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DEVELOPMENT OF INSTRUCTIONAL MATERIALS BASED ON E-LEARNING FOR EFL STUDENTS

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ABSTRACT

The use of instructional materials based on e-learning is becoming prominent as more researches are being done on the issue. Therefore, the aim of the paper is to design and develop an instructional material (IM) based on e-learning as an integrated approach to teaching. The ADDIE model was used to design and develop the e-learning course contents. The contents are related to 7 variables: tutor support, cooperation and communication in the course, technology, cost and expectation value, information transparency, course structure, and didactics. The variables were validated by 3 experts and the practicality was measured by the 2 instructors. There were 60 students who had been asked to respond about their satisfaction and expectation of the IM. The results showed the experts and the instructors judged that the IM based on e-learning was strongly valid and practical as well as the students were satisfied with the variables of the IM based on e-learning. However, instructors' perspectives and students' responses need attention to be considered.

KEYWORDS: Instructional materials, E-Learning, EFL

INTRODUCTION

The development of technology has resulted many reforms in the education sector. The advancement of internet and the ease of access have also transformed the way in which learning is done and the various theoretical frameworks which have been developed. Interaction and connectivity are some of the main cores needed to ensure that meaningful benefits are obtained from the learning and teaching process which can be a lifelong venture. Furthermore, it should be noted that interaction and connectivity are paramount for the facilitation of various philosophies in education, such as the life-long principle.

E-learning is also a popular example of the integrated approaches to teaching as it allows the students to explore, refine, gather knowledge and present the information of the topics that they learn without constraints witnessed in the traditional learning environment. The increase in popularity of e-learning has led to the development of various soft-wares which is offered by technology that aims to improve the learning outcomes of such activities. However, the development of soft-wares for e-learning is always viewed as an impediment for the standardization of materials to be used for training which

affects to a large extent, the quality of the materials which are developed for the learning process. One of the acclaimed instructional design models is the ADDIE model which mainly provides a framework which the developers of the curriculum should follow while preparing for the materials for teaching by the instructional designer.

In the modern world, learning materials are increasingly becoming accustomed to the development witnessed in technology. Currently, it is possible to present e-learning as an education approach with the help of the various educational devices, such as computers and mobile phones. One of the factors that can help improve the educational outcomes from e-learning is through the use of instructional design modeling, which can be used to enable the instructors attain their goals on the education contents.

Currently, not all teachers integrate e-learning into their teaching materials. They generally use printed materials as traditional media. Although, experts have developed a lot of e-learning teaching materials as a tool to demonstrate certain facts, concepts, principles or procedures to make it more tangible or concrete. Mustari, et al. (2019) have developed e-learning based material. He measured the feasibility of the material carried out by material experts, media experts and technology. The results of the feasibility test indicate that e-learning material has a very decent quality (85.25%), in terms of media it is also very feasible (86%) while informatics experts considered also very feasible (89%). The results of trials to students showed that it is very attractive (94%). In the field of education, internet is often used as a learning medium, namely as a tool to demonstrate certain facts, concepts, principles or procedures to make it more tangible or concrete. This is intended to provide more than concrete experiences, motivate and improve the learner's absorption and memory. However, there are still many instructors who do not want to use instructional materials based on e-learning.

The paper mainly discussed the development of IM to be incorporated in e-learning as an example of integrated approaches to teaching the learners. In many instances, educators develop an e-learning content that resonates with the learners as part of their integrated approaches to teaching. Positive educational outcomes can only be realized when the developed e-learning content suits the needs of the students. However, the success of the learning process can only be improved when there is an appropriate IM integrated with the e-learning. The ADDIE model helps develop instructional materials and learning process for educators that seek to base their teaching on integrated approaches through e-learning. The paper will therefore seek to develop the IM by following the procedures and steps listed by the ADDIE model, for students that are currently employed and would like to undertake part time learning. The steps which are taken in the development of IM through the ADDIE model include: Analysis, Design, Develop, Implement, Evaluate.

Patel, et al. (2018) have developed an e-learning module by using ADDIE. Formative evaluations carried out identifying various learning needs that inform the development of pilot training programs at IPS. Summative evaluations reveal that students rate the module positively. About half of the

students indicate that they change their practice after watching the module. All students showed better mastery of knowledge (80%) in the evaluation in each module. Furthermore, Joseph & Abraham (2017) developed instructional design and measurement. The effectiveness of e-content was identified by the group of visual learners. Thus, it shows the effectiveness of the groups is very significant in e-learning. Therefore, this research aims to develop English Instructional Materials based on E-Learning for EFL Students, and to get the students' responses in terms of their attitude, expectation, and satisfaction. However, "The effectiveness of e-learning depends not only on access but also on well-structured content and the learner's digital competence" (Bozkurt, 2021).

Several studies have been conducted by the researchers. Loh, et al. (2016) found flexibility in independent learning and better learning outcomes of teaching material with e-learning. The results show the effectiveness of e-learning as an alternative approach to face-to-face learning pedagogy. Furthermore, Aparicio, et al. (2016) found that the use of teaching materials with e-learning had a positive impact on students' satisfaction. Another study shows that students who have experience about e-learning get positive scores of satisfactions with e-learning. Likewise, the attitude towards e-learning is also positive, and then there is a positive relationship between attitude and satisfaction (Vate, 2019).

This study developed instructional materials with seven variables measured, those are tutor support, cooperation and communication in the course, technology, cost and expectation value, information transparency, course structure, and didactics. Those variables are validated by the experts, and then tested on the instructors and students. Therefore, the research questions are related to the extent of the validity of IM, how practical of the IM is and how students' satisfaction as well as what instructors' perfectives and students' responses to IM based on e-learning.

LITERATURE REVIEW

Various definitions and application of instructional design models have been developed and studied in the recent past. Molenda, Reigluth and Nelson (2003) define instructional design (ID) as the various principles and the procedures which are fused to the core of instructional materials, lessons and other systems in education to ensure that they are reliable and consistent to the goal of learning. Ritchey, Klein, and Tracey (2011), referred to ID as the art of science which is tasked with the creation of detailed development, evaluation and the maintenance of situations which help in facilitating learning and performance in an educational setting. Another important definition of ID is provided by Smith and Ragan (2005) who contended that ID can be regarded as the reflective and systematic process which is used in the translation of principles concerned with learning coupled with their various instructions into the various plans for the different instructional materials, activities and the information resources, coupled with evaluation. From the three definitions of ID provided above, key points of the characteristics of ID are present.

The first characteristic which is present from the three definitions provided show that ID is a process-based approach, which follows a given set of instructions or guidelines, which usually denotes a system

focus. Another common trait from the definitions seen above is that the processes are mainly shaped by the basic idea that the instructions given by the design should all be reliable, effective and consistent in reaching their goal of facilitating learning. The final key-point from the definition is that ID allows for the evaluation and assessment of the process of design and the learning of the individual.

In coming up with an instructional design, numerous dimensions are always considered and this includes features such as balance, repetition, emphasis, proximity, organization, alignment, focus, learner's characteristics, simplicity and variety among other factors (Min-hyo & Changwoo, 2019). Instructional materials come in many forms and all these have varied impacts on the students, depending on how well they are best suited for a given course. Usage of various media such as computer animations and tutorials has been found in various researches to have positive influences and impacts on the performance of the students (Kelly & Jones, 2007). Russomanno and Goodwin (2007), in their study of the impact of animation and video as instructional materials to the students on their academic performance, found out that these materials are considered by many students more exciting, when compared to the traditional methods of learning. Despite all these, Sanger (2000), found out that when animations and video are used alone as the main mode of offering instructions to the students, they were not conclusive in giving whole information about a given concept to the students. As such, it is important for the researchers to be able to understand which type of instruction is suitable for a given course and whether complementary materials are needed in the given process of learning (Korkmaz, 2017).

Instructional design has been applied in various ways in the modern e-learning systems. However, they have been majorly based on the combination of behavioral, constructivist and cognitive theories of learning, that are necessitated by the virtual learning environment in which the students and the instructors delve into, in their bid to acquire education. According to the theory of constructivism, students are supposed to bear responsibility for their own learning processes (Kalbfleisch, 2015). The main reason for this is that the transfer of knowledge is increasingly becoming difficult in the modern world and changing culture and therefore, it is required that students become proactive in the learning process, which further increases the knowledge acquisition in the learning process.

According to Ertmer, York and Gedik (2009), strategies with various recommendations are mainly used for instructional design to study the various facts and cognitive strategies and principles. Instructional Design can be used to provide recommendations concerning the plan of the learning processes which are involved in e-learning systems as adopted by the instructors. Instructional design can also be used to outline the steps and guidelines which should be considered during the process of creation of an e-learning course, and also ensure that it is well tailored to the audience or targeted students. In the preparation of an e-learning course, there are generally three phases which are involved. These phases involve the creation, implementation and the evaluation of the course.

International Journal of Education and Social Science Research

ISSN 2581-5148

Vol. 8, Issue.4, July-Aug 2025, p no. 327-343

The creation of an e-learning is largely based on the various activities interconnected the planning of the teaching process. Creation of the e-learning materials is largely accelerated by identifying the general learning objectives of the course. This includes understanding the wishes of the students, their motivations, expectations as well as the contents of the course. The second process is to identify the target groups. It mainly involves the steps and procedures used to identify the individual characteristics of the students and the general characteristics of the group.

Creation of the e-learning materials necessitates a full knowledge of appropriate teaching methods for the process. Such entails to having a better understanding on how modern information and communication technologies could be integrated in the learning process. Designers of the IM are also required to identify the various resources and materials which are available and affordable by the school or company, to implement the e-learning course. Another critical factor to consider during the creation of the e-learning materials is to identify the learning environment.

The next phase of the development of the e-learning materials that is integrated with IM mainly involves coming up with various instruments that could be used in monitoring the various learning processes and also review the various aspects which the teachers need to take into account during the implementation of the materials. The main activity of this stage is to understand in detail personal attributes of each student. It mainly formulates the generate rules and regulation that govern the interaction of the students. Another activity that the instructors must consider is the evaluation phase. The phase should ensure that the learning and assessment of the students must be directly linked to the learning goals of the course (Garcia & Lewis, 2014). Instructors must ensure that they have appropriate processes that they can gauge the feedback from the students and therefore develop guides based on the feedback received.

An Overview of the ADDIE Model

Instructional design models (IDM) such as ADDIE remain central to e-learning material development, yet require flexible adaptation to account for learner diversity and digital readiness" (Branch & Dousay, 2022). IDM ensures that the instructors give learners the appropriate learning material and putting them in the right path to reach their learning goals (Yıldız & Uzunboylu, 2018). ADDIE model is an example of IDM that has gained importance in the design and development of curriculum in many different fields such as online learning and library instruction. The model mainly consists of five steps or guidelines adhered to in designing a learning curriculum. These stages include the analysis, the design, implementation and evaluation (Xing, 2018).

The analysis phase is mainly involved with the assessment of the various needs of the students or learners. Educators should mainly be involved in crafting some of the learning objectives and determining what needs to be taught and the ways in which the learning objectives will be met. During this phase, the main role of the educators is to gather data on the knowledge, attitudes and skills of the expected learners in a bid to understand what needs to be taught or learned by the students. The phase

is very important in this process as it will also provide the educators with the chance of weeding out some unnecessary information, which might not be needed in the attainment of the learning objectives identified. Several methods can be utilized to collect information during this phase of IM development. They include the use of focus groups, face-to-face interviews, anonymous questionnaires and surveys, consensus from experts and mixed qualitative and quantitative studies (Albashiry, Voogt & Pieters, 2015). The educators can also decide to use opinions from the relevant graduates and experts that are concerned with curriculum development. After this phase, it is the design phase where the educators are mainly tasked with the creation of some broad overviews or blueprints which mainly discuss and describe some of the ways in which the objectives which were identified in the analysis will be implemented and reached. The educators are mainly tasked with the job of choosing some of the optimal methods that could be used in offering instructions to the learners. They can also decide to utilize action-oriented objectives for the learning objectives to guide their teaching process. Some of the methods which can be utilized by the educators to offer instructions to the learners include lectures for large classrooms, small group teaching, case-based teaching, ward-based teaching, self-instructed use of various lecture materials such as textbooks, flipped classrooms and ward-based teaching, which all depend on the type of students and the type of course. After choosing the form of instruction delivery that will adopt in the learning process, the next phase is the development.

The development phase of the instruction mainly involves assessing each component of the instruction and aligning it towards to the goals of the learning objectives. After the instructions are developed, the educators then undertake to implement the new curriculum with the help of a pilot project, which can at times be ignored. It should be noted that after an analysis, design, and the development of the instruction, it must then be delivered or implemented by the educators to the students. The educators who may need to provide complex and long courses may decide to first test the program through a pilot program. In this, few participants, instructors and learners go through the developed course before it is implemented on the large scale. They then provide feedback on each and every step adopted by educators in the instruction design (Albashiry, Voogt & Pieters, 2015). The main importance of this part of the development and implementation of the instruction design is that it enables the educators foresee possible problems in future during the implementation and thus devise ways in which the problems could be countered. However, the main limitation of this type of testing is that it can sometimes take a long-time and costs might also accumulate which might further have future problems on the educators and the programs.

Evaluation mainly involves getting feedback from both the learners and the program and making adjustments to ensure that the e-learning program meets the initial requirement of development. During the analysis phase, tools which would be used to analyze and evaluate the efficacy of the instruction designed should have been identified already (Chevalier, 2011). During and after the implementation, these tools can then be employed to determine the efficacy of the module for learning. Evaluation is very important in the instructional design as it will help in the provision of feedback to the educators on the parts of the module which need to be corrected. The feedback can be in the form of summative

feedback or formative feedback which can be collected throughout the implementation of the materials.

E-Learning

E-learning *is a generic term for all technologically supported learning using as teaching and learning tools as phone bridging, audio and videotapes, teleconferencing, satellite transmissions, and the more recognized web-based training or computer aided instruction also commonly referred to as online courses (*Kurtus, R. 2000 (20 July 2000*).* When learners are involved in designing their own learning paths within e-learning environments, engagement and satisfaction increase" (Martin et al., 2020). Rosenberg (2001) categorizes three basic criteria that exist in e-learning, namely, first, e-learning through networks that can improve, store or bring back, integrate, and share learning and information. Second, e-learning through computers with using internet technology standards. Third, e-learning focuses on the broadest view of learning as a traditional learning solution.

Furthermore, Gutierrez (2017) suggests that there are six things that make learning materials better, namely: goal oriented, engaging without being distracting, having relevant & targeted content, communicating logically, inspiring people to act, and having a solid instructional design strategy. 1) Goal oriented refers to the design objectives of teaching materials, because without learning objectives the learning outcomes of students cannot be measured. To successfully choose the right goals must identify priorities for teaching materials. 2) Engaging without being distracting refers to the involvement of elements such as images, videos, attractive color schemes to provide information, not to disrupt the learning process. 3) Having relevant & targeted content is related to the content of learning materials that fit the wishes of students as target users so that they can be motivated to learn. 4) Communicating logically is related to the ease of students to follow the learning materials. The words used must be simple, not complicated to be understood by students. 5) Inspiring people to act, which is related to the encouragement for students to carry out activities not only in the classroom but also outside the classroom. Finally, learning material must have a solid instructional design strategy.

In addition, Ehlers (2004) suggests seven quality areas of e-learning, namely 1) tutor support with 5 dimensions: interaction centeredness, moderation of learning processes, learner vs. content centeredness, individualized learner support goal vs. development centeredness; 2) cooperation and communication in the course with 2 dimensions: social cooperation and discursive cooperation; 3) technology with 3 dimensions: adaptivity and personalization, synchronous communication possibilities, and availability of contents; 4) cost, expectations-value with 5 dimensions: expectation of individualization and need orientation, individual non-economic costs, economic costs, practical benefits, interest in course and media; 5) information transparency with 3 dimensions: counseling, advise, organizational information, information about course goals and contents; 6) course structure with 3 dimensions: personal support of learning processes, introduction to technical aspects and to the content, tests and exams; and 7) didactics with 6 dimensions: background material, multimedia

enriched presentation material, structured and goal oriented course material, support of learning, feedback on learning progress, individualized tasks.

E-learning research has been carried out by many researchers. Cidral, et al. (2018) propose a theoretical model that integrates theories of information system success in e-learning systems. This model is empirically validated in higher education institutions and university centers in Brazil through quantitative methods of structural equation modeling. The quality of collaboration, the quality of information, and the satisfaction felt by users explain the use of e-learning. The satisfaction felt by the user is the quality of information, the quality of the system, the instructor's attitude towards e-learning, diversity of assessments, and the interaction felt by students with others. The quality of the system, the usage, and the satisfaction felt by the user explain the impact on the individual.

Furthermore, the results of this study will become teaching materials based on e-learning aimed at improving the quality of audio/radio scripts (Kristanto, 2017). The R&D steps are carried out by simplifying it into three main stages, namely introduction, development, and testing. Data obtained from learning experts get a percentage of 91.67%, each of media professionals gets a percentage of 100%. Based on the data, the blended learning material model for the development of audio/radio media that has been developed can be a solution of the research question which states that the blended learning model of teaching material has been developed practically for the use in learning activities.

Another study is about exploring the impact of students' e-learning readiness on student satisfaction and motivation in teaching (Yilmaz,2017). Data were collected from three instruments: E-learning Readiness Scale: computer self-efficacy, internet self-efficacy, online communication self-efficacy, online communication self-efficacy, independent learning, learner control and motivation towards e-learning. The results of the study indicate that students' e-learning readiness is a significant predictor of satisfaction and motivation. Moreover, Continuous formative feedback and iterative evaluation are essential components of effective instructional design in online environments" (Hodges et al., 2020).

RESEARCH METHODS

In the present research, Design Based Research (DBR), was utilized to collect and analyze the data. According to McKenney & Reeves (2012), DBR is a research method which is very useful in the design, study and development of smart solutions to educational problems. One of the main benefits of DBR is the fact that the methodology is always flexible and also aims to improve the educational practice which is being studied through the use of iterative analysis, development, design and implementation, which is anchored on the collaboration between the researchers and the practitioners in the field (Turner, Cardinal & Burton, 2016). DBR also allows the results to be incorporated with the existing theories of education which further improve the knowledge and understanding of the researchers of the problem. Through the use of DBR, the IM developed was exposed for pilot testing to both the expected instructors and the learners. The questionnaires were then asked touching on various aspects of the IM.

International Journal of Education and Social Science Research

ISSN 2581-5148

Vol. 8, Issue.4, July-Aug 2025, p no. 327-343

The ADDIE instructional design model was used to develop the IM based on e-learning is with the implementation stages as follows:

Table 1. Implementation of ADDIE stages

Phases	Development Activity	Output
Analysis	At this stage, an analysis of students' problems, learning environment, preliminary knowledge, student characteristics, traditional learning principles, etc.	Instructional materials meet the students' needs.
Design	-Designing learning objectives, subjects, exercises, learning activities, and evaluation instrument, -Selecting text and illustrations -selecting and organizing words and image	Designed document
Develop	-Determining tools for developing instructional materials based on e-learning -developing animations, using videos, graphics and photos - Reviewing developed materials (prototype)	e-learning document
Implementation	Doing piloting study	Document revision
Evaluation	Doing summative evaluation	Evaluation results

Data Collection and Analysis

The data were mainly collected from the experts, the instructors and the targeted learners after exposuring the IM. The main mode of data collection was the use of questionnaires, which were given to the experts before trying out and from the instructors and the learners after the trying out session. The questionnaires were mainly designed to collect information regarding the IM quality, practicality and the students' satisfactions towards e-learning. Three experts as the validators, two instructors and 60 students as the target users were given questionnaires to get information about quality value, practicality and usefulness of IM (Al-Samarraie, et al., 2018). The quality of the IM based on e-learning was measured according to Ehlers (2004) that suggested seven quality areas of e-learning, namely 1)

tutor support, 2) cooperation and communication in the course, 3) technology, 4) cost, expectations-value, 5) information transparency, 6) course structure, and 7) didactics.

To determine the quality and the practicality of IM based on e-learning, the instrument items were developed and measured with a five-point Likert scale from strongly agree/strongly practical (5) to strongly disagree/strongly impractical (1). Then, the mean scores were converted into high quality to low quality (strongly valid to strongly invalid) and very practical to very impractical. Mean values are converted into percentage level, namely 4.1-5.0 converted into 82%-100% which strongly valid (SV) for the quality of the IM and strongly practical (SP)for the practicality of IM, 3.1-4.0 is converted into 62%-80% which is valid (V) and practical (P) for IM, 2.1-3.0 is converted into 42%-61% which is in doubt (D), and, <2 is converted into <41% which is invalid and strongly invalid (SI). Inferential statistics method was also used in measuring the students' satisfaction of the quality of IM based on e-learning.

RESULTS

The IM based on e-learning has been validated by the experts, and the results are shown in the following table:

Table 2. The validity of IM based on e-learning

Variables	Mean	SD	level
1.Tutor support	4.54	0.52	SV
2.Cooperation and Communication in the Course	4.17	0.23	SV
3.Technology	4.44	0.58	SV
4.Cost, expectations-value	4.40	0.51	SV
5.Information transparency	4.78	0.38	SV
6.Course structure	4.78	0.38	SV
7.Didactics	4.83	0.27	SV
Mean	4.56	0.41	SV
Percent	91.20%		SV

The results of data analysis in Table 2 show that overall measured area obtained a mean value of 4.56 with SD 0.41. This value indicates that the level is very valid. If they are measured separately, the didactic area gets the highest mean (4.83) with SD 0.27. It shows that didactic area is a very valid level according to expert judgment, followed by information transparency and course structure with a mean of 4.78 and SD 0.38, respectively.

International Journal of Education and Social Science Research

ISSN 2581-5148

Vol. 8, Issue.4, July-Aug 2025, p no. 327-343

This study also measures the practicality of IM based on e-learning. Practicality refers to the extent that users consider the intervention as clear, usable and cost-effective in 'normal' conditions (Plomp & Nieveen, 2010).

Table 3. The practicality of IM based on e-learning

No.	Variables	Inst.1	Inst.2	Mean	PL
1	The instructions of the learning materials are clear.	5	5	5.0	SP
2	The descriptions of the learning materials are clear.	4	5	4.5	SP
3	The materials are suitable with the students' level.	5	5	5.0	SP
4	The given examples help the students learn.	4	4	4.0	P
5	The exercises help the students achieve the learning objectives.	3	4	3.5	P
6	The answer key to exercises help students study independently.	3	4	3.5	P
7	The provided pictures help the students master the materials.	4	4	4.0	P
8	The audio and video of the materials are very clear.	5	5	5.0	SP
9	The texts are clear and usable.	4	5	4.5	SP
10	All components of the materials are easy to use.	4	5	4.5	SP
	Mean	4.1	4.6	4.35	SP
	Percent	82%	92%	87%	SP

Based on the questionnaire results, it appears that the instructors responded strongly practical for the clarity of the instruction and description of the learning materials as well as the suitability of students' level. Similarly, the clarity of audio, video, and text are very practical and usable. Finally, all components of IM are easy to use. Therefore, the instructors conclude that the level of practicality of IM based on e-learning are very high or strongly practical (SP). It achieves mean percentage of 87%.

International Journal of Education and Social Science Research

ISSN 2581-5148

Vol. 8, Issue.4, July-Aug 2025, p no. 327-343

Table 4. The students' satisfaction on IM Based on eLearning

One-Sample Test

Variables measured	Test Value = 4					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Tutor support	.869	59	.389	.08333	-.1086	.2753
Cooperation and communication in the course	-11.236	59	.000	-1.28333	-1.5119	-1.0548
Technology	6.412	59	.000	.51667	.3554	.6779
Cost, expectations-value	-11.309	59	.000	-1.25000	-1.4712	-1.0288
Information transparency	-5.197	59	.000	-.51667	-.7156	-.3177
Course structure	3.435	59	.001	.33333	.1392	.5275
Didactics	3.085	59	.003	.25000	.0878	.4122

Statistical analysis in Table 4 measures students' satisfaction with IM quality developed based on e-learning. The analysis shows that of the 7 variables measured with a significance level of 0.05, with df. 59, the t-observed of the measured variables is greater than the t-table (1.67), except for one indicator namely 'tutor support' indicating more t-observed smaller than the t-table which means that students have not shown satisfaction in this indicator.

Although the results of experts' validation show good results and the instructors' responses are very practical and also the students' answers are satisfactory to the IM variables, it is necessary to consider the responses about the expectations of the instructor and learner.

The data from the instructors' perspective were also collected to determine the various factors which can influence the practicality when dealing with the IM based on e-learning. One of the factors that were discovered to influence the ease of application and adoption of e-learning by the instructors was mainly their amount of experience in the teaching sector. The greater the experience the instructor has, the more unwilling he or she will be in applying e-learning as part of their teaching instructions. Although the data cannot be said to be statistically significant as the sample size was relatively small, all this can be attributed to the resistance to change which is inherent in some of the instructors once they gain experience from some of the traditional methods. Furthermore, most of the experienced instructors thought that some learners might not have time for e-learning as part of their learning goals and the lack of motivation for self-directed learning. Furthermore, instructors were also taken a back by the fact that they thought some schools were still not in a good position to undertake e-learning as part of their integrated approaches to teaching as they did not have enough or appropriate facilities.

On the other hand, findings from the questionnaire by the learners provided a better glimpse on how an appropriate IM can be developed based on e-learning as a part time learning tool for the students who are learning. When asked what is most appropriate time for them to utilize or log into the e-learning module, 59% of the participants contended that they will utilize the services during learning, while 68% of the respondents agreed that they will utilize the learning resource based one e-learning. Furthermore, more of the participants agreed that they consider quizzes and exercise as the important parts of the e-learning and that is where they will place most of their focus and priority. Then, 68% of the participants regarded an e-learning module to be important as it allows them to plan their lives and factor other schedules in their lives. On the other hand, the participants contended that time for self-learning will be really difficult to dedicate owing to their family lives and thus, this should be thoroughly considered in the development of the IM based on e-learning.

Furthermore, the participants agreed that by using the e-learning module, the estimated training time could be reduced as they would be inclined to use the module at specific time and at their own convenience as opposed to traditional classes where collective learning is required.

DISCUSSION

Development of the IM based on e-learning

From the results collected, it is evident that there needs to be contextualization in the new mode. Contextualization is mainly defined as the instance in which the learner has to reframe a given problem for them to activate their cognitive processing which can then solve the problem. It should be noted that contextualization is not a type of activity that is undertaken by the learners by themselves, but rather, it is a characterization of the transition from the learned theories to the application of knowledge. The main importance of the contextualization activities is that they help the learner to have developed capabilities in dealing with challenging situations. In the present model, the proposed IM is based on e-learning, which is a system that requires a lot of self-learning combined with major tutorials that might be offered on the materials. In refining the new model, it should be noted that self-learning and collective learning needs to be considered before amending the changes, these include the tacit knowledge and declarative knowledge, respectively.

From some studies, it has been found out that self-based learning is mainly dependent to a larger extent, on the knowledge which has been contributed or shared by other people. Such a type of knowledge is mainly called the declarative knowledge. Moreover, collective learning also relies on multiple sources of informal information or knowledge which might take a long time to formalize, these are called tacit knowledge. Based on the needs for contextualization and self-learning that is needed by the students if they pursue the e-learning model, the e-learning model shown in Figure 1.

International Journal of Education and Social Science Research

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Vol. 8, Issue.4, July-Aug 2025, p no. 327-343

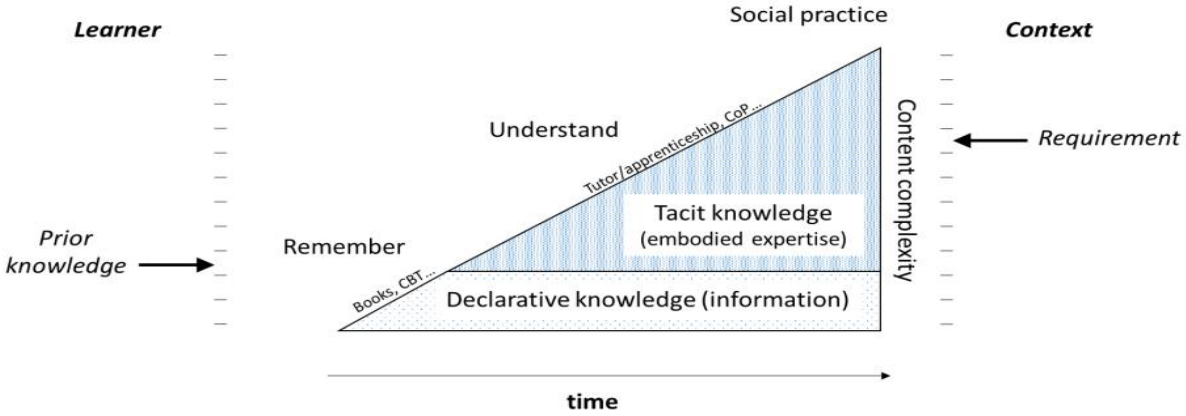

Figure 1: Instructional Design Model for e-learning chronological order

On the other hand, changes proposed to the visuals in the design will also be addressed to ensure that the autonomy and comfort of the adult learners is ensured. The main measurement method for the process, which will serve as the evaluation of the IDM will be the quizzes which will be done throughout the course of learning. These will provide the main evaluation to measure for the model and most of the adult learners embrace this for of learning. Such provides that the efficacy rate of the model will be improved as it is tailored towards the needs and understanding of the general characteristics of the students. Furthermore, e-learning model can be longed in from any place. In many instances, as seen in the result, most of the part time students have families and therefore learning at home might be difficult for them. Such means that the model takes care of their plight and gives them the chance to learn while in their work environment and also while doing their duties in the company or other places which are far from home.

CONCLUSION

The paper mostly sought to come up with an IM that could be utilized for teaching the part-time students using an e-learning. For an instructional materials design model to be effective for a given purpose, the ideas and concerns of the different educators, learners and psychologists should all be taken into account. ADDIE model was utilized for the development of the new e-learning modules for the students. Learners also had the chance of determining their appropriate study times which further improved their self-directed learning process. The main mode of evaluation in the instruction was the use of quizzes which were given throughout the course and the learners required to undertake them. It was some form of formative assessment whereas summative assessment was done at the end of the process to provide more important information to the instructors.

REFERENCES

Albashiry, N., Voogt, J., & Pieters, J. (2015). Improving curriculum development practices in a technical vocational community college: examining effects of a professional development arrangement for middle managers. *The Curriculum Journal*, *26*(3), 425-451. doi: 10.1080/09585176.2015.1040041.

Bozkurt, A. (2021). Resilience, adaptability, and sustainability of higher education: A systematic mapping study on e-learning in the post-COVID-19 era. *Sustainability, 13*(2), 818. https://doi.org/10.3390/su13020818

Branch, R. M., & Dousay, T. A. (2022). *Survey of Instructional Design Models* (6th ed.). Association for Educational Communications and Technology.

Chambliss, M. J., & Calfae, R. C. (1989). Designing science textbooks to enhance student understanding. *Educational Psychologist, 24* (3), 307-322.

Chevalier, R. (2011). When did ADDIE become addie?. *Performance Improvement*, *50*(6), 10-14. doi: 10.1002/pfi.20221.

Cidral, W. A., Oliveira, T., Di Felice, M., & Aparicio, M. (2018). E-learning success determinants: Brazilian empirical study. *Computers & Education*, *122*, 273-290.

Ertmer, P. A., York, C. S., & Gedik, N. (2009). Learning from the pros: How experienced designers translate instructional design models into practice. Educational Technology, 49(1), 19–26.

Garcia, J., & Lewis, T. (2014). Getting a Grip on the Classroom: From Psychological to Phenomenological Curriculum Development in Teacher Education Programs. *Curriculum Inquiry*, *44*(2), 141-168. doi: 10.1111/curi.12042.

Gutierrez, K. 2017. 6 Things that Take Your eLearning Courses from Good to Great. https://www.shiftelearning.com/blog/take-your-courses-from-good-to-great.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Intructional Design Experts. 2009. The Five eLearning Components. http://www.instructional designexpert. com/eLearning_Components.html#.XS9HvXtlDIU.

Kalbfleisch, M. (2015). Educational neuroscience, constructivism, and the mediation of learning and creativity in the 21st century. *Frontiers In Psychology*, *6*. doi: 10.3389/fpsyg.2015.00133.

Kelly, R. M., & Jones, L., L. (2007). Exploring how different features of animations of sodium chloride dissolution affect students' explanations. *Journal of Science Education Technology, 16*, 413-429.

Korkmaz, S. (2017). Study of Positivist and Post-Positivist Views based on Instructional Design Models and Learning Approaches. *New Trends and Issues Proceedings on Humanities and Social Sciences*, *3*(3), 137-147. doi: 10.18844/gjhss.v3i3.1546.

Kristanto, A. (2017). The Development of Instructional Materials E-Learning Based on Blended Learning. *International Education Studies*, *10*(7), 10-17.

Martin, F., Wang, C., & Sadaf, A. (2020). Student perception of helpfulness of facilitation strategies that enhance instructor presence, connectedness, engagement and learning in online courses. *Internet and Higher Education, 37*, 52–65. https://doi.org/10.1016/j.iheduc.2018.01.003

Kurtus, R. 2000 (20 July 2000*)*. What is e-Learning? http://lomo.kyberia.net/diplomovka/webdownload/partial/What%2520is%2520e-Learning.pdf.

Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). New York: Cambridge University Press.

McKenney, S., & Reeves, T. C. (2012). *Conducting educational design research*. New York, NY: Routledge.

Min-hyo, L., & Changwoo, N. (2019). A Developing a STEAM-Based Instructional Design Model Using Storytelling for Early Childhood Education. *Teacher Education Research*, *58*(1), 99-116. doi: 10.15812/ter.58.1.201903.99

Molenda, M., Reigeluth, C. M., & Nelson, L. M. (2003). Instructional design. In L. Nadel (Ed.), *Encyclopedia of Cognitive Science*, Hoboken, NJ: Wiley. Retrieved from http://search.credoreference.com/content/entry/wileycs/instructional_design/0.

Plomp, T. & Nieveen, N. (editors). 2010. *An Introduction to educational design research*. Netherlands: SLO.

Qomariyah, S. (2019). Effect of Problem Based Learning Learning Model to Improve Student Learning Outcomes. *International Journal of Educational Research Review*, 217-222. doi: 10.24331/ijere.518056.

Rakos, R. (1980). Toward Cooperative Behavior Between Pragmatic Behaviorists and Marxist Behaviorists: Philosophical, Empirical, and Social Action Considerations. *Behaviorists For Social Action Journal*, *2*(2), 10-17. doi: 10.1007/bf03406139.

Ritchey, R., Klein, J., & Tracey, M. W. (2011). *The instructional design knowledge base: Theory, research, and practice.* New York: Routledge.

Russomanno, D. J., & Goodwin, J. C. (2007). Animation and visualization tools: From undergraduate projects to pedagogical aids. *Journal of STEM Education, 8* (1–2), 49–55.

Sanger, M. J. (2000). Addressing student misconceptions concerning electron flow in aqueous solutions with instruction including computer animations and conceptual change strategies. *International Journal of Science Education*, 22 (5), 521–537.

ISSN 2581-5148

Vol. 8, Issue.4, July-Aug 2025, p no. 327-343

Smith, P. L. & Ragan, T. J. (2005). *Instructional Design* (3rd Ed.). New York: Wiley.

Turner, S., Cardinal, L., & Burton, R. (2016). Research Design for Mixed Methods. *Organizational Research Methods*, *20*(2), 243-267. doi: 10.1177/1094428115610808.

Xing, Q. (2018). Application of ADDIE Model in Instructional Design of Structural Mechanics Course. *Destech Transactions on Social Science, Education and Human Science*, (esem). doi: 10.12783/dtssehs/esem2018/23914

Yıldız, E., & Uzunboylu, H. (2018). Comparıson Of Instructıonal Desıgn Models: An Instructıonal Desıgn Model; Example of The Near East Unıversıty. *International Journal of Innovative Research In Education*, *5*(3), 74-84. doi: 10.18844/ijire.v5i3.3835.

Yilmaz, R. (2017). Exploring the role of e-learning readiness on student satisfaction and motivation in flipped classroom. *Computers in Human Behavior*, *70*, 251-260.