Students' Perception on the Use of QR Code-Based Learning Notes as an Innovative Teaching and Learning Tool

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Abstract
Almost all adults have a smartphone, at least one for each person. The community college students, who are almost 100 per cent teenagers in the age range of 18-23, are no exception to having a smartphone, as it seems to have become a necessity of life nowadays. This powerful gadget has a variety of interesting functions and can simplify the daily affairs of life if it is utilised in the right and effective channel. This innovation was developed to make it easier for students to access the Computer Installation Course notes more easily and comfortably, as long as there is internet access on their phones. Easy-to-access notes allow students to revise at a time of their own discretion. All this will speed up their process of recognising computer components and, in turn, make it easier for them to perform the work of installing computer components as contained in the course structure. A survey of 30 respondents, consisting of Information Technology Certificate students, was conducted and analysed using SPSS version 26 software to obtain feedback from respondents on the implementation of this 1Page IT Reminder. Findings revealed a high level of satisfaction among respondents, particularly regarding the website content and accessibility. Moreover, the system supports sustainable practices by replacing traditional paper-based notices with a single digital sheet, significantly reducing paper consumption. The 1Page IT Reminder demonstrates that integrating mobile technology into technical education can enhance learning efficiency while promoting environmental sustainability.

Keywords: Computer Installations; Easy Access; Smartphones.

1.0 Introduction
QR Code is an abbreviation of Quick Response Code or Quick Scan. QR Code was developed in 1994 by the Japanese company Denso Wave (Udvaros & Szabó, 2024), which is a division of Denso Corporation. The main purpose is to provide fast and effective information to the organisation. The QR Code serves as a link (Zubainur et al., 2024) capable of storing URL addresses, telephone numbers, texts and short messages that can be used on daily newspapers, magazines, advertisements, signage, business cards or any physical print media. Its function as a fast and accurate liaison. QR Code allows users to access media using a smartphone effectively and efficiently. In addition, users can also share the QR Code with other users more easily. The application of the use of QR Code is subject to the features of a smartphone with a camera with stable internet access, and a QR Code reader application that needs to be activated on the smartphone. All these features hwill allow the QR Code to be read and processed by a smartphone to produce an output that has been programmed on the QR Code.

Computer Installation is one of the modules contained in the curriculum structure of the Information Technology Certificate program at Temerloh Community College. Students were exposed to the theories and practices of computer installation. Students were guided by handouts from lecturers or reference books in the library. In addition, students also refer to the search results and notes on the internet. For notes on the internet, some are included along with videos related to a particular topic. Students love to use their smartphones in daily life. The 1Page IT Reminder has been developed to make it easier for students to access the Computer Installation notes, and at the same time, it is provided with videos related to the notes. Apart from the significant savings in paper usage, this method is also able to make the notes easily accessible and easy to keep as long as the student has access to the network.

2.0 Methodology

The implementation of this innovation began with the construction of a Computer Installation website, which consists of computer installation components that students will learn during the Computer Installation course later. Next, for all installation items, the relevant QR Code link will be generated online. All QR Codes generated have been placed on an A4-size piece of paper and will be distributed to students who register for this course. The whole process is represented by a flow chart as shown in Figure 1.

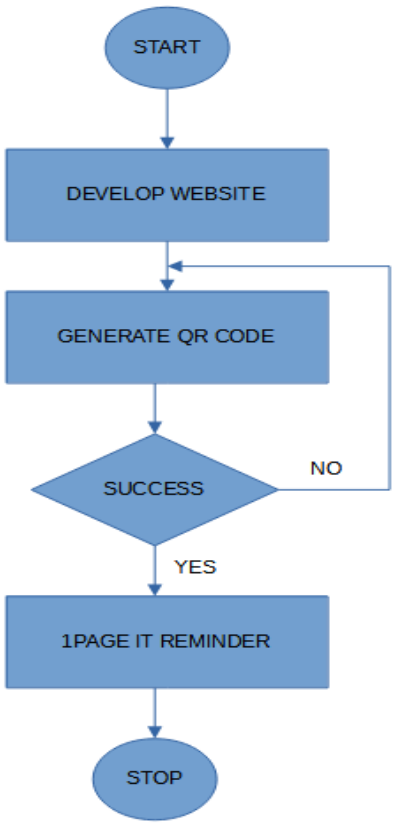

Figure 1: Implementation of 1Page IT Reminder

2.1 Implementation

The development of a specific, user-friendly website aimed at centralising and streamlining information sharing is the first step in putting the 1Page IT Reminder into practice. The system's central platform provides quick and simple access to crucial reminders. A special QR Code (Wenny, Suhartono, & Parenreng, 2022) is created to improve accessibility, allowing people to access the website immediately from their mobile devices without having to take any further steps. All users find the innovation to be effective and convenient due to the smooth integration of web and QR technologies.

Students' direct input is gathered throughout a research phase to make sure the solution fulfils actual demands and has the greatest possible impact. In addition to assessing the IT Reminder's efficacy, this stage pinpoints areas that require improvement, enabling the system to change in response to user feedback. The implementation phase ensures that the 1Page IT Reminder is useful, accessible, and constantly evolving to provide long-term value by fusing technology advancement with user-centred assessment.

2.2 Website Construction Using WordPress

A website with a blog theme has been built using WordPress, as shown in Figure 2 below. The keyword for this site is #ITReminder. This website places all the items that are linked to the QR Code that has been generated. WordPress is a blog publishing system written in the PHP programming language and supported by a MySQL database. WordPress (Bhat, Agarmore, Mahalle, & Pitale, 2025) is the most successful evolution of the parent blog publishing system and has a large number of users and developers for its software. WordPress has turned into one of the most well-known web platforms. Today, it controls more than 70 million websites. For all QR Code-generated items, it displays information and videos related to the components in the Computer Installation course.

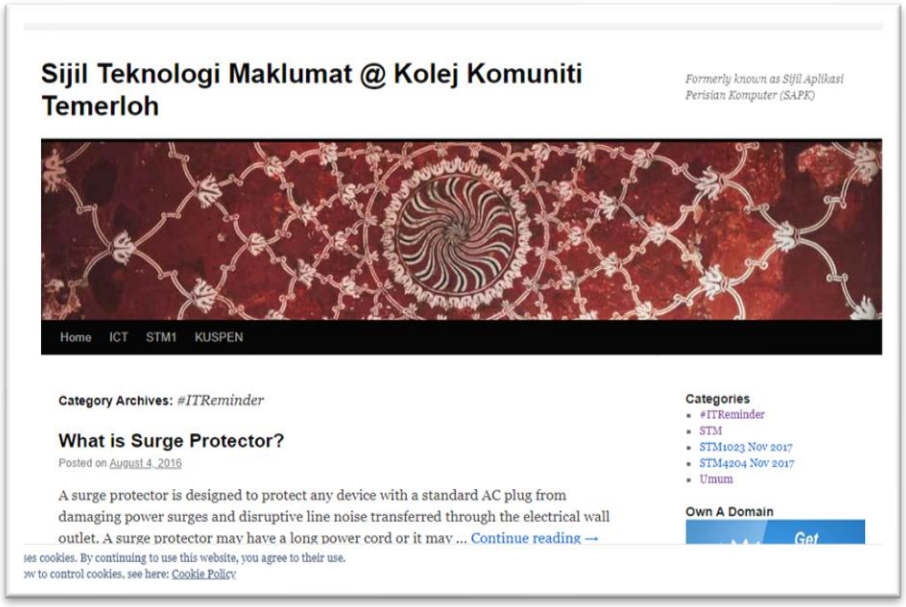

Figure 2: The front page of the 1Page IT Reminder website (https://mohdsaharudin.wordpress.com/)

2.3 QR Code Generation

QR Codes for computer installation notes will be generated online using the QR Code Generator, which can be accessed from a web browser. In the 21st century, smartphone prices are getting cheaper and more and more smartphone users, enabling the use of QR Codes to be practised more widely. Big brands have also started practising the use of QR Codes in their activities. QR Codes have begun to be accepted by the community (Yanti et al., 2024), starting with private users, and public and private organisations with their respective specific purposes. There are 14 QR Codes for links to computer installation notes generated for the Computer Installation course, as listed in Table 1 below.

Table 1: Computer assembly components

i. Computer	viii. Optical Disc Drive
ii. Motherboard	ix. Power Supply Unit
iii. Central Processing Unit	x. Network Interface Controller
iv. Heat Sink	xi. Graphic Controller
v. Random Access Memory	xii. Modem
vi. Computer Case	xiii. Automatic Voltage Regulator
vii. Hard Disk Drive	xiv. Power Surge Protector

The website constantly improves and updates site material to make sure the platform stays interesting, easy to use, and effective in reaching its goals. The generated QR Code is shared with the students after it is translated into an A4-sized piece of paper, as shown in Figure 3 below.

Figure 3: 1Page IT Reminder
(https://www.qr-code-generator.com)

2.4 Feasibility study

A comprehensive questionnaire was given to 30 students enrolled on the Computer Installation course in order to assess how well the 1Page IT Reminder enhanced the learning sessions. The three sections of the questionnaire-general information, website content, and the 1Page IT Reminder application itself-were created to get feedback from the respondents. All the questions in the questionnaire are shown in Table 3 below. SPSS was then used to carefully examine the responses, guaranteeing the accuracy and dependability of the data.

Table 3: Example of questions

Website contents	
Questions 1	The website content is easy to understand.
Questions 2	The text size and website display are attractive.
Questions 3	The language used is easy to understand.
Questions 4	The video linked to the note is relevant and useful.
Accessibilty	
Questions 5	QR code is easy to access.
Questions 6	Website content is easily accessible.
Questions 7	Every QR code option works well.
Questions 8	The website elements are highly interactive.

3.0 Results and Discussion

The main objective of this 1Page IT Reminder is to save the use of paper reading material for students of the Computer Installation course. In addition, it is innovative to manipulate the interest of the student generation towards the use of gadgets (Diyora & Makhmudjonovna, 2024), such as smartphones, in their daily lives. The original Computer Installation notes have 200 A4-size pages as shown in Figure 4 below. A notable advancement in resource efficiency has been made with the advent of the 1Page IT Reminder, especially with the distribution of the 1Page IT Reminder. Paper usage for material delivery has been decreased by an astounding 1 page only by substituting a succinct digital format for traditional printed materials for Teaching and Learning (T&L) Computer Installation. As seen in Figure 4, this number is more than simply a statistic; it signifies a substantial advancement in ecologically conscious and sustainable teaching methods.

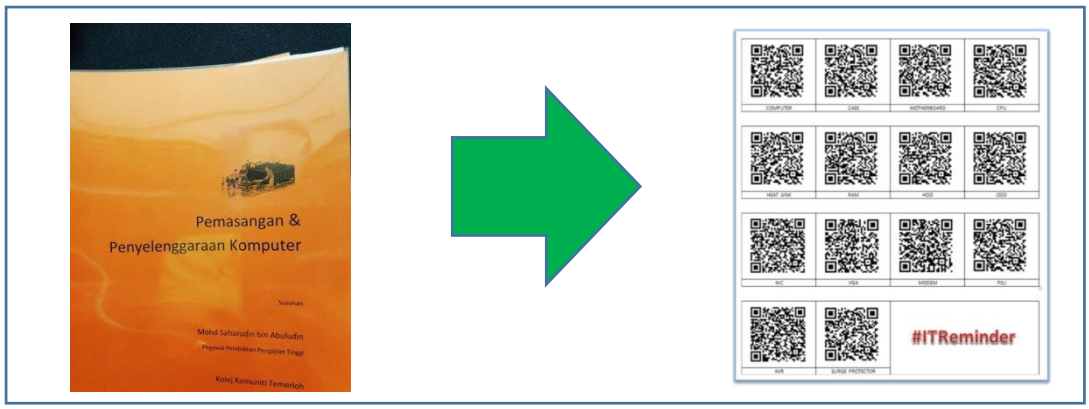

Figure 4: Computer Installation notes from 200 pages to 1Page IT Reminder

This accomplishment shows how innovation may promote eco-consciousness and efficiency. The 1Page IT Reminder sets a standard for other organisations to follow by adopting digital transformation (He & He, 2025), which also lowers operating expenses and environmental impact. It serves as evidence of how focused technology solutions can support more general sustainability objectives while producing quantifiable, significant outcomes. The comparison before and after the 1Page IT Reminder is also represented by Table 2 below.

Table 2: Comparison before and after the 1Page IT Reminder was introduced

Num	Before	After
1	Involves many sheets of paper for distribution purposes	Only requires a piece of paper for distribution
2	Requires a large physical storage space	No physical storage space required
3	Risk of loss and omission of notes	The risk of loss is eliminated
4	Notes need to exist physically when needed	Access is easier and can be virtually

When compared to earlier approaches, the 1Page IT Reminder has resulted in notable gains in sustainability and efficiency. Multiple sheets of paper were needed in the past to distribute notices and reminders, which increased resource use. The new technique significantly reduces paper usage and promotes environmentally friendly activities by requiring only one sheet of paper for distribution. Copies of notes and reminders used to need physical storage space (Lim et al., 2024), which was typically found in filing cabinets, shelves, or office space. Since all of the data is digitally saved and accessible whenever needed, the 1Page IT Reminder eliminates this requirement. This facilitates organising and retrieval in addition to freeing up storage.

Information security and accessibility represent yet another significant advancement. In the past, there was always a chance that notes would be misplaced, lost, or left out. By keeping all data electronically and guaranteeing that records are always accessible, the 1Page IT Reminder removes this risk. Furthermore, notes no longer need to be physically present to be consulted; instead, the 1Page IT Reminder enables immediate virtual access, which speeds up, simplifies, and adapts information retrieval to contemporary work and learning settings.

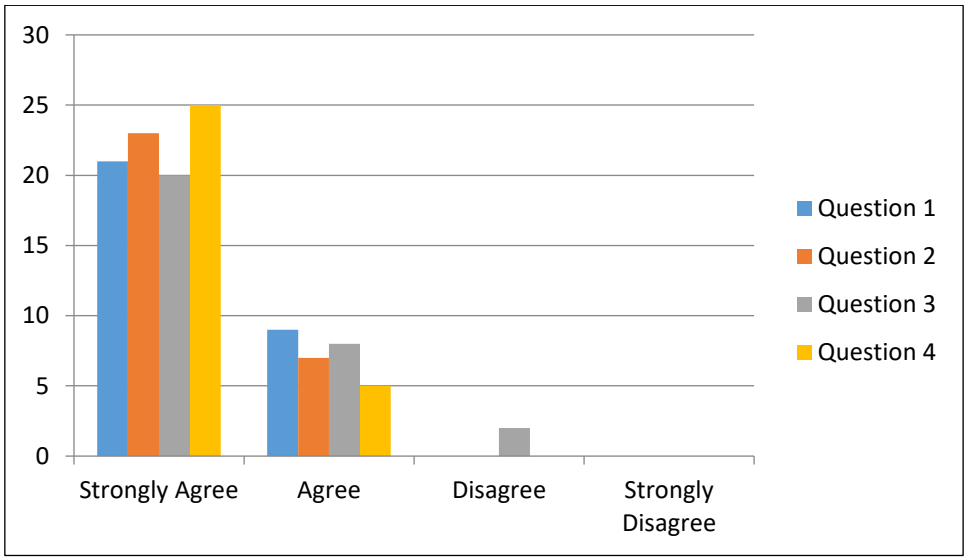

Figure 5: Respondents' opinions on the 1Page IT Reminder website

According to the data in Figure 5, most respondents strongly agreed with the 1Page IT Reminder website on each of the four questions, demonstrating a high degree of satisfaction with its usability and features. All of the respondents gave positive answers to Questions 1, 2, and 3, with the majority choosing "Strongly Agree." This indicates a broad agreement that the system satisfies their needs in terms of usability and functionality.

Though "Strongly Agree" continued to be the most popular response, answers to Question 4, which may pertain to a particular usability or accessibility characteristic, were somewhat more variable. Additionally, a sizable percentage of respondents chose "Agree" on a number of items, indicating that although they are content, there is still opportunity for improvement.

Only 2 of the respondents, however, selected "Disagree" in response to Question 3. Due to the confusing translation of some technical or computer-related words into Bahasa Malaysia, this negative feedback is associated with difficulties in language comprehension. This implies that even while the system works well overall, user experience and inclusivity might be further enhanced by improvements to terminology and linguistic clarity. Overall, the results show that the 1Page IT Reminder website is well-liked; however, some minor changes are required to fix certain linguistic problems.

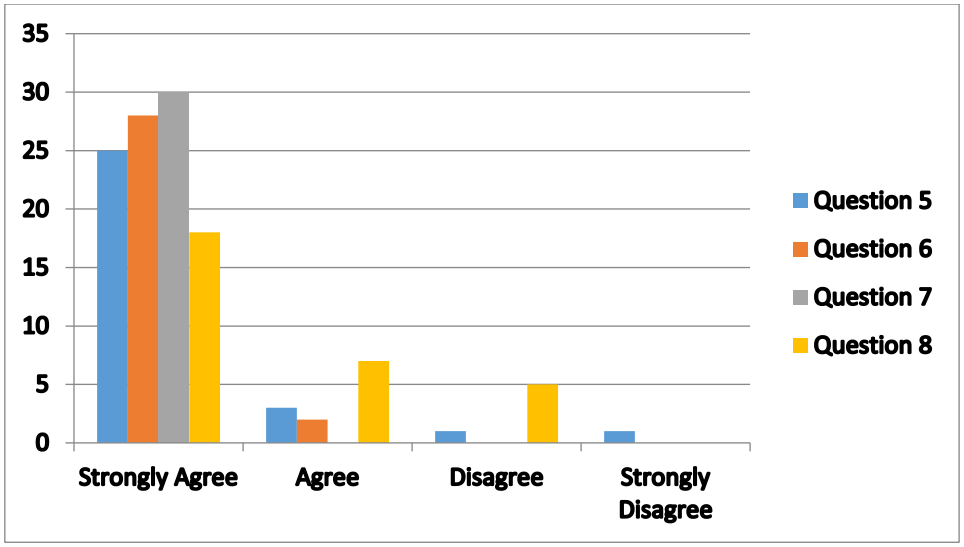

Figure 6: Respondents' opinions on the use of IT Reminder

The findings in Figure 6 show that respondents' opinions about the 1Page IT Reminder use were not entirely consistent, especially when it came to QR codes and interactive website elements. All of the respondents choosing "Strongly Agree" or "Agree" for questions 6 and 7 garnered overwhelmingly positive answers. This demonstrates unequivocally that the website accessibility and QR Code technology work well and satisfy user expectations. In contrast to Questions 6 and 7, Question 5, which assesses how simple it is to obtain the QR Code, garnered a smaller proportion of "Strongly Agree" answers. 2 of the respondents provided negative comments ("Disagree"), indicating that there were minor usability issues because some users, perhaps students, had little experience with QR codes. This suggests that, in order to fully benefit from this function, user assistance or training is required.

Question 8, focusing on the availability of highly interactive website elements, showed the lowest satisfaction rate, with 5 of the respondents providing negative feedback. This can be attributed to the fact that the 1Page IT Reminder is still in its early development stage, and advanced interactive elements have not yet been fully implemented. While this is expected at an initial rollout phase, it indicates an area for future improvement to enhance engagement and user interaction. Overall, the figure suggests that the 1Page IT Reminder foundational features-QR Code functionality and basic website access-are performing well, while more advanced and interactive features require further development.

4.0 Conclusion

The 1Page IT Reminder provides educational institutions and businesses with a workable and efficient way to significantly cut down on paper use. It excellently complements international initiatives to reduce waste and preserve natural resources by converting regular reminders and documentation into a digital format. This change is a concrete step in the direction of the government's long-term environmental sustainability goals (Goel, Masurkar, & Pathade, 2024).

Beyond its effects on the environment, this 1Page IT Reminder is crucial in preparing students for the future. Students are encouraged to use the available digital tools effectively and ethically by incorporating technology into their regular academic routines. This fosters their capacity to accept 1Page IT Reminder as a component of their educational path in addition to their ability to adjust to contemporary learning situations' needs (Tañola & Lomibao, 2024). The 1Page IT Reminder connects education and sustainability. It illustrates how technical developments can concurrently support academic and environmental objectives. By putting it into practice, both organisations and students help create a more intelligent, environmentally friendly, and progressive future.

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Author Contributions
M.S. Abuludin: Conceptualisation, Abstract, Introduction, Discussion, Conclusion, Methodology, Result and Editing; **N. Saamri:** Result, Discussion; **N. Salehudin:** Writing-Reviewing.

Conflicts of Interest
The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its submission, and declare no conflict of interest in the manuscript.

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