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History Students' Readiness in Using QR Code Based E-Job Sheet

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Abstract— The research objective is to identify primary history students' readiness to use QR code-based e-job sheets in terms of knowledge, experience, and supporting facilities. The research material consists of digital technology devices, smartphones, internet networks, electronic worksheets, QR Code applications, and an assessment of historical learning. This research applied a quantitative approach. Research respondents included significant history students at the Faculty of Social Sciences Universitas Negeri Padang from 2018 to 2022, including 140 students. Data were collected through a Google Form application questionnaire and shared with the students via WhatsApp. The data were analyzed quantitatively by using percentages and averages. General findings showed that many students were ready to use QR code-based e-job sheets, but others still needed them. The particular findings included: 1) more than half of respondents knew what the e-job sheet was, but two-thirds of them had no experience using the e-job sheet, 2) related to QR codes, it was found that half of the respondents knew what QR code was, but a part of them had no experience using QR codes, and 3) two-thirds of the respondents stated that supporting facilities such as campus internet and their smartphone were unable to support the use of QR codes-based e-job sheets. QR code-based e-job sheets have become essential in optimizing digital technology in learning activities. Further research is needed to measure the effectiveness of using QR code-based e-job sheets as an alternative strategy and instrument for assessing learning outcomes in the digital era.

Keywords— E-job sheet; QR codes; mobile learning; digital technology.

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I. INTRODUCTION

Nowadays, information and communication technology is growing faster. If technology is interwoven comprehensively into an instructional environment, it can be a powerful tool for effective learning [1] and assessments in higher education. However, the survey results by the Indonesian Internet Service Providers Association (APJII) show that only 9.6% of the internet was utilized in learning activities [2]. The internet is used to search learning sources and as an assessment tool [3]. The existing study merely focused on e-job sheets as a medium and learning resource and rarely found e-job sheets as an assessment tool for learning outcomes [4], [5].

Internet and digital technology are part of contemporary education, supported by digital devices such as tablets, laptops, and smartphones on a virtual basis [6]. Digital technologies are such an integral component of everyday education [4] [4]. Moreover, nowadays, students expect that their university will not only provide a valuable source of practical knowledge for them but also be ready to offer

appropriate online learning opportunities both daily to diversify and enrich the study process experience during the global pandemic crisis, which will probably be the reality of their lives in the following decades [5], [6]. The students employ online learning from home under this condition.

Teachers can create assessments using contemporary technologies as part of the teaching and learning process. It is necessary to create a job sheet based on technologies [7], [8]. QR codes-based e-job sheets as digital technologies have become a new assessment tool and strategy. The e-job sheet is the guidance for practicing electronically [9], [10]. Using an e-job sheet makes it easier for students to understand the substance of their learning [2]. Using QR code-based e-job sheets as an assessment tool becomes a challenge and an opportunity to extend the use of technology in education, which is rarely used by lecturers [11], [12]. The idea and bid to use the QR code-based e-job sheets as historical learning assessment tools have become a significant breakthrough and should be further explored. By using QR code-based e-job sheets, the historical learning assessment activities could be

more effective because the students prefer to use technology in their learning [13]. This research explored students' readiness to use QR codes-based e-job sheets.

II. MATERIAL AND METHODS

This research employed a quantitative approach, which was conducted from June until August 2023. The research respondents involved the history major students at the Faculty of Social Sciences Universitas Negeri Padang from 2018 to 2022 (see Table 1). The total respondents were 140 history major students, consisting of 48 males and 92 females. All the respondents who participated in this research were about 19 to 23 years old, and they have personal mobile devices.

TABLE I
RESPONDENTS

Class	Amount
2018	5
2019	15
2020	48
2021	34
2022	38
Total	140

The research data were collected online using a questionnaire, considering the difficulty of face-to-face meetings during the COVID-19 pandemic. The questionnaire was developed using the Google Forms application. The data collected including the student's readiness to use QR codes-based e-job sheets related to the following: 1) knowledge and experience about e-job sheets, 2) knowledge and experience regarding QR codes, and 3) supporting infrastructure and facilities to use QR codes-based e-job sheets.

Previously, five reviewers were asked to review the research questionnaire draft. The reviewers corrected the suitability or relevance of the questionnaire content through a rational analysis of the suitability of each questionnaire item in accordance with measurement purposes [14]–[16]. to measure students' readiness to use QR codes-based e-job sheets. The review process was carried out online by sending the questionnaire draft via the reviewer's personal WhatsApp. Then, the reviewers return the corrected questionnaire draft through the researcher's personal WhatsApp, which must be revised and converted to a Google form. The questionnaire link in Google Forms was then shared with the respondents' personal WhatsApp. Further, the respondents could access the research questionnaire through the link: <https://forms.gle/QMvjqtEdy7LeZepX8>. The quantitative data is automatically stored on Google Drive, which can be accessed via email for further analysis by calculating the percentage of each answer chosen by the respondent.

III. RESULTS AND DISCUSSION

The students' readiness for mobile technologies is a part of the teaching methodology used by lecturers. Mobile teaching or mobile learning is a new teaching methodology based on small electronic devices with wireless connectivity, for example, smartphones [17]. Mobile learning will become the most essential teaching methodology choice in the future, so teachers and students need to improve their insight and experience when employing varied online learning applications. Technology has changed learning environments

and how important it is for students to use digital tools[18]. There are two main aspects of teacher readiness to use digital technology for learning, i.e., pedagogical and technical readiness.

A. Student's Knowledge and Experience with E-Job Sheets

Figure 1 above showed that 35% or more than a third of respondents (students) did not know what an e-job sheet was, another third (33%) were quite know, and 30% knew. Only a few students (1%) knew what an e-job sheet was. These research findings reflected that some or more than half (64%) of students classified know category and less know category. It can be understood that the students had the experience of doing job sheets while studying at senior high school, even though they were not in a digital form (electronic job sheets). Another term for a job sheet, also known as an assignment sheet, is a contract between the student and teacher to ensure that both parties understand the purpose of the tasks [19].

The student's readiness to use QR code-based e-job sheets can be identified from several aspects. These aspects include knowledge and experience with e-job sheets, QR codes, and supporting facilities (smartphones and internet networks). The research findings are proven in more detail in the figure below.

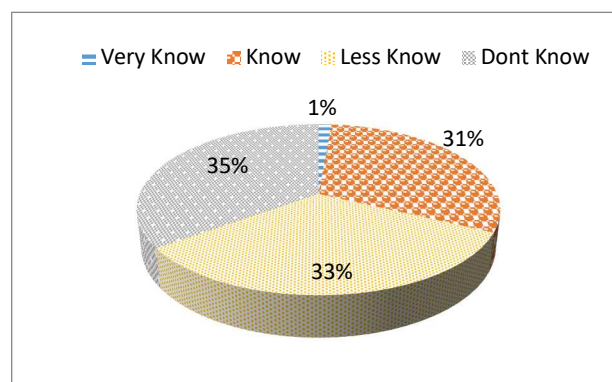


Fig. 1 Student Knowledge about E-job sheet

Job sheets are a learning tool lecturers and students use to support the lecturing activities [20]. For the students, the function of job sheets is as a tool for learning activities, while for lecturers, it functions as a teaching medium and as an assessment instrument. The main content of the job sheets is the information in the form of instructions or steps for learning activities to master the competencies of learning outcomes. The achievement of learning targets is measured by assessing learning outcomes activities. Thus, there are learning and assessment tasks in the job sheet. Job sheets are currently packaged in digital format to support online and distance learning, which has become integral to routine learning activities, notably since the COVID-19 pandemic.

Figure 2 shows that almost three-quarters (68%) of the students who became the research respondents have yet to use e-job sheets in lecturing activities. More than a fifth (22%) of the students have used e-job sheets even though they were classified as 'rarely'. Of the rest, only one-tenth of students who were included in the category had experience using e-job sheets in detail; only 1% of students indicated 'very often,' and 9% indicated 'often'. Why did this happen? Of course, it was understood that the lecturers also rarely used electronic and

printed job sheets in their lectures. In addition, e-job sheets are greatly influenced by the lecturers' and students' readiness to communicate electronically in a digital environment [5]. The lecturers and the students must master a new skill in digital technology.

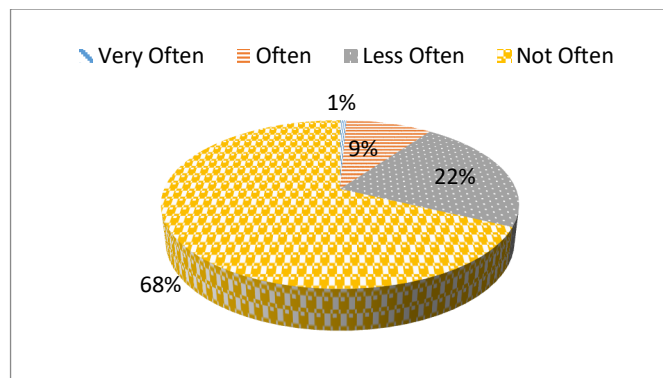


Fig. 2 Students' Experience to Use E-job Sheet

Today, in various parts of the world, the digitalization of education has become the primary need to ensure that the learning process takes place constantly, even from home, since the COVID-19 outbreak in early 2020. Both lecturers and students had limited experience using various digital applications in the learning process at the beginning of the pandemic. Digital-based learning tools such as e-job sheets will become a daily necessity in learning activities.

B. Student's Knowledge and Experience with QR codes

Figure 3 shows that more than half of students (55%) knew what QR codes were, including how to operate them on their smartphones. QR codes, quick or immediate answers, are images that imbue information that can be interpreted by a tablet or mobile phone (smartphone) with an internet connection [17]. QR codes can be used as guiding signs, helping the users access the information for the corresponding objects and enabling mobile devices to send complex multimedia messages [21].

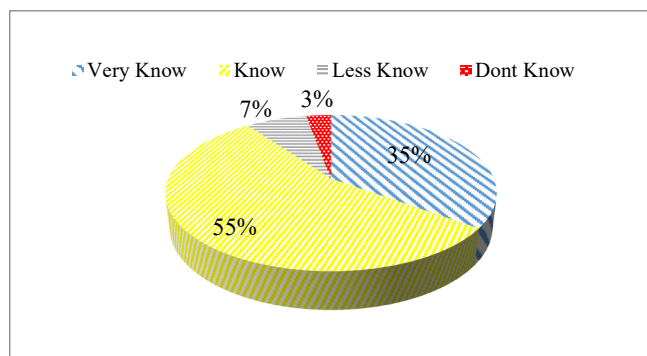


Fig. 3 Student Knowledge about QR Codes

In education, QR codes were generally used in the field of mobile learning [22]. The students are already familiar with the QR codes application. Currently, QR codes are used increasingly in universities [23]. The QR codes can be used for various purposes in the teaching and learning process. QR codes can be exploited to change how lecturers and students interact in learning activities.

This can be achieved by combining Mobile, QR codes, and Cloud technology [24]. QR codes have become one of the inspirations for varying types of digital technology in learning activities. The ability to use the QR code application indicates lecturers' and students' digital literacy. The students need to be able to think systematically and creatively with the desire to cooperate through digital literacy[25]. The ability to use the QR codes application indicates lecturers' and students' digital literacy in supporting teaching, learning, and assessment.

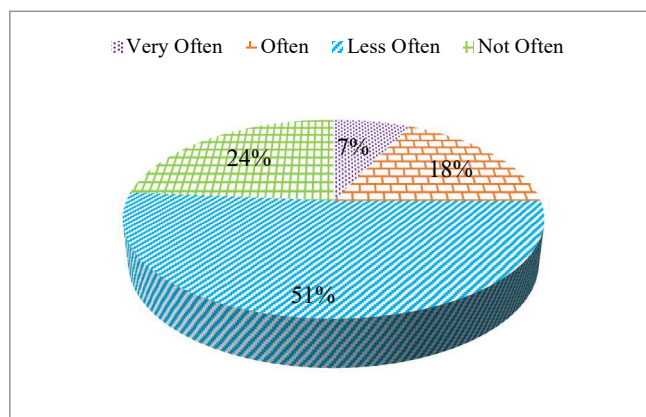


Fig. 4 Students' Experience with Using QR Codes

Figure 4 shows that the students rarely used the QR code application in their learning activities. They only occasionally used the QR code application at certain times and for certain needs. This was understandable because lecturers have not used the QR code application to support their activities. Almost a quarter of the respondents (students) have never used a QR code application (24%), and only a fifth of them have ever used a QR code application (18% often and 7% very often). This means that only a tiny proportion (one-fifth) of respondents have ever used QR codes. The QR codes are easy to use for learning needs by scanning it through a smartphone camera to access the information stored in the QR codes. To read a QR code, a smartphone was equipped with a camera and software capable of decoding the encrypted data of QR codes. The QR code application translates for humans to understand[24]. Some students who need to become more familiar with the QR code application would feel clumsy. However, if it has been introduced, they will probably use it, considering that they are familiar with various Android-based applications.

C. Availability of Supporting Facilities

The main support facilities for using QR codes-based e-job sheets are mobile learning devices, such as tablets, smartphones, laptops, etc. The results showed that almost a quarter of all respondents (24%) stated that their mobile devices (smartphones) strongly supported using QR codes-based e-job sheets. More than half of the respondents (55%) had mobile devices (smartphones) that supported using QR codes-based e-job sheets. The rest, only one-fifth (24%) of the total respondent's smartphones less support, and only 7% did not support the use of QR code-based e-job sheets. Nowadays, almost all students have personal smartphones that are capable of interpreting QR codes.

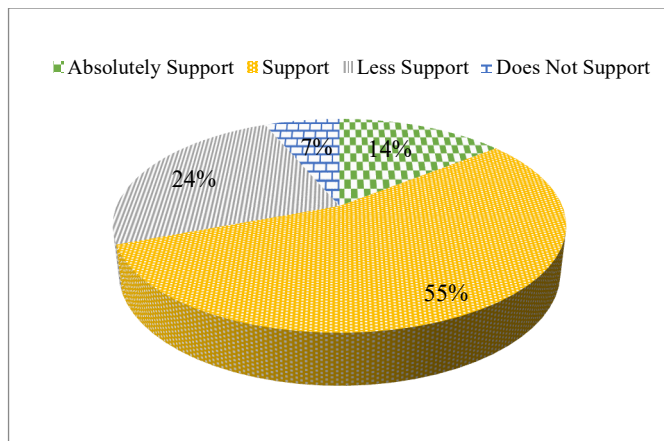


Fig. 5 Student's Smartphone Availability

Downloading a QR code reader on a smartphone is simple and compatible with all the smartphones available on the market, and most applications are free. QR codes allow us to obtain documents in PDF, access web pages related to the content of the practices and fill in surveys carried out by means of Google Forms.

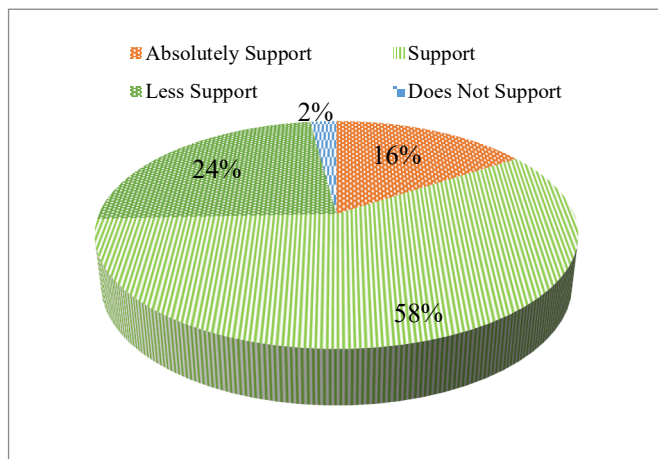


Fig. 6 Campus Internet Access Speed

Internet network access is an infrastructure supporting the use of QR codes-based e-job sheets beside the smartphone. The research findings in Figure 6 showed that almost three-quarters of the respondents (students) stated that the internet in UNP supported the use of QR code-based e-job sheets (58% support and 16% absolutely support). This means that most of the history students can use QR-based e-job sheets as a learning and assessment tool because the campus internet network supports it. Only about one-third of the respondents stated that the quality of the campus internet network needed to be more supported (24%) and not supported (2%). QR codes are a gateway to the internet due to the growing use of smartphones or other mobile devices [26]. In mobile internet access, QR codes are an adequate tool to quickly and efficiently converse URLs to users [27]. Adequate internet network support allows for optimizing the use of QR code applications as the base for making e-job sheets in this research.

TABLE II
THE READINESS OF HISTORY MAJOR STUDENTS USING QR CODE BASED E-JOB SHEET

Aspects	Percentage (%) of Students Readiness			
	very ready	read y	less ready	not ready
Know about e-job sheet	1	31	33	35
Experience in using e-job sheet	1	9	22	68
Know about QR codes	35	55	7	3
Experience in using QR codes	7	18	51	23
Mobile device availability (smartphone)	14	55	24	7
Internet network access	16	58	24	2
% Average	12%	38%	27%	23%

Table 2 shows an illustration of the research findings in general. The average percentage of students' readiness to use a QR code-based job sheet showed that 12% of the respondents stated that they were very ready, 38% were ready, 27% were less ready, and 23% not ready. If it ranges from positive and negative poles, both poles are in a balanced position (50% are in the positive poles (12% and 30%), while 50% are in the negative poles (27% and 23%). It means that half of the students are categorized as ready, and others are categorized as less ready to use QR codes based on e-job sheets. Using QR codes and e-job sheets brings both challenges and opportunities for the history major of the lecturers at Universitas Negeri Padang to enhance learning, teaching, and assessment digitally. Updating digital literacy by using e-job sheets and QR codes is one of the initiatives to improve digital skills among lecturers and students at the university [28]–[30]. QR codes can change the ways both lecturer and students interact [24] during the learning process.

IV. CONCLUSION

Some of the history major students at the faculty of social sciences Universitas Negeri Padang were ready, and others were less ready to use QR codes-based e-jobs sheets. E-job sheet and QR codes are important as a tool for supporting the digitization of education also based on this research results, thus the following suggestions are needed: 1) students need to be provided with the advance knowledge and practice in using e-job sheets and QR codes in learning activities, 2) the lecturers should be encouraged to use e-job sheet and QR codes application to support lectures' activities at nowadays digital era, 3) The campus is expected to make a policy to provide internet quota regularly to students for online learning which has become a basic requirement to ensure the learning process takes place in the current pandemic era.

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