

# Examining Readiness of E-Learning Implementation using Information System Readiness Impact Model

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**Abstract**— This study aims to test the readiness model and the impact of integrated information systems by assessing the impact of using e-learning during the COVID-19 pandemic. Based on data from e-learning users collected through the survey obtained, structural equation models and path analysis were used to test the research model. The sample consisted of e-learning users from rural campuses, in this case the students of STMIK Sumedang and UIN Bandung. The research sample was obtained by distributing questionnaires through the WA Group and email, 169 respondents filled out the questionnaire and stated that they were ready to use e-learning. The results showed that optimism and innovation had a positive effect on system use. The quality of the system and the quality of information are the main factors driving the use of the system. Also, this study tries to provide a literature review of the latest research published in the field of information systems, especially in rural areas.

**Keywords**—Readiness, IS-Impact, ISRI Model, Examine, Rural University

## I. INTRODUCTION

The spread of the Corona Virus (Covid-19) spreads rapidly throughout the world, causing anxiety and sadness. Starting from Wuhan China since the end of January 2020. So the World Health Organization (WHO) has determined the phenomenon of such events as a pandemic [1]. Pandemics occur when infectious diseases spread easily from human to human in various places throughout the world. Until the last two weeks, Covid-19 cases outside China have increased thirteen-fold, causing anxiety for the world community. The spread of Covid-19, continues to experience a massive surge, in several countries [2]. Where Covid-19 attacks the human respiratory system. Word O Meterers noted an increase in cases every day in several countries in the world. The latest data in this study was Wednesday, July 22, 2020. Word O Meters, recorded no less than 14,951,347 positive cases of co-19, and 8,467,751 were declared cured, and 616,550 were declared dead. The Government of Indonesia is faced with major challenges to manage and prevent the impact of the co-19 distribution, which affects all aspects of life, including the education sector. This has forced all policies regarding social distance and also physical distance, to be carried out as an effort to minimize and prevent covid-19 distribution. In general, the policy was made as an effort to slow down the distribution

of Covid-19 in the community. On the other hand WHO uses several terms namely social distance, physical distance, quarantine, and isolation [3].

The use of ICTs is found in almost all fields and has an impact on world development, therefore an assessment of ICTs and important research topics is needed [4]. ICT is widely recognized as an important source for socio-economic progress in developed and developing countries [5]. By definition, ICT refers to technology that provides access to information through telecommunications, but focuses on communication technology, including the Internet, wireless networks, cell phones, and other communication media [6]. The concept of information technology-based learning influences conventional educational processes in digital form. The utilization of information technology in the world of education provides advantages in the form of effectiveness and flexibility in learning is because of the many learning resources that can be found, and the learning process is not limited by time and place. It turns out that information technology-based learning can make students more active in learning. One use of information technology in learning is known as e-learning. E-learning can be interpreted as learning to use electronic devices. Learning to use e-learning provides flexibility for lecturers and students [7]. E-learning learning is not necessarily valid in the school environment, to achieve the success of educational goals much depends on the learning process experienced by students. The learning process to achieve educational goals has many factors, one of which is psychological factors in it is readiness [8]. Readiness is a condition when given certain actions. E-learning readiness is defined as the extent to which the community is eligible to participate in world networks. This is measured by assessing the relative progress of an area that adopts information technology and its application [9]. However, on the other hand especially at a more practical level that the information system is allegedly unable to solve problems that occur in rural communities, especially in improving people's welfare [10]. Therefore, further research is needed in the context of testing with a questionnaire to stakeholders. Many previous IS survey studies used questionnaires that were adopted and adapted from previous work [11-16]. This relates to the question of whether new instruments are suitable for this research. On the other hand,

technological developments have developed since the beginning of research [17]. Also, instrument assessment still tends to be the only stage to evaluate whether respondents have problems responding to the questionnaire [18]. The use of statistical analysis in measuring this model is based on each indicator of each variable. The purpose of this questionnaire is to measure statistically from a model that has been made before, with the hope that this research will enrich and provide input for future researchers who will test the readiness of e-learning in rural universities. Therefore, the following research questions will guide the conduct of this research.

Q1. What is the effect of e-learning readiness in rural universities?

Q2. What are the results of the e-learning assessment at rural universities in terms of their readiness and impact in changing existing variables and indicators?

Next in sequence, this paper explains the theoretical framework used in research. The next part is the implementation of the research methodology. Then proceed with a discussion of the results of research and discussion. While the conclusion is the end of this paper, which is the concluding part.

## II. METHOD

The research method used consisted of a preliminary study (ie a review of the literature on the readiness and impact of Information Systems, the development of Information Systems models, and studies on the development of its instruments). Furthermore sequentially starting from determining the research program, developing models from previous models, developing research models, developing instruments, applying research instruments, data collection processes, then analyzed as needed, then the results of the analysis are interpreted and written as the results of the analysis and as a report. for more clearly can be seen in Figure 1. Then the model that has been made before Figure 2, produces a questionnaire that must be evaluated.

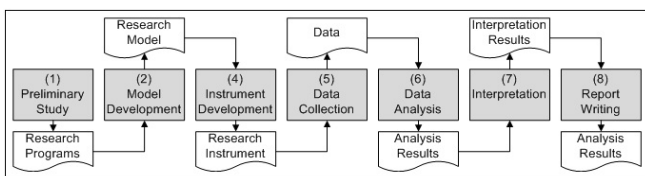


Fig. 1. The Research Procedure [19]

This study measures the readiness model and impact of success with a questionnaire (Figure 2). Measurement of the model used is indirectly inspired by the measurement of models that many other researchers [16], such as the development of models carried out by Antara and Mertz [20, 21], viewed from the practical side that Information Systems research tends to be developed from previous models rather than based on empirical studies[22]. Therefore the measurement of the model in this study follows the previous researchers with the following stages, namely by adopting, combining, and adapting the previous model [23-25], The following nine variables are used in this study, consisting of four readiness variables and five information system impact variables. First is Optimistic attitude (OPT), second is

innovative attitude (INV), third is discomfort attitude (DCF), and fourth is Insecurity attitude (ISC), the fifth is Individual Impact (II), sixth is Organizational Impact (OI), seventh is the Quality System (SQ), the eighth is Information Quality (IQ), and the ninth is the Impact of a successful Information System (IS-Impact). The first four variables are adopted from the Technology Readiness Model[23] and the other from the IS success model[13, 16, 24, 26, 27]. The results of the development of models that have been developed previously in the form of questionnaires derived from variables and indicators can be seen in the model (Figure 2) and (Tables 1 and 2).

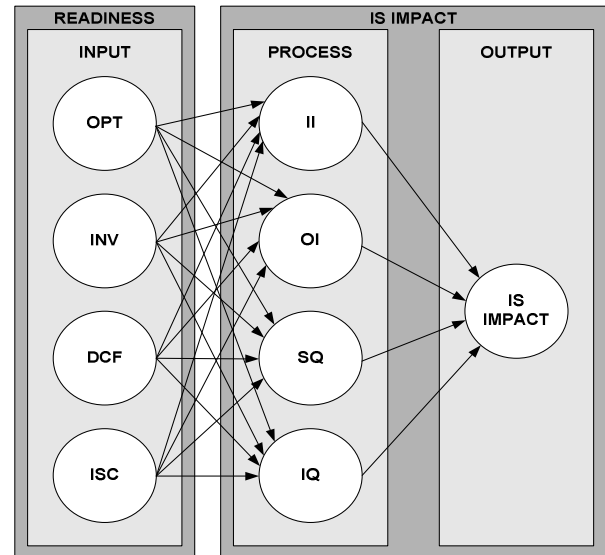


Fig. 2. The Integrating the Readiness and IS-Impact Model [22]

The questionnaire was distributed as many as 180 copies online, which was distributed based on the respondents' profile experience. Questionnaires are distributed through WA Group and e-mail to fill in the questionnaire form that has been made. Then the researchers processed the data based on the incoming form using SmartPLS 2.0. then the PLS-SEM method is used in the analysis phase to determine indicators of reliability, internal consistency reliability, convergent validity, and discriminant validity assessment.

TABLE I. LIST OF VARIABLES AND INDICATORS [22]

Variable	Indicators
Optimism	Easy, connection, efficient, effective, productive.
Innovation	solving problems, being independent, accepting challenges, receiving stimulation, having competitiveness
Discomfort	Complex, have difficulty, dependence on the system, lack of support, less accurate
Insecurity	Failure can occur, there can be threats, reduce interaction, have disturbances, are doubtful
Individual Impact	Enhance learning, increase awareness, increase Decision Effectiveness, increase Individual Productivity
Organization Impact	increase organizational costs, raises staff requirements, reduce operational costs, increase productivity, better results
System Quality	Easy to learn, easy to use, easy to access, requires user requirements, complete system features
Information Quality	The Importance of Information, Availability of Information, Usefulness of Information, Format of Information, Accuracy of Information
Information System Impact	Efficient information systems, effective information systems, information systems that satisfy users, information systems that can increase productivity, information systems that can enhance competitive advantage



Table 3 shows that the IQ2, OI1, OI2, SQ1, and SQ3, OPT3 indicators have values below 0.708, so the five indicators in this model need to be analyzed with the deletion effect on the indicators found on AVE and the composite reliability. Therefore, if the release can increase the measurement, the reflective indicator needs to be removed from the model, but if elimination cannot increase the measurement, then the reflective indicator needs to be maintained because it matches the criteria.

TABLE 5. ASSESSMENT OF THE SIGNIFICANCE OF PATH COEFFICIENTS ON THE ISRI MODEL

	Origin al Sampl e (O)	Sampl e Mean (M)	Standard Deviatio n (STDEV )	T Statistics (O/STD EV)	P Values	Results
DCF -> II	-0.361	0.059	0.224	0.281	0.779	Insignificant
DCF -> IQ	-0.232	-0.230	0.188	1.237	0.216	Insignificant
DCF -> OI	-0.407	-0.401	0.165	2.471	0.014	Significant
DCF -> SQ	-0.305	-0.307	0.198	1.538	0.125	Insignificant
II -> ISI	-0.131	-0.141	0.187	0.702	0.483	Insignificant
INV -> II	-0.123	-0.120	0.168	0.730	0.466	Insignificant
INV -> IQ	0.147	0.153	0.122	1.201	0.230	Insignificant
INV -> OI	0.349	0.365	0.134	2.603	0.010	Significant
INV -> SQ	0.269	0.259	0.152	1.769	0.077	Significant
IQ -> ISI	0.194	0.200	0.129	1.497	0.135	Insignificant
ISC -> II	0.275	0.270	0.136	2.021	0.044	Significant
ISC -> IQ	0.228	0.231	0.150	1.518	0.130	Insignificant
ISC -> OI	0.257	0.281	0.118	2.169	0.031	Significant
ISC -> SQ	-0.230	-0.207	0.193	1.053	0.293	Insignificant
OI -> ISI	-0.051	-0.068	0.190	0.266	0.790	Insignificant
OPT -> II	-0.034	-0.033	0.188	0.182	0.856	Insignificant
OPT -> IQ	-0.108	-0.110	0.185	0.582	0.561	Insignificant
OPT -> OI	-0.154	-0.162	0.193	0.796	0.426	Insignificant
OPT -> SQ	-0.140	-0.147	0.144	0.971	0.332	Insignificant
SQ -> ISI	0.129	0.109	0.144	0.895	0.371	Insignificant

#### IV. CONCLUSION

The conclusion of this study is to measure the model with a questionnaire in conducting statistical analysis through the values of validity and reliability that are used as a reference in revising the model that was built before going through the integration and adoption of several previous models. The results of this study did not change the model and questionnaire, this is due to the validity and reliability values that fit the criteria. However, this can be used as a reference for further researchers who are interested in developing and measuring it further. Therefore greater attention is needed about the sample used, bearing in mind that the sample used in this study is only at rural universities in Indonesia, so it would be better for other researchers to try to apply the measurement model that was built including various questionnaires.

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