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The Effectiveness of Medical Record Software to Improve Administrative Service Ability and Student Motivation

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Abstract

Technology can improve the learning process more quickly and effectively to improve students' cognitive skills. Technology-based learning media is not only for prospective teachers but can be helpful for prospective health workers. One indicator that shows prospective health workers' quality is the health services' ability. Therefore, preparing prospective health worker students who are technologically literate and highly motivated is necessary. This study aims to determine and analyze the effectiveness of Medical Information System software to improve the ability of health administration services and student motivation. The quantitative method with pre-experimental design. Pre-experimental design with one group through pre-test, intervention (treatment), and post-test. This research was conducted at STIKes Cirebon with a total sample of 110 students. The results showed that after implementing the medical record software, descriptively, there was an increase in the percentages of responsiveness, reliability, assurance, empathy, and administrative service quality. In addition, each indicator of student motivation increases. Based on hypothesis testing, it can be concluded that Medical Information System medical record software can significantly improve the ability of health administration services and student motivation. This research contributes to providing information to students and lecturers about health administration learning technology.

Keywords: Medical Records, Medical Information System, Administration of Health Services, Student Motivation

Abstrak

Teknologi dapat meningkatkan proses pembelajaran lebih cepat dan efektif untuk meningkatkan kemampuan kognitif siswa. Media pembelajaran berbasis teknologi tidak hanya untuk calon guru tetapi dapat bermanfaat bagi calon tenaga kesehatan. Salah satu indikator yang menunjukkan kualitas calon tenaga kesehatan adalah kemampuan pelayanan kesehatan. Oleh karena itu, diperlukan penyiapan calon mahasiswa tenaga kesehatan yang melek teknologi dan bermotivasi tinggi. Penelitian ini bertujuan untuk mengetahui dan menganalisis keefektifan perangkat lunak Sistem Informasi Kedokteran untuk meningkatkan kemampuan pelayanan administrasi kesehatan dan motivasi mahasiswa. Metode kuantitatif dengan desain pre-experimental. Desain pra-eksperimen dengan satu kelompok melalui pre-test, intervensi (perlakuan), dan post-test. Penelitian ini dilakukan di STIKes Cirebon dengan jumlah sampel sebanyak 110 mahasiswa. Hasil penelitian menunjukkan bahwa setelah mengimplementasikan perangkat lunak rekam medis, secara deskriptif terjadi peningkatan persentase daya tanggap, kehandalan, jaminan, empati, dan kualitas pelayanan administrasi. Selain itu, setiap indikator motivasi belajar siswa meningkat. Berdasarkan pengujian hipotesis dapat disimpulkan bahwa perangkat lunak rekam medis Sistem Informasi Medis secara signifikan dapat meningkatkan kemampuan pelayanan administrasi kesehatan dan motivasi mahasiswa. Penelitian ini memberikan kontribusi untuk memberikan informasi kepada mahasiswa dan dosen tentang teknologi pembelajaran administrasi kesehatan.

Kata kunci: Rekam Medis, Medical Information System, Administrasi Pelayanan Kesehatan, Motivasi Mahasiswa

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BACKGROUND

An effective and efficient learning process is one of the supporting factors for the success of education (Alyahyan & Düştegör, 2020; Hidayat et al., 2022; Ratnaningsih & Gumiandari, 2022). The learning process goes well when students have good motivation to learn (Kustinah et al., 2022). In the digital era and the Covid-19 pandemic, technology in learning has become a powerful weapon to achieve maximum educational results. Although technology cannot completely replace the function of the teacher, it may be used to replace ineffective instructors with more effective ones (Huriyah & Hidayat, 2022).

Yates et al. (2021) said the effective use of technology mediates pedagogical progress and increased motivation. Especially for students studying health and nursing, Kyaw et al. (2019) said that the results of the knowledge and skills of health professionals through traditional education still need improvement but are getting better through technology.

Active learning and interactive learning designs of technology in nursing education are expected to increase efficiency and improve student experiences (Smart et al., 2020). Technology is the most successful in enhancing cognitive outcomes, such as theoretical knowledge, out of the three learning outcomes (skills-based, cognitive, and emotional). This shows that using virtual worlds to convey theoretical knowledge in nursing education may be an alternate or supplementary approach (Shorey & Ng, 2021).

One of the efforts that can be made to improve the quality of health services is through technological developments (Fadhila & Afriani, 2019). Technology use in health services plays an important role, especially in providing quality health services (Sesilia, 2020). Using information technology media can provide benefits and convenience for individuals and the broader community in obtaining information and obtaining health services. Apart from that, it is also more effective and efficient, safe and data is protected/safe (Yani, 2018).

Quality services are essential in improving health levels (Abbasi-Moghaddam et al., 2019; Theobald et al., 2018). Adequate medical record data and information is an indicator that shows the quality of service (Wirajaya & Nuraini, 2019). In addition, the use of technology in medical records functions makes it easier to search patient history and data, which provides the benefits of saving time, effectiveness, efficiency, and security of patient data that is not easily lost (Apriliyani, 2021; Chen et al., 2019; Rokhmatul Hikhmat et al., 2022).

The function of medical record technology is beneficial and primarily related to the administration of health services (Khatoon, 2020). Therefore, before a health worker goes directly into the world of work, it is necessary to carry out an educational process per the field's needs. One of the keys to success is carrying out the teaching and learning process according to the needs of the job market and facilitating supporting technology (Benavides et al., 2020; Ratnaningsih & Gumiandari, 2022; Supriatin et al., 2022).

Research by Shintya and Maritasari, (2020) showed that the application of information technology systems is feasible to develop because it provides the effectiveness of the performance of health workers. (Simorangkir et al., 2020) stated that technology development effectively improves the quality of public health services. Yani (2018) stated that information technology is very suitable for health services and contributes significantly to the effectiveness of health services.

One of the medical record software is Medical Information System software. This software has features suitable for learning medical records so that students or students can modify their

data, starting from the name of the hospital/clinic or others to complex matters relating to the administration of health services.

The administration of health services is vital to study because health services that health workers often provide are a form of success in dealing with health problems (Heath et al., 2020; Nurcahyati et al., 2022). The information system of health service administration with features that suit needs can facilitate services in health centers, clinics, hospitals, or others (Gunawan, 2019).

The novelty of this research is the use of Medical Information System software to improve the ability of health administration services and student motivation. This study aims to determine and analyze the effectiveness of Medical Information System medical record software to improve the ability of health administration services and student motivation.

This research was conducted at STIKes Cirebon with a total sample of 110 students consisting of 95 undergraduate students in the Nursing Study Program in computer applications courses and 15 students in the Physiotherapy Diploma course in information technology courses. The method used is a quantitative method with a pre-experimental design. Pre-experimental design with one group through pre-test, intervention (treat), and post-test (Agustin, 2022; R Nur Abdurakhman et al., 2022). The descriptive analysis of this research describes the increase/decrease in the ability of health administration services and student motivation after using the Medical Information System medical record software. Inferential analysis to determine the effectiveness of Medical Information System software in this study is a non-parametric hypothesis test using the Mann-Whitney U test.

Health Service Administration Education in the Digital Era

Administrative activities in health services can be referred to as health service management (Ginter et al., 2018). Health services that have qualified are always based on patient expectations, including infrastructure, staff, service security, administrative services, medical services, access, trust in health facilities, equity, information transparency, payment systems, and quality of each section (Doshmangir et al., 2020).

Educational innovation in the health sector is still synonymous with the appropriate use of Information and Communication Technology (ICT). Health workers must be able to carry out public administration activities properly. ICT innovations related to the public sector have developed in essential sectors of society, for example, e-health, e-education, e-tourism, e-procurement, e-budgeting, and others (Eprilianto et al., 2019). In the current era of digital technology, it opens up great opportunities for all public sectors to develop technology-based innovations to improve the quality of service, especially to the public in general (Putra, 2018).

Health Administration Ability

Through non-formal and formal education, managers and performers of work, especially those related to administration and services in Indonesia, are required to have competence in office administration (Ramadhan & Muhyadi, 2021).

Kawulur et al. (2020) stated that the ability of medical personnel can be measured in terms of intellectual ability, interpersonal ability, adaptability ability, and orientation ability. 1) Intellectual ability consists of strategic perspective, analysis, assessment, planning, and organizing. 2) Interpersonal skills include staff management, persuasive and assertive attitudes, verbal

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communication, interpersonal sensitivity, and decision-making. 3) Adaptability, namely the ability to adapt. 4) Orientation ability, consisting of an attitude of energy and initiative, desire for achievement, and business sensitivity

Muhalifa (2021) and Somba et al. (2020) revealed that the ability of a health service could be measured by analyzing the aspects of responsiveness, reliability, assurance, empathy, and quality. 1) Responsiveness, namely being able to help customers/patients and performing services according to procedures to meet customer/patient expectations. 2) Reliability, namely being able to provide health services accurately and on time. 3) Guarantee, namely being able to be friendly, credible, and maintain data security. 4) Empathy, namely being able to give special attention and care to each customer/patient, understanding their needs, and providing easy service so that they can be contacted at any time if customers/patients wish to get help. 5) Quality, namely being able to maintain the quality of service. The service can also be enjoyed directly by users/patients by providing adequate physical facilities and equipment.

Medical Records

Medical records can be broadly defined, not just the scope of recording activities (Ramadani & Heltiani, 2019). However, it can be defined as a procedure starting from recording activities while the patient is receiving medical services, then organizing, storing, and removing medical record files from the storage area to meet requests/borrowing from patients or for other purposes (Handiwidjojo, 2015).

Medical records using information technology are called electronic medical records (RME). RME is a form of technological innovation that makes storing medical records in electronic data easier. RME aims to benefit health workers so they can get patient information easily and quickly, without being limited by distance and time, accompanied by various conveniences and other benefits (Meilia et al., 2019).

One software that can be developed is the Medical Information System, which makes it easy to learn the medical record system's techniques.

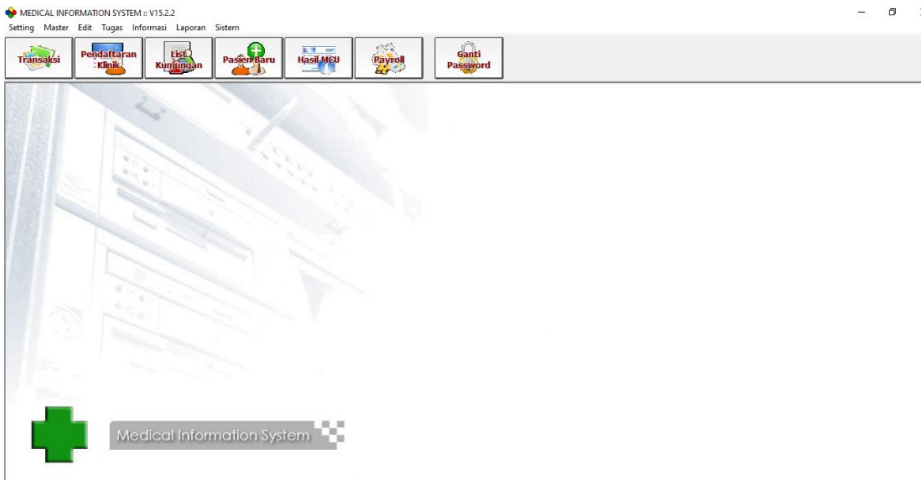

Figure 1. Medical Information System Software

Figure 1 is a display of the Medical Information System. The Medical Information System has a simple form and can help learners to study health administration services. This software has features suitable for learning medical records so that students or students can modify their data, starting from the name of the hospital/clinic or others to complex matters relating to the administration of health services.

Student Motivation

Many factors are the basis of measurement and benchmarking in assessing the success of an education (Fatimah et al., 2022; Pratomo & Kuswati, 2022). One way is by looking at the results of the learning process to achieve goals. Another factor that plays a vital role at this time is the motivation of students in order to prepare themselves to start a learning process (Kustinah et al., 2022; Pedler et al., 2022).

The use of learning media in the teaching and learning process has an essential role in learning motivation (Agustin, 2022; Huriyah & Hidayat, 2022). Using technology applications can motivate students to learn (Rahman et al., 2020).

According to Nasrah and Muafiah (2020), indicators of student motivation that can be measured are as follows. 1) Have the desire and desire to succeed; 2) Having the drive and need for learning; 3) Have hopes and aspirations for the future; 4) Have an appreciation for learning; 5) There are exciting activities in learning; 6) There is a conducive learning situation, enabling students to study well.

Description of Health Administration Services Ability and Student Motivation

Table 1 below is a description of the increase and decrease in the ability of student health administration services after implementing the medical information system software.

Tabel 1. Description of Student Health Administration Service Abilities

Indicators		Before Implementation of Medical Information System Software		After Implementation of Medical Information System Software		Increase / Decrease	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Responsiveness	Good	43	39.09	99	90.00	56	50.91
	Enough	67	60.91	11	10.00	-56	-50.91
	Less	0	00.00	0	00.00	0	0.00
Reliability	Good	38	34.55	94	85.45	56	50.90
	Enough	72	65.45	16	14.45	-56	-51.00
	Less	0	00.00	0	00.00	0	0.00
Assurance	Good	64	58.18	82	74.55	18	16.37
	Enough	46	41.82	28	25.45	-18	-16.37
	Less	0	00.00	0	0.00	0	0.00
Empathy	Good	76	69.09	84	76.36	8	7.27
	Enough	34	30.91	26	23.64	-8	-7.27
	Less	0	00.00	0	00.00	0	0.00
Quality	Good	42	38.18	91	82.73	49	44.55
	Enough	68	61.82	19	17.27	-49	-44.55
	Less	0	00.00	0	00.00	0	0.00

Based on table 1 above, it is found that in general, after the application of the medical information system software, there has been an increase in the student abilities of health

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administration services. The responsiveness indicator increased by 50.91% for the good category, meaning that an increase of 56 students were responsive in providing services according to procedures. The reliability indicator increased by 50.90% for the good category, meaning that an increase of 56 students was able to provide health services in a timely and accurate manner. The assurance indicator increased by 16.37% for the good category, meaning that an increase of 18 students was able to be friendly, credible and maintain data security. The empathy indicator increased by 7.27% for the good category, meaning that it increased by 8 students having a sense of concern and giving to patients/customers. The quality indicator increased by 44.55% for the good category, meaning that an increase of 49 students was able to maintain service quality.

Table 2 below describes the increase and decrease in student motivation after implementing the medical information system software.

Tabel 2. Description of Student Motivation

Indicators		Before Implementation of Medical Information System Software		After Implementation of Medical Information System Software		Increase / Decrease	
		Frequency	Percentage	Frequency	Persentase	Frequency	Percentage
Passion and desire to succeed	Good	64	58.18	96	87.27	32	29.09
	Enough	46	41.82	14	12.73	-32	-29.09
	Less	0	0.00	0	0.00	0	0.00
The drive and need for learning	Good	70	63.64	98	89.09	28	25.45
	Enough	40	36.36	12	10.91	-28	-25.45
	Less	0	0.00	0	0.00	0	0.00
Future hopes and aspirations	Good	72	65.45	104	94.55	32	29.10
	Enough	38	34.55	6	5.45	-32	-29.10
	Less	0	0.00	0	0.00	0	0.00
Appreciation for learning	Good	55	50.00	93	84.55	38	34.55
	Enough	55	50.00	17	15.45	-38	-34.55
	Less	0	0.00	0	0.00	0	0.00
Exciting activities in learning	Good	58	52.73	101	91.82	43	39.09
	Enough	52	47.27	9	8.18	-43	-39.09
	Less	0	0.00	0	0.00	0	0.00
Conducive learning situation	Good	66	60.00	95	86.36	29	26.36
	Enough	44	40.00	15	13.64	-29	-26.36
	Less	0	0.00	0	0.00	0	0.00

Based on table 2 above, it is found that in general, after the application of the medical information system software, there is an increase in student motivation. The indicator of passion and desire to succeed increased by 29.09% for the good category, meaning that there was an increase in students who had the desire and desire to succeed as many as 32 students. The drive and need indicator for learning increased by 25.45% for the good category, meaning that there was an increase in students who had the urge and need to learn, namely 28 students. The indicator of hopes and aspirations for the future has increased by 29.10% for the good category, meaning that there has been an increase in students who have hopes and aspirations for the future, namely as

many as 32 students. The indicator of appreciation in learning increased by 34.55% for the good category, meaning that there was an increase in students who had appreciation in learning, namely as many as 38 students. Indicators of exciting activities in learning increased by 39.09% for the good category, meaning that there was an increase in students who had motivation for exciting learning activities, namely as many as 43 students. The indicator of a conducive learning situation increased by 26.36% for the good category, meaning that there was an increase in students who were motivated by a conducive learning situation, namely 29 students

The Effectiveness of Medical Record Software to Improve Administrative Service Ability and Student Motivation.

To analyze the effectiveness of Medical Information System, the research proposes two hypotheses as follows:

Hypothesis 1: Medical Information System Software is effective in Improving Administrative Service Ability

Hypothesis 2: Medical Information System Software is effective in increasing student motivation

Tests of Normality

Before determining whether the test is parametric or non-parametric for the two hypotheses above, the researcher first tests the classical assumptions, namely the normality test. The following results from SPSS data processing on the normality test of administrative service ability and student motivation.

Table 3. Tests of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Administrative service ability	0.108	110	0.004	0.985	110	0.002
Student motivation	0.126	110	0.005	0.934	110	0.000

a. Lilliefors Significance Correction

Table 3 above shows that administrative service ability and student motivation are not normally distributed. It can be seen in the table above that all sig. either by using the Kolmogorov-Smirnov method or the Shapiro-Wilk method, which is less than 0.05.

Based on the normality test results, the hypothesis test that can be carried out in this study is a non-parametric test. There are various kinds of non-parametric tests; in this study, the non-parametric test used was the Mann-Whitney U test (Hidayat & Perdana, 2021).

Test the Research Hypothesis (Non-Parametric Test)

Hypothesis 1

H0: Medical Information System Software is significantly ineffective in increasing the ability of administrative services

Ha: Medical Information System Software is significantly effective in increasing the ability of administrative services

Table 4 below is the SPSS output for the Mann-Whitney U test to determine whether H0 or Ha is accepted as the conclusion of hypothesis 1 in this study.

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Table 4. Test Statistics for Hypotheses 1

	Administrative service ability
Mann-Whitney U	89.500
Wilcoxon W	19591.500
Z	-9.758
Asymp. Sig. (2-tailed)	0.012

a. Grouping Variable: Grouping the increase in the ability of administration services before and after the implementation of the Medical Information System software

Table 4 above shows the results of the Mann-Whitney U: Asymp. Sig. (2-tailed) = 0.012 less than 0.05 (5% significance level). That means H0 is rejected. The hypothesis test concludes that Medical Information System medical record software is significantly effective in increasing the ability of administrative services.

Hypothesis 2

H0: Medical Information System Software is significantly ineffective in increasing the student motivation

Ha: Medical Information System Software is significantly effective in increasing the student motivation

Table 5 below is the SPSS output for the Mann-Whitney U test to determine whether H0 or Ha is accepted as the conclusion of hypothesis 2 in this study.

Table 5. Statistics for Hypotheses 2

	Student motivation
Mann-Whitney U	77,000
Wilcoxon W	19421,000
Z	-10,285
Asymp. Sig. (2-tailed)	0,023

a. Grouping Variable: Grouping the increase in the student motivation before and after the implementation of the Medical Information System software

Table 5 above shows the results of the Mann-Whitney U test: Asymp. Sig. (2-tailed) = 0.023 less than 0.05 (5% significance level), meaning that H0 is rejected. The hypothesis test concludes that Medical Information System medical record software significantly increases student motivation.

Medical Record Software, Health Administration Services and Student Motivation

Administrative services have always been the main focus in the industry, health, and others (Wan et al., 2020). The faster the service, the more satisfying it will be for customers (Dehghanpouri et al., 2020). This satisfaction indicates whether the customer or patient will return (Nasir et al., 2022).

Today's technology adoption is overgrowing (Bokolo Anthony Jnr., 2020). The solution for fast, accurate, and efficient services using digital technology media (Usak et al., 2020). With the help of technology, we no longer need to manually carry customer or patient files from one place to another.

The results of this study prove that, in general, health administration services can be improved by implementing the Medical Information System medical record software. It is supported by Tanwar et al. (2020) that application-based health record systems or medical records improve health management, one of which is the speed in providing services. Afrizal et al. (2019) also state that the implementation of information technology systems can improve health management levels in a better direction.

According to Perdana et al. (2021), using digital media can provide new enthusiasm for students. The results of this study indicate that in addition to the ability of health administration services, the use of medical record software can also motivate students more than before.

CONCLUSION

Hypothesis 1 test shows that the Medical Information System software is significantly effective in increasing the ability of administrative services. Hypothesis 2 test shows that the Medical Information System software significantly increases student motivation. In the description section, the study results show the percentages of increasing administrative service ability and student motivation after implementing the Medical Information System medical record software. In general, it was concluded that the development of Medical Information System medical record software was significantly able to improve the ability of health administration services and student motivation.

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