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Application of ADDIE Model of Instruction in Teaching-Learning Transaction among Teachers of Mara Conference Adventist Secondary Schools, Tanzania

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Abstract
The aim of this study was to investigate application of ADDIE model of instruction among teachers of Mara Conference Adventist Secondary Schools in Tanzania. A total of 49 teachers in six schools participated in filling the questionnaire. Cronbach alfa of .898 signified acceptable reliability of the questionnaire items. Descriptive statistics, t-test and ANOVA were used to analyze data. The study reached to the conclusion that amid variation of demographic characteristics of teachers in schools under investigation, it is obvious that gender, education level, and teachers' area of specialization do not influence the application of ADDIE model of instruction in teaching-learning transaction. Implementation is given the highest while evaluation is given the lowest priority in practical application of ADDIE model. The study also found out that the intensity of applying the model diminishes as years of teaching experience increase until when teachers reach the experience of 10 years and above. Starting teachers begin with great zeal in applying the ADDIE model but later this zeal keeps reducing due to unknown factors. This study, therefore, recommends in-service training that can give strength for teachers to keep applying ADDIE principles throughout their professional life and further investigation on factors causing diminishing of intensity in applying ADDIE model of instruction due to increasing years of teaching experiences.
Keywords: ADDIE Model, Instructional Design, Teachers, Students, Teaching-learning transaction, Adventist, Secondary Schools.

1. Introduction

Designing is defined by Longman Active Study Dictionary as "drawing or planning something that one will make or build" or "to make something for a particular purpose." This definition suggests that design is a plan that is made before something is executed. In a technical sense, the term can be regarded as "a systematic process as opposed to trial and error or random assemblage (Gagne, Wager, Golas, & Keller). Many writers (e.g. Gagne, et al. 2005; Reiser, & Dempsey, 2007; Smaldino, Lowther, & Russel (2008) argue that properly designed instruction yields greater learning results among students and in that way instructional design becomes the heart of effective learning. Syatriana, Husain and Jabu (2013) connected low English performance and competence of Indonesian Secondary School students with poor instructional design. The study of Shibley, Amaral, Shank and Shibley (2011) further established that the resulting design significantly increased the average GPA for the course and significantly decreased the failure rate among the learners.

Proper instructional design is further supported by biblical literature where King Solomon, the wise said "Prepare your outside work, make it fit for yourself in the field; and afterward build your house" (Proverbs 24:27). Jesus, the master teacher in Christian perspective supported this in one of his teaching sessions when he asked a question to his audience: "For which of you, intending to build a tower, does not sit down first and count the cost, whether he has enough to finish it?"(Luke 14:28). These words of wisdom suggest that any effective activity, teaching included, must be designed and properly planned. Therefore, the idea of instructional design remains of extreme importance to teachers and educationists as held by Bandhana (2010) who contends that teachers as instructional designers are expected to be familiar with the epistemological underpinnings of several theories and their consequences on the process of instruction." They need to design strategies that will result into effective learning. While there could be a range of instructional design models, ADDIE is considered to be the most common instructional design model (Shibley, Amaral, Shank and Shibley (2011).

Among a range of studies concerning ADDIE model of Instruction (e.g. Syatriana, Husain, & Jabu, 2013; Bandhana, L (2010), none looked at the extent of its applicability in the teaching-learning transaction. This paper, therefore, investigated Applicability of ADDIE Model of instruction among teachers of Mara Conference Adventist Secondary Schools in Tanzania. Mara Conference is a sub Administrative entity of the Northern Tanzania Union Conference of the Seventh-day Adventist Church in Tanzania, which among other things operates institutions of learning, particularly Secondary Schools in Mara Region and Ukerewe District. Among 14 Adventist Secondary School in Tanzania, six belong to Mara Conference. The schools are operated under Adventist Philosophy of education which runs interconnected educational institutions worldwide. The Education Department of the Adventist world Church is responsible for the supervision, coordination, promotion and quality control of the global Seventh-day Adventist educational system. This includes 7,883 schools, colleges

and universities, with 89,481 teachers and 1,758,737 students in 115 countries (www.adventist.org).

1.1 Statement of the Problem

Instruction which is not properly designed leads to less effective learning. Seel and Dijkstra (2004) suggest that solution to instructional design problem is the design of proper communication between teachers as experts and learners and environments that support this communication in teaching- learning transaction. While the communication can take many forms including provision of information, asking questions, and giving problems for learners to solve, effectiveness level of instructional design depends on teachers as immediate curriculum implementers. This study particularly looked at applicability of ADDIE model of instruction by teachers in Mara Conference Adventist Secondary Schools. The study attempted to answer three research questions namely:

1. What are demographic characteristics of teachers in Mara Conference Adventist Secondary Schools?
2. What is the general trend in the application of different ingredients of ADDIE model of Instruction among teachers of Mara Conference Adventist Secondary Schools?
3. Is there significant difference in the applicability of ADDIE model of Instruction by Mara Conference Adventist Secondary Schools teachers, categorized according to years of teaching experience, gender, education level, and area of specialization?

1.2 Hypothesis of the Study

The study tested one null hypothesis namely: *There is no significant difference in the applicability of ADDIE model of Instruction by teachers in Mara Conference Adventist Secondary Schools, categorized according to teaching experience, gender, education level, and area of specialization.*

1.3 Significance of the Study

This study is of great significance in that findings will help teachers in schools under investigation to improve areas of weaknesses in the applicability of IDDIE model of instruction in their day-to-day teaching routines.

1.4 Scope of the Study

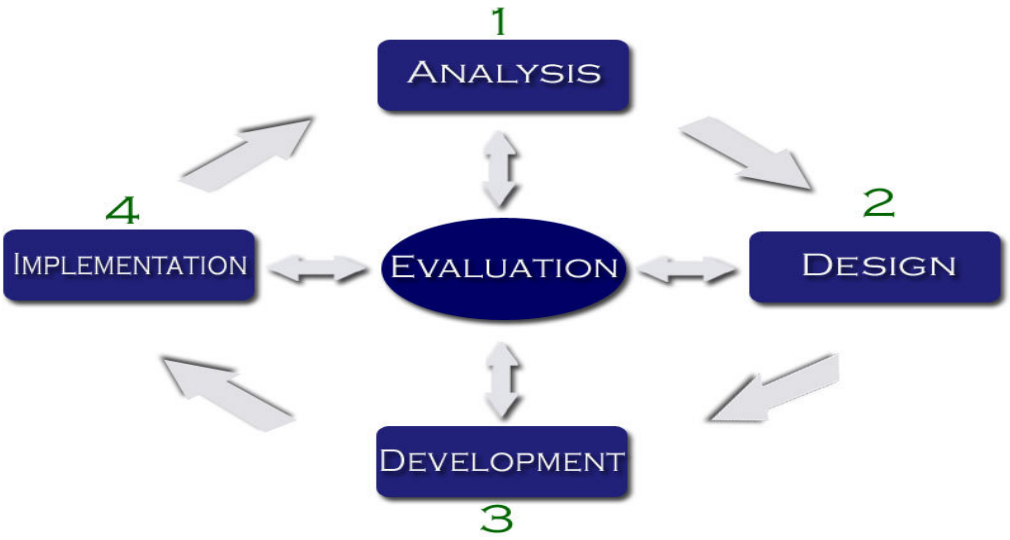
Despite a series of instructional design models, this study was particularly limited to applicability of ADDIE model of instruction among teachers in six Adventist Secondary Schools operated by Mara Conference.

2. Review of Related Literature and Studies

This study was guided by the ADDIE model of Instruction as explained in the work of Gagne et al (2005, p. 23-37) who explain how each step should be carried out and give various activities that must be considered in each step of the cycle. Instructional Design is the very heart of effective teaching and learning. Unless teachers plan and design teaching activities, incidental learning will be the result, and at the end of it all, teachers will fail to do the evaluation of what they have done in class, something which thoroughly depends on clearly set and known objectives which are located in the analysis, the very first step of designing. Therefore, Instructional Design remains of extreme importance to teachers and curriculum developers.

As seen in figure 1, the name "ADDIE" is a common mnemonic for the five major steps in the instructional design process namely: A = Analysis, D = Design, D = Development, I = Implementation and E = Evaluation.

Figure 1: ADDIE Model- Adopted from Spark wikis



ADDIE Model

Before going further, it is important to understand what the terms "instruction" and "instructional design" are all about. Merriell (1996) in Shibley, Amaral, Shank and Shibley (2011, p. 13) state that "Instructional design is the technology of creating learning experience and learning environments which promote

these instructional activities." Tennyson, Schott, Seel, Dijkstra (1997) consider instructional design as a field of study concerning with improving teaching and learning. Bandhana (2010) defines the two terms in a contrast way. According to him, instruction is the deliberate arrangement of learning conditions to promote the attainment of some intended goal or a plan of teaching and learning activities in which learning is organized, whereas design is a creative process. Dick and Carrey (1996) in Bandhana (2010) define instruction as a systematic process in which every component (i.e. teachers, students, materials, and learning environment) is crucial to successfully learning. According to Smaldino et al (2008), instruction can be defined as "deliberate arrangement of experiences to help learners achieve a desirable change in performance." This definition suggests that experiences must be arranged earlier before the actual teaching has taken place and therefore is bringing to view the idea of designing instruction before actual teaching practice has taken place.

Gustafson and Branch in Reiser and Dempsey (2007) regard instructional designing as a systematic process that is employed to develop education and training programs in a consistent and reliable fashion. It is a complex process that is creative, active and iterative in nature. Bandhana (2010, p.1) has it that Instructional Design is a tested and proven methodology for developing instruction. Jonassen, Tessmer and Hannum (1999) maintain that instructional design is an analytic activity that involves task analysis to determine what should be taught. They consider the task analysis for instructional design as a process of analyzing and articulating the kind of expected learning outcome in terms of performance. They also stipulate that the essence of task analysis is to determine the goal and objectives of learning, how to select learning outcomes that are appropriate for instructional development, which tasks are most important, the sequence in which the tasks are performed and should be learned and taught, how to select appropriate media and learning environments and how to construct performance assessment and evaluation.

Instructional design endeavours are centred upon the fact that any effective learning must be properly planned. As reflected in the introductory part of this work, prior design of any task yields effective outcome. Since learning cannot be exceptional, instructional design remains to be a must activity for teachers and curriculum developers at large. Unless teachers plan and design the teaching activities, incidental learning will be a result, and at the end of it all, teachers will fail to do the evaluation, something which thoroughly depends on clearly designed and known objectives.

McArdle (2011) maintains that one way to avoid mismatching instructional method with particular audience is to consider demographic characteristics and preferences of the learners. This is in harmony with Ngussa and Makewa (2014) who maintain that teachers should make use of established range of individual demographic differences among learners as an opportunity in their teaching in that varied range of approaches can be used to meet the needs of students according to their individual differences. The instructional design should therefore consider individual differences of the learners.

Gagne, et al. (2005, pg. 2-3) present six basic common assumptions about instructional designing which are in this paper elaborated in the light of other writers:

- **Intentional as opposed to incidental learning:** This implies that the target goal and desired learning outcomes must guide the design and selection of learning activities. It also suggests that it is against the accomplishment of objectives that the effectiveness of the design is assessed. Gagne, et al (2005, p.1) clearly distinguishes intentional from incidental learning. While intentional learning is goal oriented, incidental learning takes place by chance. "One function of education systems," they argue, "is to facilitate intentional learning in order to accomplish many goals that would take much longer without instruction." Smaldino et al, (2008, p. 95) have it that learning objectives are not intended to limit what students learn but rather are intended to provide a minimum level of expected achievement."
- **Learning as a complex process:** Learning involves a number of variables such as learner perseverance, time allowed, quality of instruction, aptitude and student's ability to learn. In designing any instruction, the teacher needs to know variables that can enhance or hinder effective learning. Smaldino, et al (2008, p. 95) argue that it is important to adopt learning objectives to the abilities of individual learners. Instructional designs should therefore be student centred so that slow learners, faster learners and many other individual differences should be taken care of in the teaching-learning transaction.
- **Many levels of application.** These levels range from curriculum development of a course of study to lesson planning for a day's activity. This point advocates for classroom teachers as instructional designers rather than mere implementers of what others have planned. It also suggests that designing of instruction is a daily process as classroom teachers move along the intended goals.
- **Design as an iterative process.** This suggests that instruction cannot be designed without involving learners in the process. Instructional materials and activities must be tested with learners to determine what works and what does not work. There are numerous variables that learners must interact with if effective learning needs to take place. This is supported by Dick and Carey (1996) in Bandhana (2010) who maintain that instruction is a systematic process in which every component (i.e. teachers, students, materials, and learning environment) is crucial to successfully learning. This truth suggests the idea that

instructional designing cannot be of one standard since each teacher faces different types of learners under different contexts of teaching- learning transaction

- **Related sub-processes.** Instructional design is not a single event. It is an extended activity that involves a series of events. Ngussa (2014) describes Gagne's nine events of instructions that need to be considered in the instructional design. These include gaining attention, informing the learner of the objective, stimulating recall of prior learning, presenting the stimulus, providing learning guidance, eliciting performance, providing feedback, assessing performance and enhancing retention and transfer.
- **Different types of instruction**. There is no best way to teach everything. A good example is that problem-solving skills cannot be developed without involving learners in solving problems. This is in harmony with the law of exercise which states that if one exercises, the effect increases (Schunk, 1996). This implies that the teacher needs to give as many exercises to the learner in order to strengthen learning results and likelihood to meet the intended objective. This also calls for teachers to be well informed of intended learning outcomes in order for them to tailor appropriate activities for students.

Reiser and Dempsey (2007, p. 13-17) give several characteristics of an ideal instructional design. According to them, instructional design is learner centred in the sense that the learner is given first priority in the teaching-learning transaction. It is goal oriented in that the teacher sets attainable and measurable objectives. It focuses on meaningful performance in the sense that learners are actively involved in practical experiences. It assumes that outcomes can be measured in a reliable and valid ways. It is empirical, iterative and self-correcting. And finally, instructional design is typically a team effort.

In conclusion, one cannot talk about instructional design without mentioning EDDIE Model. It is argued that though models of instructional design have similar components, they can vary greatly in the specific numbers of phases and their graphic representations (Gagne et al, 2005, p. 21). ADDIE model, however, stands tall and is supported by many authors (Reiser & Dempsey, 2007; Gagne et al, 2005; and Bandhana, 2010).

3. Methodology of The Study

This study employed both descriptive and inferential statistics. Descriptive statistics analyzed research question one and two while t-test and Analysis of Variance (ANOVA) analyzed research question three and tested its subsequent null hypotheses. The study involved six Adventist Secondary Schools operated by Mara Conference namely Ikizu Secondary School, Bwasi Secondary School, Nyansincha Secondary School, Nyabehore Secondary School, Busegwe Girls Secondary School and Kameya Secondary School. A closed-ended questionnaire that was constructed by the researcher was the only means for data collection. Questionnaire items were in four-likert scale where 4 denoted Strong Agreement, 3 denoted Agreement, 2 denoted Disagreement, and 1 denoted Strong Disagreemen. The mean scores of the respondent groups were interpreted as follows: 3.50-4.00 = Strongly Agree, 2.50-3.49 = Agree, 1.50-2.49 = Disagree and 1.00-1.49 = Strongly Disagree

Validity of the questionnaire was obtained through critical analysis of the items of the questionnaire against the objectives of the study to ensure acceptable compatibility. Necessary adjustments were made. Through SPSS running, a Cronbach alfa of .898 was obtained which signifies that the questionnaire items were highly reliable.

Before data collection, the researcher consulted Mara Conference Executive Secretary for permission to collect data from schools under investigation. Upon written acceptance of the request, the researcher sent the questionnaires to the head teachers and requested them to assist collecting data and sending back the questionnaires to him.

4. Results and Discussion of Findings

This section presents results of three research questions and subsequent null hypotheses that guided this study namely:

4.1 ***What are demographic characteristics of teachers of Mara Conference Adventist Secondary Schools?***

With the help of SPSS program, Table 3-6 show demographic characteristics of teachers which give necessary background for research question 2 and 3. Teachers of Mara Conference Adventist Secondary Schools had variation of demographic characteristics. The tables indicate that Majority (91.8%) were males while their female counterparts were only 8.2%. As far as educational level is concerned, 44.9% of teachers were bachelor degree holders while 40.8 held diploma and 14.3 held Advanced Certificate of Secondary Examination. Majority of teachers (55.1%) were Arts teachers while 42.9% were science teachers and only 2% were commerce teachers. Teachers had a wide range of working experiences. Majority of them (55.1) having 1-3 years of teaching experience while 18.4% had the experience of 4-6 years, 4.1% had the experience of 7-9 and 22.4% had the experience of 10 years and above.

4.2 What is the general trend in the application of ADDIE model of Instruction among teachers of Mara Conference Adventist Secondary Schools?

Generally, Table 7 indicates that the use of various ingredients of ADDIE model of instruction falls within the range of 3.4 and 3.5 out of 4.00 mean score. This indicates teachers' agreement and strong agreement respectively. Categorically, teachers rated their application of various ingredients of the model in the following descending order:

- Implementation (3.5816)
- Designing (3.4898)
- Developing (3.4571
- Analysing (3.4541)
- Evaluation (3.4490).

This implies that implementation is given the highest priority while evaluation is given the lowest priority. This does suggest that teachers under investigation properly apply the ADDIE model of instruction in teaching-learning transaction though priority in the application of various stages varies. As held by many writers, (e.g. Gagne, et al. 2005; Reiser, & Dempsey, 2007; Smaldino, Lowther, & Russel (2008), properly designed instruction yields greater learning results among students. This is supported by Syatriana, Husain and Jabu (2013) who connected performance and competence with instructional design strategies. Shibley, Amaral, Shank and Shibley (2011) stipulated that resulting design significantly increases performance level and decreases the failure rate among the learners. Teachers, therefore, need to be encouraged to keep applying the ADDIE instructional design in order to create rooms for students' higher academic performance.

4.3 Is there significant difference in the applicability of ADDIE model of Instruction by teachers of Mara Conference Adventist Secondary Schools, categorized according to years of teaching experience, gender, education level, and area of specialization?

This question called for testing of four sub null hypotheses using t-test and Analysis of Variance (ANOVA) through the Statistical Package for Social Sciences (SPSS). The hypotheses were tested one after another:

4.3.1 There is no significant difference in the applicability of ADDIE model of Instruction among teachers of Mara Conference Adventist Secondary Schools categorized according to years of teaching experience.

Preliminary findings in Table 8 indicates variation of scores in the use of ADDIE model of instruction. The table also indicates inconsistent trend in that teachers of above 10 years of teaching experience had the highest mean score (3.5306) followed by teachers of 1-3 years (3.5290) and 4-6 years (3.4163). Those teachers with 7-9 years of teaching experience had the lowest mean score (2.9817). Further, Analysis of Variance in Table 9 indicates a Sig of .163 which is greater than the critical value indicating that the mean score differences are not statistically significant. This leads us to accept the null hypothesis that there is no significant difference in the applicability of ADDIE model of Instruction among teachers in Mara Conference Adventist Secondary Schools, categorized according to years of teaching experience.

The results can also be interpreted that teachers of 1-3 and at least 10 years experiences of teaching strongly agreed to be applying ADDIE model of instruction while those teachers of between 4-9 years of teaching experience agreed to be using the principles. This implies that the intensity of applying ADDIE principles diminishes as years of teaching experience increases until when teachers reach the experience of 10 years and above. This suggests that starting teachers begin with great zeal and enthusiasm in applying the ADDIE principles but later this zeal keeps diminishing due to factors beyond the knowledge of the researcher. This calls upon further investigation on factors causing diminishing of the intensity in applying ADDIE model of instruction. It also calls for regular in-service seminars that will motivate teachers to keep the zeal and enthusiasm they started with after employment and even improve as the years of their teaching experience increase. This is supported Shah, Kiani, Mahmood and Hussain (2011) who argued that since in-service teacher training enhances and improves the aspects of overall performance of teachers, it is necessary for teachers to update their knowledge through the in-service training. Joy (2014) also supported this by contending that in-service training by workshops, conferences and seminars is an important strategy for improving teachers' effective implementation of teaching related activities in secondary schools.

4.3.2 There is no significant difference in the applicability of ADDIE model of Instruction among teachers of Mara Conference Adventist Secondary Schools categorized according to gender.

Table 10 indicates that the mean score of female teachers (3.5283) was slightly higher than that of male teachers (3.4826). Female teachers strongly agreed while male teachers agreed to be applying ADDIE model in the teaching-learning sessions. Independent sample t-test in Table 11 however, reveals a sig. of .287 which is greater than the critical value meaning the mean scores of male and female teachers are statistically not significant. Therefore, we accept the null hypothesis that there is no significant difference in the applicability of ADDIE model of Instruction among teachers of Mara Conference Adventist Secondary Schools categorized according to gender, and conclude that gender of teachers does not influence the application of ADDIE model of instruction in teaching-learning transaction.

4.3.3 There is no significant difference in the applicability of ADDIE model of Instruction among teachers of Mara Conference Adventist Secondary Schools categorized according to education level.

In analyzing this hypothesis, the researcher employed ANOVA. As Table 12 indicates, teachers with diploma qualification had the highest mean score (3.4947) followed by teachers with bachelor degree qualification (3.4932). Teachers with Advanced Certificate of Secondary Education had the lowest mean score (3.4410). All groups' mean scores, however, fall within the range of 2.50-3.49 denoting that all teachers regardless of their education level variation agreed to be applying ADDIE model in teaching. In addition to that, Table 13 indicates the sig of .936 which is greater than the critical value indicating that the mean scores of teachers categorized according to level of education are not statistically different. Therefore we come up with an observation that teachers' level of education does not influence the application of ADDIE model of instruction.

4.3.4 There is no significant difference in the applicability of ADDIE model of Instruction among teachers of Mara Conference Adventist Secondary Schools categorized according to area of specialization.

Table 14 indicates that Arts teachers had the highest mean scores (3.5269) followed by science teachers (3.4384). Commerce teachers had the lowest mean score (3.3967). Arts teachers strongly agreed to be using ADDIE model of Instruction while teachers of science and commerce agreed to be using the model. Analysis of variance in Table 15 however indicates a Sig. of .671 which is greater than the level of significance implying that the mean scores are not statistically different. Therefore we accept the null hypothesis that there is no significant difference in the applicability of ADDIE model of Instructional Design among teachers in Mara Conference Adventist Secondary Schools categorized according to area of specialization.

5. Summary, Conclusions and Recommendations

This section summarises results of three research questions and subsequent null hypotheses that guided this study. In summary, this study concludes that amid variation of demographic characteristics of teachers in schools under investigation, it is obvious that gender, education level, and teachers' area of specialization do not influence the application of ADDIE model of instruction in teaching-learning transaction. Implementation is given the highest priority while evaluation is given the lowest priority in practical application of the ADDIE model. Intensity of applying ADDIE model diminishes as years of teaching experience increase until when teachers reach the experience of 10 years and above. This study, therefore, recommends that teachers need to be encouraged to keep applying the ADDIE instructional design in teaching-learning transaction in order to create rooms for students' higher academic performance. In-service training can give strength for teachers to keep applying ADDIE principles throughout their professional life. There is also need for further investigation on factors causing diminishing of intensity in applying ADDIE model of instruction as years of teaching experience increase.

6. Reference

Bandhana, L (2010*). Designing Instructional Design: Emerging Issues.* Journal of Education and Practice www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol. 1,No. 3, 2010.

Gagne, R. M., Wager, W.W., Golas, K. C. & Keller, J. M (2005). *Principles of Instructional Design* (5th edition). California: Wadsworth.

Holy Bible- New King James Version.

Jonassen, D. H; Tessmer, M and Hannum, W. H (1999). *Task Analysis Methods for Instructional Design* (online book). Mawhah, N. J: Lawrence Erlbaum Associates. www.questia.com

Joy, E (2014). *Strategies for Improving Staff Personnel for Effective Implementation of Universal Basic Education (UBE) in Junior Secondary Schools in Rivers State.* Journal of Education and Practice www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)Vol.5, No.21, 2014.

Longman Active Study Dictionary.

McArdle, G (2011). *Instructional Design for Action Learning.* New York: American Management Association.

Ndiku, L. M and Ngussa, B. M. *Students Demographics and Satisfaction with Selected Academic Experiences: University of Arusha-Musoma, Tanzania.* International Journal of Education and Research. July 2014.

Ngussa, B. M (2014). *Gagne's Nine Events of Instruction in Teaching-Learning Transaction: Evaluation of Teachers by High School Students in Musoma- Tanzania.* International Journal of Education and Research Vol. 2 No. 7 July 2014.

Reiser, R. A and Dempsey, J. V (2007). *Trends and issues in instructional design and Technology* (2nd ed.). New Jersey: Pearson Education, Inc.

Shah, S. M. A; Kiani, K. M; Mahmood, Z and Hussain, I (2011*). In-Service Training of Secondary Level Teachers: a Follow up of Teachers' Performance in Comparative Perspective*. Journal of Education and Practice www.iiste.org. ISSN 2222-288X (Online) Vol. 2, No 11&12, 2011.

Smaldino, S. E; Lowther, D.L; & Russel, J. D. (2008). *Instructional Technology and Media for Learning*. New Jersey: Pearson Merrill Prentice Hall.

Schunk, D. H. (1996*). Learning Theories: An Educational Perspective*. New York: Macmillan Publishing Company.
Seel, N. M and Dijkstra, S (2004). (editors). *Curriculum Plans and Processes in Instructional Design: International Perspectives* (online book). Mahwah , N. J: Lawrence Erlbaum Associates. www.questia.com.
Seventh-Day Adventist Official Website- Department of Education. www.adventist.org
Shibley, I; Amaral, K. E; Shank, J. D and Shibley, L. R (2011). *E-signing a Blended Course: Using ADDIE to Guide Instructional Design.* Journal of College Science Teaching, v40 n6 p80-85 Jul 2011. From http://eric.ed.gov/?id=EJ963648
Syatriana, E; Husain, D and Jabu, B (2013). *A Model of Creating Instructional Materials Based on the School Curriculum for Indonesian Secondary Schools* Journal of Education and Practice www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.4, No.20, 2013.
Tennyson, R. D; Schott, F; Seel, N. M and Dijkstra, S (1997) (editors). *Instructional Design: International Perspectives. Volume: 1*. Mahwah, NJ. Lawrence Erlbaum Associates.
Vincini, P. J. *ADDIE Instructional design Process*. https://wikis https://wikis. uit.tufts.edu/ confluence/display/UIT Knowledgebase/ ADDIE+ Instructional +Design+Process Retrieved February 16, 2014.

7. Appendices

Table 1: Reliability Case Processing Summary

		N	%
Cases	Valid	48	100.0
	Excluded[a]	0	.0
	Total	48	100.0

a. Listwise deletion based on all variables in the procedure.

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
.898	24

Table 3: Gender of Teachers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	45	91.8	91.8	91.8
	FEMALE	4	8.2	8.2	100.0
	Total	49	100.0	100.0	

Table 4: Educational level of Teachers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BACHELOR DEGREE	22	44.9	44.9	44.9
	DIPLOMA	20	40.8	40.8	85.7
	ACSEE	7	14.3	14.3	100.0
	Total	49	100.0	100.0	

Table 5: Teachers' Area of Specialization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ARTS	27	55.1	55.1	55.1
	SCIENCE	21	42.9	42.9	98.0
	COMERCE	1	2.0	2.0	100.0
	Total	49	100.0	100.0	

Table 6: Teachers' Work Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 YEARS	27	55.1	55.1	55.1
	4-6 YEARS	9	18.4	18.4	73.5
	7-9 YEARS	2	4.1	4.1	77.6
	10 YEARS AND ABOVE	11	22.4	22.4	100.0
	Total	49	100.0	100.0	

Table 7: Descriptive Statistics for different ingredients of ADDIE model

	N	Minimum	Maximum	Mean	Std. Deviation
ANALYSIS	49	2.00	4.00	3.4541	.40400
DESIGN	49	1.83	4.00	3.4898	.46821
DEVELOP	49	2.40	4.00	3.4571	.42230
IMPLEMENT	49	2.50	4.00	3.5816	.39326
EVALUATION	49	2.00	4.00	3.4490	.48739
Valid N (listwise)	49				

Table 8: Descriptives for ADDIE Applicability by years of teaching experience

ADDIE

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1-3 YEARS	27	3.5290	.34984	.06733	3.3906	3.6674	2.68	4.00
4-6 YEARS	9	3.4163	.29450	.09817	3.1899	3.6427	2.88	3.82
7-9 YEARS	2	2.9817	.57747	.40833	-2.2067	8.1700	2.57	3.39
10 YEARS AND ABOVE	11	3.5306	.32014	.09653	3.3155	3.7457	2.82	3.85
Total	49	3.4863	.34936	.04991	3.3860	3.5867	2.57	4.00

Table 9: ANOVA for ADDIE Applicability by years of teaching experience

ADDIE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.624	3	.208	1.789	.163
Within Groups	5.234	45	.116		
Total	5.859	48			

Table 10: Group Statistics ADDIE Application by gender

	What is your gender?	N	Mean	Std. Deviation	Std. Error Mean
ADDIE	MALE	45	3.4826	.35878	.05348
	FEMALE	4	3.5283	.24978	.12489

Table 11: Independent Samples Test ADDIE Application by gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
ADDIE	Equal variances assumed	1.157	.287	-.248	47	.805	-.04574	.18409	-.41608	.32460
	Equal variances not assumed			-.337	4.192	.753	-.04574	.13586	-.41624	.32476

Table 12: Descriptives for ADDIE Applicability by teachers' level of education

ADDIE								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
BACHELOR DEGREE	22	3.4932	.34969	.07455	3.3381	3.6482	2.57	3.93
DIPLOMA	20	3.4947	.33140	.07410	3.3396	3.6498	2.73	4.00
ACSEE	7	3.4410	.44482	.16813	3.0296	3.8523	2.68	3.87
Total	49	3.4863	.34936	.04991	3.3860	3.5867	2.57	4.00

Table 13: ANOVA for ADDIE Applicability by teachers' level of education

ADDIE					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.017	2	.008	.066	.936
Within Groups	5.842	46	.127		
Total	5.859	48			

Table 14: Descriptives for ADDIE Applicability by teachers' area of specialization

ADDIE

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
ARTS	27	3.5269	.32887	.06329	3.3968	3.6570	2.57	3.93
SCIENCE	21	3.4384	.38379	.08375	3.2637	3.6131	2.68	4.00
COMERCE	1	3.3967	.	.	.	.	3.40	3.40
Total	49	3.4863	.34936	.04991	3.3860	3.5867	2.57	4.00

Table 15 ANOVA for ADDIE Applicability by teachers' area of specialization

ADDIE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.101	2	.050	.402	.671
Within Groups	5.758	46	.125		
Total	5.859	48			

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