Scholarum: Journal of Education
www.scholarum.dlsl.edu.ph
Vol. 2, No. 2, March 2023

Research Article

Acceptability and Effectiveness of a Proposed Attendance Monitoring System (ASAP) for Safety of the Stakeholders

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ARTICLE INFO
Article History
Date Received: May 27, 2022
Date Accepted: February 28, 2023
Keywords
Project ASAP, Attendance Monitoring System, Safety, Eco-friendly, Cost-efficient, and User-friendly

ABSTRACT

As a result of the COVID-19 pandemic, students and teachers faced challenges in the face-to-face classes. With the health protocols to be observed during onsite classes, teachers and students need to be cautious. The advancement of smartphones, using QR codes to create, scan, and encode barcodes becomes a common tool in inclusive classrooms (Lamey, 2018;Santisteban, 2017). Regular checking of attendance can be a time-consuming activity in the classroom if no innovation is done. The study aimed to evaluate the acceptability and effectiveness of using project ASAP as an attendance monitoring system. Thirty teachers (30) from various schools in Buenavista District I, who adapted and used project ASAP and 20 students who were involved in using the project served as the study's sample. The researcher used a checklist that the respondents accomplished using a Google form. The researcher applied convenience sampling to select seven participants from a population of 50 who responded to the quantitative survey. All discussions were audio-recorded, and all responses were transcribed and were thematically analyzed. The digital application was available and free on Android smartphones that can be exported to Microsoft Excel. At the same time, the system does not require an internet connection and is ideal for a big class. With the combined evaluations of the teacher and the students, data revealed that project ASAP as an attendance monitoring system was generally very highly acceptable in terms of reliability, accuracy, accessibility, usability, time behavior, security, and safety and highly acceptable in terms of efficiency. According to the participants, project ASAP was safe, eco-friendly, cost-efficient, and user-friendly for attendance checking. As a result, this research is a proof that innovation is possible in checking students' attendance in the classroom and such innovation needs continuous improvement after its adaptation.

INTRODUCTION

The Philippines is currently shifting to the new normal in education. Part of the transition is the need to innovate through technological advancements. (Durak et al., 2016).

With the popularity of smartphones, generating, scanning, and decoding barcodes using QR codes are becoming a widespread tool in modern education (Lamey, 2018; Santisteban, 2017). As changemakers, teachers and administrators have discovered the benefits of using this type of technology in the classroom.

The benefit of regularly monitoring attendance records is that it can impact the school's performance. Checking attendance is a practice that is part of the classroom routine that teachers follow every day. Normally, a teacher will call out the students' names individually and wait for them to raise their hands. Though this appears helpful, it may take a long time and be tiring, causing students to lose interest or motivation to attend their classes. The usual method of monitoring attendance in the classroom is time-consuming(Rizal et al., 2016).

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The Quick Response (QR) code is a highly secure management system that encrypts all sensitive data stored and delivered. It is simple to use and cost-efficient. Scanning QR codes enables users to collect large amount of data and transmit it to a Microsoft Excel file via a mobile app (Kadu et al., 2017).

This study limits iself to 30 teachers from various schools of Buenavista District I, who adapted and used the Project ASAP to manage their students' or parents' attendance for first quarter. Likewise, 30 students were involved in using Project ASAP to monitor their attendance during the first quarter of the school year 2021-2022. This study covers the benefits of using the Project ASAP as an attendance monitoring system and the platform's acceptability in terms of reliability, efficiency, accuracy, accessibility, usability, time behavior, security, and safety. It offers a vision and a path for the ongoing adaption and development of a cutting-edge mobile application for educational purposes.

The proposed of attendance monitoring system will be implemented utilizing two Android devices. In this study, programs are entirely unrestricted in their use. Scanning the student's QR codes that they made is free on the internet. When students enter the classroom, the teacher will use a smartphone as a scanning device to scan their code. The student's records will then be saved in an Excel format that can be exported to a laptop. In addition, an Excel summary sheet will be created to track the number of absences each student has accumulated. It may expect more public domains to utilize these codes as public knowledge of their utility growth (Singh, 2016).

This study aimed to inform everyone of the characteristics and benefits of the attendance monitoring system by employing Project ASAP. It also aimed to establish the acceptability of the Project ASAP attendance tracking system as perceived by the teachers and students of Buenavista National High School, who participated in the study. This study focuses on evidence-based practice using a computer system, which will serve as a foundation for continual development and recommendations for how this type of system might be applied in a classroom setting.

MATERIALS AND METHODS

Sampling

Thirty (30) teachers and twenty (20) students participated in the study. The teacher participants used Project ASAP as an attendance monitoring system. The respondents were chosen using a purposive sampling technique. The Humans of Data (2016) cited that purposive sampling is a sampling method where the population is divided into mutually-exclusive subgroups selected according to a certain characteristic based on the study's objectives. Purposive sampling was best suited for this study, given the limited time frame, pandemic restrictions, and financial limitations.

Data Collection

Based on components of the standardized assessment checklist for the computer program interface, the participants evaluated Project ASAP as an attendance monitoring system. Participants' perspectives on utilizing Project ASAP as an attendance monitoring

system. Participants' perspectives on utilizing Project ASAP as an attendance monitoring system were gathered through a structured interview. The survey questionnaire was disseminated electronically using an online survey method. The findings were interpreted and analyzed based on the participants' responses. The researcher used a step-by-step approach to run the program (See on the Appendix A), and project ASAP as Attendance Monitoring System Highlights: (See on the Appendix B)

Being the tool used in this study, the survey questionnaire consists of evaluation criteria that assess the Project ASAP mobile application's appropriateness as an attendance tracking system. Seven main components were used to assess the system of a computer database interface: reliability, efficiency, accuracy, usability, time behavior, security, and safety. The structured interview about the participants' perspectives and opinions on using the Project ASAP was done.

The method was adapted from ISO 9126, which is used to evaluate computer program interfaces. The questionnaire was developed through a series of consultations and evaluations. The researcher prepared a draft questionnaire, and the semi-final draft was then presented to the experts for comments and suggestions. These were further incorporated in the finalization of the draft, which was subsequently validated through a pre-testing activity. The pre-testing was administered to the teachers and students currently using the project ASAP, but their responses were not included in this paper's data analysis. The field pre-testing was done to assess whether the respondents uniformly understood the questions. After the pre-testing, all suggested modifications were considered in finalizing the survey questionnaire. Content Validity and Reliability Tests using the Cronbach alpha formula were applied.

Ethical Issues

In this study, the researcher ensured that the participants' personal information was not shared with any platform, individual, or organization other than the researcher. The participants' privacy and anonymity were protected.

To ensure that the participants understood the study's background, they were given an Informed Consent Form detailing the terms and conditions of participation. Lastly, the participants were assured that their participation in the study was free and that they could withdraw at any time.

Data Analysis

This study employs a mixed-methods sequential explanatory design, which consists of the quantitative and the qualitative phases (Creswell et al. 2003).

The researcher collected and then analyzed the quantitative (numeric) data. A structured interview was conducted to support the study's findings. Results were evaluated, synthesized, and categorized appropriately. The study described the platform's functionality as well as the suitability of the Project ASAP as an attendance tracking system.

Below is the scale that was used to determine the

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level of acceptability of the attendance tracking system of Project ASAP:

Table 1. Arbitrary Scale and Verbal Interpretation of the Data

Response	Range of numerical value	Verbal Interpretation
4	3.50-4.00	Very Highly Acceptable
3	2.50-3.49	Highly Acceptable
2	1.50-2.49	Acceptable
1	1.00-1.49	Not Acceptable

RESULTS AND DISCUSSION

This part presents the study's findingss based on the gathered data.

Table 2. The level of acceptability of using e-attendance (Project ASAP) as an attendance monitoring system according to Teachers and Students

Level of Acceptability	*Teachers*	*Students*	*Total Mean*	*Verbal Interpretation*
1. Reliability	3.83	3.50	3.67	Very Highly Acceptable
2. Efficiency	3.70	3.25	3.48	Highly Acceptable
3. Accuracy	3.67	3.45	3.56	Very Highly Acceptable
4. Usability	3.80	3.55	3.68	Very Highly Acceptable
5. Time Behavior	3.70	3.50	3.60	Very Highly Acceptable
6. Security	3.60	3.75	3.68	Very Highly Acceptable
7. Safety	3.80	3.65	3.73	Very Highly Acceptable
Composite Mean	***3.73***	***3.52***	***3.63***	Very Highly Acceptable

Table 2 shows that in terms of acceptability, teachers and students rated the project ASAP a composite mean score of 3.73 and 3.52, respectively, with an overall grand mean of 3.63, indicating that the project ASAP is very highly acceptable, with the teachers having a higher total composite mean rating than the students.

According to a recent study from Michigan State University's Quello Center, slow Internet connections or limited access from rural areas can contribute to students inability to catch up academically. Educational difficulties can negatively impact academic perfromance, college admissions, and professional opportunities (Keith Hampton, (2020).

With evaluation means of 3.83 and 3.50, respectively, and a combined mean of 3.67, the participants rated Project ASAP reliability as Very highly acceptable. . The components of the application interface were well received by both groups of respondents. The data is always functioning and consistent, decreasing the risk of data redundancy. This indicates that based on the teachers and students assessments, the QR code application interface wasvery consistent and reliable.

The participants assessed the efficiency of the project as Highly acceptable, with rating averages of 3.70 and 3.25 and a total mean of 3.48. It denotes that Project ASAP database interface generates an up-to-date attendance report. Additionally, the program responds quickly and precisely, is paperless, and provides reports without using the internet.

With evaluation means of 3.67 and 3.45, respectively, and a combined mean of 3.56, the participants assessed the accuracy of the attendance system as Very highly acceptable. Based on the participants' assessments, the data entered on the QR code database interface is correct, accurate, consistent, and up-to-date, according to the participants' assessments. The program's content is well-organized and well-coordinated, indicating that users can quickly acquire the program's interface.

The participants assessed Project ASAP as Very highly acceptable in terms of usage, with mean scores of 3.80 and 3.55, respectively, for a total score of 3.68. The user interface displays the right labeling and crucial information, the application's color themes are attractive to the eyes, and the color combinations are not

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disturbing. Furthermore, it uses cell phones to provide touchscreen press controls for quick navigation, while QR codes create data from computerized attendance records.

The participants evaluated Project ASAP as Very highly acceptable on the level of time behavior, with a mean of 3.70 and 3.50, respectively, and a total mean of 3.60. This indicates that respondents agreed that using Project ASAP to record attendance is faster and will prevent the lane from becoming overcrowded.

Regarding security, the teachers' mean rating was 3.60, while the students' rating was 3.75, for a total mean rating of 3.68, which was assessed as Highly acceptable. The table shows that students received a higher mean rating than teachers. The program can only be accessed by the teacher who used the QR attendance control and barcode scanner installed on their smartphones to use the system. Meanwhile, students can access the QR code Attendance Control Folder on the files. Neither teachers nor students believe the program is password protected and secure.

Regarding safety, the teachers' mean rating was 3.80, while the students' rating was 3.65, for a total rating of 3.73, which was assessed as Highly acceptable. The respondents are convinced that the use Project ASAP for attendance monitoring is a measure to mitigate the spread of virus.

Another important aspect of employing technology, according to Aguirre (2016), is through digital applications. The QR code was created, implemented, and tested to decode data quickly and simplify using these codes. This classroom innovation motivates them to go to school every day. In this experiential study, the learners who used the QR attendance control and barcode scanner exhibited significant improvements in their attendance, thus, they are motivated to go to school (Durak et al., 2016).

Table 3. The perspectives of teachers and students and the effectiveness of Project ASAP as an attendance monitoring system

Themes	*Codes*	*Descriptions*	*Extracted Quotes*
1. Safety	No direct contact	The users has no direct exposure to anyone.	*P3: "mas safe siyang gamitin kasi hindi na kinakailangan manghiram ng ballpen."* *P4: "diretsyo na sa pagpasok at naiiwasan ang over crowded sa pagpasok sa school."* *P7: "naiiwasan ang direct exposure na kalimitang nagiging sanhi ng pagsasalin ng virus."*
2. Eco-friendly	Teachers' lessen the use of paper	Reducing paper use delivers some obvious environmental benefits.	*P1: "Ang project ASAP ay mas maigi kumpara noon na ang mga paaralan ay kumonsumo ng marami mga papel."* *P2: sa paggamit ng QR code pang attendance, ang mga papel na ginagamit ng mga teacher ay mababawasan."* *P7:"mas malamang na ang bilang ng mga basurang ginawa ay maaaring nabawasan at maaari din makatulong ito na maisip ng mga tao kung paano mapangangalagaan ang kapaligiran."*
3. Cost-efficient	Totally Free	There are no expenses involved with utilizing the platform.	*P1: "ang project ASAP na ginagamit na pang attendance na ito ay free."* *P3: "Sa paggamit ng koneksyon sa internet, maaaring i-download ng mga guro ang app na QR Attendance Control at QR Bar Code Scanner nang libre sa Google Play."* *P5: "Ang mga QR code ng mga studyante ay maaari ding na-download nang libre sa internet."*
4. User-friendly	Easy to utilize	Straightforward and simple to use.	*P4: "Ang Project ASAP ay gumagamit ng napakasimple ngunit napakadaling gamitin applicationpara sa madaling pag-unawa."* *P5: "Ang iba't ibang mga opsyon na matatagpuan sa application ay napakadaling maunawaan.:"* *P7: "Ang project ASAP ay mas madali kumpara sa traditional na pang attendance, isang scan lang ay marerecord na ang attendance."*

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Table 3 presents the perspectives of teachers and students on the effectiveness of how Project ASAP in monitoring attendance. Data revealed four themes (1) Safety, (2) Eco-friendly, (3) Cost-efficient, and (4) User-friendly.

Theme 1: **Safety**

The participants affirmed that Project ASAP is safer since it avoids borrowing a ballpoint pen, is simple to navigate, and reduces overcrowding while entering the school campus, preventing direct exposure. Respondents believe that this Project will assist in reducing direct contact since the scanner can read the QR code of those who will use it even one meter away.

Indeed, schools and offices need an efficient attendance-checking system in response to onsite reporting so as not to risk people's health (Qrtiger, 2022).

Theme 2: **Eco-friendly**

According to the participants, nowadays, it is evident that schools use paper for attendance checking. Some teachers still utilize the conventional way of checking attendance, which requires them to print. If the QR code is employed as an attendance system, checking attendance becomes paperless because everything is done digitally. Exporting the file is through a smartphone and a laptop. With this system, it is more likely that the amount of paper wasted by printing will be reduced, and it will raise awareness of environmental protection.

Carreon (2019), states the amount of papers used by teachers will undoubtedly be reduced if the QR code is employed as an attendance system because everything is done digitally.

Theme 3: **Cost-efficient**

According to the participants, the proposed QR code attendance system is free compared to the systems used by some private sectors. With internet access, teachers can download the free Google Play apps QR Attendance Control and QR Bar Code Scanner. Students' QR codes can also be downloaded for free from the internet or a software program called QR Code Studio. The QR Code Studio allows everyone to generate codes without an internet connection.

According to Maleriado (2019), the existing attendance systems that private institutions use cost significant money to develop. Meanwhile, the researchers' proposed QR code attendance system is free and is available.

Theme 4: **User-friendly**

According to the participants, the QR Attendance Control offers simple functionality. The various settings available in the application are easy to understand. The software was also updated for faster scanning of QR codes. Users can view scanned files in an Excel format using the export option. Using Bluetooth connectivity, transferring data to a computer is also very simple.

For Maleriado (2019), the QR Attendance Control

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offers a simple and easy-to-use interface. The various options available in the application are user-friendly.

CONCLUSION AND RECOMMENDATIONS

Conclusions

Based on the levels of acceptability of using Project ASAP as an e-attendance monitoring system, teachers and students recognized the Very high acceptability of six of the system's features and the High acceptability of one feature. Through the system, it will be more efficient for teachers to figure out absentees, especially when handling large classes daily. On the other hand, students appreciate this innovation because they know how quickly attendance is checked.

The Project ASAP attendance system is a simple software that scans the students' codes as they arrive. In the classroom setting, all data are easily transportable in Excel format. Teachers will find the interface user-friendly and can continually scan their students' QR codes with the newly updated app. Instead of clicking the scan button after each student, teachers may place the phone in one location, select continuous scan, and instruct students to place their codes in front of the phone to be scanned.

With this innovation, everything is done digitally, making the attendance checking paperless and environmentally friendly.

Recommendations

Based on the respondents' perceptions of Project ASAP as an attendance monitoring system, as expressed in their levels of acceptability, the system can be replicated and implemented in other schools. Future researchers can modify the proposed system to improve its features further.

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