iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** II **Month of publication:** February 2023

DOI: https://doi.org/10.22214/ijraset.2023.48860

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue II Feb 2023- Available at www.ijraset.com

Acceptability of the Developed Geographical Information System for Janosa National High School

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Abstract: ***This study is focused on the acceptability of the developed Geographical Information System for Janosa National High School, an island school located in Janosa, Talim Island in Binangonan, Rizal. In order to obtain reliable results, a questionnaire-checklist was developed which ascertained to fit the existing culture of the subject in terms of their knowledge of the school and the information about it. Data for the school geographical information system was obtained through documentary analysis. The geographical information system covers the most important factors that will help the user be familiarized with the premises of Janosa National High School such as Page, History, Faculty and students. There is also a part where everyone can get information about the school. The respondents of the study were 50 grade 10 students and 42 teachers of the said school. Developmental research and descriptive evaluative research design were applied in the study. A standardized questionnaire checklist from the Institute of Engineering Electronics Evaluation (2010) was adapted to determine the level of acceptability of the developed Geographical Information System with respect to accuracy, applicability, user-friendliness, workability completeness, portability, modifiability and clarity. Based on the analysis and interpretation of data, the system covers the most important factors that will help the user be familiarized with the premises of Janosa National High School such as: Home Page/Introduction, Directory, History, Faculty, Student, and Contact Us Page. The developed geographical information system is much acceptable as evaluated by teachers and students. Based on the findings, the study concluded that teachers and students have similar evaluations on the level of acceptability of the developed geographical information system for Janosa National High School with respect to accuracy, applicability, workability completeness, portability, modifiability and clarity. However, with respect to user-friendliness, their evaluations differ significantly. The study recommended that the Geographical Information System may be· used for research and operational analysis, features in this database may be linked to data of participants stored in other project databases. The developed system may provide variety of school programs and more stimulating learning experiences. The developed system may be presented for special programs and activities of the school. Parallel studies may be conducted using other variables***

Keywords: Geographical information system, accuracy, applicability, user-friendliness, workability completeness, portability, modifiability and clarity.

I. INTRODUCTION

Education to be worthwhile and accessible should adapt to the ever changing world specifically technology. The influx of information when information highways open overwhelmed the academicians as they were caught unaware on how to process and facilitate the countless ways to learn and communicate.

A geographic information system (GIS) is a computer system for capturing, storing, checking, and displaying data related to positions on Earth's surface. GIS can show many different kinds of data on one map. This enables people to more easily see, analyze, and understand patterns and relationships. With GIS technology, people can compare the locations of different things in order to discover how they relate to each other. For example, using GIS, the same map could include sites that produce pollution, such as gas stations, and sites that are sensitive to pollution, such as wetlands. Such a map would help people determine which wetlands are most at risk. GIS can use any information that includes location. The location can be expressed in many different ways, such as latitude and longitude, address, or ZIP code. Many different types of information can be compared and contrasted using GIS. The system can include data about people, such as population, income, or education level. It can include information about the land, such as the location of streams, different kinds of vegetation, and different kinds of soil. It can include information about the sites of factories, farms, and schools, or storm drains, roads, and electric power lines.

Data in many different forms can be entered into GIS. Data that are already in map form can be included in GIS. This includes such information as the location of rivers and roads, hills and valleys. Digital, or computerized, data can also be entered into GIS. An example of this kind of information is data collected by satellites that show land use—the location of farms, towns, or forests. GIS can also include data in table form, such as population information. GIS technology allows all these different types of information, no matter their source or original format, to be overlaid on top of one another on a single map.

GIS must make the information from all the various maps and sources align, so they fit together. One reason this is necessary is because maps have different scales. A scale is the relationship between the distance on a map and the actual distance on Earth. GIS combines the information from different sources in such a way that it all has the same scale.

With GIS technology, researchers can also look at change over time (Campbell, 2006). They can use satellite data to study topics such as how much of the polar regions is covered in ice. A police department can study changes in crime data to help determine where to assign officers. GIS often contains a large variety of data that do not appear in an onscreen or printed map. GIS technology sometimes allows users to access this information. A person can point to a spot on a computerized map to find other information stored in the GIS about that location. For example, a user might click on a school to find how many students are enrolled, how many students there are per teacher, or what sports facilities the school has.

Presently, Janosa National High school, like any other national high school in the Philippines utilizes Educational Management Information System to summarize and store data on school demographics. However, due to some constraints e.g. typhoon, floods and other natural calamities, some data are worn, destroyed and/or gone which cannot be retrieved anymore. It is for this reason that the researcher, an IT teacher was motivated to conduct a study in developing a geographical information system for Janosa National High School with the aim in view of updating school records, data on its physical facilities and likewise, adoption of highly technical way to store and improve school records.

The study was conducted in Janosa National High School. This is one of the public secondary schools located in one of the islands of Binangonan, Rizal. The school follows the DepEd vision which states that “We dream of Filipinos who passionately love their country and whose values and competencies enable them to realize their full potential and contribute meaningfully to building the nation. As a learner-centered public institution, the Department of Education continuously improves itself to better serve its stakeholders**.** The Dep Ed mission is to protect and promote the right of every Filipino to quality, equitable, culture-based, and complete basic education where: students learn in a child-friendly, gender-sensitive, safe, and motivating environment. Teachers facilitate learning and constantly nurture every learner. Administrators and staff, as stewards of the institution, ensure an enabling and supportive environment for effective learning to happen. Family, community, and other stakeholders are actively engaged and share responsibility for developing life-long learners.

The study is anchored on the Coding theory of Dommers (2011) which focused on the properties of codes and their fitness for a specific application. Codes are used for data compression, cryptography, error-correction and more recently also for network coding. Codes are studied by various scientific disciplines—such as information theory, electrical engineering, mathematics, and computer science—for the purpose of designing efficient and reliable data transmission methods. This typically involves the removal of redundancy and the correction (or detection) of errors in the transmitted data.

There are four types of coding: Data compression (or, source coding); Error correction (or channel coding); Cryptographic coding line coding; Data compression and error correction may be studied in combination. Source encoding attempts to compress the data from a source in order to transmit it more efficiently. This practice is found every day on the Internet where the common Zip data compression is used to reduce the network load and make files smaller.

The second, channel encoding, adds extra data bits to make the transmission of data more robust to disturbances present on the transmission channel. The ordinary user may not be aware of many applications using channel coding. A typical music CD uses the Reed-Solomon code to correct for scratches and dust. In this application the transmission channel is the CD itself. Cell phones also use coding techniques to correct for the fading and noise of high frequency radio transmission. Data modems, telephone transmissions, and NASA all employ channel coding techniques to get the bits through, for example the turbo code and LDPC codes.

The cited theory is related to the present study because both are concerned with data storage using codes for error-correction and more recently also for network coding. Likewise, the present study developed a geographical information system for a school which is the focus of the theory.

The study utilized the Systems Approach by Coombs which includes input, process, and output. The first frame refers to the input which includes the teachers and students as respondents of the study. This also includes the Geographical Information System for Janosa National High School as the main focus of the study.

The second frame, shows the steps undertaken in the conduct of the study. These include the development of the Geographical Information System for Janosa National High School, construction and validation of questionnaire-checklist, gathering of data, tabulation, analysis and interpretation of data. The last frame is the output which is the determined acceptability of the Geographical Information System for Janosa National High School.

The study focused on the acceptability of the developed Geographical Information System (GIS) for Janosa National High School during the School Year 2021-2022. Specifically, it sought to answer the following questions: How was the geographical information system for Janosa National High School developed?

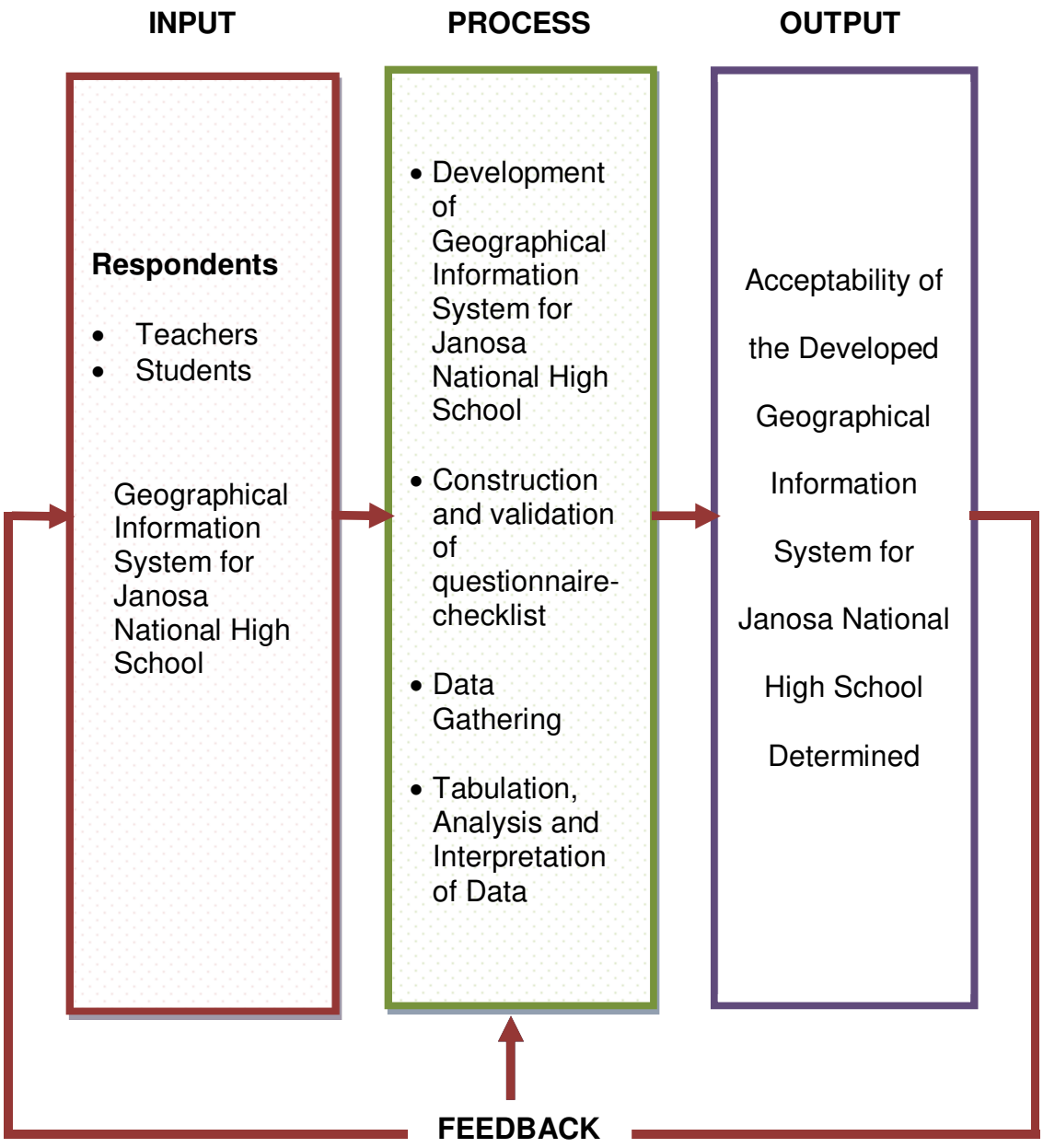

Figure 2
Conceptual Model on the Acceptability of the Developed Geographical Information System for Janosa National High School

What is the level of acceptability of the developed geographical information system as evaluated by teachers and students with respect to: accuracy; applicability; user-friendliness; workability; completeness; portability; modifiability; and clarity? Is there a significant difference between the evaluations of the two groups of respondents on the level of acceptability of the developed geographical information system for Janosa National High School with respect to the cited aspects?

The study tested the null hypothesis stating that there is no significant difference between the evaluation of teachers and students on the level of acceptability of the developed Geographical Information System for Janosa National High School with respect to accuracy, applicability, user-friendliness, workability completeness, portability, modifiability and clarity.

This study is very important as it entails service and commitment on the part of the researcher. In so doing, various sectors and stakeholders would benefit in varied ways, thus:

1) *Curriculum Planners:* They would be challenged to include geographic information system as section in the curriculum to make the students aware of school demographics and that they are ready of their future tasks as individuals and citizens of this country.
2) *School Administrators:* They will be motivated as educational leaders and community service-oriented individuals working hand in hand with the community in terms of zoning and profiling.
3) *Teachers:* They will be more aware on the importance of geographical information system and data inherent therein.
4) *Students:* The geographic information system will serve as learning material for them which would enlightened them of the tasks waiting ahead of them which could be learned theoretically and practiced later on in their lives.
5) *Parents:* They could collaborate with teachers and administrators on the problems directly affecting the community where they belong, thus devise an action plan on how to systematically address community concerns.
6) *Local Government Unit:* They can work hand in hand with schools to fast track projects concerning geographical information and reach out the challenged sectors.
7) *Future Researchers:* The study will serve as reference for similar studies on developing geographical information system.

This study is focused on the acceptability of the developed Geographical Information System for Janosa National High School, an island school located in Janosa, Talim Island in Binangonan, Rizal. In order to obtain reliable results, a questionnaire-checklist was developed which ascertained to fit the existing culture of the subject in terms of their knowledge of the school and the information about it.

Data for the school geographical information system was obtained through documentary analysis. The geographical information system covers the most important factors that will help the user be familiarized with the premises of Janosa National High School such as Home Page, Introduction, Directory, History, Faculty and Students. There is also a part where everyone can get information about the school. The respondents of the study were 50 grade 10 students and 42 teachers of the said school. Developmental research and descriptive evaluative research design were applied in the study. A standardized questionnaire checklist from the Institute of Engineering Electronics Evaluation (2010) was adapted to determine the level of acceptability of the developed Geographical Information System with respect to accuracy, applicability, user-friendliness, workability completeness, portability, modifiability and clarity.

For a common frame of reference, the terms are conceptually and/or operationally defined for better understanding.

a) *Acceptability:* This refers to the evaluation of the two groups of respondents on the developed Geographical Information System based on the different criteria. It refers to the weight of approval of the respondents on the developed material based on how they judge it using the different parameters.
b) *Accuracy:* This is one of the aspects of acceptability of the developed Geographical Information System which indicates the degree to which the result of a measurement, calculation, or specification conforms to the correct value or a standard.
c) *Applicability:* This refers to the usefulness of the developed Geographical Information System for a particular task. In this study it refers to some characteristics of the material developed for the use of school information.
d) *Clarity:* This pertains to the quality of the developed Geographical Information System to having coherence and intelligibility.
e) *Completeness:* This pertains to the characteristics of having all necessary or normal parts, components, or steps particularly in the developed Geographical Information System.
f) *Development:* It refers to the process of making the Geographical Information System (GIS) which shall start from gathering information about the topic until finding out its truthfulness.
g) *GIS:* It refers to the Geographical Information System which contains information about Janosa National High School. The information starts from physical, environmental, and school statistics.

h) *Modifiability:* The quality of the developed system of being adjustable for updating and modification.
i) *Portability:* The characteristics of the program that it can be easily carried or moved and can be used anywhere.
j) *User-friendliness:* This refers to the characteristics of the developed GIS that it can be easily understood using the effective geographical interface.
k) *Workability:* This refers to the characteristics of the developed GIS that it could operate what is supposed to be performed according to command and give responses purposively.

II. METHODOLOGY

This chapter specifically describes the research design used, respondents of the study, instrumentation and validation, procedure of the study and statistical treatment of data.

The study used the descriptive developmental research method to construct a geographical information system for Janosa National High School. As defined by Calmorin (2010), the purpose of the descriptive method is to present conditions or relationships that exist; practices that prevail, beliefs, point-of-views or attitudes that are held; processes that are being felt. The principal aim in employing this method is to describe the nature of the situation as it exists at the time of the study and to explore the causes of particular phenomena. Specifically, descriptive evaluative research design was applied since the study aims to evaluate the level of acceptability of the developed geographical information system for Janosa National High School. The cited research design typically seeks to ascertain respondents' perspectives or experiences on a specified subject in a predetermined structured manner. Since the study identifies the varying information that the school has, this design is the most appropriate method. It is also a developmental research in as much as a geographical information system was developed for the school.

The study considered 42 teachers of Janosa National High School as respondents of the study. This is one hundred percent of the total population of teachers in the said school. Likewise, the study considered the total population of 50 students of Grade 10-Rizal as second group of respondents. They were chosen purposively to evaluate the level of acceptability of the developed geographical information system.

A standardized questionnaire-checklist from the Institute of Engineering Electronics Evaluation (2010) was adapted to determine the level of acceptability of the developed Geographical Information System with respect to accuracy, applicability, user-friendliness, workability completeness, portability, modifiability and clarity. However, slight modifications were made. It is composed of statements based on the situation taking place in terms of level of acceptability of the developed GIS. The instrument, being the main source of data is composed of (5) statements for each variable.

The two groups of respondents were asked to rate each item with the given scale as follows:

Scale	Range	Verbal Interpretation
5	4.50-5.00	Very Much Acceptable
4	3.50-4.49	Much Acceptable
3	2.50-3.49	Acceptable
2	1.50-2.49	Moderately Acceptable
1	1.00-1.49	Not Acceptable

The standardized questionnaire checklist from the Institute of Engineering Electronics Evaluation (2010) was modified by the researcher. Thus, the researcher asked the help of IT experts, professorial lecturers, statistician and thesis adviser for the content validation. Their comments and suggestions were considered in the finalization of the research instrument.

The study was conceptualized following the standard operating procedures. Gantt Chart of activities served as guide in the conduct of the study. After, the permission to conduct the study, the researcher developed the geographic information system for Janosa National High School through the help of an Information and Communication and Technology expert. After the development of the Geographical Information System, it was presented to teachers and students for evaluation. The standardized questionnaire checklist with some modifications were distributed to the two groups of respondents to evaluate the level of acceptability of the said system in terms of the different criteria. Data gathered were statistically treated, analyzed and interpreted. Based from the interpreted data, the summary of findings, conclusions and recommendation were made. After the oral defense, the manuscript was revised incorporating all the comments and suggestions of the oral examination committee. After the final revision, final copies of the research were submitted to the office of the graduate studies program.

For the analysis and interpretation of data, the following were considered: To determine how the Geographic Information System was developed, qualitative discussion was made. To determine the level of acceptability of the developed Geographic Information System with respect to the different aspects as evaluated by the two groups of respondents, weighted mean was employed. To find out if significant difference exists between the evaluation of the two groups of respondents on the level of acceptability of the developed Geographic Information System with respect to the different aspects, independent t-test was applied.

III. RESULT AND DISCUSSION

This chapter deals with the analysis and interpretation of data based on the sub problems. Table 1 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to accuracy.

Table 1

Accuracy The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. produces accurate results.	4.19	MA	2	4.13	MA	2
2. produces the desired results.	3.81	MA	4	3.95	MA	5
3. meets the users' demand.	4.16	MA	3	4.47	MA	1
4. has a clear presentation.	4.86	VMA	1	4.32	MA	3
5. satisfied the users' need.	3.69	MA	5	3.97	MA	4
Overall $W\bar{X}$	4.14	MA		4.17	MA	

From the table, it can be seen that with respect to accuracy both groups of respondents find it much acceptable as evidenced by the obtained weighted means of 4.14 for the teachers and 4.17 for the students. The teachers find that the developed system is very much acceptable in producing accurate results with 4.86 weighted mean responses. The developed system is much acceptable in satisfying the user's need with 3.69 weighted mean responses. For the students however, much acceptable is the developed system for meeting the users' demand with a weighted mean of 4.47. Also, producing the desired results is also much acceptable with weighted mean of 3.95.

Table 2 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to applicability.

Table 2

Applicability The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. executes accordingly.	3.98	MA	4	4.09	MA	4
2. provides appropriate menus.	4.23	MA	1	4.25	MA	2
3. serves as learning tool in educating the intended beneficiaries.	4.17	MA	2	3.95	MA	5
4. provides accurate and precise information that satisfies the needs of the users.	3.85	MA	5	4.29	MA	1
5. is easy to use	4.15	MA	3	4.16	MA	3
Overall $W\bar{X}$	4.08	MA		4.15	MA	

As indicated in the table, with respect to applicability, both groups find that the level of acceptability of the developed geographic information system for Janosa National High School is much acceptable as proven by the overall weighted means of 4.08 and 4.15. Both groups also provided interpretation of much acceptable for all the descriptions in this aspect. The teachers find that the developed system provides appropriate menus with a weighted mean of 4.23 and is much acceptable.

Also, the developed system provides accurate and precise information that satisfies the needs of the users with a weighted mean of 3.85 and is interpreted as much acceptable. The students on the other hand find that the developed system provides accurate and precise information that satisfies the needs of the users with a weighted mean of 4.29 and is interpreted as much acceptable. As well, they find that the developed system serves as learning tool in educating the intended beneficiaries with a weighted mean of 3.95 and is interpreted as much acceptable.

Table 3 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to user friendliness.

Table 3

User-friendliness The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. is user friendly.	4.54	VMA	1	4.12	MA	4
2. could be easily understood.	3.67	MA	5	3.88	MA	5
3. use effective graphical user interface.	4.11	MA	2	4.27	MA	2
4. is significant and useful to the users.	3.98	MA	4	4.18	MA	3
5. efficiently performs each task functions.	4.06	MA	3	4.48	MA	1
Overall $W\bar{X}$	4.07	MA		4.19	MA	

The table reflects that the overall weighted means are 4.07 for the teachers and 4.19 for the students which expresses that the evaluation is much acceptable for the developed geographic information system with respect to user friendliness. As explained, the teacher-respondents find that the developed system is user friendly with a weighted mean of 4.54 interpreted as very much acceptable while the developed system could be easily understood has a weighted mean of 3.67 interpreted as much acceptable. On the other hand, student-respondents find that the developed system efficiently performs each task functions with a weighted mean of 4.48 and could be easily understood with a weighted mean of 3.88, and are both interpreted as much acceptable.

Table 4 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to workability.

Table 4

Workability The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. operates what is supposed to perform.	3.57	MA	5	4.32	MA	3
2. performs according to the command.	4.44	MA	1	4.07	MA	5
3. does not hang despite the entry of invalid inputs.	4.08	MA	3	4.41	MA	1
4. gives responses purposively.	3.91	MA	4	4.38	MA	2
5. produces the correct results.	4.17	MA	2	4.22	MA	4
Overall $W\bar{X}$	4.03	MA		4.28	MA	

The table indicates that the overall weighted means are 4.03 for the teachers and 4.28 for the students which expresses that the evaluation is much acceptable
for the developed geographic information system with respect to workability. As illustrated, the teacher-respondents find that the developed system performs according to the command with a weighted mean of 4.44 interpreted as very much acceptable while the developed system operates what it is supposed to perform has a weighted mean of 3.57 interpreted as much acceptable. On the other hand, student-respondents find that the developed system does not hang despite the entry of invalid inputs with a weighted mean of 4.41 and performs according to the command with a weighted mean of 4.07, and are both interpreted as much acceptable.

Table 5 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to completeness.

Table 5

Completeness The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. covers all features.	3.95	MA	4	4.18	MA	1
2. covers all aspects of the desired areas.	3.76	MA	5	3.88	MA	5
3. meets the user's demand on different features.	4.08	MA	2	4.15	MA	2
4. contains correct and reliable information that you need about the occasion planner and management system.	4.12	MA	1	4.02	MA	3
5. includes integrity and consistency.	3.99	MA	3	3.89	MA	4
Overall $W\bar{X}$	3.98	MA		4.02	MA	

From the table, it can be seen that with respect to completeness both groups of respondents find it much acceptable as evidenced by the obtained weighted means of 3.98 for the teachers and 4.02 for the students. The teachers find that the developed system contains correct and reliable information that you need about the occasion planner and management system with 4.12 weighted mean responses and is much acceptable. The developed system is also much acceptable in covering all aspects of the desired areas with 3.76 weighted mean responses. For the students however, much acceptable is the developed system for covering all features with a weighted mean of 4.18. Also, covering all aspects of the desired areas is also much acceptable with weighted mean of 3.88.

Table 6 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to portability.

Table 6

Portability The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. has clear presentation of different features.	4.05	MA	5	3.67	MA	5
2. is independent from other system.	4.19	MA	3	4.16	MA	3
3. serves data accurately.	4.11	MA	4	3.96	MA	4
4. has clear presentation of different features.	4.58	VMA	2	4.77	VMA	2
5. can be transferred from one computer to another.	4.85	VMA	1	4.89	VMA	1
Overall $W\bar{X}$	4.36	MA		4.29	MA	

As reflected in the table, with respect to portability, both groups find that the level of acceptability of the developed geographic information system of Janosa National High School is much acceptable as proven by the overall weighted means of 4.36 and 4.29. Both groups of respondents find that the developed system can be transferred from one computer to another with weighted means of 4.85 and 4.89, respectively, and are both very much acceptable. Also, the developed system has clear presentation of different features with weighted means of 4.05 and 3.67, consequently, and are both interpreted as much acceptable.

Table 7 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to modifiability.

Table 7

Modifiability The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. can be upgraded as the needs required.	3.95	MA	4	4.08	MA	2
2. entertains upgrading.	4.01	MA	2	3.74	MA	5
3. allows modification if needed.	3.97	MA	3	3.96	MA	3
4. functions in simple manner.	4.18	MA	1	3.84	MA	4
5. attributes efficiency needed for modification, maintenance, fault, removal and/or for environment change.	3.88	MA	5	4.17	MA	1
Overall $W\bar{X}$	4.00	MA		3.96	MA	

The table reflects that the overall weighted means are 4.00 for the teachers and 3.96 for the students which expresses that the evaluation is much acceptable
for the developed geographical information system with respect to modifiability. As explained, the teacher-respondents find that the developed system functions in simple manner with a weighted mean of 4.18 interpreted as much acceptable while the developed system attributes efficiency needed for modification, maintenance, fault, removal and/or for environment change has a weighted mean of 3.88 also interpreted as much acceptable.
On the other hand, student-respondents find that the developed system attributes efficiency needed for modification, maintenance, fault, removal and/or for environment change with a weighted mean of 4.17 and entertains upgrading with a weighted mean of 3.74, and are both interpreted as much acceptable.

Table 8 presents the computed weighted mean on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents with respect to clarity.

Table 8

Clarity The developed system…	Teachers			Students		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
1. produces clear instruction.	3.95	MA	5	4.33	MA	1
2. has clear presentations.	4.18	MA	2	4.26	MA	2
3. provides accurate and precise information for the users.	3.99	MA	4	4.04	MA	4
4. meets the user' needs with regard to the given features.	4.17	MA	3	4.22	MA	3
5. has clean and orderly program design.	4.25	MA	1	3.96	MA	5
Overall $W\bar{X}$	4.11	MA		4.16	MA	

The table reveals that the overall weighted means are 4.11 for the teachers and 4.16 for the students which expresses that the evaluation is much acceptable for the developed geographical information system with respect to clarity. As explained, the teacher-respondents find that the developed system has clean and orderly program design with a weighted mean of 4.25 interpreted as much acceptable while the developed system produces clear instruction has a weighted
mean of 3.95 interpreted as much acceptable. On the other hand, student-respondents find that the developed system produces clear instruction with a weighted mean of 4.33 and has clean and orderly program design with a weighted mean of 3.96, and are both interpreted as much acceptable.

Table 9 presents the composite table on the level of acceptability of the developed geographical information system for Janosa National High School as evaluated by the two groups of respondents.

Table 9

Aspects	Teachers			Pupils		
	$W\bar{X}$	VI	R	$W\bar{X}$	VI	R
Accuracy	4.14	MA	2	4.17	MA	4
Applicability	4.08	MA	4	4.15	MA	6
User-friendliness	4.07	MA	5	4.19	MA	3
Workability	4.03	MA	6	4.28	MA	2
Completeness	3.98	MA	8	4.02	MA	7
Portability	4.36	MA	1	4.29	MA	1
Modifiability	4.00	MA	7	3.96	MA	8
Clarity	4.11	MA	3	4.16	MA	5
Composite $W\bar{X}$	4.10	MA		4.15	MA	

The table indicated that all aspects discussed resulted in the interpretation of much acceptable. Both groups ranked ahead portability with weighted means of 4.36 and 4.29 respectively. Further, the group of teachers find accuracy next in rank with a weighted mean of 4.14 while for the students, the next in rank is workability with a weighted mean of 4.28. The last in rank for the two groups are completeness for the teachers with a weighted mean of 3.98 and modifiability for the students with a weighted mean of 3.96. The composite weighted means are 4.10 and 4.15, respectively, and are both interpreted as much acceptable.

Table 10 presents the computed t-values on the evaluation of the two groups of respondents on the level of acceptability of the developed geographical information system for Janosa National High School with respect to the different aspects.

Table 10

Aspects	Mean		Mean diff	tcomp	p-value	Ho	VI
	Teachers	Students					
Accuracy	4.15	4.17	.02.	1.87	.936	Accepted	Not Significant
Applicability	4.08	4.15	.07	.96	.521	Accepted	Not Significant
User-friendliness	4.07	4.19	.12.	3.89	.008	Rejected	Significant
Workability	4.03	4.28	.25	1.26	.964	Accepted	Not Significant
Completeness	3.98	4.02	.04	1.59	.831	Accepted	Not Significant
Portability	4.36	4.29	.07	1.38	.964	Accepted	Not Significant
Modifiability	4.00	3.96	.04	1.66	.563	Accepted	Not Significant
Clarity	4.11	4.16	.05	1.84	.926	Accepted	Not Significant

The table reflects that the probability values on the evaluation of the two groups of respondents on the level of acceptability of the developed geographical information system with respect to user friendliness is less than .05. This rejects the null hypothesis stating that there is no significant difference on the evaluation of the two groups of respondents on the level of acceptability of the developed geographical information system of Janosa National High School with respect to the cited aspect. On the contrary, with respect to the other aspects, different aspects the probability values are all greater than .05. This indicates that the null hypothesis stating that there is no significant difference on the evaluation of the two groups of respondents on the level of acceptability of the developed geographical information system of Janosa National High School with respect to the different aspects except for user-friendliness is accepted.

IV. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Based on the analysis and interpretation of data, the following findings are hereby summarized:

1) The Developed Geographical Information System for Janosa National High School

The system covers the most important factors that will help the user be familiarized with the premises of Janosa National High School such as: Home Page/Introduction, Directory, History, Faculty, Student, and Contact Us Page.

2) Level of Acceptability of the Developed Geographical Information System for Janosa National High School as Evaluated by Teachers and Students

The developed geographical information system is much acceptable as evaluated by teachers and students.

3) The Significant Difference Between the Evaluation of the Two Groups of Respondents on the Level of Acceptability of the Developed Geographical Information System for Janosa National High School with Respect to the Different Aspects

There is a significant difference between the evaluation of the two groups of respondents on the level of acceptability of the developed geographical information system with respect to user-friendliness. However, with respect to other aspects, their perceptions did not differ significantly.

A. Conclusion

The study concluded teachers and students have similar evaluations on the level of acceptability of the developed geographical information system for Janosa National High School with respect to accuracy, applicability, workability completeness, portability, modifiability and clarity. However, with respect to user-friendliness, their evaluations differ significantly.

B. Recommendations

Based on the findings and conclusions drawn, the following recommendations are offered:

1) The Geographical Information System may be used for research and operational analysis, features in this database may be linked to data of participants stored in other project databases.
2) The developed system may provide variety of school programs and more stimulating learning experiences.
3) The developed system may be presented for special programs and activities of the school.
4) Parallel study may be conducted using other variables.

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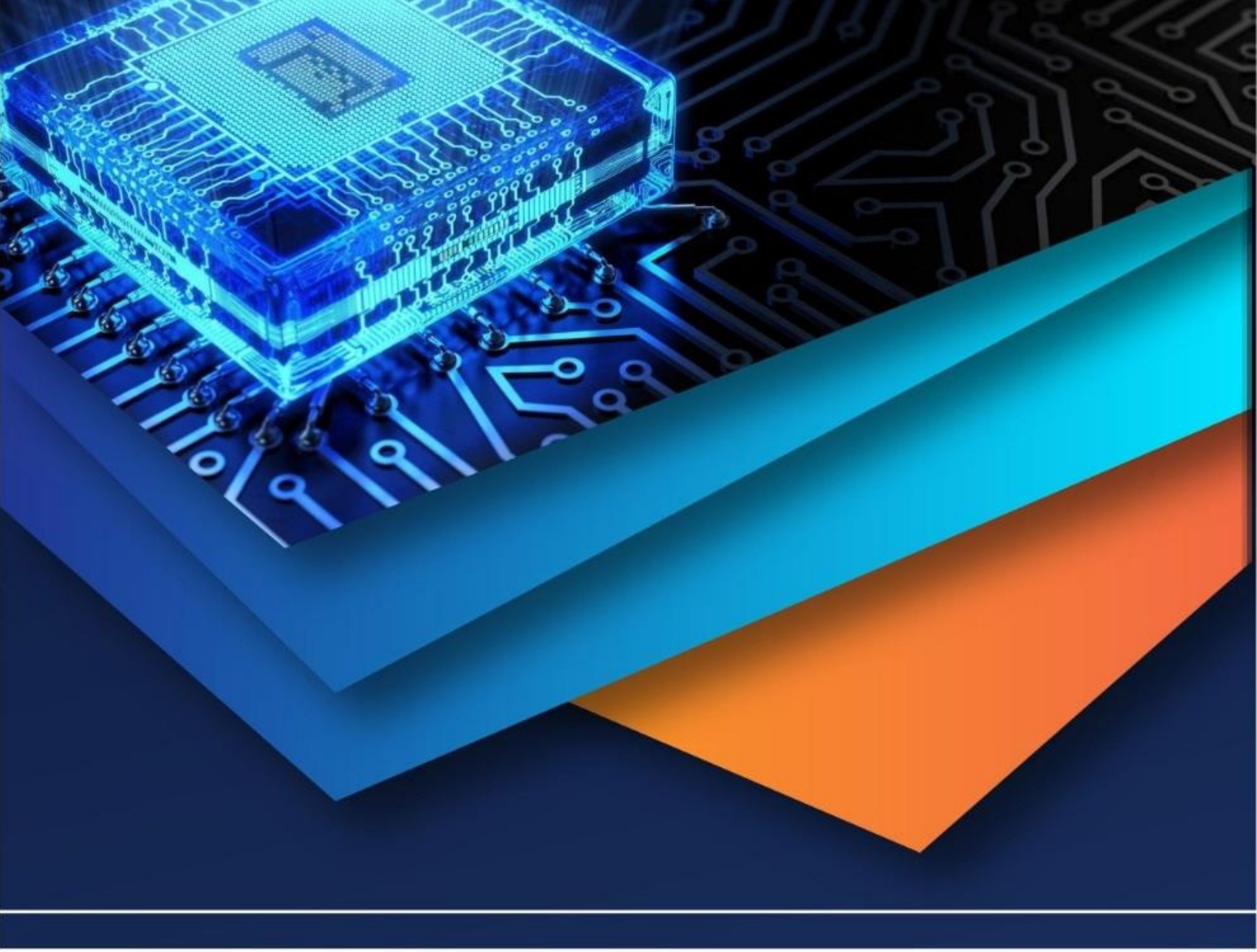

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