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E-Report Revolution: Web Prototyping for Vocational High Schools in Bandung

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Abstract

The report is a crucial document that thoroughly documents pupils' learning outcomes in both academic and extracurricular domains. Inputting many student grades into reports by hand takes a long time, and parents cannot constantly check their children's report cards. The author hopes to make data entry easier and allow parents to monitor their children's academic progress with the web-based e-report information system that uses the prototyping technique.

The author used JavaScript, PHP, and a MySQL database to create an online e-report information system. This approach is intended to help homeroom instructors and teachers at one of Bandung's vocational high schools manage grades and determine their pupils' average scores.

This study emphasizes the potential for increasing grade management effectiveness, fostering better parent-school communication, and offering a clearer picture of student performance. It might also inspire other academic institutions to implement comparable technology to expedite their reporting procedures.

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Keywords : *Report, Information System, Grade Management*

INTRODUCTION

Almost every area of life has been impacted by the development of information technology, including education. Using technology has become crucial for all educational institutions in this digital age. Since efficient data processing can produce valuable information, schools have a great chance to use technology to simplify data administration. With the help of the internet and contemporary technology, schools may handle data more effectively and precisely, producing valuable and pertinent knowledge. (Jamalia et al., 2022; Yudono & Istamar, 2021)

The student grading procedure is inefficient because Bandung Vocational High School has not yet implemented a value management information system. As a result, this institution will switch to an online grading system, enabling students to get their grades faster. Teachers oversee student grades after each semester, including attendance, assignments, midterm, and final test results. Grades are still handled manually today, with many teachers providing grades on paper and computing individual scores for each student. Because processing these numbers takes a lot of time and work, this method is not the best for determining average student grades.

These findings highlight the urgent need for a system that can handle student grade data. This would help teachers process grades more efficiently and enable students to view their results immediately. It should also make it easier for parents to view their children's average grades online while they are learning.

Prototyping

A system development technique called prototyping uses a strategy to rapidly and gradually build software so that users may assess it right away. Prototyping replicates the structure of the product or creates a model of it. System developers create prototypes to collect user feedback and allow consumers to engage with the finished product. (Insan & Idris, 2024) This is important since the prototype shows a

preliminary form of the system, which will create a more extensive, full-featured system.

Prototyping can be used in both small and big system development projects to ensure that the development process is efficient, well-structured, and finished on schedule. Full user involvement throughout the prototyping stage benefits everyone, including management, the users, and the system developers. This model creates a software prototype that bridges consumers and developers during the information system's development. An early software version called prototyping evaluates different design possibilities and investigates additional problems and solutions.

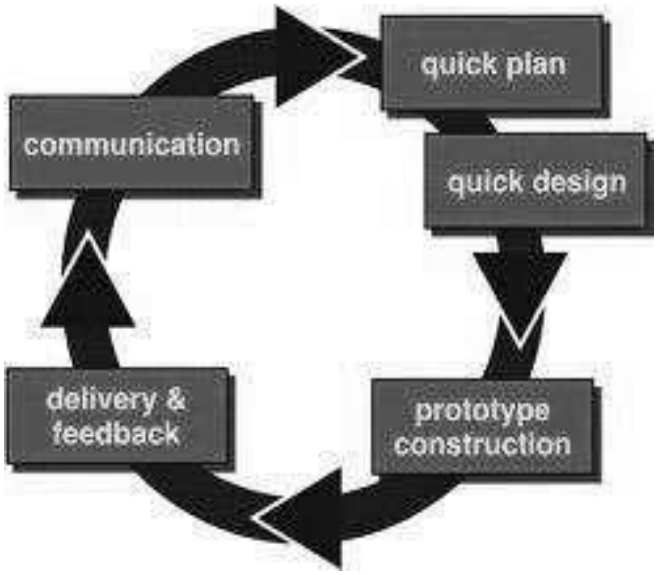


Figure 1. Model Illustration

E – Raport

The Student Management Program (SMP) uses E-Raport, a web-based tool for evaluating and enhancing student performance (report cards). (Nugraheni et al., 2024). The Basic Education Data (Dapodik) has been integrated with the e-Raport program for SMP, created by the Director of SMP Development, the Director General of Basic and Secondary Education, and the Ministry of Education and Culture. (Amilia et al., 2024; Mahyudin & Sanjaya, 2023)

The E-Raport system uses electronic product applications to deliver information in the form of student grade transcripts through online media or Localhost. Using today's cutting-edge technology, E-Raport can also be viewed as a novel approach to student grade delivery. (Bulan, 2024; Lathifah & Widyasari, 2023)

Schools can electronically transmit student grades using the E-Raport information system, which can improve information openness and administrative effectiveness. (Nursyifa et al., 2019; Wirasasmiata & Uska, 2019)

According to the aforementioned assertion, the author intends to use the prototyping research approach to analyze the information system and determine its advantages and disadvantages. This will help to guide the essential advancements.

This research aims to increase the system's efficacy and efficiency.

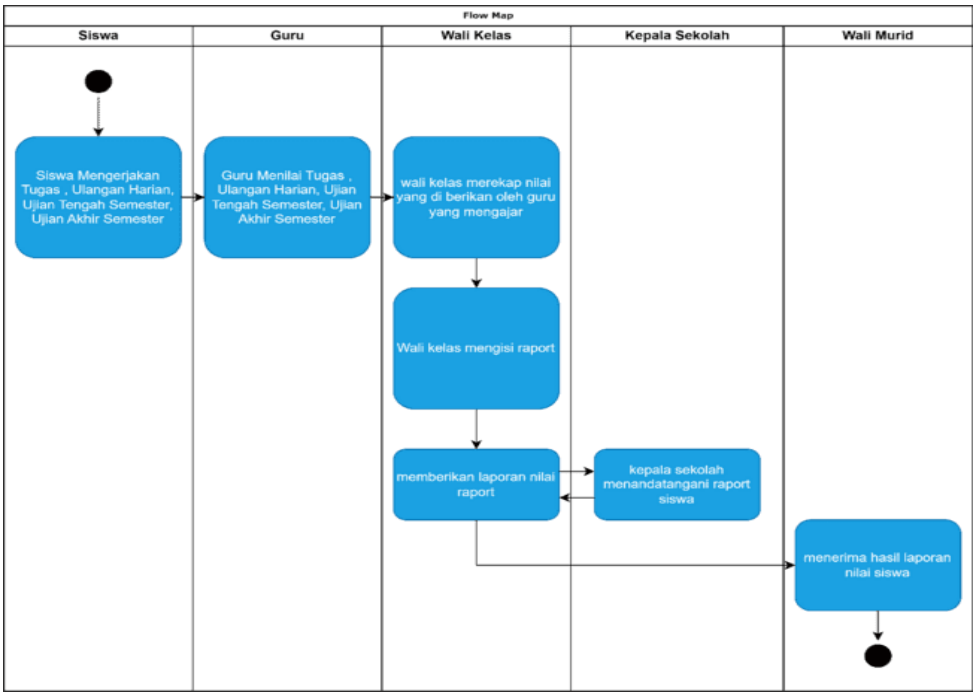
METHOD

System Analysis and Design

Business Process Analysis

In order to provide a clear image and precise assumptions about how a business process flows, business process analysis is done to look at and summarize the business processes that occur. At one of Bandung's vocational high schools, the following business procedures take place:

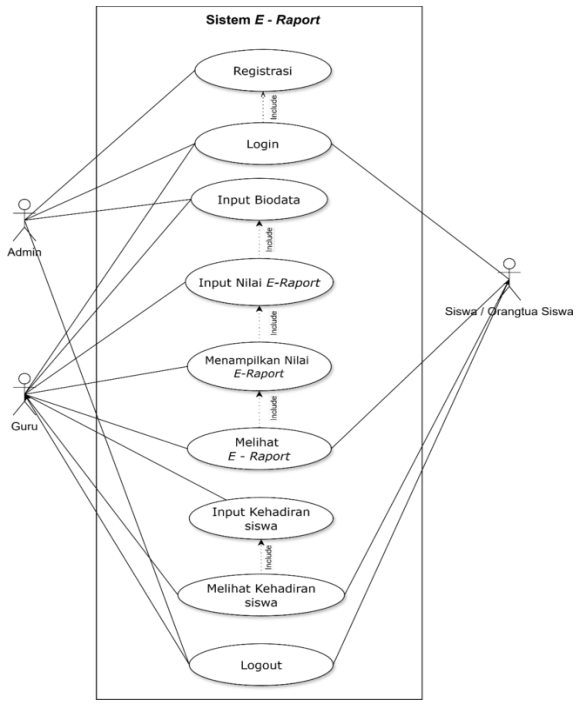
Ongoing Business Processes.



Four (4) participants are engaged in the existing business process. Teachers submit student grades to the homeroom teacher for aggregation, who must verify that these marks accurately represent the students' current academic achievement at a vocational high school in Bandung. The homeroom teacher thereafter submits the findings to the student's parents to demonstrate their academic performance.

Proposed Business Process for E-Raport

Usecase diagram



UseCase Scenario

Login use case scenario

Usecase	*Login*		
Actor	Admin, Guru, Siswa dan Orang Tua Siswa		
PreCondition	Aplikasi terbuka sistem menampilkan halaman *Login*		
PostCondition	Aplikasi menampilkan halaman Dashboard sesuai Hak Akses nya		
Main Flow Event			
Actor Action		***System Response***	
1	Masuk ke aplikasi	**2**	Menampilkan halaman *Login*
3	Mengisi *username* dan *Password*		
4	Memilih tombol *login*	**5**	Melakukan koneksi ke basis data
		6	Validasi *username* dan *password*
		7	a. Jika benar, sistem akan mengalihkan *user* ke halaman sesuai dengan masing-masing hak akses *user.*
			b. Jika salah, sistem akan menampilkan pesan kesalahan *login.*
		8	Ketika *Login* , Akan Menampilkan Dashboard Sesuai Hak Akses

Input Data Value use case scenario

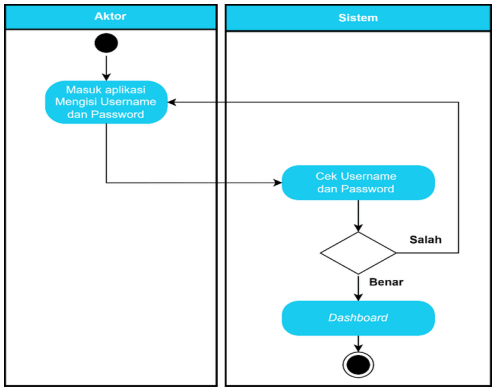
Usecase		*Input* Data Nilai	
Actor		Admin, Guru	
PreCondition		Aplikasi terbuka sistem menampilkan halaman *Input* Data Nilai	
PostCondition		Aplikasi menampilkan halaman *Input* Data Nilai	
Main Flow Event			
Actor Action		***System Response***	
1	Masuk ke aplikasi	**2**	Menampilkan halaman *Input* Data Nilai
3	Klik Tombol Input Nilai	**4**	Menampilkan Data Mata Pelajaran siswa
5	Mengisi Nilai Mata Pelajaran	**5**	Melakukan validasi data
		6	Melakukan Koneksi ke *database*
		7	a. Jika data sudah terisi dengan benar, sistem akan menyimpan data ke database dan Kembali ke Menu *Input* Data Nilai
			b. Jika data tidak terisi atau kosong, sistem akan menampilkan pesan gagal.

Logout use case scenario

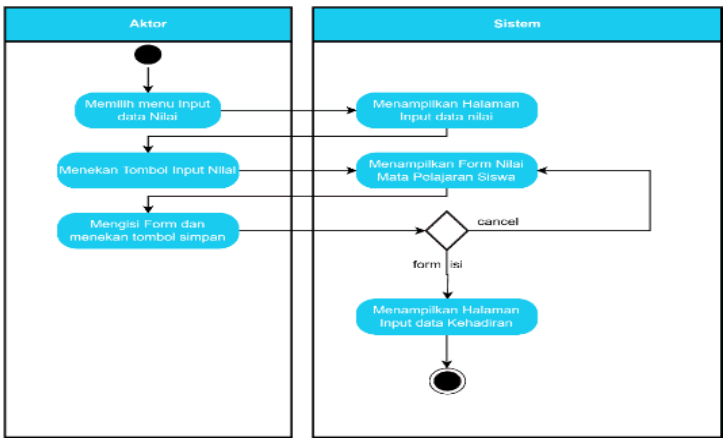
Usecase		*Logout*	
Actor		Admin, Guru, Siswa dan Orang Tua Siswa	
PreCondition		Aplikasi terbuka sistem menampilkan halaman masing-masing hak askses	
PostCondition		Aplikasi menampilkan halaman login	
Main Flow Event			
Actor Action		***System Response***	
1	Memilih tombol logout	**2**	Melakukan koneksi ke basisdata
		3	Mengeluarkan akses pengguna dari sistem
		4	Menampilkan halaman *Login*

Activity diagram

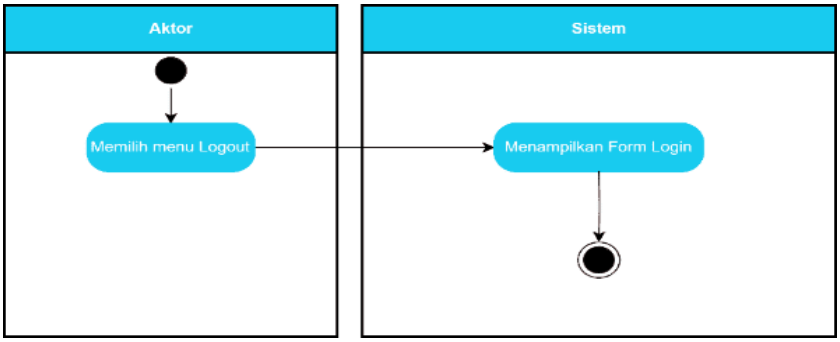
Login activity diagram



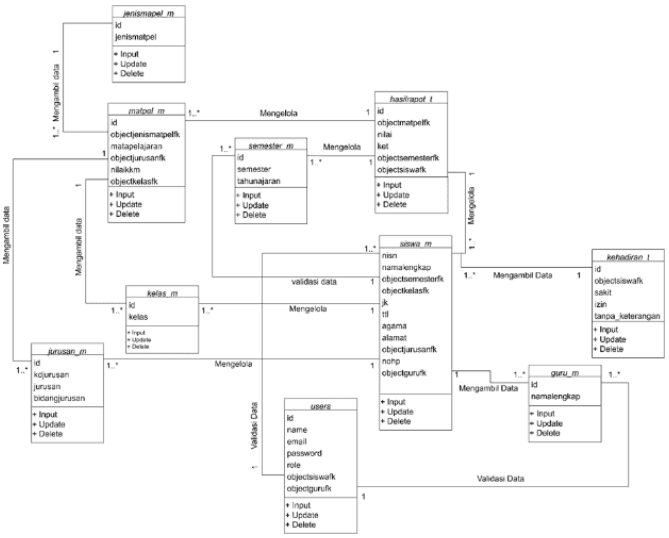
Activity diagram Input Data Value



Activity diagram logout



Database Design



Field	Type	Key
id	Varchar(4)	Primary Key
name	Text	
email	Text	
password	Text	
role	Text	
objectsiswafk	Varchar(4)	Foreign key
objectgurufk	Varchar(2)	Foreign key
created_at	Timestamp	
updated_at	Timestamp	

Designing the Users table

Field	Type	Key
id	Varchar(2)	Primary key
namalengkap	Text	

Teacher table design

Field	Type	Key
Nis	Varchar(9)	Primary key
namalengkap	Text	
objectkelasfk	Varchar(2)	Foreign key
objectjurusanfk	Varchar(2)	Foreign key
objectsemesterfk	Varchar(2)	Foreign key
objectgurufk	Varchar(2)	Foreign key
Ttl	Date	
Jk	Text	
Agama	Text	
Alamat	Text	
Nohp	Text	
objectorangtuafk	Varchar(2)	Foreign key

Student table design

Field	Type	Key
Id	Varchar(4)	Primary Key
matapelajaran	Text	
nilaikkm	Varchar(2)	
objectkelasfk	Varchar(2)	Foreign key
objectjenismapelfk	Varchar(2)	Foreign key
objectjurusanfk	Varchar(2)	Foreign key

Designing subject tables

Field	Type	Key
Id	Varchar(2)	Primary Key
jenismatpel	Text	

Designing a table of subject types

Field	Type	Key
Id	Varchar(2)	Primary Key
Kelas	Text	

Designing class tables

Field	Type	Key
Id	Varchar(2)	Primary Key
Kdjurusan	Varchar (2)	
Jurusan	Text	
bidangjurusan	Text	

Designing a department table

Field	Type	Key
Id	Varchar(2)	Primary Key
Semester	Text	
tahunajaran	Varchar(4)	

Semester table design

Field	Type	Key
id	Varchar(2)	Primary Key
objectsiswafk	Varchar(2)	
sakit	Text	Foreign key
izin	Text	
tanpa_keterangan	Text	

Attendance table design

Field	Type	Key
Id	Varchar(2)	Primary key
objectmatpelfk	Varchar(2)	Foreign key
Objectsiswafk	Varchar(2)	Foreign key
Nilai	Text	
Ket	Text	
objectsemesterfk	Varchar(2)	Foreign key

Interface Design

The interface design depicts the configuration of the system's user interface to be developed. The interface design for the E-Raport Information System, employing the Prototyping approach, features a menu page for various users: Admin, Teacher, Student, and Parent.

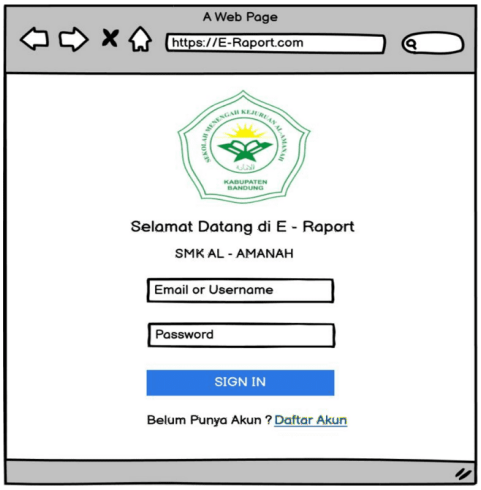


Figure 2. Design Show Login

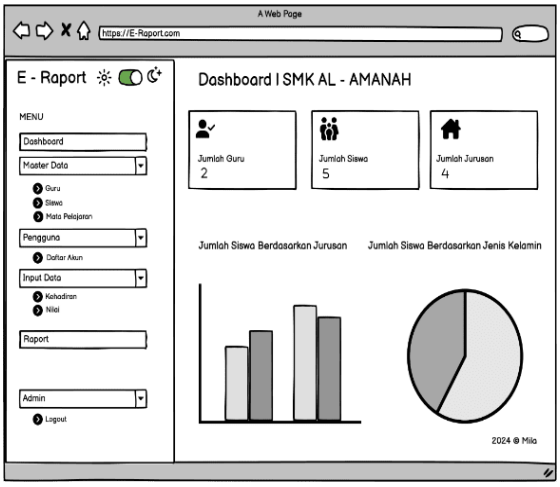


Figure 3. Admin Dashboard Display Design

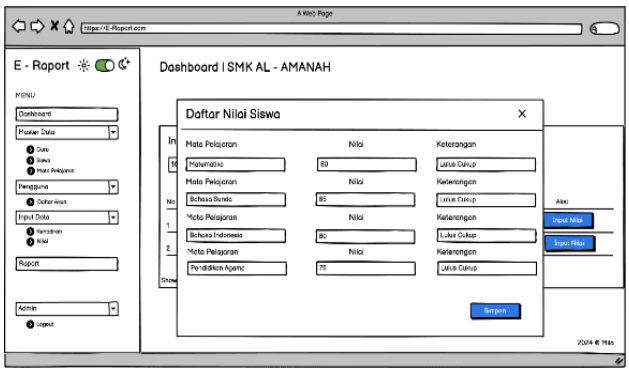


Figure 4. Student Value Data Addition Design

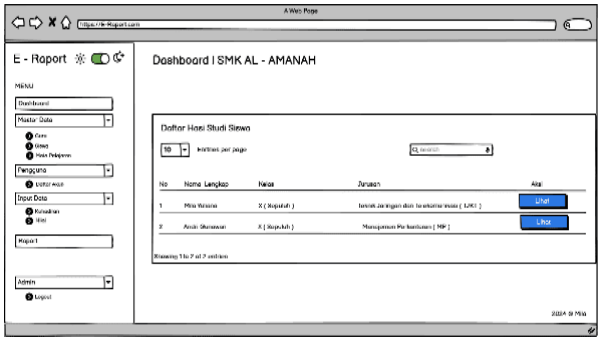


Figure 5. Designing Student Result Data Display

RESULTS AND DISCUSSION

System Implementation

The interface implementation illustrates the program's page layout, effectively constructed according to the previous chapter's specifications. The following outlines the creation of the interface display for the web-based e-report design utilizing the prototype method:

Figure 6. Login Page View

Figure 7. Dashboard Page View

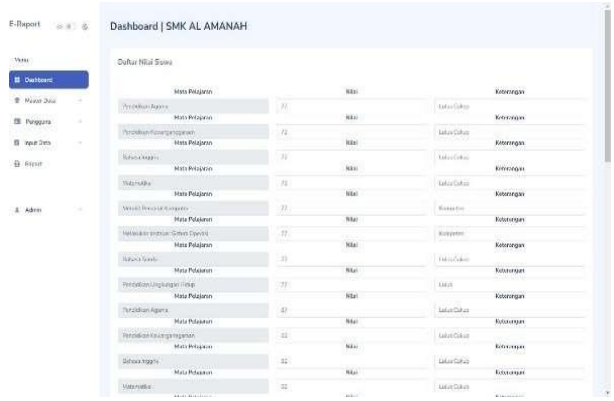


Figure 8. Value Data Input Page View

Figure 9. Student Data Results Page View

CONCLUSION

Several conclusions can be derived from the research findings and talks performed. Utilizing the Prototype development technique to design a web-based e-report will convert the management of report cards in educational institutions into a digital version. This innovation allows schools and parents to monitor pupils' academic achievement effortlessly. Furthermore, the online e-report enables students, parents, and educators to obtain critical information concerning students' academic success throughout the educational process. Moreover, this system optimizes the data entry procedure for students' subject grades, enhancing its efficiency.

Numerous recommendations exist for advancing this system. For example, the web-based information system application might be transformed into a mobile or Android application, enabling expedited access directly via cell phones. This transition would improve user experience and accessibility. Furthermore, it allows future researchers to enhance the system, potentially integrating functionalities such as real-time attendance monitoring, a tuition payment mechanism, and assessing students' learning progress.

REFERENCES

Amilia, F., Nurkamilah, N., & Rachman, A. U. (2024). Developing Electronic School Report (E-Rapor) for Strengthening the Profile of Pancasila Students. *Jurnal Paedagogy*, *11*(4), 659. https://doi.org/10.33394/jp.v11i4.11671

Bulan, V. (2024). EVALUATING USER SATISFACTION AND EFFICIENCY OF E-REPORT SYSTEMS IN VOCATIONAL SCHOOLS: A PIECES FRAMEWORK ANALYSIS FROM TEACHER PERSPECTIVES. *Journal of Innovative Technologies in Learning and Education*, *1*(1), 46–58. https://doi.org/10.37792/jitle.v1i1.1381

Insan, P. P., & Idris, N. Bin. (2024). IMPLEMENTASI PENILAIAN HASIL BELAJAR SECARA DIGITAL BERBASIS APLIKASI E-RAPOR UNTUK DOKUMENTASI AKADEMIK. *Jurnal Inovasi Pendidikan Dan Teknologi Informasi (JIPTI)*, *5*(1), 105–113. https://doi.org/10.52060/jipti.v5i1.1836

Jamalia, J., Huriyah, L., & Yuliati, W. (2022). E-Report Application: The Role of Stakeholders in The Assessment System in Schools. *AL-TANZIM: Jurnal Manajemen Pendidikan Islam*, *6*(4), 999–1009. https://doi.org/10.33650/al-tanzim.v6i4.3112

Lathifah, A., & Widyasari, C. (2023). *Implementation of the Use of e-report in Evaluating Early Childhood Learning* (pp. 235–243). https://doi.org/10.2991/978-2-38476-086-2_21

Mahyudin, M., & Sanjaya, M. R. (2023). Pemanfaatan Metode User Centered Design Pada Aplikasi E-Rapor Berbasis Website Di SDN 11 Rantau Bayur. *Jurnal Teknologi Dan Sistem Informasi Bisnis*, *5*(2), 113–119. https://doi.org/10.47233/jteksis.v5i2.788

Nugraheni, D. M. K., Tamara, T., & Nugroho, A. K. (2024). *Risk profile for E-Rapor services for public high school*. 040001. https://doi.org/10.1063/5.0218141

Nursyifa, A., Nurzaman, E., & Alinurdin, A. (2019). Learning assessment training based on curriculum 2013 by using Vocational High School E-Report in South Tangerang. *ASEAN Journal of Community Engagement*, *3*(2). https://doi.org/10.7454/ajce.v3i2.1065

Wirasasmiata, R., & Uska, M. (2019). Evaluation of E-Rapor Usability using Usability Testing Method. *Proceedings of the 6th International Conference on Educational Research and Innovation (ICERI 2018)*. https://doi.org/10.2991/iceri-18.2019.15

Yudono, A., & Istamar, A. (2021). *Citizen Potholes e-Report System as a Step to Use Big Data in Planning Smart Cities in Malang City, Indonesia* (pp. 139–151). https://doi.org/10.1007/978-3-030-63567-1_13