

Digital Learning Quality: Bring Your Own Device (BYOD) and 4C Skills at Higher Education

Mu'alimin¹, Moh, Sutomo²

^{1 & 2} Universitas Islam Negeri Kiai Haji Achmad Siddiq Jember, Jawa Timur, Indonesia.

* Correspondence to: mualimin@uinkhas.ac.id

Abstract: The digital era has an impact on education and the quality of learning. Digital devices are a necessity in classroom learning. Bringing equipment to class for learning is still considered 'unnatural' for educators and educational institutions. On the other hand, the device can be used as a medium to find materials in classroom learning. The purpose of this study is to examine the quality management of learning in higher education by bringing their own tools (BYOD) to classroom learning to improve 21st century skills in the Islamic Education Management study program at UIN KHAS Jember. This research is qualitative research, using observations, interviews and documentation as data collection and interactive data analysis. This research used 45 students as informants. The results showed that the personal devices used by students in classroom learning brought benefits to critical, creative, collaborative, and communicative thinking skills. The benefits of using BYOD in the classroom are motivating and improving student participation in class discussions.

Keywords: Learning quality; BYOD; skill; digital.

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INTRODUCTION

In the context of education, the use of devices in the current era is a challenge. almost every student has a device that is often attached to wherever and wherever they are. the results of APJII research (2024) Of Indonesia's population of 278,696,200 people, 221,563,479 people will be connected to the internet in 2024. The increase in internet usage and device ownership has both positive and negative contributions for students. their presence in the classroom changes the management and policies of educational institutions (Berte et al., 2021; Bulman & Fairlie, 2016; Kucuk, 2023)

A problem that occurs in classroom learning, students often bring devices and there is no control (Gikas & Grant, 2013; Kay & Greenhill, 2011; Reid et al., n.d.). Devices brought by students are often disruptive and have a negative impact on other students. teachers are no longer able to protect because they are not supported by policies. By utilising the devices owned by students in the classroom, at least provides an opportunity to keep learning through devices. Universities have a role as a place to create reliable and competent graduates (Hanif et al., 2018; Selwyn et al., 2017; Sung et al., 2016). To achieve this role, universities must be able to carry out more modern learning, where the learning process is designed to provide students with abilities in cognitive, affective and psychomotor aspects. PT has a responsibility to produce reliable graduates. To produce reliable graduates, the education process is based on 21st Century abilities, which include creative thinking, critical thinking and problem solving, communication and collaboration in learning (Arsanti et al., 2021; Motallebzadeh & Kafi, 2015; Prasetyo et al., 2021;

Rochmawati et al., 2019; Supena et al., 2021). To realize the quality of learning in improving 21st Century skills (4C) in learning, one of which is the concept of "Bring Your Own Device (BYOD)". Personal devices owned by students can be used as learning resources in the classroom (Armando et al., 2014; Disterer & Kleiner, 2013; Lee et al., 2017; Olalere et al., 2015)

Teachers are no longer the main source of learning. Digital devices can help students find learning resources in the classroom. Digital learning can help students to learn better, more and more varied (Camilleri & Camilleri, 2017; Farley et al., 2015; Filatova et al., 2023; Noskova et al., 2021). Through the use of personal devices, students can learn without being limited by distance, space and time. Students can look for more material not only from the teacher (Tarigan, 2019). Support from lecturers and universities is a determining factor where this readiness has an impact on the information systems available on campus. Wi-Fi capacity and security arising from the use of personal devices are supporting factors in learning (bin Yeop et al., 2018). Although BYOD is a technological phenomenon that is currently developing among companies in the world. The phenomenon of carrying devices also has an impact on the world of education and learning. It even develops in classroom learning (Ghosh et al., 2013; Meske et al., 2017; Ratchford et al., 2022; Sung et al., 2016). Although the presence of the mobile is rarely used in classroom learning, the presence of devices in the classroom is needed to access the equipment (Christensen & Knezek, 2017; Hanif et al., 2018; Pedro et al., 2018)

Many people question the usefulness of using mobile phones in learning classrooms. Negative comments are always frequent because there is no control and policy in the classroom. However, some studies provide a positive response to the use of BYOD in the classroom. Research from Jehma & Punkhoon (2022) the application of BYOD is increasing, teachers determine new methods to integrate mobile devices into learning. The use of students' personal mobile devices for learning seems attractive to universities, as these devices will help reduce costs and support the teaching and learning process. Research objective: to determine the influence of the BYOD concept on the learning process. In conclusion the authors confirm that BYOD is the dominant model at the university (Saha & Deb, 2020; Santos, 2020; Thomas, 2020).

What concrete benefits do students get in the learning process that they follow through the support of information & communication technology, especially with personal device ownership? Although BYOD is basically not just a question of managing the array of devices owned by students, what benefits can be offered from the adoption of BYOD beyond the benefits obtained through non-BYOD programs is an interesting question to explore. From the problem above, the researcher sees that there is a great opportunity for the development of digital literacy, especially in the classroom by using the tools they have, namely laptops, cell phones, tabs, so that critical ideas emerge in class.

METHOD

This research is descriptive research with a qualitative approach. The use of this research aims to determine the use of BYOD in improving 4C skills in classroom learning. This research was conducted on 45 students of MPI UIN Kiai Haji Achmad Siddiq Jember study program. Collecting data using observation, interviews and documentation. Data analysis in this study, using interactive analysis, includes data collection, simplification of data, data exposure, withdrawal and submission of conclusions. (Miles et al., 2014) The

indicators used in the 4C skill assessment include critical thinking, creativity, collaboration, communication (Wahono et al., 2021).

RESULT AND DISCUSSION

At the implementation stage of learning using BYOD with predetermined management, namely (1) Presentation of topics from lecturers, (2) Process of accessing information through each device from several reputable references in a duration of 15 minutes, (3) Students conducting discourse analysis and making summary/ concept map based on data obtained within 30 minutes. (4) Providing material and explanations in the form of PPT from the lecturer followed by a discussion session with a duration of 30 minutes, (5) Randomly, the lecturer appoints several students to present the results of their summary/concept map and provides opportunities for others to give feedback (within 20 minutes duration) (6) then the process of conclusion and reflection of learning in a duration of 35 minutes.

Each learning step that is implemented involves aspects of critical thinking, creativity, collaboration and communication from students in scientific data research activities. Through this step, students will be stimulated to further increase reading interest and interest in using their own device. The results of implementing classroom learning through BYOD to improve the 4C skills of the office management course found several findings. As described in the table.

Table 1. 4C Skills Recapitulation

Skills	Answer				Category
	1	2	3	4	
Critical Thinking	3	7	10	25	25 Students
Creativity	2	5	15	23	23 Students
Collaboration	2	5	10	33	33 Students
Communication	3	7	12	23	23 Students

The application of learning by using BYOD in improving 4C skills. Students, when participating in learning with management using BYOD in critical thinking aspects, become dominant. 25 students have critical thinking skills with very good predicate. This means that the quality of learning using BYOD as a technological medium can improve the quality of learning. In addition, they have the ability to adapt by analysing material obtained from online gadgets, cell phones and laptops. These skills provide students with the ability to learn and adapt to the digital era and have the confidence to face the future (Haug & Mork, 2021). Learning outcomes and efficacy (Adhikari et al., 2017). Teachers are more creative in finding learning strategies (Prafitasari et al., 2021)

In the aspect of creativity, 23 students got very good scores. Creativity is seen when, in learning using BYOD, students are able to search independently and not depend on others. In addition, students are quick to respond when receiving lessons and use study time when using cell phones in class according to the specified time. No less important is the main skill, namely being able to convey opinions, ideas, ideas that have been obtained to be conveyed in class discussions. This attitude, as stated Isnawati & Samian (2015) is quick to respond, punctual in learning and courageous in opinion.

In collaboration skills, there are 33 students with very good scores and the rest, good, enough and less. These results indicate that collaboration skills when learning using BYOD are very good and more dominant than other skills. Collaboration skills are seen when collaborating, synergizing with each other, adapting to various roles, listening to the opinions of others and respecting differences between students when expressing opinions, ideas and ideas about lecture materials. As Arnyana (2019) collaborative activities are able to provide students with provisions to accept other people's opinions and respect each other.

Likewise, for communication skills, there are 23 students with very good scores. These skills can be seen in classroom learning. Students have better communication skills and are confident in expressing their opinions and ideas. In addition, students master the technology they bring as a source of learning in the classroom and outside the classroom. This finding illustrates that the use of BYOD in the classroom can give students confidence in conveying their ideas and ideas in verbal and nonverbal forms. Directly or indirectly have an impact on the quality of learning in terms of their knowledge and life skills (Alanzi & Alhalafawy, 2022).

The results of this study corroborate the findings Nuhoğlu Kibar et al. (2020) of increasing their productivity as they get used to their personal devices. Students report that the BYOD model makes storing and retrieving files easier, allowing them to continue learning without remembering the settings. as Santos (2020) research BYOD brings changes to the traditional learning model where institutions are used to providing and having greater control over the technology that students and lecturers will use on campus and in the classroom.

Besides that, the BYOD model is not only able to improve thinking skills, but can provide motivation for students in learning (Sánchez et al., 2020). the same research as revealed by Thomas (2020) BYOD brings benefits to the ability to use devices and student motivation. Livson (2021) positively influenced student learning and academic achievement as measured by academic test scores, final grades and quality of class work.

CONCLUSION

Classroom learning through BYOD really supports the quality of student learning because it stimulates increased interest in reading and skills in using devices, especially in the context of accessing data, knowledge and information related to lecture study materials through various reputable sources or scientific references. In addition, with BYOD skills in aspects of critical thinking, creativity, communication and collaboration become better. This finding recommends that the use of devices in classroom learning can be used as an alternative to supporting the quality of learning. Another thing to consider before implementing it is that device ownership and data access owned by students and campuses is well available.

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