	4	1, 9, 14, 18
	1.3 Network Security Safety and security when accessing the internet via the network facility provided by the institution within the institution's compound or WLAN.	6	15, 16, 17, 18, 22, 23
2	Instructor's Competency Instructor's proficiency in designing and controlling the learning session activities	6	2, 9, 16, 23, 25, 27
3	Comprehensive BYOD Policy BYOD Policy which provides all aspects important to BYOD adoption including the aspects on technological infrastructure, internet access, network security, curriculum suitability and interests of all stakeholders.	4	11, 15, 17, 18
4	Stakeholders' Readiness The awareness and willingness of institutional management, students, parents, instructors who are relevant and affected when implementing BYOD in the institution.	1	23

Technological Infrastructures

In general, the education institutions aiming at implementing the BYOD practice need to provide basic facilities such as internet, Wi-Fi, content filtering, a power socket in the classroom, a safety locker, and technician assistance (Othman et al., 2020; Yeop et al., 2018). Inadequate technologically friendly infrastructure in schools has become one of the greatest challenges of BYOD adoption (Mawere et al., 2022). Other issues include the classrooms' lack of safe and secure device storage, the non-ergonomic tables and chairs that cause back and neck pain from improper sitting posture brought on by incorrect viewing levels, the network

infrastructure's limited capacity, and the requirement for technical assistants to help the schools with ICT-related issues. There are also comments that, due to a lack of technician assistance, it is the responsibility of ICT teachers to maintain computer laboratories and fix broken machines in schools without technical professionals (Yeop et al., 2018). Designing BYOD areas in libraries is also desirable since they promote perceived group participation, experience sharing with peers, and create an environment for in-depth learning and introspective research (Chao et al., 2019). This theme is further divided into three main sub-themes, namely internet access, user-friendly technology, and network security.

Internet Access

The schools and higher learning institutions adopting the BYOD policy need to ensure the aspects of robust and secured internet access are ample to cater for the learning and teaching activities (Krishnaswamy et al., 2023). Internet connectivity and Wi-Fi capabilities are essential, and infrastructure limitations may make it more difficult to execute this BYOD program (Klarić et al., 2019; Livas et al., 2019; Othman et al., 2020; Yeop et al., 2018). The common reason for the slow access to the internet is the overload of the network as more students bring their devices and connect to the university or school Wi-Fi system (Masilo et al., 2019; Mawere et al., 2022).

During the class lessons, network issues made it difficult to download some applications and caused distractions during class. It was found that when students used their gadgets in class but download and install an application beforehand, they responded more quickly and were more motivated to learn (Klarić et al., 2019; Livas et al., 2019). Students' behavioural intentions would be negatively influenced if they had to put in a lot of effort to use their personal gadgets or if the expense of buying and updating the software was excessive (Costanza, 2022). In another study of a UK university survey, students' answers revealed that 31% of mobile devices experience occasional or frequent internet connection loss while using clickers. There were instances when the technology malfunctioned or students were unable to use the learning platform (Demeke, 2023).

User-Friendly Technology

When it comes to the BYOD aspect, user-friendly technology refers to using the system to enhance student performance, offering a personalised learning hub such as e-learning through BYOD, implementing the initiative to encourage students to explore course-related e-resources, and supporting the implementation of BYOD to promote collaboration in course work (Krishnaswamy et al., 2023).

One study looking at the variables influencing BYOD as clickers (laptops, cell phones, and tablets) discovered that incompatibility of technology with browser preferences and device preferences of students is one of the obstacles to BYOD adoption. Students have a variety of reasons for selecting particular gadgets and browsers, including security concerns. Reducing system incompatibility is something that educators and system designers need to focus on to boost the uptake and application of BYOD in the classroom (Demeke, 2023).

According to a different study, students encountered difficulties using the learning management system (LMS) on their smartphones because of the unintuitive mobile interface. It was discovered that students required help in order to use the LSM on their gadgets. One may argue that despite the Generation Z students' behavioural desire to bring their own gadgets, they were

dissatisfied with the incompatible university technologies that did not work with them (Masilo et al., 2021).

A study suggested that mobile devices could substitute desktop computers in BYOD tests in higher education, at least in terms of usability and user experience. In this study, usability refers to the features of ease of use without the support of technical personnel, which give users confidence in using the system (Nikou & Economides, 2019).

Network Security

A significant security concern related to BYOD is managing the numerous devices that are regularly linked to campus networks (Masilo et al., 2019; Musarurwa et al., 2019). A study evaluating the use of BYOD at Namibian Higher Learning Institutions (HLIs) found that the institutions struggle with network access management. Users who frequently connect their mobile devices to unprotected public wireless networks, like those found in restaurants, do so carelessly and without considering the security risks. This puts the institution's network at risk of malware infection when users use the same device for both personal and professional purposes (Musarurwa et al., 2019).

Insider threats are another risk that is increased by BYOD. The most skilled hackers, driven to prove their technological prowess, hang out at colleges and universities. Insider attacks have been said to be challenging to stop since they take place on the organisation's local area network (LAN) and use legitimate user profiles. As a result, educational institutions need to strengthen network security and make the right decisions to guarantee the security of data on campus or in the school, particularly by introducing BYOD security policies (Feng & Hu, 2020; Mawere et al., 2022; Musarurwa et al., 2019).

There have also been calls for security measures to shield instructors and students from crimes involving computers in schools or campuses. Studies in schools suggested that schools should specify the specifications and types of devices that are permitted, and these mobile devices should be registered and reviewed by the schools before being allowed to be used on the school's network. Students' devices should have anti-virus software installed, and they should only connect to the school's Wi-Fi or wired local area networks (Othman et al., 2020; Yeop et al., 2018). These security elements are critical for schools prior to, during, and after BYOD adoption, including financial allocation for network security, preparation of content screening and controls, and training to enable BYOD implementation in schools (Yeop et al., 2018).

Instructor's Competency

BYOD brings peace of mind for the students in handling the devices since they are familiar with their own devices, but this also leads to possible distractions when they use these devices during their learning sessions. They may be involved in inappropriate activities like communicating with others on social media, playing online games, engaging in unethical examination practices, and many other distractions from their formal class activities. Studies suggested that this improper behaviour of gadget-related activities is more prone to lower-level educational settings compared to secondary and tertiary-level education since the students are more mature, thoughtful, and responsible towards their learning (Feng & Hu, 2020; Mawere et al., 2022; Zilka, 2021).

It is recommended that the instructors chunk their lesson contents, ensuring that the lesson is not so lengthy so that the students can follow the whole learning session without having

problems with device malfunctions or the need to recharge their device for longer learning activities (Krishnaswamy et al., 2023). In terms of lecturer preparedness, giving students advance notice to install or download specific software before class or semester begins. Lecturers must also modify and prepare their teaching strategy, which is suitable to successfully implement the BOYD technique in the classroom (Klarić et al., 2019; Livas et al., 2019).

Instructors may be empowered by the institution to equip them with relevant knowledge and skills to handle technologies as well as students' attention (Othman et al., 2020). The instructor's proficiency in controlling the class seems very important to gain students' attention. Instructors with more technological competence can recognise the availability of affordable, easily accessible, and cutting-edge technological equipment, which makes it simpler for BYOD schemes to be adopted since instructors can become the facilitators for the students in terms of device preferences and suitability for the learning process (Livas et al., 2019).

Comprehensive BYOD Policy

A study recommended a clear BYOD policy in universities for promoting responsible mobile device use, ensuring equal access to mobile devices and content, incorporating mobile devices into institutional procedures, and making policy measures such as allocating provisional mobile devices to staff, providing loan schemes for mobile devices to students, or incorporating the cost of a mobile device into student tuition. The policy needs to ensure that all types of content accessible by mobile devices are made available to students. The policy should also include measures for incorporating mobile device use into the curriculum. Another part of the policy is to assure the allocation of liability between mobile device users and institutions, such as software licensing and technical help (Kadimo et al., 2022).

The lack of security policy is a major factor that can hinder the effectiveness of BYOD control. This correlates with the study by Mawere et al. (2022), which found that most educational institutes have adopted BYOD without implementing any BYOD policy. Implementing security policies that evolve over time to adapt to new developments in technology and security threats to a network is very crucial for BYOD adoption in learning institutions (Musarurwa et al., 2019). It is also advised that for a BYOD policy to be successfully implemented in the institution of higher learning, there must be terms and restrictions agreed upon between the students and the institution. This is especially true before deploying mobile device management software to remotely reset or erase specific data partitions from a BYOD user's device for security considerations (Masilo et al., 2019).

Stakeholders Readiness

The introduction of BYOD in schools and universities must also consider the stakeholders' readiness. The emphasis is on tight collaboration among all stakeholders, including school administration, parents, and students. Each stakeholder must comprehend the policy that will be adopted so that the practice may subsequently function as a supportive mechanism for teaching and learning activities (Othman et al., 2020). The readiness of the stakeholders in terms of cost to adopt the BYOD policy must also be considered. Schools and universities need to allocate a huge budget to provide ample technological infrastructure. Infrastructural constraints may have hampered the implementation of this BYOD programme, as funds are severely restricted, and no provisions are made. Key infrastructures such as network and Wi-Fi capabilities given by the government in schools are excessively slow, requiring schools to subscribe to other internet service providers to meet instructors' needs (Yeop et al., 2018).

Limitation and Future Research

Every study has limitations that readers must consider when interpreting and applying the findings. Despite the writers' best attempts to develop keywords and key phrases, some synonyms may have been ignored. During the SLR development process, errors in keyword and key string production may have an impact on search results. This study is also restricted to English-language journals and conference papers, leaving possibilities for other relevant studies that were not included. Aside from that, only three web databases (SCOPUS, Web of Science, and Emerald Insights) were employed as data sources in this study. As a result, it is advised that future studies employ various internet databases as data sources to examine the factors influencing BYOD adoption.

The other evident constraint was the study's emphasis. This study only looks at the adoption of BYOD in the education sector, but there are many more fields and topics that can be explored in future research. This is a topic that might be elaborated on in future studies, including the factors and influence of BYOD in school, or it could be focused on a different area, such as business. Future research could also investigate the relationship between BYOD and investment, examining the ups and downs of the economy and the economic crisis.

Conclusion

The systematic review of 17 selected papers on the adoption determinants of BYOD in the education sector has revealed important insights. BYOD adoption is present in both school and higher education environments, with significant similarities in the factors that influence it. Technological infrastructure, including internet connectivity, user-friendly technologies, and network security, is essential for successful BYOD integration. Instructors' competence is crucial, requiring mastery of learning activities and flexibility with technology improvements.

Establishing comprehensive BYOD rules is crucial for successful adoption, covering technological infrastructure, curricular compatibility, and stakeholder interests. Stakeholders' readiness, which includes institutional administration, students, parents, and instructors, is crucial, emphasising the need for collaborative involvement and financial readiness. Lecturers and teachers must be well-versed in the necessary knowledge and skills to implement effective learning methodologies and ensure that the workforce, or teachers, is prepared for positive learning and teaching experiences. This necessitates the implementation of continuing monitoring programmes and skill development plans to manifest strong administrative leadership and a vision for the school.

The findings highlight the complex nature of BYOD adoption in educational settings, requiring a comprehensive approach that considers technological, pedagogical, and policy factors. Institutions need to focus on building strong infrastructure, implementing good regulations, and ensuring stakeholder readiness to create a favorable climate for integrating BYOD, which will improve teaching and learning experiences in the digital era.

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