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Analysis of User Readiness Using the TRI Model for Smart School Implementation in the City of Pekanbaru

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Abstract

Currently, Smart Schools have been widely applied in several schools, within the scope of education and services as they are being encouraged to support Smart City. Smart Schools is a school concept utilizing information technology used in the teaching and learning process in the class and school administration. One of the schools in Pekanbaru City that will implement smart schools is Junior High School 17 Pekanbaru. The aspect of building smart schools themselves is not only adequate infrastructure such as servers, labor, and integrated systems but also the readiness on the part of schools and students in implementing Smart Schools in the future. Therefore, to find out the level of readiness of prospective users of the Smart Schools concept, the technology readiness index (TRI) method with four personality variables; optimism, innovativeness, discomfort, and insecurity was used. The purpose of this research was to find out the readiness index of prospective users in the implementation of Smart Schools and see what factors need to be improved from the readiness of prospective users. The results show that teachers and students are ready to apply new technologies in an effort to implement smart schools at Junior High School 17 Pekanbaru. This can be seen from the results obtained, namely the optimism and innovation variables received medium to high ratings. for the discomfort and insecurity to be completely low. However, the student guardians are still unsure because all variables get medium scores. From these results it was stated that Junior High School 17 Pekanbaru was ready to apply new technology for implementing smart schools. In addition, this research can also serve as a guideline for other junior high schools in analyzing new technology users, so that the applied technology can run well.

Keywords: smart schools; junior high school 17 pekanbaru; technology readiness index

1. Introduction

A smart city is defined as an urban area that enhances the quality of life of its residents through effective and efficient management of their resources and needs, utilizing innovative, integrated, and long-term solutions [1]. Information and Communication Technology (ICT)-based technologies play a crucial role in the implementation of smart city initiatives, including the development of smart schools. In Pekanbaru City, a Smart City Master Plan for 2018-2025 has been established, with one of its pillars being Smart People, and Smart Schools as one of the supporting agendas to accelerate the city's transformation into a smart city [2]. The smart city programs implemented by the Pekanbaru City Government include community empowerment based on the harmony of citizens' community, plenary mosque, Pekanbaru Command Center, and private smart cards [3]. The education office has introduced the use of the child's ID card or KIA in smart schools, which serves as a means of attendance and payment, similar to a school cafeteria [4].

The concept of Smart Schools involves the utilization of technology in education to enhance the learning process and improve performance by creating, using, and managing appropriate technology processes and resources. The main objective of incorporating technology in education is to address learning challenges and facilitate learning, thereby improving performance [5]. This approach promotes seamless interaction among the school community, including students and teachers.

There are several factors that impact the implementation of the Smart School concept, including the readiness of students to use technology, a supportive learning environment, and active learner participation. These factors pose challenges in building

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the Smart School concept. Some junior high schools in Pekanbaru City have already implemented the Smart Schools concept, utilizing Children's Identity Cards (KIA) as a means of attendance and payment, with the expectation of facilitating administration and promoting the use of non-cash payment systems [6].

Currently, the focus of the Pekanbaru City Government is on education at the kindergarten to junior high school levels, while senior high schools fall under the purview of the provincial government. This study specifically focuses on junior high schools only, with the aim of ascertaining the readiness of Junior High School 17 Pekanbaru in terms of infrastructure and user perspectives for the implementation of the Smart Schools concept.

The readiness of human resources, including teachers and students, plays a pivotal role in the successful implementation of information and communication technology in education. The implementation of the Smart Schools concept must consider the readiness of teachers and students to adapt to technology. The lack of readiness among stakeholders can impede the implementation process and adversely affect the morale of the implementation team [7].

To assess readiness, various evaluation methods can be employed [8], such as the E-Readiness Measurement utilizing the STOPE Framework in the Process of Applying for Academic Leave of Higher Education [9]. However, for this study, the Technology Readiness Index (TRI) [10] was deemed more suitable as Smart Schools (Smart Cards) represent a new technology. TRI is an established index that employs four personality variables, namely optimism, innovativeness, discomfort, and insecurity, to measure the level of user readiness towards a new technology. Responses from potential users are utilized, with the expectation of expediting the technology adoption process [11].

The study conducted aimed to measure the readiness of prospective users of the Smart School concept, specifically the implementation of Smart Card for attendance, administrative and financial recap, E-report card, and viewing details of student attendance. The researchers drew on previous studies such as Research [7], which evaluated user readiness, and Research [12], which used Technology Readiness (TR) for the readiness of prospective users of the Student Entrepreneur and Internship Program (SEIP). Additionally, the researchers referred to a study [13] that analyzed the readiness of children's encyclopedia users and found a high level of readiness with a value of 3.6, with the optimism variable contributing the most. Another study [14] analyzed the readiness level of QR Code attendance users and found a low level of readiness with a value of 2,713.

The Technology Readiness Index was used as the measurement tool in this research to assess the readiness of Junior High School 17 Pekanbaru in implementing Smart Schools. The findings of this research were expected to provide insights into the analysis of human resources and technology utilization in order to determine the readiness of the school in implementing the Smart School concept. The results could also serve as a reference for other junior high schools that plan to implement Smart Schools, including the readiness of teachers, students, and student guardians in terms of technology adoption and utilization. By using an empirical measurement tool like the Technology Readiness Index, this study aimed to provide a more scientific and evidence-based approach to assessing the readiness of schools in implementing Smart School concepts.

2. Research Methods

Research methodology is a method for researchers to collect data and information in order to conduct research according to research subjects and research subjects, and high-quality results are expected from the data.

2.1. Type of Research

This research used a quantitative research approach. Quantitative data is obtained from data collection conducted through surveys and data analysis in the form of statistics. The survey was conducted using questionnaires distributed to respondents in the scope of Junior high school 17 Pekanbaru while data analysis was done statistically using statistical data processing applications, namely SPSS. Sampling techniques are generally done randomly. Data collection was performed using research tools, quantitative data analysis/statistics, with the aim of testing established hypotheses [15].

2.2. Research Object

The subject of the investigation was the concept of smart school. This is similar to what is used by the Pekanbaru government in the form of smart cards and data from respondents who are potential smart card users. The Smart School concept that will be applied to Junior high school 17 Pekanbaru can later be used for attendance tools, administrative and financial recaps, checking e-report cards or student grades, and seeing details of student attendance. Respondents were all members of Junior high school 17 Pekanbaru school.

2.3. Research Stages

The research stage is a sequence of research steps carried out by researchers. An overview of the research stages can be seen in the research methodology flowchart Figure 1.

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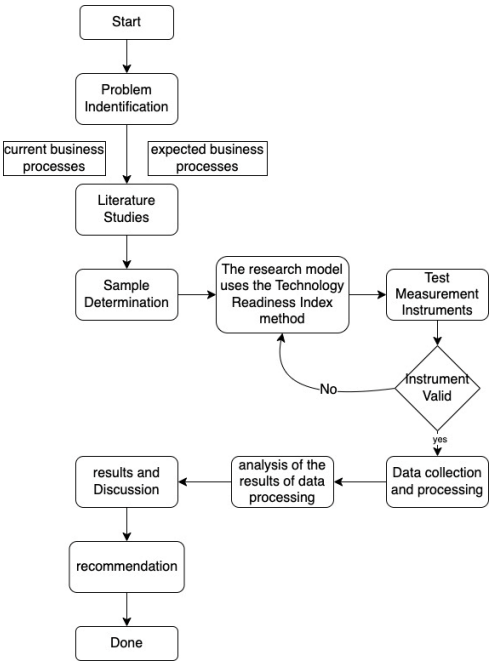

Figure 1. Research Methodology Flow

Identification of problems is carried out as a first step in the research process. The identification of problems in this study was to observe and find problems that exist in the readiness of human resources in junior high school 17 Pekanbaru to be able to adopt Smart School technology. The state of the school's technology infrastructure, the use of technology by the school's residents, the obstacles they are experiencing, and other factors that affect the level of motivation of teachers, student guardians, and students in implementing smart schools. Assuming a matter, concept of the future.

A little overview of the concept of Smart School (Smart Card) that will be applied later can be used as an attendance tool, administrative and financial recap, E-report card, and see the details of student attendance. Previously in 2019, the Pekanbaru City government has launched the Smart Schools (Smart Card) program. Besides, there are three Regional Device Organizations that will carry out the functions of this smart card program. They are the Health Office, the Education Office, and the Transportation Office. The Health Office, in addition to this card service, serves to store data and the development of patient health. At the Transportation Office, smart cards will be applied at Trans Metro Pekanbaru. Meanwhile, in the Education Office, smart cards will be applied by smart schools that serve as payments in the school canteen to encourage people to get used to using digital transactions and some schools also use it as an attendance tool [4].

Here is a comparison of the old information system flowcharts running in junior high school 17 Pekanbaru and the *Smart School* concept.

Figure 2 is diagram of business processes currently running.

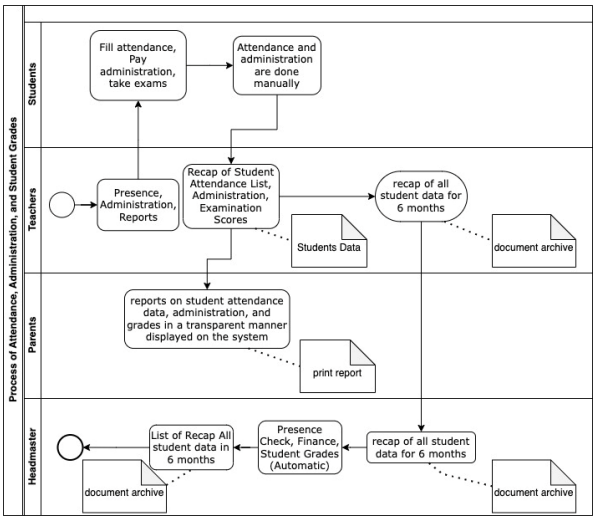

Figure 2. Current Business Process Diagram

Deficiency: Attendance data, administration, scores can be damaged or lost because they are stored in manual form; There can be fraud in taking absences manually; and There can be data redundancies in students.

Figure 3 is diagram of expected business processes (*Smart Schools*)

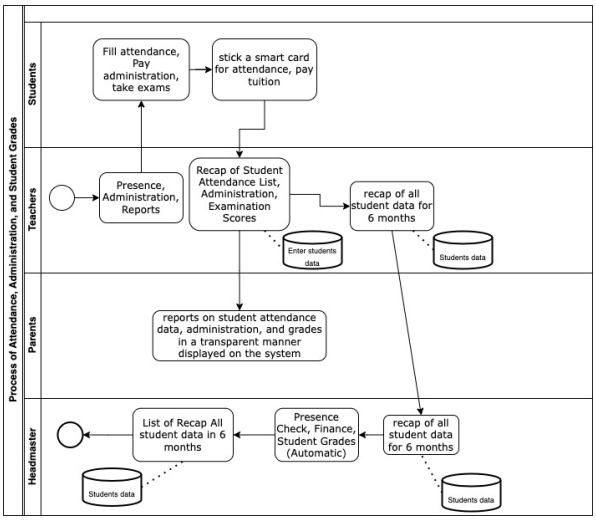

Figure 3. Expected Business Process Diagram

Advantages: There are no redundancies in attendance, administration, and grades in students; There is no cheating of absenteeism, administration, and grades in students; Data can be stored safely and accurately; and Transparency of data that can be seen directly by the student's guardian through the system.

The literature study method is a series of activities related to methods of collecting library data, reading, recording, and managing research materials [16]. In this study, the hassle become solved with the aid of

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using studying suitable assisting literature from books and journals associated with the Technology Readiness Index method. In addition, this literature study was conducted to learn about matters related to the readiness of school human resources in implementing the smart school concept such as government policies regarding the Pekanbaru Smart City master plan. Literature can be in the form of scientific journals, scientific articles, books, or information from internet sites that can be used as references in the work of this thesis.

In determining the number of samples, researchers use the Slovin formula as seen in formula 1 which is commonly used with an error level between 5% or 10%.

$$n = \frac{N}{1+Ne^2} \quad (1)$$

n is a number of samples searched, N is population size, e is the margin of error value (large error) of population size

Using the Slovin formula, researchers took samples from junior high school 17 Pekanbaru with the number of 85 (error level 10%) - 240 (error level 5%) of the total number of learners 586 and teachers with staff which were 39.

Respondents were selected by random sampling. The respondents who would fill out the questionnaire were students from grades 1–3, Teachers, and Guardians of students. In this sampling, researchers considered the number of populations, time constraints, and conditions of the Covid-19 pandemic as it is now, because 100 to 200 samples are the ideal starting point in the analysis [17].

Research Model Using Technology Readiness Index Method : This stage is the stage of the method used to see readiness in implementing new technology at SMPN 17 Pekanbaru. Figure 4 is the TRI method used in this study.

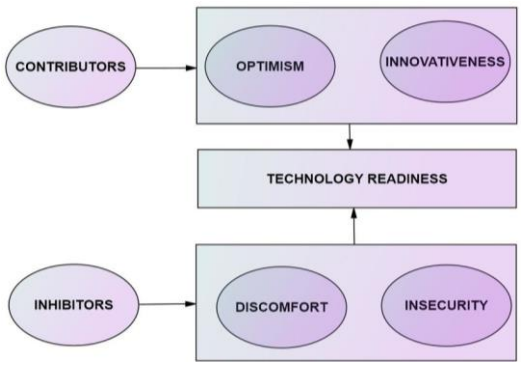

Figure 4. Technology Readiness Index (TRI) Method [10]

In Figure 4 there are 4 variables, namely optimism, innovation, discomfort, insecurity. Research variables are everything in any form that is determined by the researcher to be studied so that information is obtained about it, then a conclusion is drawn [18]. This study used 14 questionnaire items to be distributed to respondents.

In this study there were 3 items on the optimistic variable, then there were 4 items on the innovative variable. Furthermore, there are 4 discomfort items and 3 insecurity items. These variables were then distributed to 3 groups, namely teachers, students, and student guardians. Then after obtaining the results will be weighted.

This study used questionnaires to find out the response of student readiness in the application of the concept of Smart Schools. The survey consisted of multiple questions and statements regarding readiness to use technology for learning, with each question having four responses rated on a Likert scale.

Measurements had been made with the aid of using the usage of the Likert scale as seen in Table 1. The scale will be used by respondents to choose from each list of questions in the questionnaire. In this study, another variation of the Likert scale was used, which is removing neutral response [19].

Table 1. Likert Scale

Answer options	Abbreviation	Likert Scale
Strongly Disagree	SD	75%-100%
Disagree	D	50%-74.99%
Agree	A	25%-49.99%
Strongly Agree	SA	0%-24.99%

In this study, there was a reverse coding used in variables that were negative. The weight used in statements that have done a reverse coding can be seen in table 2.

Tabel 2. Likert Reverse Coding Scale

Answer options	Abbreviation	Likert Scale
Strongly Agree	SA	75%-100%
Agree	A	50%-74.99%
Disagree	D	25%-49.99%
Strongly Disagree	SD	0%-24.99%

Instrument testing was conducted on a sample of 35 pilot test respondents. Instruments were in the form of questionnaires distributed to the sample of respondents. Conduct validity and reliability tests based on questionnaire results. Tools for measuring this test used SPSS 25.0.

Data collection is an activity carried out to obtain the necessary information in order to achieve the goals of a study. At this stage, the data collection that researchers did was through interviews and questionnaires. Due to the constraints of the situation during the Covid-19 pandemic, the researchers cannot make maximum observations. Data series with interviews could be executed on instructors or IT team of workers inside the scope of the school, in addition to facts series with questionnaires executed to instructors, students, and additionally students'

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guardians as respondents. The interview and observation location were at junior high school 17 Pekanbaru. The location of data collection through questionnaires was also within the scope of the junior high school 17 Pekanbaru area.

The interview which the researcher conducted on School IT parties was regarding how the use of existing technology by teachers and students is. In practice, however, particular obstacles remained, according to the results of the first interviews the researchers conducted with the school's IT : from teacher and student attendance to administration and student records, at Pekanbaru Middle School 17, everything was done manually, with both print and paper media; there were still some constraints on school IT facilities for teachers and students, such as the use of computers laboratory that must be alternated, and small bandwidth/internet speed in schools; and there was still a lack of procurement of other IT facilities that can support the concept of Smart School. Teachers must have their own laptops. The limited number of hotspots in schools greatly affects teachers in utilizing technology.

Sampling in this study utilized Random sampling and Non-Probability Sampling techniques whose determination takes samples randomly based on the consideration that the concept of Smart Schools will be used to all school residents. The questionnaire became a medium to find out respondents' feedback on technology adoption plans such as Smart Schools (Smart Cards). The questionnaire used refers to the variables of the Technology Readiness Index (TRI) which will be made based on a literature review. This is because the written questionnaire is also based on the problems to be discussed so that the author must conduct a validity test and reliability test. The distribution of questionnaires to respondents in junior high school 17 Pekanbaru can be seen in table 3.

Table 3. Questions/Questionnaire Statements

Deployment Method	Valid	Invalid	Total
Online	138	0	138
Live	-	-	-

From table 3 it can be seen that the data collection method uses an online system. By using this online method, there were 138 respondents consisting of students, student guardians, and teachers who filled out the questionnaire. Then the results of this questionnaire were tested for validity and the results were all valid.

Data Analysis, based at the consequences of the unfold of the questionnaires which has used the legitimate records, the following degree of records processing become done via way of means of grouping records in step with the required variables. Variables that had bad values have been opposite coding. The Technology Readiness Index (TRI) evaluation become calculated from the imply fee of every questionnaire expanded via way of means of the load of every declaration. The weight of every declaration become received from the full weight of the variable divided via way of means of the variety of statements of every variable. After acquiring the load of every declaration of n, the imply fee of the declaration become expanded via way of means of the load of every declaration to get the full rating for every declaration. The variable rating is received from the full variety of declaration rankings gift withinside the variable. The general rating of TRI become received from the sum of all variable values.

The process of calculating the TRI value of each variable can be seen from formula 2, 3, 4 and 5.

$$statement\ weight = \frac{25\%}{\sum Statement\ Variable} \quad (2)$$

$$Statement\ Value = \frac{\sum (number\ of\ answers\ X\ answer\ score}{number\ of\ respondents} \quad (3)$$

$$Variable\ Value = \sum statement\ value \quad (4)$$

$$TRI\ Value = \sum variable\ score \quad (5)$$

The maturity categories in applying the Technology Readiness Index are [10]: Low Technology Readiness: if TRI =< 2.89; Medium Technology Readiness: if TRI 2.90 =< TRI =< 3.51; High Technology Readiness: if TRI > 3.51.

The discussion of the results in this research data, presents and discusses the data that has been obtained descriptively. After all the data are collected, an analysis was carried out in this study, namely statistical analysis using SPSS 25.0. Analysis conducted by researchers in this stage was done through the process of testing the validity and reliability of research instruments.

Validity test, the purpose of the validity test is to find out the degree of validity of the questionnaire used in the collection of assessment results data [20]. This test is performed by comparing the number r counts and r tables. If r count is greater than r table , the item is said to be valid; conversely, if r count is less than r table , the item is said to be invalid. The R counts are retrieved using the SPSS program, while the r table is retrieved considering a table r with a minimum r decision of 0.3 [18].

Reliability test, in reliability testing there is a value to measure the level of reliability using the TRI instrument. This check is carried out with the aid of using evaluating the Cronbach alpha quantity with the availability that the Cronbach alpha fee is as a minimum 0.6, which means that if the Cronbach alpha fee received from the SPSS calculation outcomes is extra than 0.6, it's far concluded that the questionnaire is reliable [20]. Conversely, if Cronbach alpha is smaller than 0.6 then it's far concluded that the questionnaire isn't always reliable.

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Next is the interpretation of the results. The researchers discussed the results of the demographic analysis of respondents in current field conditions and also translated the results of the quantitative statistical model analysis by comparing and reviewing various relevant literatures. Furthermore, the results of the analysis and interpretation will be fully explained in the results and discussions.

Recommendations, it includes a brief summary of the process and results achieved and an answer to the problem statement with subsequent recommendations for all achieved results. The recommendations are provided in the form of input to policy makers and are intended to improve the level of readiness regarding the implementation of the smart school concept for both Middle School 17 Pekanbaru and parties who plan to conduct further research.

3. Results and Discussions

3.1. Demographic Data

At this stage, the researchers analyzed the answers on questionnaires which respondents had filled out, especially in the respondent profile section that would produce short demographic information. This is related to the respondent's name, and the role of the respondent in school. The data that the researchers managed to collect currently were 138 respondents who were teachers, student guardians, and students with 138 valid and 0 invalid data. Table 4 is a demographic analysis results.

Table 4. Demographics of respondents

Category	Number	Percentage
Students	86	62.3%
Student Guardian	17	12.3%
Teacher / Educator	35	25.4%
Total	138	100%

Based at the desk above, the consequences of a transient questionnaire crammed out with the aid of using 35 respondents at junior excessive faculty 17 Pekanbaru from the Teacher, Student Guardian, and Student events have been recognized to be basically from the Teachers which have been 35 respondents (25.4%), Student guardians as many as 17 respondents (12.3%), and 86 respondents (62.3%) from Students.

3.2. Questionnaire Result

Validity, the measurement to find the results of validity with the test criteria is if the r count is greater than r table with a significant level of 5% then it can be stated that the instrument item is valid, and vice versa if r calculates smaller than r table with a significant level of 5% then the instrument item is invalid. And from the test results, it was obtained that from 16 instrument items for Teachers, / Guardians of students and 16 items of instruments for students with slight language adjustments with the same question had r count values > r table. It proved that the research instrument item was declared valid. The questionnaires measured in this study were optimism, innovation, discomfort and insecurity. More details can be seen in the table 5, 6, 7, 8, 9, 10, 11 and 12.

Table 5. Validity of optimistic questionnaire items of teachers and student guardians

Question Item	RCount	Significance Value	Description
OPT1	0.520	0.001	Valid
OPT2	0.429	0.010	Valid
OPT3	0.483	0.003	Valid

Table 6. Validity Of Teacher and student guardians Innovative Questionnaire Items

Question Item	RCount	Significance value	Description
INV1	0.566	0.000	Valid
INV2	0.521	0.001	Valid
INV3	0.406	0.016	Valid
INV4	0.379	0.025	Valid

Table 7. Validity Of Teacher and student guardians Discomfort Questionnaire Items

Question Item	RCount	Significance Item	Description
DIS1	0.405	0.016	Valid
DIS2	0.508	0.002	Valid
DIS3	0.336	0.049	Valid
DIS4	0.385	0.022	Valid

Table 8. Validity of Teacher and student guardians Insecurity Questionnaire Items

Question Item	RCount	Significance Item	Description
INS1	0.502	0.002	Valid
INS2	0.351	0.039	Valid
INS3	0.384	0.023	Valid

Table 9. Validity Of Optimistic Items of Student Questionnaires

Question Item	RCount	Significance Item	Description
OPT1	0.435	0.001	Valid
OPT2	0.311	0.023	Valid
OPT3	0.410	0.002	Valid
OPT4	0.482	0.000	Valid

Table 10. Validity Of Innovative Items Student Questionnaire

Question Item	RCount	Significance Item	Description
INV1	0.283	0.040	Valid
INV2	0.364	0.007	Valid
INV3	0.408	0.002	Valid
INV4	0.365	0.007	Valid

Table.11 Validity of Student Questionnaire Discomfort Items

Question Item	RCount	Significance Item	Description
DIS1	0.275	0.047	Valid
DIS2	0.335	0.014	Valid
DIS3	0.518	0.000	Valid
DIS4	0.662	0.000	Valid

Table 12. Validity of Student Questionnaire Insecurity Items

Question Item	RCount	Significance value	Description
INS1	0.534	0.000	Valid
INS2	0.579	0.000	Valid
INS3	0.516	0.000	Valid

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Reliability, a number of valid question items were then tested for reliability. Reliability indicates the degree of reliability if the instrument used is capable of producing almost the same data in different times and places [21]. The criteria for reliability test testing is that if it is greater than with a significant level of 5% (0.05) then it can be stated that the measuring instrument is reliable, and vice versa if it is smaller than the measuring instrument, it is not reliable. And the results of reliability test tests can be seen in table 13.

Table 13. Results of Research Instrument Reliability Test

Question Segmentation	Rtable	Rcount (Cronbach Alpha)	Information
Teacher and Student	0.334	0.689	Reliable
Guardian Student	0.266	0.702	Reliable

TRI Value, the TRI test is used to analyze the extent of a person's readiness to adopt the latest technologies around them. To measure how far the level of readiness of a person with existing technology, four measurement variables can be used, namely Optimism, Innovation, Discomfort, and Insecurity. By using these four variables, it will make it easier to assess a person's readiness with new technologies existing today. In this study, the level of readiness of prospective users in junior high school 17 Pekanbaru was observed and analyzed with the TRI method. The TRI value calculation method is calculated from the mean value of each questionnaire associated with the weight of each statement. Each variable has a weight to a total of 25%. Then divide the total weight by the number of statements for each variable. After the weight of each n statements is determined, multiply the mean of the statements by each statement's weight to get a total score for each statement. The variable score is the total number of statement scores displayed in the variable.

This study uses 2 types of questions, namely positive and negative. In the optimistic and innovative variables the instruments used all use positive questions. So that the Likert scale used is 4. Strongly agree, 3. Agree, 2. Disagree, 1. Strongly disagree. Then on the variable discomfort and insecurity using negative questions. So the Likert scale used is 4. Strongly disagree, 3. Disagree, 2. Agree, 1. Strongly agree. Table 5 is a test conducted on the student's guardian.

The total TRI score is obtained from the sum of the values of all variables. After collecting and testing, the following results are obtained in table 14.

Based on table 14 it can be seen that the innovative variable has the largest contribution of 0.81, and the second largest variable value is optimism 0.79. which means that the Teacher at SMPN 17 Pekanbaru have an innovative attitude in adopting and utilizing technology. The level of discomfort and insecurity has a lower value than the value of optimism and innovation, namely 0.55-0.56. If added up, the TRI value is 2.71. The TRI value < 2.89 is included in the Low Technology Readiness Index category, which means that teachers at SMPN 17 Pekanbaru tend to have a low level of readiness to adopt technology. then the test was carried out on the guardians of students who had 17 respondents in this study or about 12.3% of the total respondents.

Table 14. Tri Teacher Test Results

No	Variable	TRI Value
1.	*Optimism*	0.79
2.	*Innovativeness*	0.81
3.	*Discomfort*	0.55
4.	*Insecurity*	0.56
Total Value of TRI		2.71

Table 15. Tri student guardians test results

No	Variable	TRI Value
1.	*Optimism*	0.85
2.	*Innovativeness*	0.87
3.	*Discomfort*	0.81
4.	*Insecurity*	0.82
Total Value of TRI		3.35

Based on table 15 it is known that the innovation variable value is 0.87, and the second largest variable value is optimism 0.85. This means that parents of students also have an innovative and optimistic attitude to adopt and utilize technology. The level of discomfort and insecurity has a high value of 0.81-0.82. If added up, the TRI value is 3.35. The TRI value between 2.90 =< and =< 3.51 is included in the Moderate Technology Readiness Index category, the score obtained is high and can be said to be in a ready condition.

Table 16. Tri Student Test Results

No	Variable	TRI Value
1.	Optimism	0.92
2.	Innovativeness	0.90
3.	Discomfort	0.63
4.	Insecurity	0.64
Total Value of TRI		3.09

Based on table 16 it can be seen that the optimism variable gets the largest value, namely 0.92, and the second largest value of the variable is innovative, 0.90. which means, students at SMPN 17 Pekanbaru welcome new technological innovations, and are ready to adopt and utilize technology. The level of insecurity and insecurity has a lower value than optimism and innovation, namely 0.63 and 0.64. If added up, the TRI value is 3.09. The TRI value is between 2.90 =< and

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=< 3.51, included in the Medium Technology Readiness Index category, which means that prospective users tend to have a sufficient level of readiness to adopt technology.

3.3. Discussion

Before the discussion, the researchers segmented the TRI score based on four TRI variables, namely, optimistic, innovative, discomfort, and insecurity so that it is easier to classify, and the classification is divided according to 3 roles, namely, teachers, student guardians, students. This has been done by previous researchers using more than one type of user, namely lecturers and students [22]. The results of segmentation can be seen in table 17.

Table 17. Teacher Type Segmentation Results

No	Variable	Mean	Value
1.	*Optimism*	3.18	Medium
2.	*Innovativeness*	3.24	Medium
3.	*Discomfort*	2.22	Low
4.	*Insecurity*	2.26	Low

For this type of teacher segmentation there are 25 respondents or 25.4%, the majority of respondents fall into the Explorer segmentation category which can be seen in table 17. The character of the Explorer segment is that they have A fairly high interest and motivation towards new technologies, and having a sense of comfort and security when using new technologies because it had a low value of insecurity and discomfort. This also happened in previous studies that tested technological readiness for DAPODIK operators in elementary schools. This study found innovation and optimism scored higher than insecurity and discomfort as seen in table 18 [23].

Table 18. Student Guardians Type Segmentation Results

No	Variable	Mean	Value
1.	Optimism	3.39	Medium
2.	Innovativeness	3.46	Medium
3.	Discomfort	3.25	Medium
4.	Insecurity	3.27	Medium

For the Parents segmentation type, there are 17 respondents or 12.3%, overall the majority of respondents fall into the Pioneer segmentation category. The person of the Pioneer phase is that they may be quick attracted via way of means of the life of recent technology due to the fact they have got a excessive cost of optimism and innovation, however on the equal time they'll without difficulty forestall attempting in the event that they face the inconvenience and lack of confidence due to the fact their cost became excessive. This also happened in research [24].

In table 19 student segmentation there are 86 respondents or 62.3%, all respondents are included in the Explorer segmentation category. The character of the Explorer segment is that students have a high interest and motivation for new technologies. They also feel comfortable and safe in the process of adopting new technology, this can be seen from the value of insecurity and discomfort which is on the Middle-Low threshold.

Table 19. Student Type Segmentation Results

No	Variable	Mean	Value
1.	*Optimism*	3.67	High
2.	*Innovativeness*	3.62	High
3.	*Discomfort*	2.53	Low
4.	*Insecurity*	2.57	Low

Discussion of results Type segmentation can be seen from the segmentation table above which shows that the statistics of the instruments have been grouped into each research variable. The total TRI score for teachers obtained in this study was 2.71, the total score of student guardians was 3.35, and the total student score was 3.09. If the total number of scores of each was combined, the total accumulation of scores was 3.05. Then it can be concluded that the level of readiness of prospective *Smart School* users was still at the moderate level or *Medium Technology Readiness*. This is because the total value of TRI was between 2.90 =< and =< 3.51.

Overall, innovative and optimistic variable items got the greatest value around Medium-High, but the variables of discomfort and insecurity still had lower values and were at the Low level. This is what needs to be considered in improving the readiness of prospective users in the adoption of *Smart Schools* technology later.

In the TRI category that has been described in the Theory Study section, Optimism and Innovativeness values contributed the most to the total TRI value, which was at least 3.24 and 3.18 in the medium category. This shows that school residents at junior high school 17 Pekanbaru owned a positive view of technology, where technology gave positive benefits to their work, and users also had an innovative nature in adopting technology and utilizing the technology around them. This can be seen from some statements that they are immediately attracted to the existence of new technology because of its high optimism and innovation value, but at the same time, an uncomfortable situation It is easy to stop trying when you are faced with a problem or feel uncomfortable. Anxiety, because of little value.

The Insecurity variable gets a low score, with a value of 2.26. This shows that prospective Smart School users feel uncomfortable when they have to use Smart Schools and are still hesitant to apply technology as a whole in all fields.

The Discomfort variable also has a low value, which is 2.22. This is because when conditions are uncomfortable which means there is an influence of

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doubt due to a lack of understanding of prospective users regarding the use of Smart School technology (Smart Cards).

The constraints of technology mastery are not a problem for the prospective user because the *Smart Schools (Smart Card)* performance will be more efficient and minimize human error if done automatically by using technology. As in the question "I quickly understand the technology that exists today" which got a mean value of 3.47. For the total accumulated value of the TRI score from 3 roles of respondents, namely teachers, student guardians, and students it obtained an average final result of 3.05 which means that in the process of technology adoption, there will not be many obstacles.

3.4. Recommendation

Based on the results of the research conducted, several recommendations can be made to improve the level of readiness in relation to the application of the Smart Schools concept:

Insecurity Factor: Since the insecurity factor was found to be in the low category, it is recommended to focus on increasing transparency in the procurement process and system workflow of the Smart Cards. This can help to enhance the sense of security among schools and students in using the technology, by ensuring that the processes are clear, reliable, and free from any potential security concerns.

Discomfort Factor: The discomfort factor was also found to be low, indicating that users may face challenges in understanding how to work with and use the Smart Schools system. It is recommended to provide comprehensive and easy-to-understand information on how to use the system, to minimize discomfort and ensure a smooth user experience. This can include providing user-friendly instructions, tutorials, and support resources to help users navigate the technology with ease.

Further Research: The study suggests that further research can be conducted to explore and address the weaknesses or challenges in the Discomfort and Insecurity factors. This can involve conducting more in-depth investigations, such as qualitative interviews or focus groups, to gather insights from potential users and stakeholders about their concerns, preferences, and suggestions for improvement. The findings from such research can inform the development and implementation of strategies to enhance the readiness and acceptance of the Smart Schools concept.

By addressing the low readiness levels in the Discomfort and Insecurity factors through transparency, system workflow, and user-friendly information, it is expected that the application of the Smart Schools concept can be optimized, leading to more effective and efficient utilization of the Smart Cards technology in schools.

4. Conclusion

Based on the results of the analysis and research, the conclusion is that the readiness level of prospective Smart Schools users, as accumulated from the segmentation of teachers, parents, and students, is in the medium category of Technology Readiness with a TRI value of 3.05, where the range is between 2.90 and 3.51. This indicates that schools are moderately ready to adopt Smart Schools technology. However, there is room for improvement in terms of human resource development.

The Innovativeness score has the highest contribution to the total minimum TRI score, with a minimum value of 0.81 in the teacher score segmentation. This suggests that prospective Smart Schools users are generally open to new technologies, including the Smart Schools concept, and are quick to adopt them.

The optimism value contributes the second-largest value to the total TRI score, with a minimum value of 0.79 in the teacher score segmentation. This indicates that potential Smart Schools users have a positive perception of Smart Schools technology and believe that it can positively impact learning activities in their schools.

On the other hand, the discomfort and insecurity variables contribute to a lower TRI score, with minimum scores of 0.56 and 0.55 in the teacher score segmentation, respectively. This suggests that prospective Smart Schools users may feel uncomfortable when using Smart Schools technology and may have concerns about the overall application of technology in various fields, including education.

Based on these findings, it is recommended to focus on addressing the discomfort and insecurity factors to further improve the readiness level of prospective Smart Schools users. This can involve providing adequate training and support to address discomfort, and ensuring transparency, system security, and clear communication to address insecurity concerns. By addressing these factors, the adoption and implementation of Smart Schools technology can be enhanced, leading to more effective and efficient utilization in schools.

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