DEVELOPMENT AND USEFULNESS OF MOBILE APPLICATION FOR GATHERING HEALTH DECLARATION DATA OF PARENTS DURING DISTRIBUTION AND RETRIEVAL OF MODULES IN TIME OF PANDEMIC AT BOTOLAN NATIONAL HIGH SCHOOL, PHILIPPINES

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Abstract

This time of pandemic requires no contact among persons to avoid the spread of the COVID-19 virus. This situation also brought us to digital solutions in education and the implementation and delivery of quality education. The goal of this research is to develop and test the usefulness of a mobile application that will be used to gather information of parents in their health declar

ation form during the retrieval and distribution of modules at Botolan National High School. The study employed descriptive qualitative research methodology to gather data and the use of questionnaires to assess the usefulness of the mobile application developed. Based on the result of document analysis the basic information needed to parents as they enter the school premises are date and time, name, age, gender, complete home address, and contact number. The developed application was used to gather information with the aid of QR-code distribution and store the data via a google sheet. The mobile application was evaluated and generally the respondents all strongly agreed on the usefulness of the mobile application. It was concluded that the developed mobile application is useful and may be used to gather data from QR-code and store it to google sheet that may be monitored in real-time.

Keywords: *usefulness, health decleration data, retrival, pandemic, digital solutions.*

INTRODUCTION

Mobile computing has become more significant as mobile devices have become more powerful and pervasive. As mobile operating systems gain market share and more IT applications are developed and deployed on mobile devices, this will become a greater and more important element of professional IT practice.

Every mobile phone firm has been producing smartphones and feature phones for the past few years. Furthermore, as the computational capacity of such mobile phones grows, so does the number of smart mobile applications. The majority of individuals in industrialized countries, such as America and Europe, can't image leaving house without their mobile phone. Not just in wealthy countries, but also in emerging countries, mobile app usage is fast increasing. (Islam, R., & Mazumder, T. 2010)

Orong and Hernandez (2019),the usage of mobile-based disaster and emergency response solutions helps a variety of parties. First, with geographical position systems (GPS), real-time disaster information, and early warning features, mobile-based emergency offers a solution to reduce reaction time. Second, mobile application may look for potential hazards such as explosives, fire, earthquakes, and tsunamis, as well as other local or neighboring events. Third, by

using user information saved in mobile phones and servers, it supports emergency responders in locating missing people. Also during unwanted worldwide happenings just like pandemic mobile application are of great help.

The COVID19 pandemic has affected the ways of the world since it started in the first quarter of the year 2020. Since then, the World Health Organization through Local Health Units and Inter-Agency Task Force (IATF) developed protocols to mitigate the problem brought by the spread of the virus. Aside from area lockdown, they also require the use of contact tracing tools to control the spread of COVID 19.

The problem arises when the effectiveness of data collection and storage is under question. At present data collection and storage is through giving of forms and filling in the information needed from time to time repeatedly in the different establishment and educational institutions, which cause increased resources expenditures in the institutions and increase transaction time on the side of clienteles. In schools, the time to fill in the health declaration forms is one of the factors that may slow down the process of retrieval and distribution of modules. Aside from that, prolonged stays in the vicinity may add up to the factor that may have spread COVID 19 disease, and the frontline victims are teachers and other school personnel.

At Botolan National High School, one of the struggles of teachers and administrators is the fastest way to record and store data on health declaration forms to prevent prolonged stays of parents due to filling in the form. In this regard, the teacher-researcher would like to suggest better speed up the process of a gathering and its storage through the development of a mobile application and testing its usefulness in gathering Health Declaration Data of parents and its storage.

STATEMENT OF THE PROBLEM
The study seeks to answer the following questions:
1. What is the information needed for the health declaration of parents to be gathered?
2. In view of the foregoing data, what tool should be developed to effectively gather information of health declaration data of parents?
3. How is the usefulness of the developed mobile application evaluated by the teachers at Botolan National High School?

SIGNIFICANCE OF THE STUDY
The output of the research will be beneficial to a different group of people:
1. To the **Parents,** they will benefit through ease of filling-in forms and decrease its transaction time during distribution and retrieval of the module.
2. To the **Teachers,** this application will help them gather data and store them effectively, speed up the transaction with the clienteles, and will make them more efficient in their role as facilitators of learning.
3. To the **administration**, it will help them save school resources for the printing of the Health Declaration form and faster retrieval of data for contact tracing in case needed.
4. To the **Rural Health Unit/IATF/Local Medical Practitioners,** it will give them ease of access to needed data in case of contact tracing procedure.

Moreover, the application that will be developed will improve data collection and storage of Health declaration data and will spark new ideas for the development of related mobile

applications and innovations in the future.

DEFINITION OF TERMS
Mobile application
A mobile based software that may be a productivity app, games and other essential application
qr-code
An image consists of lines and figures that resembles information.
Google sheet
An online productivity tool which enables you to work on worksheet.

TYPE OF STUDY
The study is a descriptive research. It made use of the descriptive checklist method. Good and Scates, cited that this approach is appropriate wherever the objects of any class vary among themselves, and one is interested in knowing the extent to which different conditions obtain varied among themselves.

PARTICIPANTS
The participants in the study are teachers from various grade levels of Botolan National High School, from any age group, sex, educational attainment, and rank who will test the usefulness of the mobile application developed.

The researcher will employ the fishbowl sampling method in identifying the respondents as mentioned by researcharticles.com, this works only if the population is small, where the process is just like drawing in a lottery.

DATA GATHERING
The teacher-researcher employed content analysis of available documents from logbooks for gathering information of visitors' data intended for contact tracing during the pandemic of different institutions. According to Bowen (2019) Document analysis is an important research tool in its own right.

INSTRUMENT
The researcher uses a questionnaire adopted from the USE Questionnaire: Usefulness, Satisfaction, and Ease of use (Lund, 2001).

DATA PRESENTATION AND ANALYSIS
The Quick Statistics Calculators from socscistatistics.com were used for the processing of data. The statistical tools used in the analysis and interpretation of data and hypotheses testing include the following.

MEAN
This was utilized to determine the average of the responses. The survey questionnaire responses were analyzed using the rating scale analysis below:

Rating Scale Analysis of the Evaluation Tool

Arbitrary Values	Statistical Limits	Symbol	Verbal Description
5	4.50-5.00	SA	Strongly Agree
4	3.50-4.49	A	Agree
3	2.50-3.49	MA	Moderately Agree
2	1.50-2.49	D	Disagree
1	1.00-1.49	SD	Strongly Disagree

STANDARD DEVIATION

Since the mean was chosen as the measure of center, this was used to measure the spread of how far the observations are from the mean.

RESULTS AND DISCUSSION

Information needed for health declaration of parents to be gathered

Based on the documents available in different institutions table 2 presents the different information common in their clients which is also used in the developed mobile application.

Table 2: Common Information Gathered in Different Institutions and their Description

Type of Information	Description
Time Stamp	The date and time a particular person entered in a establishment.
Temperature	The body temperature was gathered using an infrared thermometer in the establishment.
Name	The complete name of the client, visitor, and other who is entering the establishment. It includes First name/Given Name, Middle initial, and Family name/Last Name/Surname
Gender	The sexual orientation of the client or visitor is either male or female.
Age	The length of time that a person has lived.
Complete Address	The particulars of the place where someone lives limited to House Number, Street, Purok, Barangay, Town/City, and Province
Contact Number	The phone number of a particular person either assigned by telco or person's subscriber's identification module(SIM) card inserted in a mobile phone

As indicated in table 2 the information needed in a health declaration data to be collected in a logbook or form is the time stamp, temperature, name, gender, age, complete address, and contact number.

It complies with the DOH Updated Guidelines on Contact Tracing of Close Contacts of Confirmed Coronavirus Disease (COVID19) cases (DOH Department Memorandum No. 2020-0189) as stated by DepEd Order No. 14 s. 2020 entitled "Guidelines on the Required Health Standards in Basic Education Offices and Schools" that contact tracing shall serve as one of the main public health interventions for COVID-19 response aimed at interrupting ongoing transmission and reducing the spread of infection. This was done through the creation of a line list of clients or personnel entering the office premises of the department.

The tool that was developed to effectively gather information of health declaration data of parents

The emergence of online platform in application development for non-programmer the teacher used MIT Appinventor to develop the mobile application. MIT Appinventor is an online mobile application development platform that utilizes a system that enable non-programmer to develop a useful application. The user interface and the mechanism of the developed mobile application were described in figure 1 and 2 respectively followed by brief discussion.
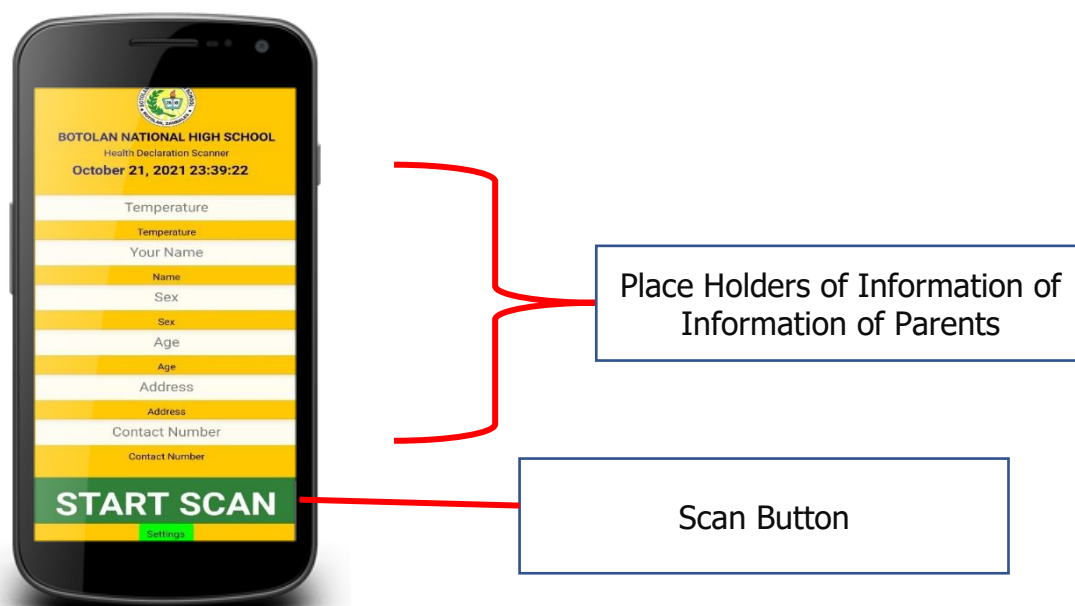

Figure 1: The user interface of the Developed Mobile application in collecting
data of parents in health declaration and its parts.

Figure 1 shows the user interface of the developed mobile application that is used to collect data in the health declaration of parents and its parts. As we can see the user interface has minimal user interface features which include placeholders of information of parents scanned from data card that contains QR-CODE which hold their data. Another feature is the scan button which triggers the application to call on the native QR-CODE scanner to start scanning and recording data.

How it works

Figure 2: The process of how the mobile application work to gather and store data of parents

Figure 2 shows the process of how the mobile application work to gather data of parents.
First, the teacher gathers data of parents and from the data that was gathered, it will be converted to a QR-CODE that will be placed in the ID card Pass of Parents.
Secondly, the ID card Pass which contains the details of the parents will be scanned using the mobile application.
Finally, the data that was scanned will populate a row in a google sheet in real-time labeled: Date and time, Name, sex, age, address, and contact number and will be saved for future reference which may serve as attendance, contact tracing list, etc.

The usefulness of the developed mobile application as evaluated by the teachers
Table 2 shows the summary of the responses of teachers in the questionnaire on the usefulness of the developed mobile application.

Table 2: Teachers Evaluation of the developed Mobile Application

Indicators		Mean	SD	VD
1.	The mobile application helps me to effectively gather and store parents' health declaration data.	4.8	0.41	SA
2.	The developed mobile application helps me to be more productive.	4.8	0.41	SA
3.	The mobile application is useful in gathering the health declaration data of parents.	4.90	0.31	SA
4.	The developed mobile application gives me more control over my tasks as a teacher.	4.87	0.35	SA
5.	The developed mobile application makes the things I want to accomplish easier to get done.	4.90	0.31	SA
6.	The developed mobile application saves me time when I use it.	4.90	0.31	SA
7.	The developed mobile application meets my need to collect health declaration data.	4.70	0.79	SA
8	The developed mobile application does everything I would expect it to do.	4.77	0.43	SA
9	The developed mobile application requires the fewest steps possible to accomplish what I want to do with it.	4.93	0.25	SA
10	The developed mobile application can be used successfully every time.	4.67	0.8	SA
Overall		4.82	0.44	SA

Legend: SA-Strongly Agree (4.50-5.00); A- Agree (3.50-4.49); MA-Moderately Agree (2.50-3.49); D-Disagree (1.50-2.49); SD-Strongly Disagree (1.00-1.49)

As reflected from the table, teachers 'Strongly Agree" on the usefulness of the developed mobile application as revealed by the overall weighted mean of 4.82 (SD=0.44).

In particular, the teachers "strongly agree" that the developed mobile application reflects that it requires the fewest steps possible to accomplish what I want to do with it (4.93). The teachers also "strongly agree" that the mobile application is useful in gathering health declaration data of parents (4.90), it makes the things they want to accomplish easier to get done (4.90) and the

mobile application saves them time when they use it. (4.90).

Although the indicators are all strongly agreed by the raters, the lowest means are found in the following items: the developed mobile application can be used successfully every time. (4.67), The developed mobile application meets their need to collect health declaration data (4.70) and the developed mobile application does everything they would expect it to do (4.77).

The result of the study agrees with the findings of Wang, Liu, and Li (2018) on the Remote Monitoring of patient's healthcare using IoT and Android application, the system as compared with the traditional health care system, significantly reduced investment of health care resources, to make health care more efficient and more practical. Furthermore, experiments show that the system compared with traditional medical monitoring systems, significantly reducing medical resource inputs, make health care more efficient, more practical.

SUMMARY OF FINDINGS
The significant findings of the study are as follows:
1. The information needed for the health declaration of parents to be gathered are date and time, temperature, full name, gender, age complete address, and contact number as revealed by different logbooks and forms from various institutions and establishments.
2. The tool that was developed to effectively gather information for health declaration data of parents is the developed mobile application by the teacher-researcher and with the aid of QR-CODE and google sheet.
3. Teacher respondents "Strongly Agree" that the developed mobile application of the teacher-researcher is useful based on the overall mean of 4.82 (SD=0.44).

CONCLUSION
1. The information needed for the health declaration of parents to be gathered is date and time, temperature, full name, gender, age complete address, and contact number.
2. The tool used to effectively gather information for health declaration data of parents is the developed mobile application by the teacher-researcher
3. Teacher-respondents "Strongly Agree" that the developed mobile application of the teacher-researcher is useful.

RECOMMENDATIONS
Given the findings and conclusions, the researcher offers the
following recommendations.

1. Since it is vital on our time during pandemic the information we gathered for contact tracing to delay the spread of COVID-19, additional features of the application may be added to improve the application itself for the benefit of the users.
2. The use of the developed mobile application is recommended to be used as a tool to gather data of parents during distribution and retrieval of modules.
3. Future researchers may further explore the validity and acceptability of the developed mobile application which involves not only teachers but also programmers, software engineers, application developers, IT experts, and parents.

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