Analysis of Smart Card Implementation at School

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Abstract—This research aims to show the results of educational planning in digital era in the form of implementing Smart Card and using school application that implemented at a Madrasah Aliyah in Kabupaten Bandung. Methods in this research is qualitative descriptive. In addition to making observations, the researcher also conducted interviews with the principal and gave questionnaires to teachers about the preparation and implementation of Smart Card in that school. The findings show that the demands of the digital era for education in that high school have not been fully implemented yet, both by school residents or local communities who have various obstacles. Obstacles that founded include the unavailability of human resources that focus on managing Smart Card system in school, parents who don't understand the Smart Card system, parents who don't have smartphone/gadget to acces the system, and the absence of internet acces at parent's house. This research can be used as information and examples of cases that occur in the implementation of technology in the digital era.

keywords—educational planning, digital era, implementation, smart card

INTRODUCTION

In the last 2 years, the significance role of digital education has become more prominent in the face of the sudden global public event of COVID-19. The digital learning has been implemented to help facilitate teaching and learning activities which have been limited due to COVID-19. It was actively promoted by every countries in the world that offline teaching shift to online teaching. That is one proof that we have entered the digital era which every activities can be facilitated with the help of technology. Digital era is a time when information could easily and quickly obtained and disseminated using digital technology, digital technology is a technology that uses a computerized system that is connected to the internet [1]. In a rapidly changing and globalized world, the use of digital technology will no longer optional, but a strategic necessity. School needs to introduce digital technology to the students both the parents. This is one way so that we could survive and not left behind by the times.

At this time, there are many studies regarding the implementation of technology in the digital era. Some of them are [7]'s research which states that the development of the digital era is a challenge for the world of learning, [8] in her research stated that individual readiness is needed in dealing with digitalization-based learning processes. In addition, there is also [9]'s research which states that students at this time are born, grow and grow up in direct contact with the digital world, so that the flow of information obtained will be different from previous students. This statement is very appropriate because with digitalization, educational institutions are challenged to prepare a generation that is ready to face the digital era. Apart from being applied in the school environment, the application of this kind of technology can also be applied in the surrounding environment as was the case in Emma [11]'s research which uses RFID (Radio Frequency ID) chip readers attached to locations around the neighbourhood to encourage walking and cycling by gamifying these travel behaviours, individuals taking part gain points by touching a smartcard on the readers and these points become part of a competition. Another research, from [10] found that the developed system was succesfully aplied and tested in a real life school environment.

MAS Alif Al-Ittifaq is one of the schools that was trying to implement digital era in "Smart Card" form. The Smart Card comes in one package with school application that available on playstore. Therefore the parents need to download the application first. Both Smart Card and it application (on playstore) has functions as a student presence media, monitoring student presence by parents, cashless payment for canteen, and students grades data. MAS Alif Al-Ittifaq is also the first school in Kabupaten Bandung that try to implement the Smart

Card system. It also cooperates with Bank Syariah Indonesia (BSI) and PT. Teknologi Kartu Indonesia (PT. TKI).

METHODS

This research used a qualitative descriptive approach which is a strategy and technique that used to understand a condition by collecting as many in depth facts as possible, the data is presented in verbal form not in the values form. Descriptive research is used to describe data that has been collected as it is [2]. The place of this research is MAS Alif Al-Ittifaq. Interviews were conducted with the principal and several teachers, as well as questionnaire. Questionnaire is a data collection technique that is done by giving a set of questions or written statements to respondents to answer [2]. The interviews and questionnaire are related to preparation and implementation of the Smart Card program.

The researcher made the observations first. Next, the researcher gave a questionnaire with a short statement to teacher and principal. Then, conducted interviews to the teacher and principal based on the results of observations and questionnaires.

RESULTS AND DISCUSSION

The results of the questionnaire distribution showed that from 15 teachers, there were 3 teachers who felt that the readiness for implementing Smart Cards in schools was very high, 11 teachers felt that their readiness for implementation in schools was in the high category, and 1 person felt that the readiness of Smart Card implementation in schools was in the medium category. From the questionnaires that have been distributed, it can be concluded that the preparation for implementing Smart Cards at MAS Alif Al-Ittifaq is in the high category. In addition, the interviews and observations carried out turned out to be better able to explain and provide information about the situation that occurred.

Based on the observations, most of the teachers feel ready and accept the implementation of Smart Cards in schools. The students and parents were also interested by this new idea. However, the obstacles that researcher founded are not simple. In fact, the implementation of Smart Cards in this school does not continue.

Planning must be done before implementation. Planning is needed so that every process carried out is in accordance with the stages and obtains the expected results. Planning is essentially a series of activity processes to prepare decisions about what is expected to happen and what will be done [3]. Planning needs to be carried out so that the stages in achieving a goal can be arranged systematically. According to [4] the purpose of planning include) a way to anticipate and offset change, b) as a direction, c) avoid and reduce wasteful, and d) set goals and standars to facilitate monitoring [4]. After planning was done the school starts to implemented it. Implementation is down to activities, actions or the existence of a system mechanism, implementation is not just an activity but a planned activity and to achieve the objectives of the activity [5]. Implementation usually begins with planning, preparing what will be required during the execution of the plan, and communicating it. According to Syaukani, implementation is a series of activities in order to deliver policies to the community so that these policies can bring results as expected [5]. It includes the preparation of a set of further regulations which are the interpretation of the policy, then preparing resources to drive implementation activities including facilities and infrastructure, financial resources and of course determining who is responsible for implementing the policy, and how to deliver concrete policies to the community [5].

Generally, the planning stage has been carried out well, starting from a meeting with PT. TKI and BSI, selecting the education staff to manage the system, socialization with teachers, students and parents, up to the launching stage. However, it turns out that the implementation stage is beyond expectations.

At the beginning of its inauguration, all school members were interested and made a presence with tapping their Smart Card to the machine. The education staff has responsible to managing the system began to enter data, prepare tools, and so on. But that didn't last long, in order to work and connect to the app, a very strong, stable and always available internet access was required. Actually, the internet in schools can already be used for that, but sometimes the internet at schools is often not detected due to the weather in the Rancabali-Bandung Regency which is often cloudy, and has been struck by lightning several

times. This causes the system to always be reset by the manager.

As mentioned in the introduction, apart from cooperating with PT. TKI, the school also cooperates with BSI. This is related to one of the functions of the smart card in terms of non-cash payments in the canteen. In this case, some parents are very interested and ready to implement it for their children who live in dormitories, because of course this can be very helpful in terms of sending money for supplies. But some others are not so interested because they do not understand the Smart Card system. Let alone to understand the system, they don't even have a smartphone and an account number, even in their area there is no bank.

In the student grade data function, there has not been an official socialization to teachers on how to send assignments and input grades there. So the application to show student's grade not operate yet. In addition, there are still many students who have not received their cards. This is because the distribution of cards from the provider to schools is related to student data from schools. There were errors such as double student data, unregistered students, and students with photos of other students on the card.

Based on the situation that the author witnessed, another things that caused the discontinuance of this system was that the available human resources to manage the system were not working optimally. Lack of human resources related to IT is also one of the causes. For this reason, it is necessary to form a strong IT team in charge of managing the Smart Card system. Planning and human resource development is also an important factor in taking a new program. Human resource planning is directly related to the goals to be achieved by the company, because basically the company's goals are to achieve the goals that have been set [6]. In addition, other factors that influence this are the "ignorant hands" of students who damage the available IT equipment, as well as parents who are not technology literate. So that the implementation of this Smart Card is not easy to continue.

Apart from all that, the school's efforts in implementing technology in the educational environment should be appreciated. The developed school administration system is a good example of RFID technology usage in educational area [10].

CONCLUSION

Education is one way to prepare someone to determine the future. We can only predict the future and the world is constantly changing. Changes in the current era have entered the digital era, which is a challenge in the world of education, especially for people who are in that field. As a form of effort to deal with changes in this digital era, various forms of efforts have been made by schools so that their students are prepared to face this challenge. Certainly in these efforts can be found various kinds of obstacles. As happened in the implementation of smart cards at MAS Alif Al-Ittifaq, the main obstacles that founded were weather, human resources, and users.

The digital era is indicated by the ease of access to obtain information and carry out human activities. By using technology assistance in schools, both teachers, educational staff, students, and parents will be greatly helped. For example, education staff do not need to do manual attendance for both teachers and students to each class because since the beginning of school, teachers and students have tapping the smart cards to take attendance, teachers can input grades on the system and parents can see directly on their smartphones, as well as for Dormitory students, parents who are limited by distance can send lunch money to their children via the parent's smartphone that is connected to the student's smart card and can be picked up at mini ATM inside the school's administrative office. These conditions can be opportunities, challenges, or maybe new problems. This depends on the planning and implementation.

In writing this journal article, the author hopes that readers of educators and educational staff, as well as students and the community are able to accept and face the challenges of the digital era. In addition, the authors hope that this journal article can be useful in the future in providing solutions and overcoming the challenges of the digital era in education.

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