

Proceeding Paper

Bring-Your-Own-Device (BYOD) and Productivity: A Conceptual Framework †

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Abstract: BYOD is defined as the act of bringing your own gadget, facilities, or device to the organization or institution. The concept of BYOD has spread almost to many sectors, especially in education, due to a shortage of financial resources in the aftermath of the Novel Coronavirus 2019 pandemic. BYOD is a helpful concept in face-to-face education by giving the needy access to adequate resources. However, most of the time, students especially in higher learning institutions, are having a problem accessing adequate resources and facilities standards that may influence their productivity, performance, and perceived benefits. Moreover, the inadequacy of standardized facilities and requirements may also deprive the students of necessary productivity standards. Furthermore, the pandemic of Novel Coronavirus 2019 has transformed the current workplace practices, changing the work-life environment and warranting further exploration. Therefore, the purpose of this study is twofold; first, to identify user behavior intention to adopt BYOD, and second, to propose a conceptual model of BYOD underlying the interrelationship between BYOD antecedents and productivity. A structured literature review methodology was adopted, and a conceptual model was developed for further exploration of the topic. The contribution of this paper is as follows; first, this study identifies the antecedents of behavioral intention to adopt BYOD in the aftermath of the Novel Coronavirus 2019. Second, this study proposes a conceptual model underlying the relationship between BYOD antecedent, behavioral intention to adopt BYOD, and its impact in terms of productivity.

Keywords: organizational behavior; user intention; information technology usage; organizational policy; digital information usage behavior; information security assurance



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1. Introduction

Bring-your-own-device (BYOD) is defined as an act of bringing your own gadget, facilities, or device to the organization or institution. It's a concept that is fast-spreading, especially in information technology (IT) consortiums and educational institutions [1–4]. BYOD is simply a process of allowing employees or students to attach or utilize their own facilities or device to the organizational or institutional facilities and network. According to [2], BYOD allows the employee to utilize their privately-owned device to assist business purposes, however, not without the added pressure of increasing individual cost, benefits, and extra cyber security threats. Previous research shows that BYOD has the capability to increase student learning engagement [5,6] via mastery of their privately-owned device and facilities. BYOD also encourages cost reduction, better management of organizational assets, and management of IT security [2].

However, the Novel Coronavirus 2019 (COVID-19) pandemic has seen drastic changes in the IT infrastructure acquisition and policy. Many organizations and education institutions were hampered by a lack of financial ability to maintain, sustain, or improve their current IT investment and facilities. Most organizations were also faced with a budget shortage for IT investment due to the cause of the COVID-19 pandemic [7,8]. Due to these

limitations, users were left with incomplete, unstandardized, and insufficient access to IT facilities that may influence their level of productivity [1,9–11]. However, knowledge of this relationship is scarce within the field of Information System (IS); thus, warranting further exploration of the topic. For example, the COVID-19 pandemic has transformed the current workplace practices, thus, the changing work-life environment. Therefore, the purpose of this study is twofold; first, to identify user behavior intention to adopt BYOD, and second, to propose a conceptual model of BYOD underlying the interrelationship between BYOD antecedents and productivity.

The rest of the paper is organized as follows: First, the literature of the study is presented, followed by the methodology of the study. Next, the conceptual model of the study is presented and discussed. Lastly, the conclusion of the study is outlined.

2. Literature Review

2.1. Concept of BYOD

The concept of bring-your-own-device or BYOD can be traced from multiple disciplines: Information systems (IS), and business and management. BYOD can be categorized into two explicit terms. First, BYOD is related to the tendency of employees or students in an organization to connect their privately-owned devices to the work network [1,2]. Second, it relates to the mobile phone capability that allows users to activate their current phone independently without the need to buy a new phone (provider independence). BYOD has been on an emerging trend since its inception in early 2012. Surveys in 2013 showed that respondents in emerging countries (including Malaysia) showed enormous interest in using their privately-owned device in their workplace [12]. These employees believe that having direct and constant access to their workplace network helps them to be competitive and sustainable. Interestingly, a recent survey conducted in 2020 indicated that more than 77% of Malaysians connect their privately-owned device to their organizational corporate network [13].

Even though BYOD is on the rise, much of the discussion is on the security of corporate data resides within the privately-owned devices [3,5,14,15]. Allowing privately-owned devices to access corporate information may lead to several problems: first, privately-owned devices may be susceptible to cybersecurity attacks due to low-security mechanisms on personal hardware. Second, un-erased corporate data residing in the privately-owned devices may be leaked to outsiders once employees discarded or sold their devices. Thus, implementing a BYOD concept requires an appropriate workflow and policy enforcement.

2.2. BYOD and Education

The concept of BYOD has shifted from a business-based environment to an educational-centric environment. As mentioned in [5,6], the concept of BYOD has the capability to enhance student engagement and subsequently improve productivity. Previous surveys conducted on the interrelationship between BYOD and education show a wider acceptance of the BYOD concept in the educational institution, and most students own their personal devices such as laptops and mobile phones. Unlike IT companies, educational institution deals with less sensitive information, thus ensuring the information can be accessed from outside of the institution [1].

On the other hand, recent studies show that a total of 42% of students were satisfied with the teaching and learning approach in the wake of BYOD [16]. Besides, it also encourages professional competence (by bringing their privately-owned device), inspires the learning process, increases the reliance on IT, and decreases the dependency on the conventional document [16]. On top of it, the BYOD concept also appeals to many schools as it was actively adopted concept over the years due to cost-saving and the comfort of using the privately-owned device [17].

3. Methodology

This study adopted the structured literature review (SLR) methodology of [18] and [19]. First, the literature search started with a leading journal that was relevant to the field of study. Second, a backward search was conducted to identify relevant articles. Third, a forward search was conducted to identify any news articles that cite the publication.

In the first phase, we utilize the EzAccess, online database tools from one of the biggest universities in Malaysia to identify and search relevant articles from leading journals. The keywords used are “BYOD”, “Productivity”, and “Factors” or $(TITLE-ABS-KEY(BYOD)) AND ((productivity)) AND (factor)$. To improve the accuracy of search results, we limit the article to research manuscripts, theses, and books. A total of 37 articles were found relevant to the topic of interest.

In the next stage, we evaluate the article based on the method suggested by [20]. First, we skimmed each of the papers to identify its topics and critical issues, Second, we focus on the introduction, abstract, discussion, and conclusion of the study. Third, we identify potential variables underlying the topic for the development of our proposed conceptual framework.

4. Conceptual Model

Based on the literature search, four (4) main themes or dimensions were identified, namely technological readiness [1,15,21–23], individual readiness [22,24–27], contextual readiness [1,6,28–30], and organizational readiness [31–33]. The following Figure 1 shows the proposed conceptual model of the study.

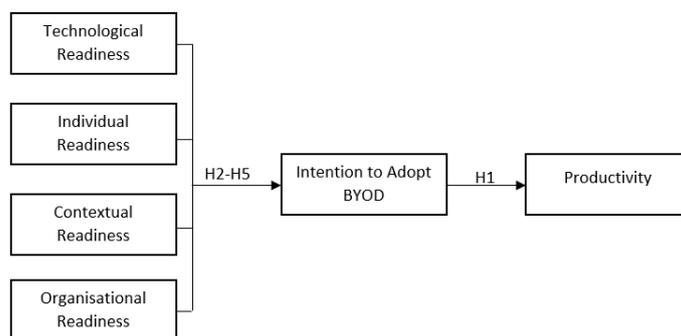


Figure 1. Conceptual Framework.

Behavioral intention to adopt BYOD is operationalized as the degree to which an individual has the urgency or tendency to adopt or refuse to adopt BYOD approaches. Behavior intention to adopt BYOD plays an important role in productivity improvement. Disengaging behavior or reluctance to adopt BYOD will lead to a negative impact on productivity improvement. As found out by [34], BYOD is no longer an option as many IT organizations turn to the concept of BYOD, thus, understanding the behavioral intention of users is very crucial to ensure the success of the transformation process. Similarly, [35,36] argue that BYOD implementation with related purposed has the capability to influence one’s productivity. Furthermore, BYOD also has the capability to enhance morale and increase engagement—thus closely related to productivity improvement [1,30]. Therefore, it can be hypothesized that:

H1. *The intention to adopt BYOD has a positive and significant relationship with productivity.*

Technological readiness is operationalized as the extent of individual technological establishment in support of BYOD implementation. According to [37], it is predicted that more than 95% of organizations allow the use of privately-owned devices and more than 85% of organizations implemented BYOD due to the COVID-19 pandemic. Subsequently, more employees relied on their privately-owned devices (65% of employees disclosed their personal contact numbers), and the number of privately-owned devices increased to over

USD 11.96 billion in 2021. This recent statistic serves as evidence of the influence of the technological readiness towards user behavioral intention to implement or adapt the BYOD concept in the workplace. Therefore, it can be hypothesized that:

H2. *Technological readiness has a positive and significant relationship with the intention to adopt BYOD.*

Individual readiness is conceptualized as the extent of individual intrapersonal and interpersonal influence toward BYOD adoption. Individual readiness is believed to be one of the most relevant factors in IS success factor studies [38–41]. Among the factors that differentiate an individual is often related to demographic profiles such as age, education, income, etcetera [42]. These factors are crucial in the decision-making process that will shape user behavioral intention and either encourage or discourage the adoption of BYOD. Moreover, a lack of individual readiness usually discourages further interaction with the BYOD implementation. Therefore, it can be hypothesized that:

H3. *Individual readiness has a positive and significant relationship with the intention to adopt BYOD.*

Contextual readiness refers to external factors of an individual that shape their interaction and behavior towards BYOD implementation. Contextual factors can include multiple factors and antecedents, such as task resources and task complexity [6,43,44]. As argued by [45], the level of complexity influence user behavioral intention to adopt BYOD; for instance, BYOD increase cybersecurity threats and require more effort to ensure the safety of corporate data. Moreover, an individual has the preference to be familiar with their privately-owned devices, subsequently creating less pressure or a less intimidating environment [38]. Therefore, it can be hypothesized that:

H4. *Contextual readiness has a positive and significant relationship with the intention to adopt BYOD.*

Organizational readiness can be defined as the facilities, services, and support provided by the organization to the individual in an organization or institution. As mentioned by [31], organizational commitment is an important indicator of adoption success, as it may reduce resistance among the employee. Intriguingly, the number of adoption of BYOD among educational institutions is rather high with or without the organizational consent or policy [46]. According to [47], the adoption of BYOD may contribute to organizational benefits and performance; such as productivity enhancement. Therefore, it can be hypothesized that:

H5. *Organizational readiness has a positive and significant relationship with the intention to adopt BYOD.*

5. Conclusions

This study was conducted with two purposes; first, to identify user behavior intention to adopt BYOD, and second, to propose a conceptual model of BYOD underlying the interrelationship between BYOD antecedents and productivity. To proceed, a systematic literature review (SLR) methodology for [18,19] was adopted. Subsequently, four (4) antecedents underlying the adoption intention of BYOD were identified, technological readiness, individual readiness, contextual readiness, and organizational readiness. Next, the conceptual model of the study was proposed, and discussions were made on each hypothesis.

The next stage of this research is to validate the conceptual research model in a quantitative study. An instrument will be developed by adapting and adopting the previous instrument and it will be sent for expert validation. Following the expert validation, a pilot study will be conducted, and Cronbach's Alpha coefficient will be used to determine the reliability of the instrument. Upon completion of the reliability assessment, a full-scale data collection will be performed among the respondents selected via the convenience sampling method. The potential respondents are undergraduate students from one of the local universities in Malaysia, selected based on demographic information explored via the SLR. Next, data will be analyzed based on descriptive using Statistical Package for Social Sciences (SPSS) version 26 and inferential using SmartPLS version 3.3.3.

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