The impact and benefits of the e-system for administration management in primary and secondary schools for teachers and parents

Abstract

The purpose of this research is to discover the impact of the E-management system on the work of teachers, parents and students. Enrolling students with all the information, keeping grades, behaviors, activities and most importantly analytical reports,this should be an easy process for teachers through the E-system. Parents will be able to track the child's progress at the right time. Students will receive notifications from the teachers, complete quizzes, access their success, track their shortcomings, and many other benefits.

The paper focuses on the following research objectiveson the impact of the Management System on the organization of the teachers class, research the impact of the Management System in creating and generating analytical reports for each student, research on the impact of the Management System on the communication of the teacher with students as well as with parents, Investigating the impact of the Management System on the teacher's will and researching the impact of the Management System on commitment and work by the teacher.

Keywords: E-System, management, teachers, parents and students.

Introduction

This paper aims to research the impact and benefits of the e-System for administration management in secondary schools on teachers and parents, to see what impact the application has on teachers, parents and students.

In this research two schools were assessed, "ZenelHajdini" secondary school and Hello private school, in the city of Gjilan. Teachers, parents and students will also be involved in this research.

The use of information technology in educational management has grown rapidly for the reason of efficiency and effectiveness. The value of management information was recognized during its integration stages. The general literature reviews highlighted the positive impact of management systems on school administration and management, including better access to information, more efficient administration, greater use of school resources, reduced workload, better management of time and improving the quality of reports. School management systems have changed school management in the areas of leadership, decision-making, workload, human resource management, communication, accountability and planning [1-4]

The progress of students over a semester or a year is very difficult to write down on paper, and it takes a lot of time. Through the management system, these data are organized in very simple formats and within seconds. Computerized management of student results, such as grades, behavior, progress and various functionalities, save teachers a lot of time. The management system makes it easier for teachers to communicate with students and parents [2].

By making daily and annual information available to parents, such as the reports and data presented in the application can increase the involvement of parents in everything. This E-System for school administration management isa contribution to the education system in Kosovo.

Hypotheses

The paper is built on the basis of these hypotheses:

1. The E-System for administration management in secondary schools has a positive effect on the work of organizing the teacher's lesson
2. The E-System for administration management in secondary schools has a positive impact and facilitates teacher-student-parent communication
3. The E-System for administration management in secondary schools facilitates and shortens the time of the process of generating analytics for each student
4. The E-System for administration management in secondary schools increases the disposition and commitment of teachers

Literature review

The education system forms the backbone of any nation. And that is why it is important to provide a strong educational foundation for the new generation to ensure the development of open-minded global learners who secure the future for all. The advanced technology available today can play a decisive role in guiding education-related processes to promote solidarity between students, teachers, and parents.

The School Management System is a database that is used to manage the daily work of a school. The system is configurable and can be configured for the needs of the school as well as used by many users at the same time [2]. The electronic school management system consists of tasks such as student registration, keeping records to record absences, maintaining student grades, producing various reports for teachers, parentsandnotifications about student activities [3-8].

School Management Systems are within the School Management Information System (SMIS). A School Management Information System (SMIS) is a system or process that provides the information needed to manage a school effectively. The areas of SMIS included in the program are [4-12]

1. Student management system
    a. This system is the main database module in the entire electronic system which is connected to other modules. In this module, student data such as personal data, absences, grades, activities, comments about the student as well as reports that are accessible to the teacher, parents and students are recorded and saved.
2. Teacher staff management system
    a. This system is the module that contains the profiles with personal data for the teaching staff

This paper aims to find out what impact the E-System for management will have on the teacher's work, as well as on the teacher's time management. Registration of students with all information, storage of grades, behaviors, activities as well as most importantly analytical reports, should be an easy process for teachers through the E-System. Teachers will have more free time to prepare for the lesson and have more motivation and will for their work.

Another aim of the paper is to find out the impact of the E-System on parents, as well as students. Parents will have access to their children's data, keeping an overview of their children without having to visit the school. By constantly monitoring the children's process, they can communicate with the children, motivating and helping them to achieve better results.

The practical importance of the researchisto increase the awareness of educational institutions as well as parents, about the use of E-Systems for management for the benefit of the most successful achievements of students.

E-System for the teacher	E-System for the student	E-System for parents
Automation of absences	The process of success in the report	Child report
Grade management	Shortages	Announcements from the teacher
Cooperation with parents	Announcements from the teacher	Absences of the child
Analytical reports	Print success	
Announcements about students		

Table 1. Functionalities of E-Systems[1]

[1] https://docplayer.net/47082578-E-school-school-management-system.html

Research methodology

This study is based on numerous studies involving the use of E-Systems for school management. The study is an action research based on teachers, students and parents at "ZenelHajdini" and "Hello" schools in Gjilan. In total, 30 teachers and 30 parents from ZenelHajdini public school participate in the research. The teaching participants of this study were divided into two groups. The experimental group consists of 15 teachers from "ZenelHajdini" public school, while the control group consists of 15 teachers from "Hello" school. In advance, a research was done about the knowledge of the two groups regarding access to the Internet and the use of E-Systems for management.

The experimental group used the application "E-school" to learn management.The application contains various modules to facilitate the management of learning by teachers. The use of E-School by the experimental group continued for one month. After completing the use of the application, the teachers were submitted to the first questionnaire regarding the hypotheses raised for this study. During this study, three variables were measured:

Process completion time:

The experimental group as well as the control group have been added variables to measure the completion time of the processes in the traditional way as well as through the E-School. Both groups were given 10 specific processes to complete by measuring the time for the same process, how long it took in the traditional way and how long it took through E-School. The right time for completing this task (variable) was 1 week

The number of errors made during the processes:

The experimental group was subjected to the procedure of counting the errors made during the completion of a process in the use of E-School (the second variable. They were tasked with completing 10 processes where we measured the errors they made during the completion of the processes. Time the time required for the completion of this procedure was 1 week.

Satisfaction Level Questionnaire:

The experimental group was asked the third variable, the satisfaction questionnaire, where they answered questions about how satisfied they are with the use of the E-application.

Test results are collected and recorded. After the action research, we conducted experimental and empirical research analyzing the collected data in qualitative and quantitative terms.

Manual Management Systems and their limitations

The Manual Management System is a system that does not need any computer equipment, where all data is stored manually in the form of paper [5-7] Effective school management requires attention. There are some limitations related to the Manual Management System [6-9].

- The main problem is the loss of documents, where 7.5% of documents are lost and 3% are wrong documents. Most of the letters that are lost cannot be reproduced, this fact greatly increases the risks related to the data as well as the cost of the school
- Manual management of the school requires a lot of human effort and waste of time from the administrative staff. All data should be backed up and stored in a safe place
- Recording student profiles, recording grades, activities, announcements, searching for a student or teacher are some of the limitations of Manual Systems
- Communication with parents is done by phone and it is a difficult process since the numbers are stored on paper

In the manual management of the school, the registration of students, staff or student information has many irregularities. Disinformation, student absences appear as an obstacle to this type of management, and in this way teachers can abuse their position by modifying students' grades and data.

Results and discussions

Demographic statistics are presented below, where these questions were answered by the experimental group. The questions are related to the teacher's level of education, years of experience, number of completed trainings and their experience with E-systems for school management.

Question 1: What is your level of education?

The first question from the second questionnaire concerns the level of education of the teachers. In Figure 1, we can see that 66.7% of the surveyed teachers have a Master's education level, while 33.3% have a University education level.

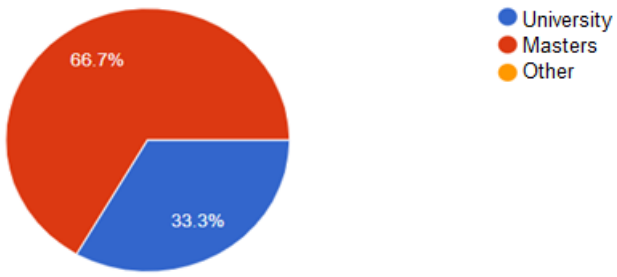

Figure 1. What is your level of education?

Question 2: Have you ever used a Student Management System before?

The second question from the questionnaire is related to Student Management Systems. In Figure 2 we can see that 60% of the respondents have never used the Student Management System and 40% of the respondents have used it less than 5 times. From this statistic we can conclude that most of the teachers have not used Student Management System before.

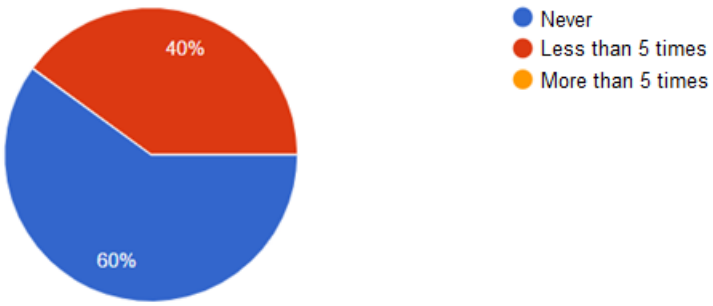

Figure 1. Statistics about the use of Student Management Systems

Descriptive statistics

Descriptive statistics are presented below for the first questionnaire and the second questionnaire. The data are presented in the form of a graph. The first questionnaire shows the teachers' attitudes regarding the impact of the Management System on the teaching process, while the second questionnaire shows the teachers' attitudes regarding satisfaction with the E-School.

Question 3 . Do you think that registering student information in the E-system for management makes your work easier?

The third question from the questionnaire refers to the module for registering student information in the E-system. In Figure 3 we can see that 26.7% of the respondents fully agree that the student registration module facilitates their work, 40% agree that the module facilitates their work, 13.3% have a neutral attitude, while 20% do not agree at all. From these positive results, we note that most of the respondents think positively about the impact of the E-system on their work.

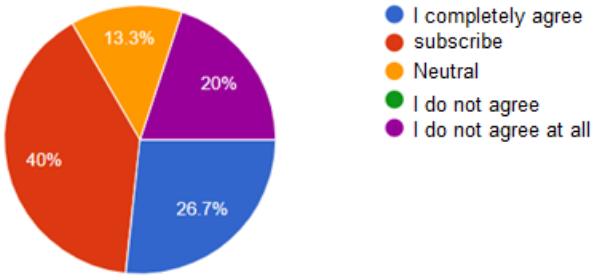

Figure 2. Registration of information for students

Question 4.Do you think that registering grades electronically in the E-system saves you a lot of time?

The fourth question from the questionnaire concerns the module for recording students' grades in the E-system. In Figure 4 we can see that 73.3% of the respondents fully agree that the module for recording students' grades facilitates their work, while 26.7% agree that the module facilitates their work. From these positive results, we note that most of the respondents think positively about the impact of the E-system on their work.

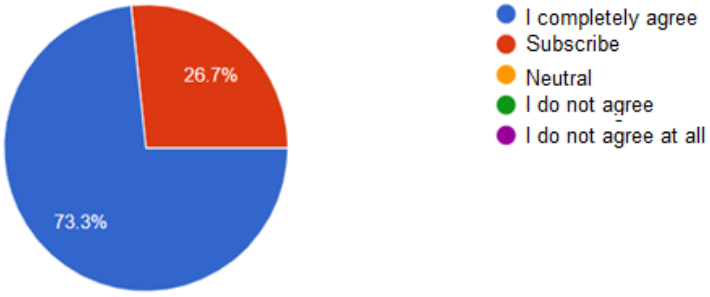

Figure 3. .Registration of students' grades

Question 5 . Do you think that the E-system for management makes it easier to generate analytics for each student?

The fifth question from the questionnaire belongs to the module for generating analytics for each student in a simpler way in the E-system. In Figure 5 we can see that 40% of the respondents completely agree that the module for generating analytics for each student is simpler, 20% agree, 13.3% have a neutral attitude, 13.3% disagree, while 13.3% do not agree at all that the module facilitates the way of generating analytics. From these positive results, we note that most respondents think positively about the impact of the E-system in generating analytics for each student.

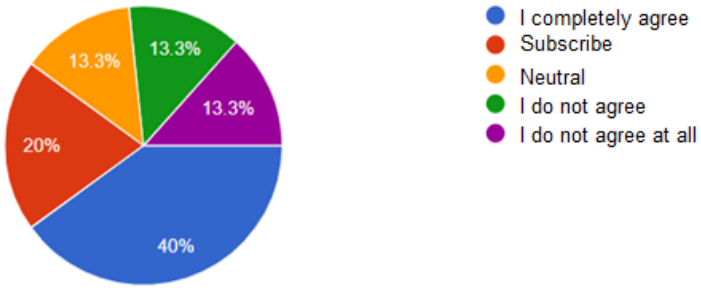

Figure 5. Generating analytics for each learner

Question 6 . Do you think that the E-system for management increases your willingness to teach?

The sixth question from the questionnaire concerns the increase of the teacher's will by using the E-System. In Figure 6, we can see that 26.7% of the respondents completely agree that the use of the E-System has a positive effect on increasing the willingness to teach, 26.7% agree, 20% have a neutral attitude, 13.3% disagree, while 13.3% do not agree at all that the use of the E-System has a positive effect on increasing the willingness to teach. From these positive results, we note that most of the respondents think positively about the impact of the E-system in increasing the willingness to teach.

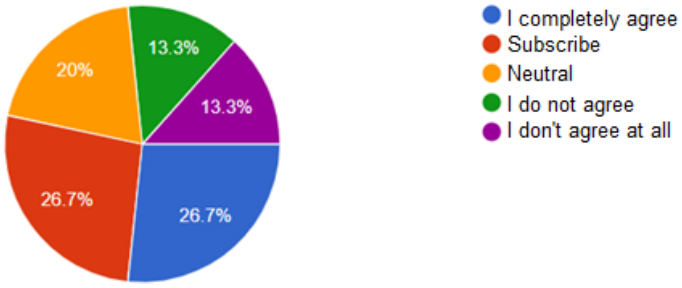

Figure 4. The teacher's willingness to use the E-System

Question 7 . Do you think that the E-system for management increases your commitment to teaching?

The seventh question from the questionnaire concerns the increase of the teacher's commitment by using the E-System. In Figure 7, we can see that 33.3% of the respondents completely agree that the use of the E-System has a positive effect on the increase in commitment to teaching, 26.7% agree, 13.3% have a neutral attitude, 13.3% disagree, while 13.3% do not agree at all that the use of the E-System has a positive effect on the increase in commitment to teaching. From these positive results, we note that most of the respondents think positively about the impact of the E-system in increasing commitment to teaching.

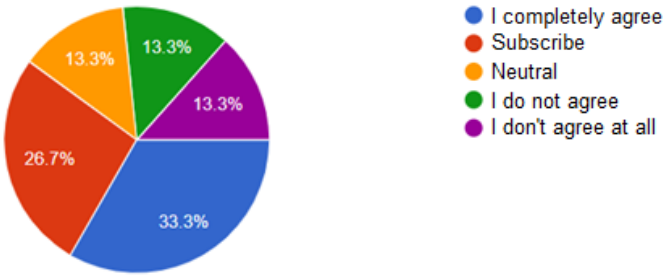

Figure 5. The impact of the E-System on commitment to teaching

The experimental group was asked the third variable, the satisfaction questionnaire where they answered questions about how satisfied they are with the use of E-School.

Question 8: How satisfied are you with the modules included in the E-School?

The eighth question in the questionnaire is about how satisfied the respondents are with the modules included in the E-School. In Figure 8 we can observe that 26.7% of the respondents think that the modules are included in an excellent way in the E-School, 33.3% of the respondents think that they are included very well, 13.3% have a neutral attitude, 13.3% think that they are included enough, while 13.3% are not satisfied with the inclusion of modules in the E-School. From these positive results we can conclude that most respondents are satisfied with the modules.

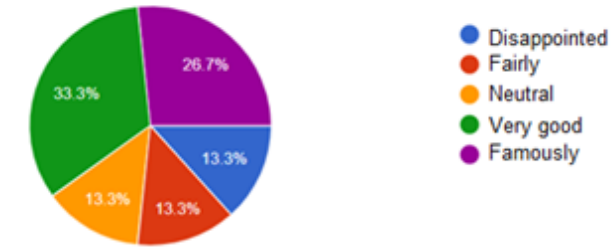

Figure 8. How satisfied are you with the modules included in the E-School?

Question 9: How satisfied are you with the grade recording module?

The ninth question in the questionnaire concerns how satisfied respondents are with the grade recording module. In Figure 9 we can see that 33.3% of the respondents are excellently satisfied with the grade recording module, 20% very well, 13.3% have a neutral attitude, 20% are quite satisfied with the grade recording module, while 13.3% are dissatisfied. From these positive results we can conclude that the majority of the respondents are satisfied with the grade recording module.

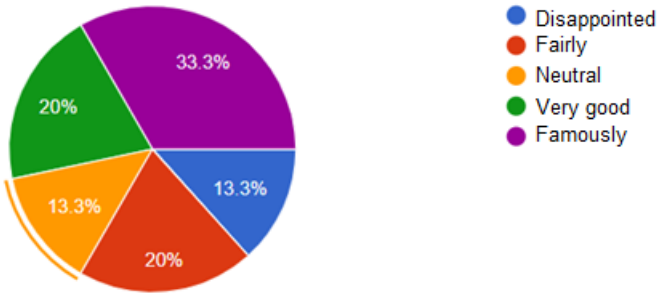

Figure 6. How satisfied are you with the grade recording module?

Question 10: How satisfied are you with the operations offered by E-School?

The tenth question from the questionnaire is about how satisfied the respondents are with the operations offered by the E-School. In Figure 10 we can observe that 26.7% of respondents are satisfied at an excellent level with the operations offered by the E-School, 20% are very satisfied, 13.3% have a neutral attitude, 13.3% are sufficiently satisfied, while only 26.7% are not satisfied. From these positive results we can conclude that most of the respondents are satisfied with the operations offered by E-School.

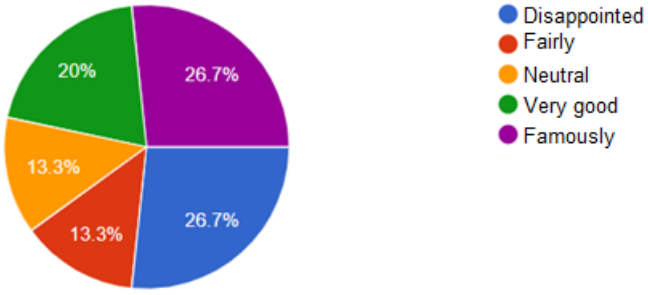

Figure 10. How satisfied are you with the operations offered by E-School?

Question 11: How satisfied are you with the accuracy that E-School offers?

The eleventh question from the questionnaire is about how satisfied the respondents are with the accuracy that E-School offers. In Figure 11 we can see that 26.7% of respondents are satisfied at an excellent level with the accuracy offered by E-School, 26.7% are very satisfied, 13.3% have a neutral attitude, 20% are sufficiently satisfied, while only 13.3% are not satisfied. From these positive results, we can conclude that most of the respondents are satisfied with the accuracy offered by E-School.

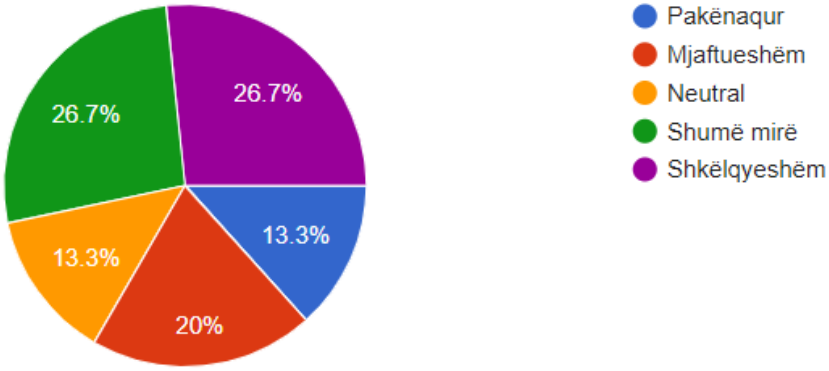

Figure 7. How satisfied are you with the accuracy that E-School offers?

Question 12 :How satisfied are you with the student information that you can communicate to parents through E-School?

The twelfth question from the questionnaire is about how satisfied the surveyors are with the information of students that they can communicate to parents through E-School. In Figure 12 we can observe that 21% of respondents are satisfied at an excellent level with the student information provided by E-School, 20% are very satisfied, 19% have a neutral attitude, 13.3% are sufficiently satisfied, while only 26.7% are not satisfied. From these positive results we can conclude that most of the respondents are satisfied with the information of the students that they can communicate to their parents through E-School.

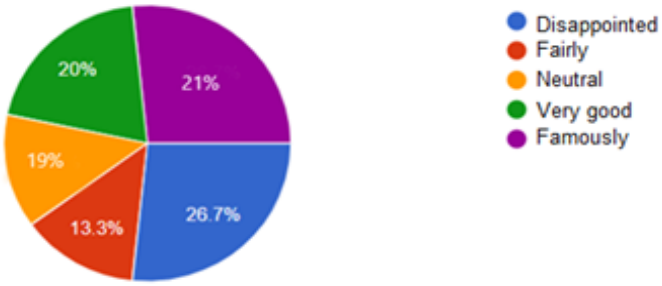

Figure 8. How satisfied are you with the information provided by E-School?

Question 13 :How satisfied are you with the students' information that you can communicate to them through E-School?

The thirteenth question from the questionnaire is about how satisfied the surveyors are with the information of the students that they can communicate to them through the E-School. In Figure 13, we can observe that 26.7% of respondents are satisfied at an excellent level with the student information provided by the E-School, 26.7% are satisfied, 20% have a neutral attitude, 13.3% are sufficiently satisfied, while 13.3% are not satisfied. From these positive results we can conclude that most of the respondents are satisfied with the information of the students that they can communicate to them through E-School.

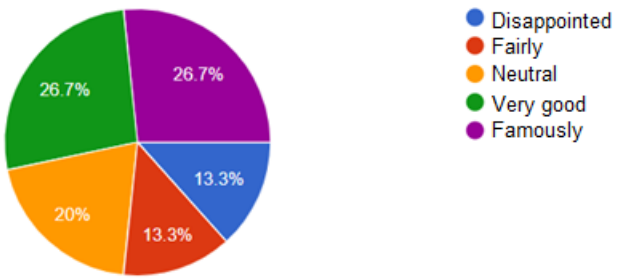

Figure 9. How satisfied are you with the information you can communicate to them?

Question 14 :How satisfied are you with the analytical reports you can generate at E-School?

The fourteenth question from the questionnaire is about how satisfied the respondents are with the analytical reports they can generate through E-School. In Figure 14, we can observe that 21.4% of respondents are satisfied at an excellent level with the analytical reports they can generate through E-School, 28.6% are very satisfied, 21.4% have a neutral attitude, 14.3% are sufficiently satisfied, while only 14.3% are dissatisfied. From these positive results, we can conclude that most of the respondents are satisfied with the analytical reports they can generate through E-School.

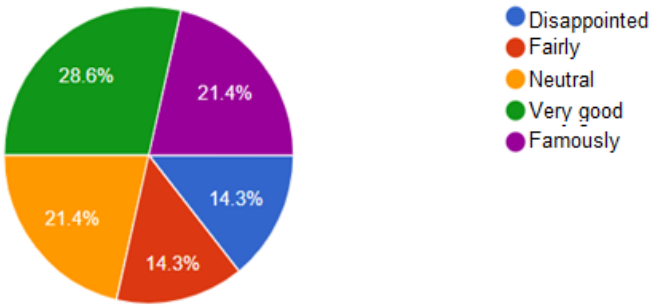

Figure 10. How satisfied are you with the analytical reports?

Question 1 5 :How satisfied are you with the creative space that E-School offers you?

The fifteenth question from the questionnaire is about how satisfied the respondents are with the space that E-School offers you. In Figure 15, we can see that 26.7% of respondents are very satisfied with the space offered by E-School, 33.3% are very satisfied, 13.3% have a neutral attitude, 13.3% are sufficiently satisfied, while only 13.3 are unhappy. From these positive results, we can conclude that most of the respondents are satisfied with the space offered by E-School.

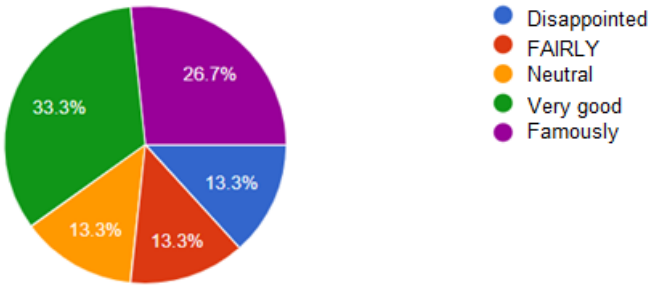

Figure 11. How satisfied are you with the creative space that E-School offers you?

Results of variables

Below are presented the results of the measurements of the variables, the variable for measuring the time of completion of the process as well as the variable for measuring the number of errors made during the process. After 2 weeks of testing and observation where a total of 30 teachers participated in this research, the results were collected and analyzed.

Variables for measuring process completion time

The experimental group as well as the control group were added to the questionnaire to measure the completion time of the processes in the traditional way as well as through the E-School. Both groups were given 10 certain processes to complete by measuring the time for the same process, how long it took traditionally and how long it took through E-School. The appropriate time for the completion of this variable was 1 week. In Table 2 we can see the accumulated results for the experimental group and for the control group. The Process column lists the processes for which the variable was measured. From these descriptive results we can observe a great difference along the mean of the measured variable between the two groups.

Table 2. Variables for measuring the completion time of processes

The results of the variable for measuring the time of completion of the processes		
process	Average process completion by experimental group	Average completion of the process from the control group
Clock recording	**5 minutes**	**5 minutes**
Student registration	**8 minutes**	**10 minutes**
Registration of absences	**5 minutes**	**5 minutes**
Recording grades	**5 minutes**	**5 minutes**
Weekly report for the student	**10 minutes**	**40 minutes**
Monthly report for the student	**10 minutes**	**60 Minutes**
Annual report for the student	**10 minutes**	**2 hours**
Notices to the student	**5 minutes**	**10 minutes**
Homework assessment	**30 minutes**	**1 hour**
Notices to parents	**5 minutes**	**30 minutes**

Table 3. Statistics for the two groups

Groups	Count	Sum	Average	Variance
Experimental group	10	93	9.3	58.23333
Control group	10	355	35.5	1341.389

In Table 3 we can see the descriptive statistics for both groups. The average of the experimental group has a score of 9.3 while the average of the control group has a score of 35.5. From these results we can conclude that the experimental group has a lower average for the completion of processes while the control group has a significantly higher average (Experimental Group 9.3 < Control Group 35.5).

Table 4. Anova table

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3432.2	1	3432.2	4.904466	0.039928	4.413873
Within Groups	12596.6	18	699.8111			
Total	16028.8	19				

The Anova table in Table 4 presents the results analyzed between two groups and within two groups. From the table we see that the F value = 4.904466 is greater than the critical F value = 4.413873, where we can conclude that it is a positive result since the experimental group has a lower mean of completing the processes .

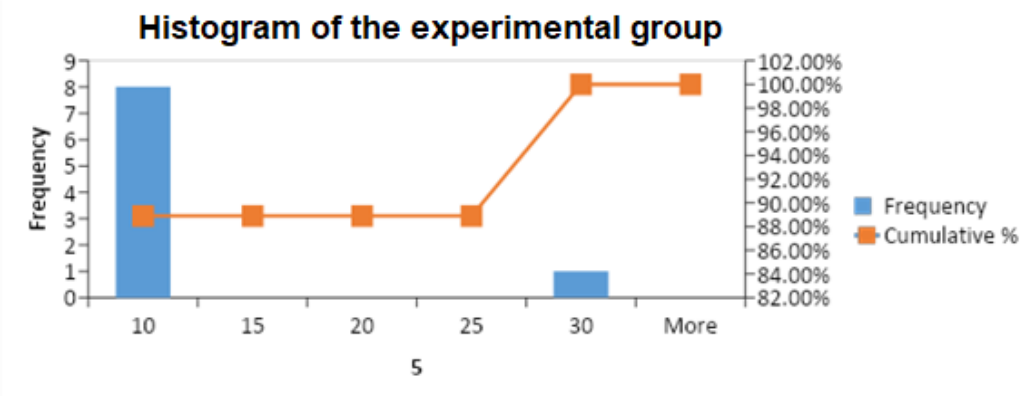

Figure 12. Histogram of the experimental group

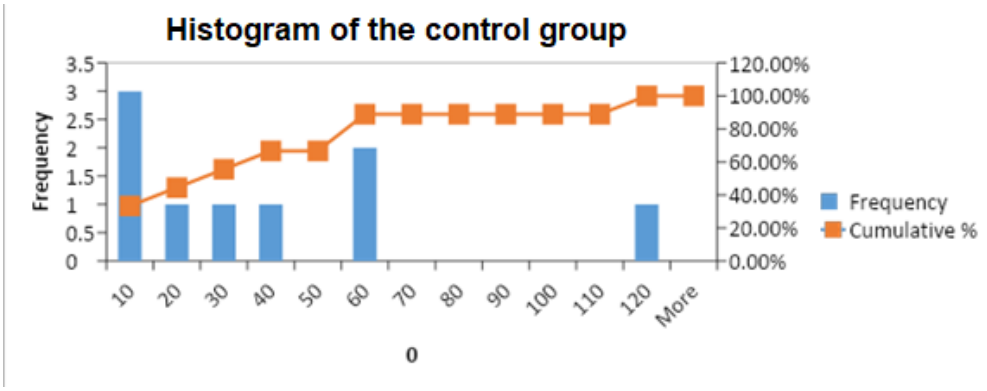

Figure 13. Histogram of the control group

In the Histogram in Figure 16 we see that the curve tilts to the left, where the value of 10 has the highest Frequency of all values, this shows that the result of the experimental group is positive because the value of Frequency is quite low. The curve in the Histogram in Figure 17 is almost symmetrical where the values 10, 60 and 120 have higher Frequency than other values, this shows that the result of the control group is negative compared to that of the experimental group since the Frequency values are enough high.

Variable for measuring the number of errors made during the process

The experimental group was subjected to the second variable for errors made during the completion of a process in the use of E-School. They were tasked with completing 10 processes where we measured the mistakes they made while completing the processes. The appropriate time for the completion of this variable was 1 week. In Table 5 we can see the accumulated results for the experimental group. The Process column lists the processes for which the variable was measured. From these descriptive results we can observe a small number of the number of errors made during the completion of a process.

Table 5. Table for the number of errors made during the completion of a process

The variable scores for the number of errors made while completing a process	
process	The average number of errors made during the completion of a process
Clock recording	**2 Errors**
Student registration	**2 Errors**
Registration of absences	**0 Errors**
Recording grades	**0 Errors**
Weekly report for the student	**2 Errors**
Monthly report for the student	**3 Errors**
Annual report for the student	**3 Errors**
Notices to the student	**1 Error**

Homework assessment	**4 Errors**
Notices to parents	**1 Error**

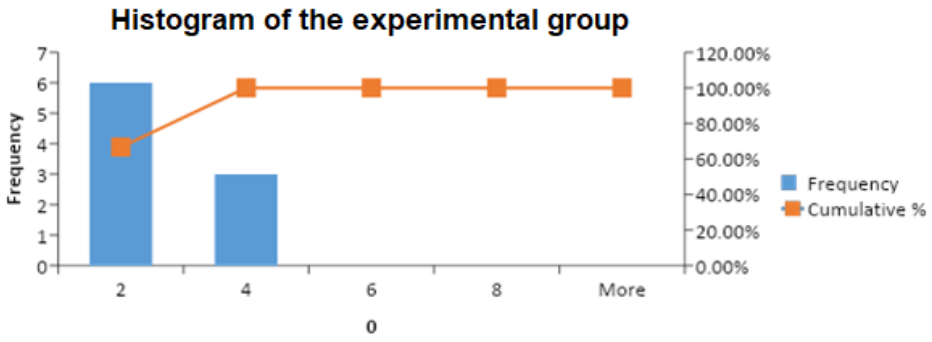

Figure 14. Histogram of experimental set- Error measurement variable

In the Histrogram of the control group in Figure 18 we see that the curve tilts to the left, where values 2 and 4 have the highest Frequency of all values, this shows that the result of the experimental group is positive because the Frequency values are quite low. The experimental group completed the processes with a very small number of errors.

Discussion of the results about the hypotheses

The purpose of the research is based on the research of these four hypotheses:

- The E-System for administration management in secondary schools has a positive effect on the work of organizing the teacher's lesson
- The E-System for administration management in secondary schools has a positive impact and facilitates teacher-student-parent communication
- The E-System for administration management in secondary schools facilitates and shortens the time of the process of generating analytics for each student
- The E-System for administration management in secondary schools increases the willingness and commitment of teachers

Questionnaire questions about the first hypothesis are presented in the following table:

1. Do you think that registering information about students in the E-System for management facilitates your work?
2. Do you think that registering grades electronically in the E-System saves you a lot of time?
3. Do you think that recording students' comments and absences in the E-System for management saves you a lot of time

Table 6. Questionnaire questions about the first hypothesis

The answers of the respondents about the three questions for the first hypothesis are shown in the Graph in Figure 19. We see that the attitudes of the respondents are generally positive where 30% of the respondents completely agree and 27% agree regarding the E-School modules, only 13% of respondents have a neutral attitude, 13% disagree and only 17% disagree at all with the three E-School modules presented in Table 6.

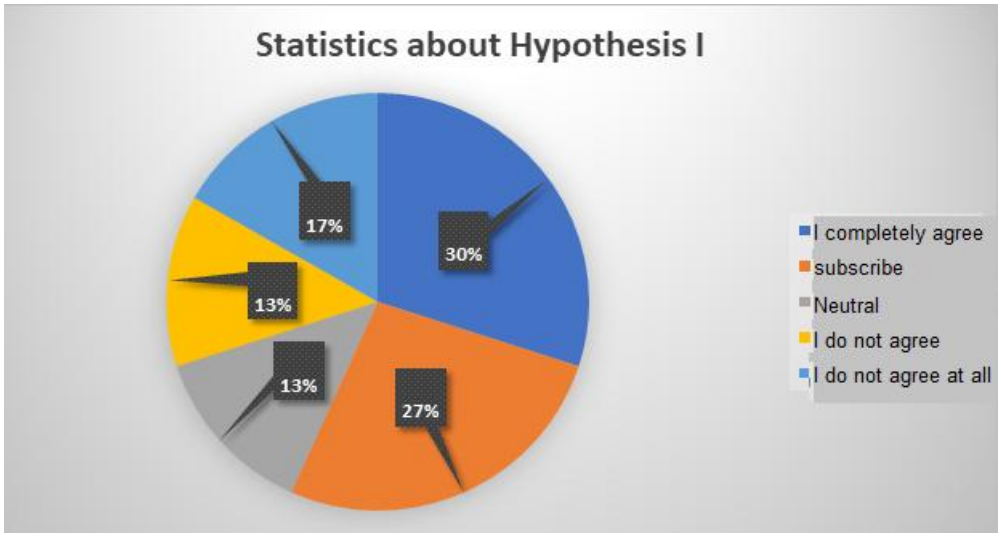

Figure 15. Graph for Hypothesis statistics

From the positive statistics presented in the graph where the E-School modules have facilitated work and saved teachers' time, we can prove the accuracy of the first hypothesis.

Questionnaire questions about the second hypothesis are presented in the following table:

1. Do you think that announcements about meetings and information for parents in the E-System for management facilitate communication with parents
2. Do you think that the student report module for parents in the E-System for management has a positive impact on teacher-student-parent communication?

Table 7. Questionnaire questions about the second hypothesis

The answers of the respondents about the two questions for the second hypothesis are shown in Figure 20. We see that the attitudes of the respondents are generally positive where 35% of the respondents completely agree and 26% agree, 13% have a neutral attitude, 13% disagree and only 13% disagree at all regarding the 2 E-School modules presented in Table 7.

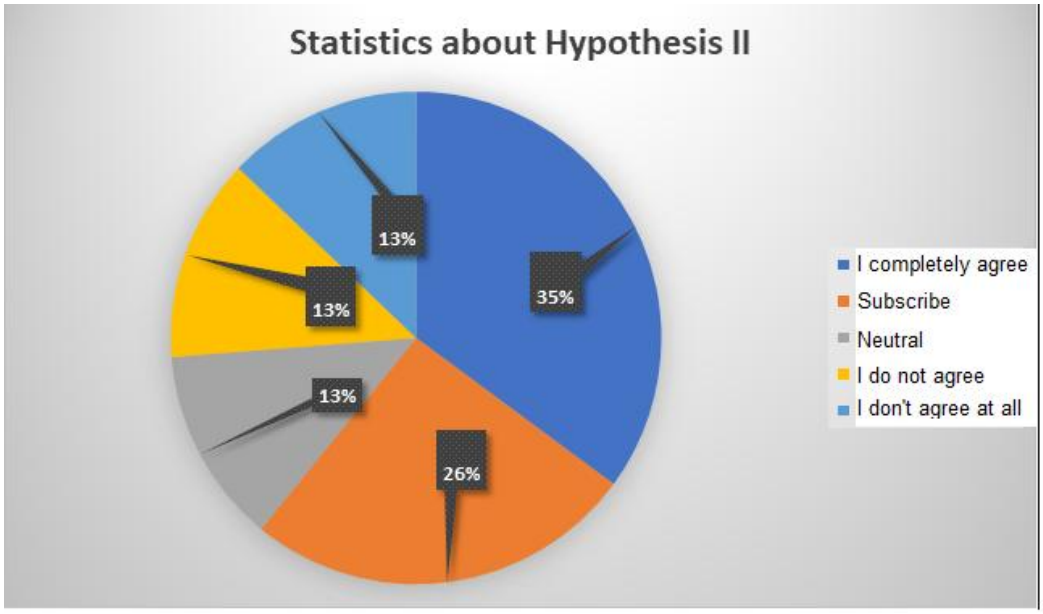

Figure 16. Graph for Hypothesis II statistics

From the positive statistics presented in the Chart where the E-School modules have facilitated communication with parents as well as teacher-student-parent communication, we can prove the accuracy of the second hypothesis.

Questionnaire questions about the third hypothesis are presented in the following table:

1. Do you think that the E-System for management affects the facilitation of the generation of analytics for each student?
2. Do you think that the E-System for management affects the shortening of the process of generating analytics for each student?

Table 8. Questionnaire questions about the third hypothesis

The answers of the respondents about the two questions for the third hypothesis are shown in Figure 21. We see that the attitudes of the respondents are generally positive where 37% of the respondents completely agree and 27% agree, 13% of the respondents have a neutral attitude, 10 % do not agree and only 13% do not agree at all with the 2 modules offered by E-School presented in Table 8.

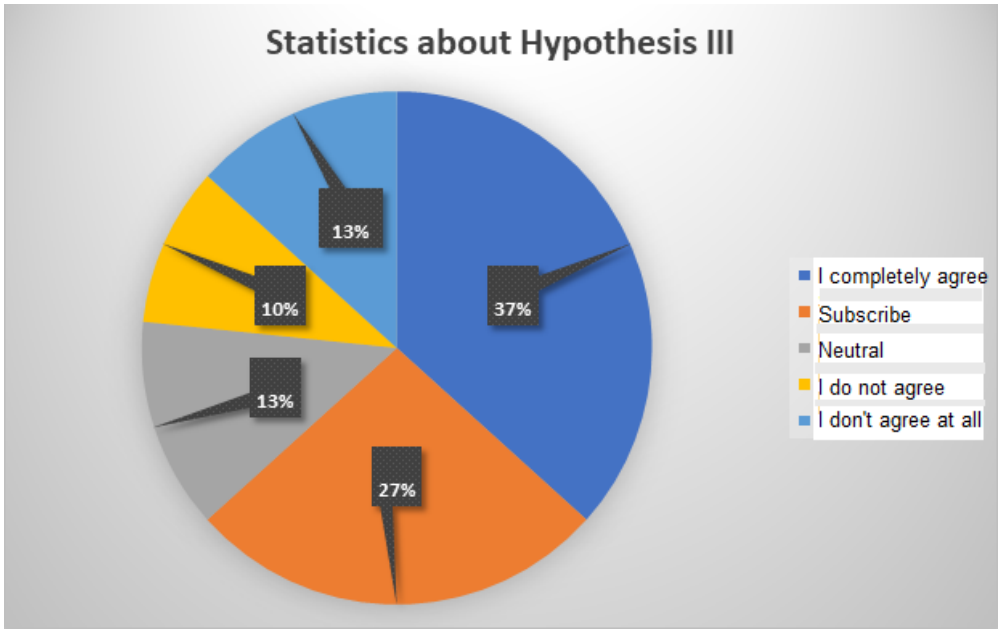

Figure 17. Graph for Hypothesis II statistics

From the positive statistics presented in the Chart where the E-School modules have facilitated the generation of analytics for each student and shortened the time of the analytics generation process for teachers, we can prove the accuracy of the third hypothesis.

Questionnaire questions about the fourth hypothesis are presented in the following table:

1. Do you think that the E-System for management increases your willingness to teach?
2. Do you think that the E-System for management increases your commitment to teaching?

Table 9. Questionnaire questions about the fourth hypothesis

The answers of the respondents about the two questions for the fourth hypothesis are presented in Figure 22. We see that the attitudes of the respondents are generally positive where 30% of the respondents completely agree and 27% agree, 17% of the respondents have a neutral attitude, 13 % disagree and only 13% disagree at all regarding the 2 E-School modules presented in Table 9.

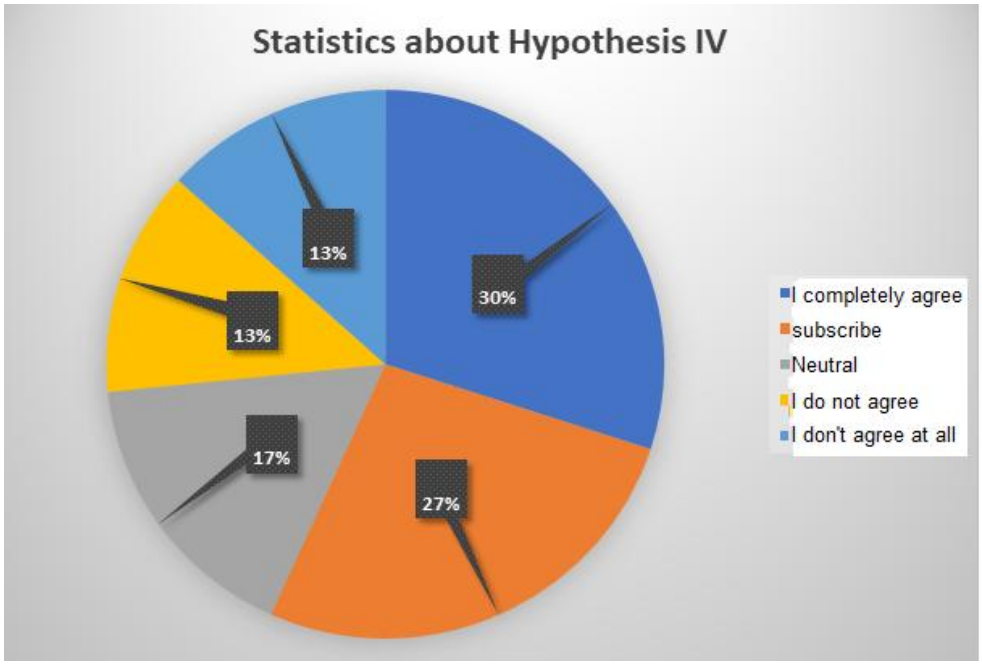

Figure 18. Graph for Hypothesis IV statistics

From the positive statistics presented in the graph where the E-School modules have increased the willingness and commitment to teaching for teachers, we can prove the accuracy of the fourth hypothesis.

Conclusion

The integration of school management systems are efficient and very useful in the work of teachers and the teaching process. Numerous and easy-to-use modules facilitate the work of teachers. Any information about the student, the lesson, the generation of reports for students can be safely saved through E-School. The process of the student's progress is not closed inside the diary, but both parents and students have access to this process all the time. This access can be done from any hardware unit that has an Internet connection. Communication of announcements to students and parents is very simple through E-School, teacher-student-parent communication deepens even more through E-School.

From the empirical study of the data, the measurement of the variables and their analysis in the quantitative and qualitative point of view, which were carried out in the experimental group and in the control group, after comparing the results, we came to the conclusion that the school management systems have a positive impact on teaching and learning. After the analyzed statistics, we can conclude that school management systems facilitate the work of teachers, save their time in completing various processes, communication with students and parents is much more pronounced, students and parents can constantly follow the progress of their and their children's learning and behavior. School management systems should also be practiced in public schools as their importance is quite large for the development of education and the education of students.

Consent

As per international standards or university standards, respondents' written consent has been collected and preserved by the author(s).

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