Parent Teacher Associations Mobile Application (PTA-MA) To Enhance Communication Among PTA Members During COVID-19 Pandemic

Norziana Yahya*, Huda Zuhrah Ab Halim, Nur Fatihah Fauzi, Nur Izzati Khairudin & Nurizatul Syarfinas Ahmad Bakhtiar

Faculty of Computer and Mathematical Sciences,
Universiti Teknologi MARA, Perlis Branch, Arau Campus, 02600, Perlis, Malaysia

Abstract

This study aims to explore the use of mobile application in enhancing the communication between parents and teachers during the Covid-19 pandemic. The mobile application is specifically designed for Parent Teacher Associations (PTA), named PTA-MA that enable them to manage their activities and hence, communicate with members. Minimum Viable Product (MVP) method was used for the development of prototype of PTA-MA application. Two online surveys using Google Form were conducted in several schools. First survey is to get PTA feedbacks on the willingness to use as well as perceived usefulness of the PTA-MA application. Positive feedbacks from the preliminary survey on the willingness to use had triggered the researcher to develop a prototype of mobile application to be used by PTA to enhance their communication especially during pandemic. As a result, a prototype of PTA-MA was produced. Second online survey was conducted to obtain the PTA's views on the prototype built. The survey showed significant results that at least 80.6% of the respondents are confident that the PTA-MA application is able to further enhance the communication among PTA members and they are also agreed to support the use of PTA-MA by PTA. Therefore, the development and implementation of PTA-MA needs to be treated as a special project because it significantly impacts the schools, PTAs and to the Ministry of Education Malaysia towards the transformation of the education system as stated in the Malaysia Education Blueprint 2013–2025.

Keywords: Mobile Application, Parent Teacher Association, Minimum Viable Product, Lean Startup Method, Education System.

Introduction

The emergence of the Covid-19 pandemic has led the government to take action for a Movement Control Order since March 2020. As a result, many Parent Teacher Associations (PTA) activities in schools became paralyzed due to communication constraints resulting in inability to conduct discussions and decision-making by PTA committees. Specifically in Malaysia, the pandemic has slowed the government's efforts to achieve its transformation

education system goals as stated in the Malaysia Education Blueprint 2013-2025, and PTA are also being impacted by this situation.

Clause 3 of the Education (Parents and Teachers Association) Regulations 1998 under the Education Act 1996 provides that one of the purposes of the establishment of PTA is to provide a forum and services for the welfare and progress of students in a school in improving the image of the school. The function of PTA is to assist the school in various activities for the benefit of the children who study at the school.

Therefore, a special mobile application called PTA-MA is designed to enhance communication among PTA members and hence plays a greater role in contributing to the success of educational transformation. The PTA-MA is a game changer for educational transformation. It gives a new transformation to the PTAs in the form of communication and more dynamic organizational management in following the mainstream of the world today and in the future.

There are three main objectives of this study. First is to identify and analyse the problem of communication among PTA members especially during pandemic. Second is to design and develop web-based PTA-MA prototype system that able to promote remote communication and activities of PTA. Lastly is to assess the acceptance of the prototype system through online survey.

Contributions of this paper is two folds. First is in providing an insight of the potential used of PTA-MA in promoting communications and second in adopting the Lean method and Minimum Viable Product for the PTA-MA prototype.

Literature Review

Covid-19 has affected the education system worldwide (Naciri et al., 2020). Countries including Malaysia take serious measure by closing the schools, universities, and educational institutions to prevent the spread of this pandemic. This critical situation needs immediate and effective measure. However, this raises a concern in many aspects of education, such as the disintegration of teaching and learning, the level of understanding of the students and hence the quality of education itself (Usak et al., 2020).

As reported by the New Straits Times on 22 January 2021, “The impact of Covid-19 and the measures to halt its spread has created a "lost generation" of students and university graduates worldwide, with Malaysia not spared either”. It is also stated that “Education, as we all know, is not merely a means to getting better jobs in the future. It is a catalyst for social cohesion, the progress of society and human development. When things fall apart, human capital is one of the first things to be affected.”

During Covid-19 pandemic, parents and children are spending most of their time together at home. Thus, the new alternative of education is to choose remote learning or online learning.

Online learning is a distance learning process by utilizing internet-based digital media that is able to support the learning process (Sari & Maningtyas, 2020). As everything is online, there is no physical contact between the teachers and students. Therefore, parents are the frontliners in education to motivate, help and ensure school children are learning and taking part in classes.

Research showed that parent's involvement in learning is important and has an impact in their child learning (Mo & Singh, 2008; Grolnick & Slowiaczek, 1994) even before the online learning. Previously, the role of parents in online learning is to provide support in terms of facilities, internet and gadgets (Septiana & Mohamed, 2021). Recent research emphasized that parent's involvement has a crucial impact for children in the distance and online learning (Sari & Maningtyas, 2020; Diana et al., 2020; Novianti & Puspitasari, 2021). Parents are expected to be able to guide children to learn from home and replace the role of teachers at school (Sari & Maningtyas, 2020). Thus, parents and teachers need to communicate to ensure the children's education is smooth and on track.

In Malaysia Education Blueprint 2013–2025 on the transformation of the Malaysian education system which is to increase the involvement of parents and teachers in efforts to empower PTA members to play a greater role in contributing to the successful development of the education system (Ministry of Education, 2013). The blueprint demonstrates the importance of parent's involvement in Malaysia education.

The function of the PTA is to assist the school in various activities for the benefit of the children who study at the school. Apart from that, PTA also has the role of seeking contributions from members and the public whether in the form of money, materials or energy for the benefit of students (Iremeka et al., 2020). Now, more than ever, PTA must be utilized to narrow down "lost generation" gap and to actively facilitate the teaching and learning activities.

Although there are existing parent teacher communication platform application, such as Bloomz and Klassly. There is none of the application tailored to the Malaysian education's environment. Thus, in this study, with the aim to explore the communication between PTA's members, a mobile application that is specifically design for Malaysian parents to keep track of their children's activity and communicating with the teachers is developed. The application is known as Parent Teachers Association Mobile Application (PTA-MA). The development of PTA-MA adopts Lean startup method, because this method requires a Minimum Viable Product (MVP) concept to startup mobile application development, and to quickly build and launch the application at a lower cost.

Methodology

In this research, two types of methods were used to implement the PTA-MA mobile application development project, namely Online Survey and Minimum Viable Product (MVP). The Online Survey method used online questionnaire where it was distributed to potential respondents

through “convenience sampling” method, which is a non-probability sampling technique, where the participants were selected based on their convenient accessibility and proximity to the researcher.

Google Form application was used as the data collection platform and the survey was distributed via social media network to several teachers in primary and secondary school, who are friends of the researcher. The online questionnaire responses could be filled using laptop, desktop, tablet, or mobile phone and takes about five minutes to complete. The next chain of distribution was by means of snowball technique.

The main purpose of this survey is to obtain initial views of teachers and parents on the PTA application and their willingness to use the application if it is developed. Questionnaire form was prepared using Google Form application where the 4 key questions posed were:

1. Type of school? (primary/secondary).
2. What best describe your role in school? (parent/teacher/both).
3. Does your school have a PTA application?
4. Are you willing to use the PTA web-based system?

Based on the positive responses received in relation to the willingness to use the PTA application, the implementation on the development of PTA mobile application prototype was initiated.

Samsudin et al. (2021) in their study have identified an appropriate model as a guide to designers to develop prototypes. The study has used the ADDIE model in developing mobile applications based on constructivist learning theory. The model is one of the most widely used models in the design of instructional technology to develop more effective learning applications. It also shows that the ADDIE model is more focused on the development of teaching and learning aids.

However, in this study, the development of PTA-MA prototype adopted lean startup method. For mobile apps development, lean startup is the best method. Lean methodology was chosen in this study where this method suggests a scientific way to start startups. This method requires a Minimum Viable Product (MVP) concept to startup mobile application development, and to quickly build and launch the application at a lower cost (Silva et al., 2020; Al-ratrout et al., 2019). The method was also used to obtain information on the acceptance of parents and teachers on the PTA-MA system prototype developed.

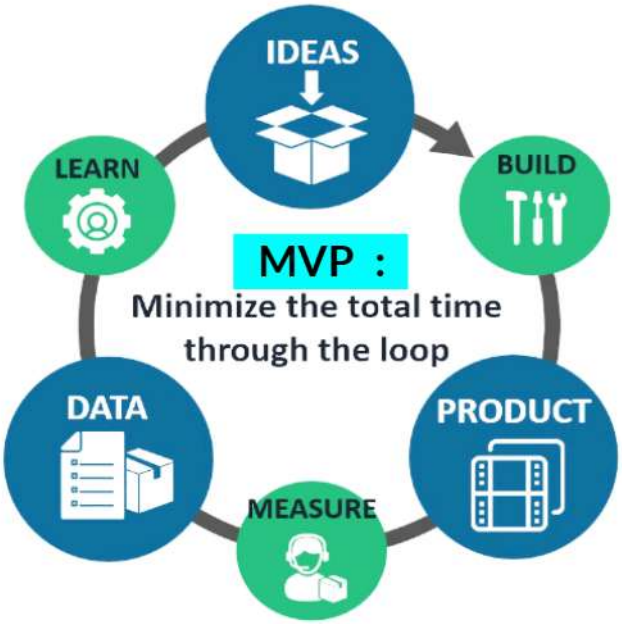

Figure 1: Minimum Viable Product (MVP) method for PTA-MA development

As depicted in Figure 1, the cycle of MVP has three major phases: BUILD, MEASURE and LEARN. The cycle starts with generation of ideas based on the presence or emergence of problem. In the context of this research, the main problem is the communication among the PTA members. The ideas become the main input in the BUILD phase, where all the must have functions of the proposed PTA-MA system are defined and built. The output of the BUILD phase is a product with very limited functionalities. As a result, a PTA-MA system prototype is produced.

The PTA-MA system prototype then enter the MEASURE phase. The main objective of this phase is to measure the acceptance and the usefulness of the PTA-MA prototype. At this phase, the online survey method was used to collect feedback from the user on their acceptance on the product. Online survey for Expert Reviews will only be conducted after the PTA-MA has been developed complete with full functions.

Feedback from teachers, parents and experts are the main data becoming input for the LEARN phase. Major activities in this phase were fixing the problem and improving the system functionalities as well as enhancement of the PTA-MA mobile application based on the feedbacks.

Result and Discussion

As mentioned earlier, the preliminary survey on the willingness to use a web-based PTA application have been conducted on teachers as well as parents in several schools.

Figure 2: Results of preliminary survey of PTA-MA

The bar graph in Figure 2 showed that most of the respondents are willing to use the application. Based on the positive feedback from parents and teachers, a prototype of a mobile application was proposed for PTA members. Several key functions had been identified and defined to design and develop the prototype. MVP was chosen as a software development method because of its approach that requires building and launching applications quickly at a lower cost.

Figure 3: User interface of PTA-MA application

Figure 3 illustrates the user interfaces of the PTA-MA prototype which consist of five major modules:

1. Parent Module
2. Teacher Module
3. Activity Module
4. Communication Module
5. Report Module.

Among the expected features identified to be included in the PTA-MA application are:

- Easy to use.
- Mobile.
- Convenience.
- Efficient.
- Transparent.
- Paperless.
- Payment of PTA fee can be paid via mobile.
- Digital Consensus among PTA committee members.
- Activity management system for PTA.
- Fundraising and financial assistance to those in need can be channelled via PTA-MA.

Table 1. Communications without and with PTA-MA

Without PTA-MA	With PTA-MA
• Group communication requires physical presence	• Group communication can be done remotely
• Collaboration is limited	• Collaboration is much easier
• Consensus requires adequate quorum and always delay	• Consensus is via online and very fast
• Access to information is limited	• Access to information is ubiquity and mobile
• No real time information, notification and distribution of information (such as parents' feedback and PTA activity report) are delay	• Notification and distribution of information is in real time, feedback from parents and/or teacher
• PTA activities are difficult to manage and monitor	• PTA's activities are systematically managed and monitored
• Financial activities are very difficult to monitor	• Financial activities such as fundraising and expenditure are more transparent
• No digital payment	• PTA fee can be paid online via PTA-MA application.

Table 1 compared between communication with and without PTA-MA expected by the researcher. It is also used as a reference for system requirements in development of PTA-MA application. After the PTA-MA prototype completed, another round of online survey was carried out to obtain feedback on the acceptance and usefulness of the proposed PTA-MA system.

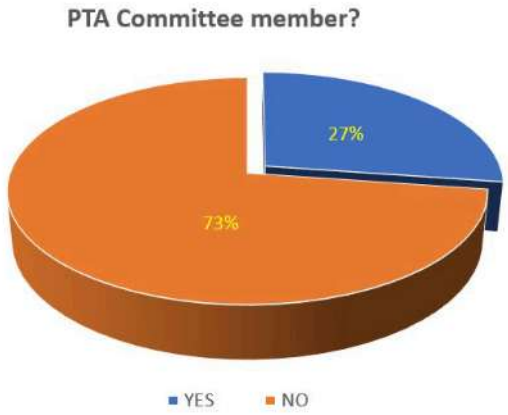

Figure 4: Results on the percentage of total respondents by PTA committee

Based on the survey feedbacks on the total respondents that registered or not as PTA members, results in Figure 4 showed that 73% of the respondents are committee members. The results provide a very good indication that the implementation of the application is expected not to face many obstacles because most of the feedbacks received are from the PTA Committee.

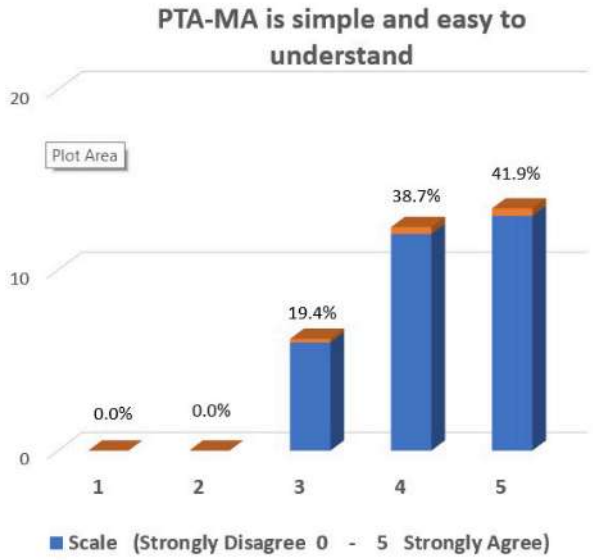

Figure 5: Results on the ease of use of the PTA-MA application

Figure 5 showed the Likert scale 4 (Agree) and 5 (Strongly Agree) have a majority value of 80.6% to agree that the application of PTA-MA is simple and easy to understand. Therefore, these findings indicate that the interface design of the PTA-MA application is very well received by the majority of the respondents.

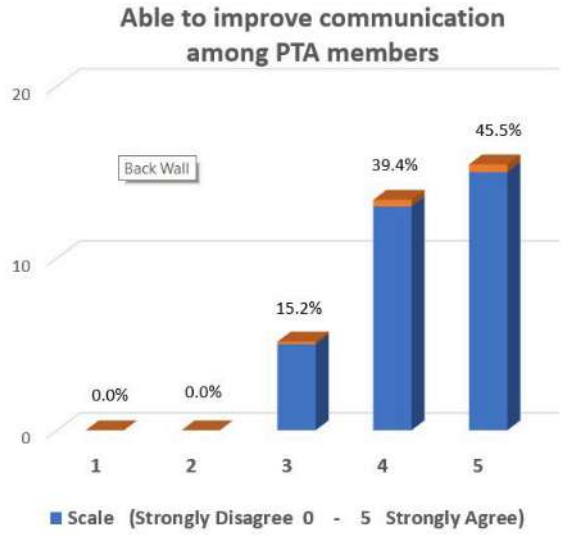

Figure 6: Results on the ability to improve communication among the PTA members

The chart in Figure 6 showed the results of views on the PTA-MA on its ability to improve communication among the PTA members. The Likert scale 4 and 5 have a majority value of 84.9% to agree that the PTA-MA applications able to improve the communication among the PTA members. The results show that the user confidence in the capabilities of PTA-MA is very high.

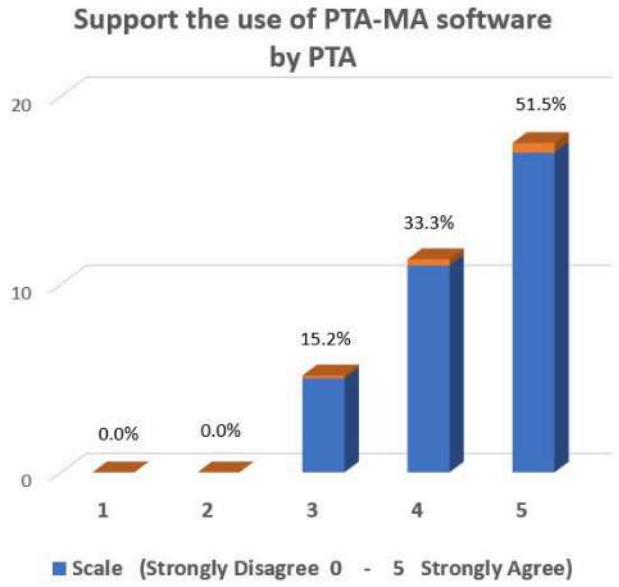

Figure 7: Results on the support the use of PTA-MA application

The results of the study as shown in the Figure 7 show that 84.8% of the respondents agreed to support the use of the PTA-MA application by PTA. Thus, these findings give a significant

indication that the users welcomed the use of PTA-MA and strongly agreed that it should be used by teachers and parents in enhancing their communications.

Conclusion

In conclusion, the study conducted has achieved its objectives to explore the usefulness of PTA-MA in promoting communications between PTA committee and its members. The prototype of PTA-MA is constructed to further explore the willingness of members in using the application during Covid-19.

This study found that respondents are in consensus that the application of PTA-MA is indeed valuable and beneficial, especially in the midst of the Covid-19 pandemic. This is reflected in the second online survey where their feedbacks indicates that majority of them are confident that the PTA-MA application is able to further enhance the communication among PTA members. In fact, they are also agreed to support the use of PTA-MA by PTA.

This study is very important as it gives significant benefits to schools, parents, teachers, students as well as Ministry of Education Malaysia. For future research, it is recommended that a study on the PTA-MA commercialization planning including the ICT needs for schools and users is to be conducted so that the implementation of the PTA-MA application can achieve the goals as expected. As summary, the PTA-MA application is believed to have a significant impact towards the transformation of the education system as desired by the Ministry of Education Malaysia which is also stated in the Malaysia Education Blueprint 2013–2025.

Corresponding Author

Norziana Yahya*
Faculty of Computer and Mathematical Sciences,
Universiti Teknologi MARA,
Perlis Branch, Arau Campus,
02600 Arau, Perlis, Malaysia.
E-mail: norzianayahya@uitm.edu.my

References

Al-ratrout, S., Tarawneh, O. H., Husnialtarawneh, M., & Yousef, M. (2019). Mobile Application Development Methodologies Adopted in Omani Market: A Comparative Study. *International Journal of Software Engineering & Applications (IJSEA),* 10(2).

Diana, N., Suhendra, S., & Yohannes, Y. (2020, October). Teachers' Difficulties in Implementing Distance Learning during Covid-19 Pandemic. *In 2020 12th International Conference on Education Technology and Computers* (pp. 105-109).

Grolnick, W. S., & Slowiaczek, M. L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child development,* 65(1), 237-252.

Iremeka, F. U., Ezenwaji, I. O., & Ezenwaji, C. O. (2021). Roles of Parent Teacher Association in the Management of School Library. *Library Philosophy and Practice (ejournal)*. 5693.

Ministry of Education (MOE). (2013). Malaysia Education Blueprint 2013-2025.

Mo, Y., & Singh, K. (2008). Parents' relationships and involvement: Effects on students' school engagement and performance. *RMLE online, 31(10)*, 1-11.

Naciri, A., Baba, M. A., Achbani, A., & Kharbach, A. (2020). Mobile Learning in Higher Education: Unavoidable Alternative during COVID-19. *Aquademia,* 4(1), ep20016. https://doi.org/10.29333/aquademia/8227

New Straits Times (2021, January 22). NST Leader: The 'lost generation'. Retrieved from https://www.nst.com.my/opinion/leaders/2021/01/659522/nst-leader-lost-generation

Novianti, R., Puspitasari, E., & Maria, I. (2021). Parents' Involvement In Children's Learning Activities During The Covid-19 Pandemic. *Jurnal PAJAR (Pendidikan Dan Pengajaran),* 5(2), 384-390.

Samsudin, M. R., Sulaiman, R., Guan, T. T., Yusof, A. M., & Yaacob, M. F. C. (2021). Mobile Application Development Trough ADDIE Model. *International Journal of Academic Research in Progressive Education and Development (IJARPED),* 10(2), 1017–1027.

Sari, D. K., & Maningtyas, R. T. (2020). Parents' Involvement in Distance Learning During the Covid-19 Pandemic. Advances in Social Science, Education and Humanities Research, 487.

Septiana, Y. A., & Mohamed, S. (2021). Validity and Reliability of Questionnaire of Parents Role in Online Learning and the Development of Children's Social–Emotional. *International Journal of Academic Research in Progressive Education and Development (IJARPED).* 10(2), 220–232

Silva, D. S., Ghezzi, A., Aguiar, R. B., & Cortimiglia, M. N. (2020). Lean Startup, Agile Methodologies: A systematic review and research agenda. *International Journal of Entrepreneurial Behavior & Research (IJEBR),* 26(4), 595-628.

Usak, M., Masalimova, A. R., Cherdymova, E. I., & Shaidullina, A. R. (2020). New playmaker in science education: COVID-19. *Journal of Baltic Science Education,* 19(2), 180-185. https://doi.org/10.33225/jbse/20.19.180