ELECTRONIC PORTAL "MOJA SREDNJA ŠKOLA"

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Abstract: *The electronic portal "Moja srednja škola" is designed to contribute to the greater efficiency of the entire process of recording data on about 65000 eighth-grade pupils in the Republic of Serbia. The goal of the portal is to increase reliability and transparency, better data management and the possibility of analyzing results and pupil's achievements. In addition to the development of software solutions, a special challenge is the organizational aspect, as it involves a large number of participants and institutions. The portal combines elementary school achievements, such as grades and places won in national competitions, with the success achieved in the final exam, which is unique for all pupils on the territory of the Republic of Serbia. The number of points earned in this way is combined on the portal with the expressed wishes of pupils for enrollment in secondary schools, resulting in a fair distribution without the influence of the human factor.*

Keywords: *e-portal, moja srednja škola, enrollment, primary school, secondary school*

1. INTRODUCTION

The electronic portal "Moja srednja škola" began operating in 2021, organized by the Ministry of Education of the Republic of Serbia and the Faculty of Organizational Sciences (FON) of the University of Belgrade. The portal consists of a public part, intended for parents/guardians and pupils, and an administrative part, intended for administrators of each School Administration in the Republic of Serbia, responsible persons in the Ministry of Education, and the FON team [1]. The e-portal "Moja srednja škola" consists of two separate parts - public and administrative. Parents have access to the public part of the portal, based on the electronic credentials they receive at the school itself, while the administrative part is accessed by a number of users defined by the hierarchy, starting with coordinators at schools, through regional IT coordinators, to the Ministry of Education and the team from FON [2]. The bearer of most activities is the Ministry of Education, which includes 17 School Administrative Directorate Departments and 35 district commissions (regionally distributed) and about 1,250 primary and 500 secondary schools. The estimated number of participants in the process in educational institutions is about 20,000 - principals, teachers on duty, supervisors, department heads, etc. [3].

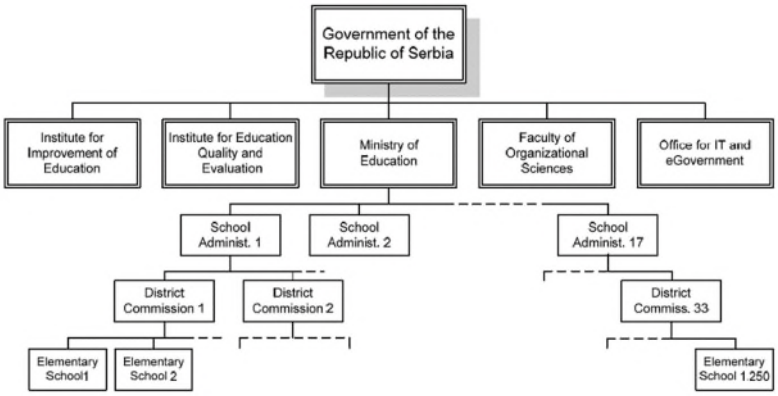

Figure 1: Organizational chart of participants in the National Testing Process (*Source:* [4])

Figure 2: Number of participants by categories (*Source:* [4])

The administrative portal can be accessed in two ways: 1) via E-government, using a digital certificate, or 2) via two-factor authentication.
After logging in, the user is provided with a control panel from which it is possible to access the desired primary or secondary school, or an individual pupil. The administrator also has the ability to unlock or lock access to data changes by the school.
The data of pupils that the school can enroll in the terms provided for in the calendar are general data (name, surname, personal identification number, parent's name, optionally address and phone number) and success during schooling, with individual grades at the end of the sixth, seventh and eighth grades, Vuk's diploma, as well as success in national competitions during the sixth, seventh and eighth grades [5].
This paper explores the experiences of people engaged in work on the administrative portal during activities related to the final exam in June 2024, as well as in secondary school enrollment for the 2024/25 school year.

2. RESEARSCH

The aim of the research is to determine the views of users on the following aspects of the application of the electronic portal:

- Instructions for users to work with the application/portal
- The system login process
- Assignment of work tasks
- Ease of use
- Clarity of the displayed data
- Objectivity of test evaluation
- Improvement of the final exam procedure

A practical goal was also set to identify those segments that were not well assessed by teachers, so that further work could be done to improve quality.

The paper sets out general hypothesis/tasks that users positively assess the introduction of the electronic portal “Moja srednja škola” at the end of primary education and upbringing, as well as the following specific hypotheses/tasks:

- **Hypothesis/task:** Evaluation of the portal design
- **Hypothesis/task:** Evaluation of the ease of using the portal
- **Hypothesis/task:** Evaluation of the accuracy of the portal instructions
- **Hypothesis/task:** Evaluation of the quality of instruction for pupils and parents
- **Hypothesis/task:** Evaluation of the organization of the portal during the dates of the final exams
- **Hypothesis/task:** Evaluation of the speed and accuracy of publishing preliminary exam results
- **Hypothesis/task:** Evaluation of the speed and accuracy of publishing final exam results

Research variables: The independent variables used in the research are: gender (users are male and female); age of users (up to 40, 40 to 50 years, 50 to 60 years and over 60 years) and the level of self-assessment of digital competences of users.
The dependent variable of the research is the attitudes of the respondents in relation to the statements made, which are given in the assessment scale.

Research methods, techniques and instruments: The research used a descriptive method, a quantitative approach and a qualitative analysis of the obtained results. For the purposes of this research, a survey questionnaire was created with closed-ended questions with a suggested answer (circle) or confirmation of the stated statements Likert scale [6], the numbers on the assessment scale range from 1, which indicates the lowest degree of agreement with the statement, to 5, which indicates absolute agreement with the stated statement.

Population and research sample: A total of 472 portal users who work in primary schools in the city of Belgrade, in the municipalities of Sopot, Mladenovac, Grocka, Voždovac and Savski venac, participated in this research.

3. RESEARCH RESULTS

Based on Table 1, we can see that more female respondents participated in the survey compared to the percentage of male respondents.

Table 1: User structure by gender

Gender	Number of respondents	Percentage (%)
Female	385	81,57
Male	87	18,43
Total	**472**	**100**

Source: Authors

In terms of age (Table 2), the characteristics of the sample show that the largest number of users belongs to the category - from 40 to 50 years of age (39.19%), a slightly smaller number of them belongs to the first category - up to 40 years of age (34.75%) and the third - between 50 and 60 years of age (21.19%), and that the smallest number of users is 60 years of age and older (4.87%).

Table 2: User structure by age

Age	Number of respondents	Percentage (%)
Up to 40 yrs.	164	34,75
40 yrs. To 50 yrs.	185	39,19
50 yrs. To 60 yrs.	100	21,19
60 yrs. and older	23	4,87
Total	**472**	**100**

Source: Authors

In relation to the self-evaluation of digital competences, the data presented in Table 3 indicate that the largest percentage of users assessed their digital competences as very good (47.25%); a smaller number of users (35.81%) assessed them as excellent. 16.31% of users assessed their digital competences as good, while a negligible number (0.42% and 0.21%) assessed their digital competences as sufficient and insufficient.

Table 3: Self-evaluation of digital competences

Mark	Number of respondents	Percentage (%)
1	1	0,21
2	2	0,42
3	77	16,31
4	223	47,25
5	169	35,81
Total	**472**	**100**

Source: Authors

Statistical data processing: The results obtained from the research were processed in the statistical data processing program SPSS [7]. A quantitative approach and qualitative analysis of the results were used to present the research results. The research results were presented in tabular and graphical forms. The paper provides a user structure of parents' responses according to gender and age, i.e. Descriptive statistics (frequency and percentage), as well as the structure of parents' responses in relation to the self-evaluation of digital competences according to the Likert five-point scale.
Research process: The research was carried out in the period from June 25th to July 5th, 2024. First, the instrument was prepared, and then its distribution began. The instrument was distributed by sending a link to access the Google questionnaire to school principals, who forwarded it to the users. All users were familiar with the content of the research and received detailed instructions on how to implement it in an email sent to them by the school principal. After the users had completed filling out the scales, a review was conducted in order to classify the scales that were filled out in their entirety. Instruments in which not all statements were filled out were not taken into account when processing the data.

3. ANALYSIS AND INTERPRETATION OF THE RESEARCH RESULTS

The following part of the paper presents the analysis and interpretation of the obtained research results. The paper is part of a larger study from which the results will be presented, which consider the attitudes towards the use of the electronic portal “Moja srednja škola”.
Several aspects were offered to users to evaluate the work with the electronic portal. The users’ attitudes were established by calculating the average of the responses, as well as the percentage of the degree of agreement with the offered statements in the assessment scale.
The subject of the research is the users’ attitudes towards the use of the electronic portal in school practice.

3.1 Hypothesis/Tasks

A small number of users expressed disagreement with the evaluation of the e-portal design (2%). The research results show that the largest percentage of users marks the portal design perfect (43%) or very good (40%).

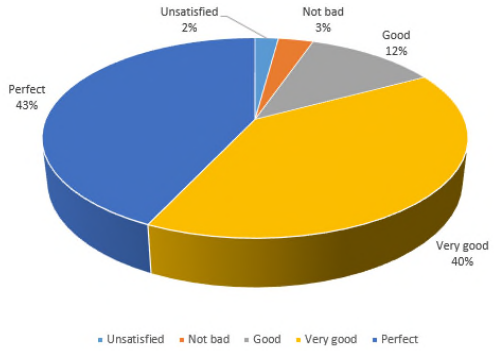

Figure 3: Evaluation of the portal design (*Source: Authors*)

The results of the research show that 45% of users fully believe that the “Ease of using the portal” is perfect; 37% of users agree with mark ”very good”. A much smaller percentage of users disagree or completely disagree with the above statements (only 3% is completely unsatisfied).

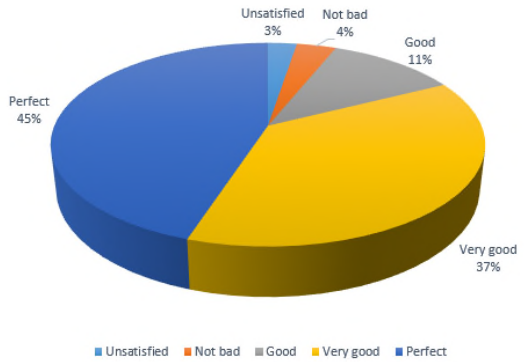

Figure 4: Evaluation of the ease of using the portal (*Source: Authors*)

As many as 49% of users mark ”perfect” statement "Accuracy of the portal instructions", while 33% agree with mark ”very good”. About 18% of users believe that portal instructions will not improve the whole process.

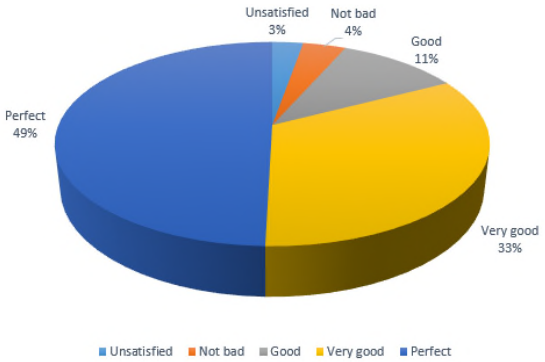

Figure 5: Evaluation of the accuracy of the portal instructions (*Source: Authors*)

The evaluation of the quality of the instruction for pupils and their parents (which is available on the portal in PDF format) indicates that a small number of users are dissatisfied or that the guide is not bad (both statements 3%). The results of the survey show that a third of users consider the instruction to be very good (33%), while exactly half of users consider the quality of the instruction to be excellent (50%).

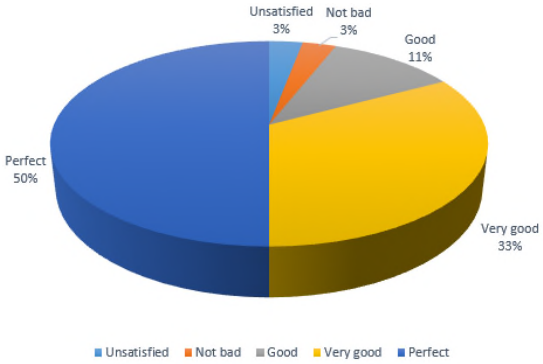

Figure 6: Evaluation of the quality of instruction for pupils and parents (*Source: Authors*)

The results of the survey show that 40% of users believe that the organization of the portal on the dates of the final exam was perfect. Almost as many respondents (35%) believe that the organization of the portal was very good at that time. A much smaller percentage of users are dissatisfied (7%) or have a somewhat mediocre opinion: 5% of respondents rated the organization of the portal as not so bad, while 13% rated it as good.

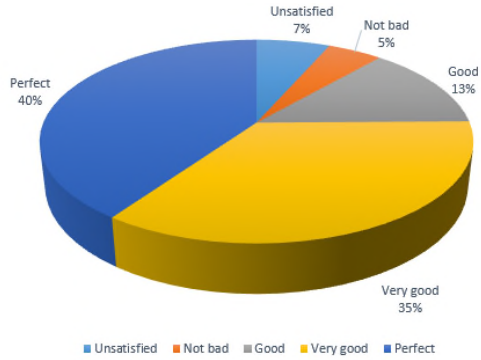

Figure 7: Evaluation of the organization of the portal during the dates of the final exams (*Source: Authors*)

The portal received the best marks in the evaluation of the speed and accuracy of publishing *preliminary exam results*: as many as 60% of respondents rated the mentioned category as perfect, while 22% rated it as very good. 4% of respondents are dissatisfied, 3% of respondents believe that the speed and accuracy of publishing preliminary exam results is not bad, while 7% rate it as good.

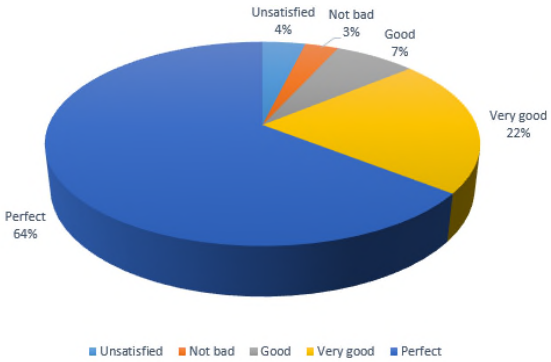

Figure 8: Evaluation of the speed and accuracy of publishing preliminary exam results (*Source: Authors*)

The portal also received very good marks in the evaluation of the speed and accuracy of publishing *final exam results*: as many as 58% of respondents rated the mentioned category as perfect, while 19% rated it as very good. 9% of respondents are unsatisfied, 4% of respondents believe that the speed and accuracy of publishing preliminary exam results is not bad, while 10% rate it as good.

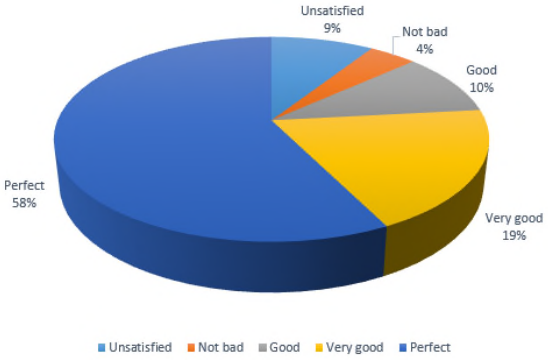

Figure 9: Evaluation of the speed and accuracy of publishing of the final exam results (*Source: Authors*)

4. CONCLUSION

Access to e-portals for secondary school pupil enrollment depends on aspects of privacy, functionality, and security. Pupils or their parents/guardians should be able to complete enrollment forms, upload necessary documents, and track the status of their application. They should only have access to their own personal and academic information, but not of other pupils. On the other hand, administrators have full access, allowing them to view, edit, and manage all enrollment data. Their role is to oversee the process, allocate resources, and ensure that all necessary steps are completed [8].
Although teachers are an important part of the school community, they usually do not need direct access to the enrollment e-portal. If access is granted, it should be limited to only the relevant data.
External entities, such as healthcare or government institutions, may be granted limited access to specific information in rare cases, particularly concerning health or legal matters. However, any such access must be justified, time-limited, and comply with strict privacy regulations [9].
Strong security measures are crucial for e-portal protection, including role-based access control [10], ensuring that users can only view the information relevant to them. Regular audits of access logs help detect unauthorized activities, while strong encryption for data in transit and storage, as well as multi-factor authentication for users with higher privileges, provide additional system security. Privacy laws, such as the Family Educational Rights and Privacy Act (FERPA) in the United States [11], [12], clearly define who can access pupil information and under what conditions. Schools should be familiar with these regulations and apply them when determining e-portal access [13]. To ensure that the system remains secure and compliant with privacy laws, regular training and education for users are necessary. Pupils, parents, and staff should be informed about the importance of safeguarding their login credentials, understanding the limitations of access, and reporting any suspicious activities or breaches [14].

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