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The effect of performance expectancy and behavioral intention on the use of electronic medical record (EMR) in tertier hospital in Indonesia

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***Abstract*---**Health and well-being are the third Sustainable Development Goals (SDGs) in the 2030 Agenda for Sustainable Development. To accomplish this, Soetomo hospital as the largest referral hospital in the province of East Java is expected to have an Electronic Medical Record (EMR) completeness level of 100 percent by 2024. This study aimed to examine the impact of performance

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expectation and behavioral intention on hospital EMR technology usage. This was an observational study with a cross sectional research design. From a population of 390 health workers, a sample of 195 was generated using proportional random sampling. Validity and reliability can be determined using SPSS software. Utilizing SEM PLS software, the analysis is evaluated. Results indicate that performance expectation can have a direct effect on technology use EMR (T Statistic = 21,506) and an indirect effect via behavioral intention (T Statistic = 15,038). The relationship between behavioral intention and technology use EMR is direct (T statistic = 5,475). Conclusion: Performance expectations explain 52% of behavioral intention, while behavioral intentions explain 85% of technology use EMR.

***Keywords*---**Performance Expectancy, Behavioral Intention, Technology Use, EMR, Hospital.

Introduction

In accordance with The Health Ministry of the Republic Indonesia's Regulation No. 21 of 2020 on the Ministry of Health's Strategic Plan for 2020-2024, the health information system aims to strengthen faster, more accurate health information services, resource sharing, an integrated electronic-based standard health information system, and the application of the health information system in health care facilities. Innovation and the use of technology in health services include the expansion of the online referral system, including the incorporation of private health facilities into the system, the expansion of coverage and the development of types of telemedicine services, the digitization of medical records and online medical records, and the development of telemedicine services. This is one of the sustainable development goals' efforts to meet the 2030 target for the third goal, health and wellbeing. The following describes the government's 2020-2024 strategic plan (Menteri Kesehatan RI, 2020).

Soetomo Hospital is one of the hospitals in Indonesia that has implemented a hospital information system. All transactions can be streamlined through a single entrance. Soetomo Hospital has mandated the implementation of EMR, a component of SIMRS that should facilitate the issuance of both summary and detailed patient medical records. Doctors and other medical personnel can quickly access patient data using their login credentials. Outline of the EMR entry flow at Soetomo Hospital based on initial information from the Information Communication Technology Installation (ICTI) unit: 1) Registration of outpatients; 2) Examination by a physician at the destination unit; 3) The physician enters subjective examination data consisting of complaints, symptoms, anamnesis, causes and locations of complaints.; 4) The physician enters objective examination data consisting of the results of the patient's physical examination (blood pressure, pulse, temperature), laboratory support, radiology, and microbiology by entering a sign on the image provided to determine the location of the disease with the symbol provided, and medical action outpatient; 5) The physician enters the patient's assessment or diagnosis by entering the Classification of Disease and Related Health Problem (ICD-10); 6) The physician

includes a plan or action plan to be carried out on the patient, such as the patient's final condition (control, MRS, recovered) or other plans that are necessary, such as work orders, prescribing, consul plans, control plans for outpatient actions, immunizations, and education, by entering on the ICD-9 menu that will be used for grouping Indonesia Case Base Groups (INA-CBGs) or claiming to the guarantor.

According to minister of health regulation of Republik Indonesia No 269/MENKES/PER/III/2008, medical records have 5 advantages: a) As a basis for health maintenance and patient treatment; b) Evidence in legal proceedings; c) Materials for research; d) The basis for payment of health care costs; and e) Materials for generating health statistics. This document is useful for evaluating the accreditation of a hospital or health center's health services. This is what continues to drive the development of medical record management, given the significance of the role of medical records (Setyawan, 2017). According to Donnelly, (1992) that the Problem Oriented Medical Record (POMR) was initiated by Dr. Donnelly. lawrence L. Weed (1950-1960) was then accepted by the medical community as the Problem Oriented Record (POR), which later evolved into SOAP (Subjective Information, Objective Information, Assessment and Planning). There are four significant steps in the SOAP decision-making procedure (Dwijosusilo & Sarni, 2018).

Furthermore, it is essential to do study on the effect of performance expectation on EMR technology use via behavioral intention. Based on prior research, performance expectation has a positive effect on the intention to use information systems, specifically in the following studies: telemedicine at 31 telemedicine sites at the Ministry of Health in South Africa (Cilliers & Flowerday, 2013), mobile-banking of bank customers in Taiwan (Yu, 2012), 3G mobile telecommunication users (Wu et al., 2008), and Mobile Health Service (Abdekhoda et al., 2013), Location-Based Services users di China (Zhou, 2012), Hybrid Library Services library users in Uganda (Tibenderana et al., 2010), Adoption of Information Technology Innovation on entrepreneurs in Malaysia (Moghawemi et al., 2012); Electronic-Health (e-Health) (Li et al., 2013).

Behavioral intention is the extent to which a user's will (purposes and intentions) to use a technology is demonstrated (Venkatesh et al., 2003). Defined as the intensity of an individual's intent to operate a specific information system (Davis, 1989). Several indications can be used to measure this concept: 1) enthusiasm for utilizing the system, 2) persuasiveness in using the system, and 3) desire to operate a system. In (Venkatesh et al., 2016) is also described as technology utilization or the actual application of a technology. The indicator used to measure use behavior is the intensity of use which describes how often users use information technology (Venkatesh et al., 2003).

Based on research by Rachmawati et al., (2020) technology use can also be defined as behavioral usage with the indicators of being able to use the system without assistance, other people being able to assist when using the system is difficult, and experiencing little difficulty when using it for the first time to employ the system. It also differs from Abdekhoda & Salih, (2017) research which indicates that actual use can be defined as usage in applying PACS (Picture

Archiving and Communication System); with PACS system indicators making work more interesting; using PACS is a good idea; working using PACS is satisfactory; and like work with PACS, this variable can be influenced by behavioral intention.

In the study conducted by Lestari et al., (2022), it was discovered that behavioral intention, in addition to actual technology use, affects the net benefit. Indicators for net advantages include cost savings, time savings, and reduced search cost. The research of Hsu et al., (2021) demonstrates that the determinants of UTAUT, including performance expectancy, effort expectancy, social influence, and facilitating conditions, influence behavioral intention and have an effect on subjective well-being, which is characterized by feeling valued, satisfied, optimistic, happy, and comfortable. The study's findings (Mohamadali & Garibaldi, 2010; Nurlani & Permana, 2017) indicate that behavioral intention has an effect on user satisfaction, with indicators that the information system is perceived to be effective and efficient, and that users are satisfied with the features and the information provided. Indicators of behavioral intention's impact on net benefits include increased individual and organizational performance, more effective and efficient work, and fewer errors.

Method

2.1 *Materials*

This study used a cross-sectional observational design. The research was conducted at a hospital of last resort in Indonesia. There are 499 health professionals who utilize electronic medical records.

2.2 *Data collection procedures*

There was 195-person sample obtained through proportional random sampling. Inclusion criteria for health workers who are not ill, have at least one month of experience using EMR while working in a hospital, and are willing to become respondents through a statement on informed consent provided by the researcher were used to collect data. Respondents who voluntarily withdrew from the study were excluded from the inclusion criteria. Letter of Exemption number 0150/LOE/301.4.2.X/2021, Soetomo Hospital Surabaya, Indonesia, has granted ethical approval for this study.

2.3 *Data analysis*

Statistical analysis by summarizing the characteristics of respondents and all variables, descriptive analysis with univariate was used to obtain a picture of the variables that influence the usage of technology to fill electronic medical records. Calculating the minimum, maximum, mean, and standard deviation of each indicator as a derived composite indicator value. The total score is comprised of four categories: less good, good enough, good, and excellent. Multivariate analysis by used of Structural Equation Modeling (SEM) and Partial Least Squares (PLS). Analysis of the external model using convergent validity, discriminant validity, composite reliability, and Cronbach's alpha. Analysis of inner loadings using the

goodness-of-fit test on the R-square value, path coefficient estimates, and specific indirect effects.

Result and Discussion

Distribution information for the variable's performance expectation, behavioral intention, and technology use EMR, including frequency, percentage, mean, and original sample estimate, is provided below.

Table 1. The Distribution of Performance Expectancy, Behavioral Intention and Technology Use EMR

Indicators	Less Good (1)		Good Enough (2)		Good (3)		Excellent (4)		Mean	Original sample estimate
	n	%	n	%	n	%	n	%		
Performance Expectancy										
Perceived usefulness	4	2	22	11	90	47	78	40	3,24	0,878
Extrinsic motivation	4	2	24	13	94	48	73	37	3,20	0,830
Job fit	2	1	27	14	90	46	76	39	3,22	0,934
Relative advantages	4	2	31	16	88	45	72	36	3,17	0,874
Outcome expectation	2	1	28	15	94	48	71	36	3,19	0,883
Performance Expectancy	4	2	26	14	91	47	74	37	3,20	0,879
Behavioral Intention										
Antusiasme	3	2	25	13	107	55	60	31	3,14	0,889
Willingness	1	1	13	7	121	62	60	31	3,23	0,928
Persuasiveness	1	1	13	7	116	59	65	34	3,26	0,898
Behavioral Intention	2	1	17	9	115	59	62	32	3,21	0,904
Technology Use EMR										
Subjective	1	1	18	9	101	52	75	39	3,28	0,895
Objective	1	1	16	8	99	51	79	40	3,30	0,890
Assessment	3	2	14	7	100	51	78	40	3,30	0,805
Plan	3	1	16	9	99	51	77	39	3,28	0,859
Technology Use EMR	2	1	16	8	100	51	77	40	3,29	0,862

According to the data in the table, all of the indicators utilized in this study have achieved convergent validity with an original sample estimate value is greater than 0,5. Behavioral intention has the highest original sample estimate value among the other variables in this study at 0,904, indicating that indicators on behavioral intention, such as enthusiasm, willingness, and persuasiveness, contribute the most to behavioral intention in comparison to other indicators of performance expectancy variables and other indicators of technology use EMR.

Table 2. Construct of Validity and Reliability

	Cronbach's Alpha	Rho_A	Composite Reliability	Average Variance Extracted (AVE)
Behavioral Intention	0,888	0,891	0,931	0,818
Performance Expectancy	0,897	0,911	0,925	0,713
Technology use EMR	0,885	0,892	0,920	0,743

Table 2 displays that behavioral intention, performance expectancy, and technology use of EMR show the value of cronbach's alpha, Rho_A, AVE > 0,8, and composite reliability > 0,9 indicating that all variables have good reliability.

Table 3. Discriminant Validity

	Behavioral Intention	Performance Expectancy	Technology use EMR
Behavioral Intention	0,904		
Performance Expectancy	0,726	0,845	
Technology use EMR	0,766	0,911	0,862

Table 3 illustrates that the AVE square root value of a construct is bigger than its correlation value with other constructs; specifically, the value of behavioral intention has an AVE square root value that is greater than both the correlation value and the values of the other constructs. This demonstrates that the standards for discriminant validity have been met.

Table 4. Distribution of Estimate for Path Coeffisients and Total Indirect Effects

	Original sample	Sample Mean	Standar Deviation	T Statistic	P Value
Path Coefficients					
Behavioral Intention → Technology Use EMR	0,222	0,223	0,040	5,475	0,000
Performance Expectancy → Behavioral Intention	0,726	0,726	0,048	15,038	0,000
Performance Expectancy → Technology use EMR	0,750	0,750	0,035	21,506	0,000
Total Indirect Effects					
Performance Expectancy → Technology use EMR	0,161	0,162	0,033	4,930	0,000

Based on the calculation of the path coefficient, there are three significant paths, including performance expectation's indirect effect on technology usage via behavioral intention and a direct significant effect on technology use with a p-value of 0,000.

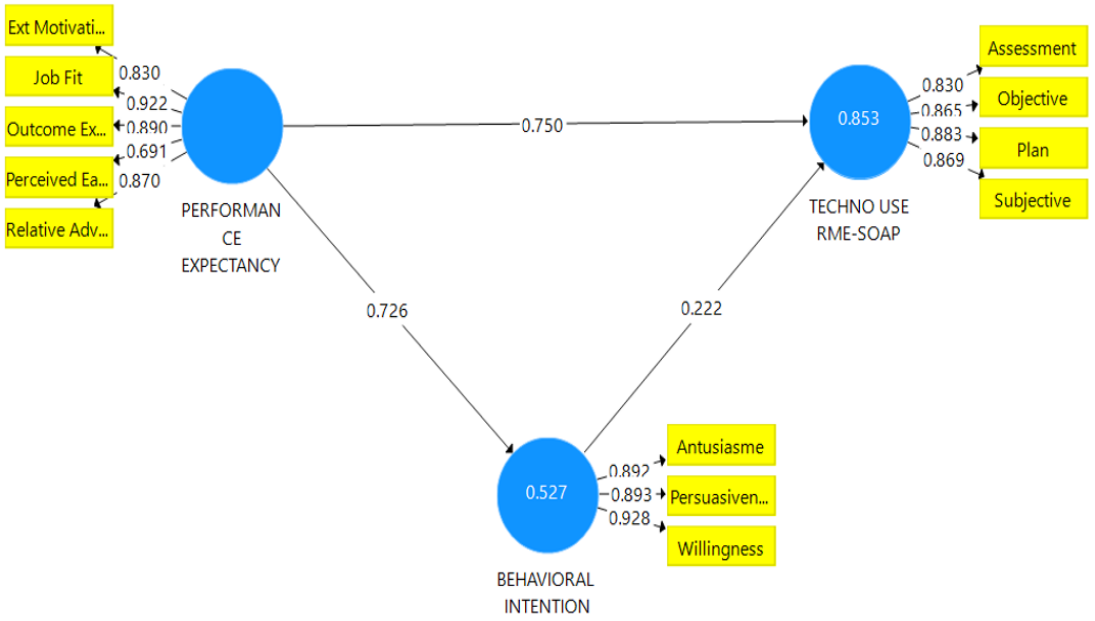

Figure 1. Result of Bootstrapping PLS Algoritma

The data presented in Figure 1 suggests that the performance expectation and behavioral intention variables have a considerable effect on technology use, accounting for 85% of the variance, indicating a strong influence. The correlation between performance expectation and behavioral intention is 52%, indicating that performance expectation has a moderate influence on technology use via behavioral intention.

Performance expectancy had an indirect effect on the use of technology through behavioral intention. T-statistics of 4,930 > 1,96 and P-value of 0,000 indicate a statistically significant influence of the indirect effect of performance expectation on technology use through behavioral intentions. The structural model had a value of 1,698 (0,726 performance expectancy to behavioral intention and 0,750 performance expectancy to technology use and 0,222 behavioral intention to technology use).

Good performance expectancy with indicators of perceived usefulness, extrinsic motivation, job suitability, relative advantage, and expectations of the results of filling in patient health data into the EMR would cause the health professions to have the intention and commitment to carry out work that will ultimately fill the EMR. The results of this study also indicated that performance expectations have a direct, partial effect on behavioral intentions, such as enthusiasm, persuasion, and willingness (Emmanuel et al., 2015); (Tarhini et al., 2016); (Ramdhani et al.,

2017); (Sharifian et al., 2014); (Ma et al., 2016); (Archer & Cocosila, 2011); (Shiferaw & Mehari, 2019); (Bawack & Kala Kamdjoug, 2018); (Wrzosek et al., 2020); (Abdekhoda & Salih, 2017); (Fatimatus Zayniyah, 2016) ; (Gagnon et al., 2014); and this is not line with the result of the study (Enaizan et al., 2020).

Fostering trust and optimism for the greater benefits of EMR compared to manually recording patient health conditions, such as saving time, increasing productivity, data accuracy, facilitating information transfer, individual performance appraisal, and better hospitals, as well as meeting the requirements of the health professions, are important steps hospital administration could take to increase the intention to use EMR. In agreement with theory (Davis, 1989); (Thompson et al., 1991); (Venkatesh et al., 2003), the success of increasing optimism and confidence in the scale of the benefits received from the health professions influences the intention to explore EMR and the benefits of providing quality services to patients.

Conclusion

The usage of EMR technology by health professionals can be influenced by two significant factors: performance expectation and behavioral intention. There include markers of perceived usefulness, extrinsic motivation, job fit, result expectation, and relative advantages within performance expectations. Job fit is the factor that has the most impact on performance expectations. Indicators of enthusiasm, eagerness, and persuasion are present in behavioral intention. Willingness is the indicator that has the greatest impact on behavioral intention. There are subjective, objective, evaluation, and planning indicators for technology use. Physical examinations, which comprise measurements of body temperature, blood pressure, disease history, and symptoms of disease, are the subjective indicators that have the most influence on the application of EMR technology. 85% of technology use is influenced by performance expectancy and behavioral intention, while 52% is influenced by performance expectancy.

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References

Abdekhoda, M., Ahmadi, M., Dehnad, A., Noruzi, A., Gohari, M., Hosizah, Kuntoro, Hari, B., John, S. P., Menteri Kesehatan RI, Kementerian Kesehatan RI, Davis, F. D. A., Taiwo, A. A., Downe, A. G., Venkatesh, V., Thong, J. Y. L.

L., Xu, X. X. X., Bharata, W., Widyaningrum, P. W., … Tsai, C. C. C. Y. (2013). The use of unified theory of acceptance and use of technology to confer the behavioral model of 3G mobile telecommunication users. *Journal of Statistics and Management Systems*, *11*(1), 1–9. https://doi.org/10.1080/09720510.2008.10701351

Abdekhoda, M., & Salih, K. M. (2017). Determinant Factors in Applying Picture Archiving and Communication Systems (PACS) in Healthcare. In *Perspectives in health information management* (Vol. 14, Issue Summer).

Archer, N., & Cocosila, M. (2011). A comparison of physician pre-adoption and adoption views on electronic health records in canadian medical practices. *Journal of Medical Internet Research*, *13*(3), 1–12. https://doi.org/10.2196/jmir.1726

Bawack, R. E., & Kala Kamdjoug, J. R. (2018). Adequacy of UTAUT in clinician adoption of health information systems in developing countries: The case of Cameroon. *International Journal of Medical Informatics*, *109*(October 2017), 15–22. https://doi.org/10.1016/j.ijmedinf.2017.10.016

Cilliers, L., & Flowerday, S. V. (2013). Health information systems to improve health care: A telemedicine case study. *SA Journal of Information Management*, *15*(1), 1–5. https://doi.org/10.4102/sajim.v15i1.541

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, *13*(3), 319–339. https://doi.org/10.2307/249008

Donnelly, W. J. (1992). Why SOAP is bad for the medical record. *Archives of Internal Medicine*, *152*(3), 481–484. https://doi.org/10.1001/archinte.152.3.481

Dwijosusilo, D. K., & Sarni. (2018). Peranan Rekam Medis Elektronik Terhadap Sistim Informasi Manajemen Rumah Sakit di Rumah Sakit Umum Haji Surabaya. *Jurnal Administrasi*, 1–111.

Emmanuel, A. K., Sutinen, E., Marjatta, V.-R., Jarkko, S., & Ebenezer, A. (2015). Using Unified Theory of Acceptance and Use of Technology Model to Predict Students' Behavioral Intention to Adopt and Use E-Counseling in Ghana. *International Journal of Modern Education and Computer Science*, *7*(11), 1–11. https://doi.org/10.5815/ijmecs.2015.11.01

Enaizan, O., Zaidan, A. A., Alwi, N. H. M., Zaidan, B. B., Alsalem, M. A., Albahri, O. S., & Albahri, A. S. (2020). Electronic medical record systems: decision support examination framework for individual, security and privacy concerns using multi-perspective analysis. *Health and Technology*, *10*(3), 795–822. https://doi.org/10.1007/s12553-018-0278-7

Fatimatus Zayniyah. (2016). Analisis Faktor yang Berhubungan dengan Perilaku Penggunaan Sistem Informasi Manajemen di Rumah Sakit Paru Jember. *Skripsi Uiversitas Jamber*, 109.

Gagnon, M. P., Ghandour, E. K., Talla, P. K., Simonyan, D., Godin, G., Labrecque, M., Ouimet, M., & Rousseau, M. (2014). Electronic health record acceptance by physicians: Testing an integrated theoretical model. *Journal of Biomedical Informatics*, *48*, 17–27. https://doi.org/10.1016/j.jbi.2013.10.010

Hsu, C. C., Sandford, B., Ling, C. J., & Lin, C. T. (2021). Can the unified theory of acceptance and use of technology (Utaut) help explain subjective well-being in senior citizens due to gateball participation? In *International Journal of Environmental Research and Public Health* (Vol. 18, Issue 17). https://doi.org/10.3390/ijerph18179015

Lestari, I., Studi, P., Informasi, S., Sains, F., Teknologi, D. A. N., Islam, U., & Sunan, N. (2022). *Indah Lestari_H76217034*.

Li, J., Talaei-Khoei, A., Seale, H., Ray, P., & MacIntyre, C. R. (2013). Health Care Provider Adoption of eHealth: Systematic Literature Review. *Interactive Journal of Medical Research*, *2*(1), e7. https://doi.org/10.2196/ijmr.2468

Ma, C. C., Kuo, K. M., & Alexander, J. W. (2016). A survey-based study of factors that motivate nurses to protect the privacy of electronic medical records. In *BMC Medical Informatics and Decision Making* (Vol. 16, Issue 1). https://doi.org/10.1186/s12911-016-0254-y

Menteri Kesehatan RI. (2020). *Kebijakan digitalisasi di rumah sakit*.

Moghawemi, S., Mohd Salleh, N. A., Zhao, W., & Mattila, M. (2012). The entrepreneur's perception on information technology innovation adoption: An empirical analysis of the role of precipitating events on usage behavior. *Innovation: Management, Policy and Practice*, *14*(2), 231–246. https://doi.org/10.5172/impp.2012.14.2.231

Mohamadali, N. A. K. S., & Garibaldi, J. M. (2010). A novel evaluation model of user acceptance of software technology in healthcare sector. *HEALTHINF 2010 - 3rd International Conference on Health Informatics, Proceedings*, 392–397. https://doi.org/10.5220/0002695703920397

Nurlani, L., & Permana, B. (2017). Analisa Kesuksesan Sistem Informasi Akademik Menggunakan Model Terintegrasi. *Jurnal Teknologi Rekayasa*, *2*(2), 105. https://doi.org/10.31544/jtera.v2.i2.2017.105-116

PERMENKES RI No 269/MENKES/PER/III/2008. (2008). permenkes ri 269/MENKES/PER/III/2008. In *Permenkes Ri No 269/Menkes/Per/Iii/2008* (Vol. 2008, p. 7).

Perez, A. V., Briones, V. V., Viteri, C. G. V., & Gamez, M. R. (2017). Iberoamerica in network, GIS & TIC. International Journal of Social Sciences and Humanities, 1(3), 108–117. https://doi.org/10.29332/ijssh.v1n3.63

Rachmawati, I. K., Bukhori, M., Majidah, Y., Hidayatullah, S., & Waris, A. (2020). Analysis Of Use Of Mobile Banking With Acceptance And Use Of Technology (UTAUT) Article in. *International Journal of Scientific & Technology Research*, *9*(08), 534–540. www.ijstr.org

Ramdhani, A. B., Rachmawati, I., Sidiq, F., & Prabowo, A. (2017). Pengaruh Adopsi Teknologi Layanan Uang Elektronik Telkomsel Cash Menggunakan Pendekatan Utaut2 the Effect of Technology Adoption Electronic Money Services Telkomsel Cash Using Utaut2. *E-Proceeding of Management*, *4*(1), 53–60. https://libraryeproceeding.telkomuniversity.ac.id/index.php/management/article/view/4364

Setyawan, D. A. (2017). *Rekam Medis Elektronik (RME)*. 2–28.

Sharifian, R., Askarian, F., Nematolahi, M., & Farhadi, P. (2014). Factors Influencing Nurses' Acceptance of Hospital Information Systems in Iran: Application of the Unified Theory of Acceptance and Use of Technology. *Health Information Management Journal*, *43*(3), 23–28. https://doi.org/10.1177/183335831404300303

Shiferaw, K. B., & Mehari, E. A. (2019). Modeling predictors of acceptance and use of electronic medical record system in a resource limited setting: Using modified UTAUT model. *Informatics in Medicine Unlocked*, *17*(April), 100182. https://doi.org/10.1016/j.imu.2019.100182

Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2022). Post-pandemic health

and its sustainability: Educational situation. International Journal of Health Sciences, 6(1), i-v. https://doi.org/10.53730/ijhs.v6n1.5949

Sydoruk, L., Bakhmat, N., Poberezhets, H., Misenyova, V., & Boyarova, O. (2022). Formation of future economist professional competence in adaptive-digital environment conditions of higher educational institution. International Journal of Health Sciences, 6(1), 103–114. https://doi.org/10.53730/ijhs.v6n1.3390

Tarhini, A., El-Masri, M., Ali, M., & Serrano, A. (2016). Extending the utaut model to understand the customers' acceptance and use of internet banking in lebanon a structural equation modeling approach. *Information Technology and People*, *29*(4), 830–849. https://doi.org/10.1108/ITP-02-2014-0034

Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly: Management Information Systems*, *15*(1), 125–142. https://doi.org/10.2307/249443

Tibenderana, P., Ogao, P., Ikoja-Odongo, J., & Wokadala, J. (2010). Measuring Levels of End-Users ' Acceptance and Use of Hybrid Library Services. *International Journal of Education and Development Using Information and Communication Technology (IJEDICT)*, *6*(2), 33–54.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly: Management Information Systems*. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, *17*(5), 328–376. https://doi.org/10.17705/1jais.00428

Wrzosek, N., Zimmermann, A., & Balwicki, Ł. (2020). Doctors' perceptions of e-prescribing upon its mandatory adoption in poland, using the unified theory of acceptance and use of technology method. In *Healthcare (Switzerland)* (Vol. 8, Issue 4). https://doi.org/10.3390/healthcare8040563

Wu, Y.-L., Tao, Y.-H., & Yang, P.-C. (2008). The use of unified theory of acceptance and use of technology to confer the behavioral model of 3G mobile telecommunication users. *Journal of Statistics and Management Systems*, *11*(5), 919–949. https://doi.org/10.1080/09720510.2008.10701351

Yu, C. S. (2012). Factors affecting individuals to adopt mobile banking: Empirical evidence from the utaut model. *Journal of Electronic Commerce Research*, *13*(2), 105–121.

Zhou, T. (2012). Examining location-based services usage from the perspectives of unified theory of acceptance and use of technolog and privacy risk. *Journal of Electronic Commerce Research*, *13*(2), 135–144.