

TITLE : THE EFFECTIVENESS IN USING REMAPS IN IMPROVING WIFI COVERAGE

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Abstract

Remote Mobile Access Point technology or REMAPS is an innovation built to facilitates and benefits the user in expanding the wireless technology in anywhere possible. This study is to survey the effects from the use of this innovative technology in increasing the effectiveness of REMAPS in improving Wi-Fi coverage at community college generally. REMAPS was developed by using natural energy source which is solar energy or solar through the use of solar panels known as technology photovoltan in helping users to reach out internet access anywhere possible without having to rely on electricity from the grid. The innovative technology was design using lightweight material and able to withstand weathers in Malaysia. As Malaysia are heading towards IR4.0 technology, REMAPS are also equipped with IOT technology where users can control the device using hand phone application. A total of 210 respondents p a r t i c i p a t e d from Jasin Community College and Segamat Community College to see the effectiveness in using REMAPS in their college. Jasin Community College and Segamat Community College was selected to see the differences in effectiveness between campus and shop lot type of college. The research design is a quantitative survey using a questionnaire as an instrument. Data were analyzed involving mean, standard deviation and T. Test. Results of the study shows there is a high tendency in terms of implementation, awareness and control application in using REMAPS Technology.

Keywords: Remaps technology, wireless technology, photovoltan solar technology

1. Introduction

Wireless broadband is operating widely in media such as wires or fiber-optic cable by Gary S. Rogers and John Edwards [7]. Wireless broadband also provides purposes as an unsecured wireless networks using network cards and Ethernet cables, instead of using frequency radio (RF) signals connect one computer to another. Wi-Fi is referring to a special area where the access point is provided to enable users to connect to the Internet via Wi-Fi signal wave. Typically, users are using mobile computers like notebooks. Currently, Wi-Fi can be found at airports, hotels, cafes such as Starbucks Coffee and the general area such as shopping malls and recreation centers. Wi-Fi is short for Wireless Fidelity paragraph in which this term has been formally granted by WECA (Wireless Ethernet Compatibility Alliance). Wi-Fi was first introduced through wireless products at the end of 1998. The use of Wi-Fi refers to wireless network links using broadband connection (broadband), access points and a Wi-Fi card installed to enable computer users share files and printers and surf the Internet just like a regular LAN network. According to Todd W. Carter (2005) 802.11 refers to a family of the technical specifications of the wireless LAN provided by the IEEE (Institute of Electrical and Electronic Engineers). Wi-Fi technology is said belong to the specifications 802.11a, 802.11b, 802.11g and 802.11n LAN refers to a local area network of computers in which each computer connected to each other by wire. WLANs are referring to the local area network of computers in which each computer connected to each other without using wires. MAN concept is similar to the LAN, for example in terms of server deployment and administration system. The difference is only in terms of the WLAN medium using radio waves while using a LAN cable for data transmission.

1.1 Problem statement

The use of technology is often expected to provide the best to all of us, but the more advanced the technology become, there are many problems that may occur. In Jasin Community College alone, there are 8 access points have been installed using a wireless 802.11g, but it was not enough with the increased number of students and students who use notebooks or smart phones and it is becoming usual in educational institutions. Existing wireless technologies provide only a relatively limited range to certain area. If the installation is done in a certain block, the coverage of certain areas will become limited. Installation of the remote repeater on the block will involve additional costs later. Internet will be slow, and may be very slow when all students, staff and faculty accessing the internet at the same time. Most students will use notebook to access and it will impact the speed of Internet, the Internet will become very slow due to the access point that is less able to meet the demand. Worst case scenario, internet line can be cramp when irresponsible user frequently use software such as LimeWire or UTorrent that we all know will use high amount of internet quote. Jasin and Segamat Community College is one of the area's community colleges that have shaped campus buildings and spaces which are quite extensive. In regard, the need to use a Wi-Fi internet is required for students or lecturers so it can be easily access on the go when you are at the college.

1.2 Objectives

The objectives of the study are as follows:

- i. Identifying the implementation phase of a Wi-Fi community college
- ii. Identify the effective use of REMAPS.
- iii. Identify significant difference between the effectiveness of the technology and consumer in Jasin and Segamat Community College.

1.3 Importance of study

Studies focuses on factors that encourage Jasin Community College students to use Wi-Fi facilities effectively. This study is concerned to:

- i. Provide guidance to the Department of Community Colleges and Polytechnic to plan a facility that is able to improve the performance optimally using Wi-Fi.
- ii. To provide knowledge to the institutions on the use of the Wi-Fi in the institution
- iii. Identify effective methods to improve the quality of Wi-Fi in community colleges

1.4 Research Scope

In carrying out this study, the researchers only focus on the scope of the study were identified as follows:

- i. Studies on the use of REMAPS technology elements of the implementation and effectiveness.
- ii. The study is conducted in Jasin Community College which is a campus type of institution and Segamat Community College which is shop lots type of institution.
- iii. The study type is quantitative, namely through the collection of data based on the questionnaire produced by researchers

2. LITERATURE REVIEW

In this multimedia era it is important for us to look at ways of using multimedia not only to give knowledge but also to mobilize the minds of students so that the outbreak of new ideas that will give them new knowledge. Interactive multimedia development should be well designed and the use of interactive multimedia should be selected and used wisely. The presence of technology in education has changed the pattern of R & D to a higher level. The process of teaching and learning that previously carried the tradition has changed to a more active and dynamic learning. Students are more independent and active in the learning process by using technology that could attract interest in them. According to the findings of Abdul Rasid Jamian, Norhashimah Shamsudin Hashim and Othman [1], states that the use of multimedia in teaching reading skills very effectively and successfully create a more enjoyable learning environment. Studies have shown

that broadband technology plays an important role in improving students' ability. The results of Zahiah Kassim and Abdul Razaq Ahmad [8], explained that policy makers should take into account the impact of technology on technical training, pedagogy and new infrastructure necessary for the transformation of the education system. Multimedia development should be well designed and the use of interactive multimedia should be selected and used wisely. The study, produced by Shaharuddin Md Salleh and Zaidatun Tasir [7], shows a positive response to student learning, simulation, design and content of the lesson presented. In this multimedia era is more important for us to look at ways of using multimedia not only give knowledge but also to mobilize student mind that the onset of new ideas that will give them new knowledge.

3. RESEARCH METHODOLOGY

Research design used is descriptive method of sample survey, which looks at the use of mobile learning at community colleges. According Sabitha Marican [6], The questionnaire is a tool designed specifically to gather information for analytical purposes to be able to answer the research questions. Even Sherri L. Jackson [4] also said it is also an in-depth study of one or more individuals in the hope of revealing things that are true. The respondents among the population is made up of Jasin Community College and Segamat Community College. As this study is in the form of social studies, the type of instrument chosen was a questionnaire constructed by the researcher of adaptation. The use of the questionnaire can also help researchers determine the nature of the 'impersonal' in response and uniformity among the respondents. One of the advantages of the questionnaire is that it guarantees the confidentiality besides it can obtain accurate information from respondents. The questionnaire has two parts: Part A contains information of respondents and Part B contains items referring to the level of implementation and the effectiveness of REMAPS to overcome Wi-Fi problems. Likert scale was suitable to conduct this review. This is because the Likert scale allows researchers to control the feedback bias. This scale will declare Strongly Disagree (STS), Disagree (TS), Less Agree (KS), Agree (S), and Strongly Agree (SS). Scale will be given starting from number 1 to 5 (Table 2).

Table 1: Likert Scale

Scale	Interpretation
1	Strongly disagree
2	Disagree
3	Not sure
4	Agree
5	Strongly agree

The data was collected by the researchers with the help of faculty and students involved. All respondents were students and staff involved in filling out questionnaires and were returned directly back to the researcher. Descriptive statistics were used to obtain the mean using SPSS version 25.0. In this study, researchers used the interpretation mean to answer question one, question two, question three and question four to the questionnaire as an instrument to that question.

Interpretation of the results from the questionnaires in the analysis as shown in Table 2.

Table 2: Interpretation of mean scores

Group	Range	Level of tendency
1	1.00 – 2.33	Low
2	2.34 – 3.67	Medium
3	3.68 – 5.00	High

(Source: from Landell [5])

Content validity was done to get a better instrument. According to the Gay & Airasian [3], it refers to the extent to which the ability of a measuring instrument to measure what should be measured. Referring to the study, the researchers have gained validity of the questionnaire of five experts. According to Cohen, Manion & Morrison [2] said content validity refers to the situation where the contents of a measuring instrument that successfully elicited a response that can represent the entire domain, global skills, knowledge and behaviors that should be measured by the tool. Based on the content validity conducted, questionnaires are checked and confirmed by competent lecturers of Jasin Community College.

4. ANALYSIS AND RESULTS

The discussion will revolve around the results of the study that were analyzed using SPSS version 25.0. Items questions formed by code to facilitate the process of analyzing and the researchers found 210 people from Jasin and Segamat Community College composed of 95 (45.2%) men and 115 (54.8%) females. Respondents were 127 (60.5%) students from Jasin Community College and 83 (39.5%) students from Segamat Community College.

Table 3: Level of Wi-Fi implementation at community college

No	Item	Min	Standard deviation
1	Wi-Fi coverage is very widespread in colleges	3.1525	1.42410
2	Wi-Fi online faster and more stable than cable lines	3.4915	1.20877
3	There are many online internet cable in college	3.5254	0.81697
4	No interruptions during online surfing the Internet using Wi-Fi	2.9661	1.17394
5	There are certain places that have Wi-Fi online	3.6102	0.89089
6	No source of electricity supply facilities Wi-Fi close to my cause difficulty to surf the Internet	3.0339	1.50821
7	The place is not conducive Wi-Fi facilities / services	3.7797	0.91100

8	I prefer to surf the Internet in a relatively quiet as a library	3.7966	1.18583
9	Wi-Fi facilities are urgently needed by the college	4.7119	0.72041
10	Wi-Fi is not comprehensive online cause I rarely use the internet	3.4915	1.36928
	Average	3.5560	

Table 3 shows the degree of readiness of students to use mobile learning refers to item 9 (Wi-Fi facilities is urgently needed by the college) has a mean score the highest number of 4.7119 with SS on stage tend to be high, followed by items 5 (There are certain places that have online Wi-Fi) with a mean score of 3.6102. While the lowest mean score was for item 4 (No interruption during online surfing the internet using Wi-Fi) with a mean score of 4.0333. The overall level of implementation is a tendency to use Wi-Fi medium with a total value of 3.5560.

Table 4: REMAPS level of effectiveness

No	Item	Min	Standard deviation
1	I often use REMAPS Wi-Fi in college	2.8644	1.33207
2	With the Wi-Fi coverage is widespread and stable, I certainly will use this line	4.0339	1.25898
3	Use of REMAPS Wi-Fi makes it easy to surf the internet	4.4068	.89286
4	Should I use a laptop, I will use the Wi-Fi	3.8644	1.22415
5	I always load and increasing online download files using Wi-Fi	3.9153	1.07139
6	I use smartphones to surf the Internet	3.9322	0.94439
7	I'm sure many staff / students will bring their own laptops to college if Wi-Fi is widespread coverage	4.2373	0.87767
8	I will focus in my daily work assignments if the Internet can be accessed anywhere	4.3729	0.82834
9	If Wi-Fi is widespread coverage, the local community can also use the same internet online college	4.2034	0.92438
10	REMAPS Wi-Fi quality is still low compared to cable	3.7966	1.06317
	Average	3.9627	

Based on Table 4 refer to item 3 (Use of REMAPS Wi-Fi makes it easier for me to access the internet) have a mean score the highest number of 4.4068 which is at the level of a tendency to high, followed by item 8 (I will focus more on the tasks my daily work if internet is accessible everywhere only.) with a mean score of 4.3729. While the lowest mean score was for item 10 (REMAPS Wi-Fi quality is still low compared to cable lines) with a mean score of 3.7966. Overall, the level of awareness is a tendency to use high technology remaps with a total value of 3.9627.

Analysis of T - test.

T test method is used to test the hypothesis that differences in mean scores between the two variables, namely independent variables with the dependent variable for the effective use of technology remaps by community colleges. T test was used to test the following hypothesis.

H01: There was no significant difference between the effectiveness of the technology remaps Jasin Community College and the Community College Segamat

Table 6: Results of t-tests

	t	df	Sig. (2-tailed)
The effectiveness of the REMAPS in overcome Wi-Fi issues in community colleges	0.251	208	.802

Level of significance $p=0.05$

The results of t-test showed that this difference was not significant ($p = 0.05$). Therefore, the null hypothesis that says that there was no significant difference in students' acceptance towards the use of technology remaps application between male and female students for learning purposes is acceptable (Table 6). The results of T-test results indicated that they are no difference between the effectiveness of the technology remaps in Jasin Community College and Segamat Community College.

4.1 Discussion

The results obtained by the researchers showed that the researchers managed to achieve all the objectives of the study. Overall, the students' perceptions of the effectiveness in the application of REMAPS technology is high and very positive. It is consistent with a study conducted by Shaharuddin Md Salleh and Zaidatun Tasir [7], shows a positive response to student learning, simulation, design and content of the lesson presented. Awareness of students about the use of REMAPS technology application also indicate. This matter shows that students in Jasin Community College and Segamat Community College can accept this technology on their institution. This statement is supported by the findings of Zahiah Kassim and Abdul Razaq Ahmad (2010), explained that policy makers should take into account the impact of technology on technical training, pedagogy and new infrastructure necessary for the transformation of the education system. ICT technology development should be well designed and the widespread use of broadband and preferably used.

5 CONCLUSION

Conclusion of discussion and observation has been able to give a good overview of the college about the importance and advantages of widespread Wi-Fi that could affect the widespread use of the Internet. The use of computers in this course can improve the quality of learning in the field

of wireless technology. With this method, the educators will be able to enhance their innovation in the process of information delivery. Stimulus provided by the computer in the process of learning can increase students' interest in particular for theoretical subjects. Teaching techniques provided by educators indirectly affect every human being schooled. This method will enhance the learning method that has been used by educators before. Therefore, the use of REMAPS technology in the application will help lecturer delivering their teaching in creative methods. With this approach, it is expected the government's aspiration to create a society that is familiar with information technology skills and IR4.0 will be realized indirectly. With full support from the management and strong commitment of the lecturers it is not impossible for all the problems that exist at present in the process of teaching and learning can be improve with the best method available nowadays. We hope REMAPS technology will be refer to any department or organization that requires new Wi-Fi technologies that are environmentally friendly, portable and effective to use. For example, if an IT technician consider to install the access point in a no source of electricity on their premises, then this product serves to place the access point without having to incur extra costs for connecting new electricity resources.

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