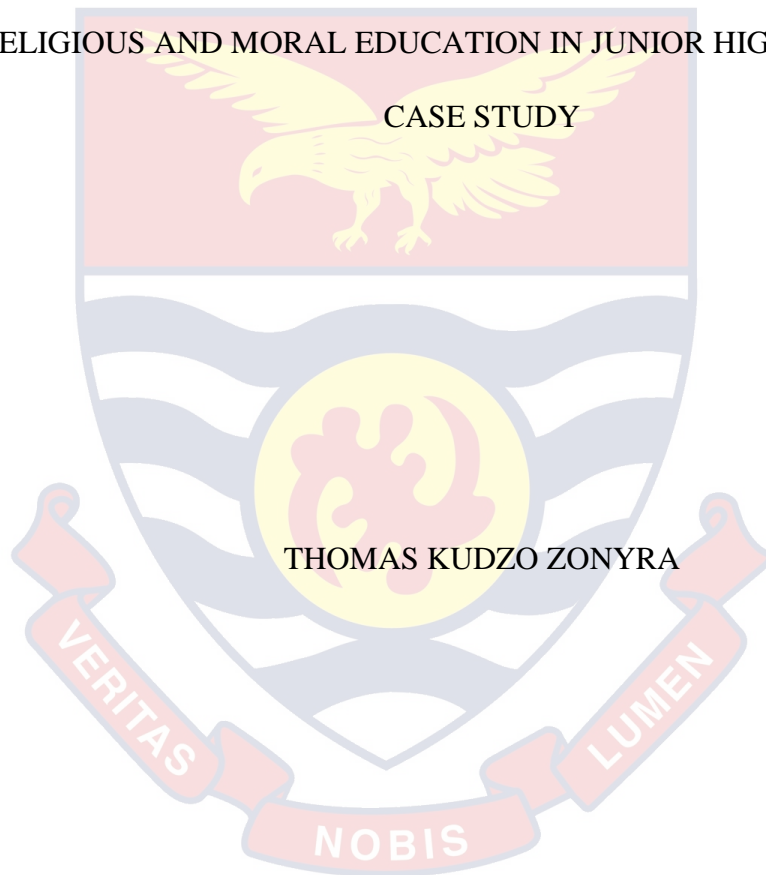


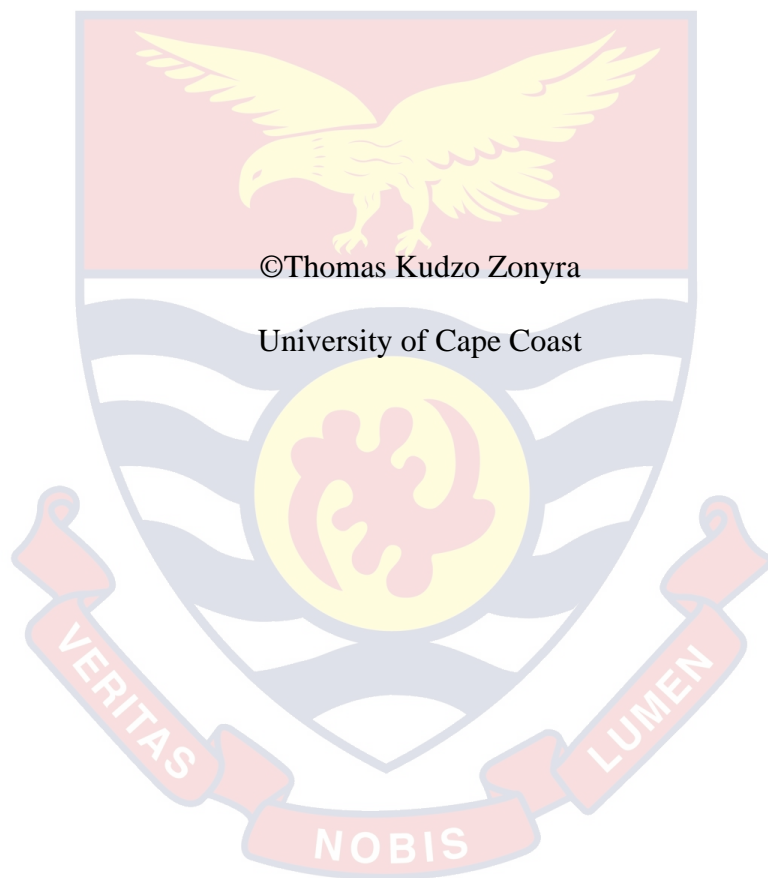
UNIVERSITY OF CAPE COAST

TEACHERS' DESIGN AND USE OF ANIMATION FOR TEACHING
RELIGIOUS AND MORAL EDUCATION IN JUNIOR HIGH SCHOOLS: A
CASE STUDY



THOMAS KUDZO ZONYRA

2020

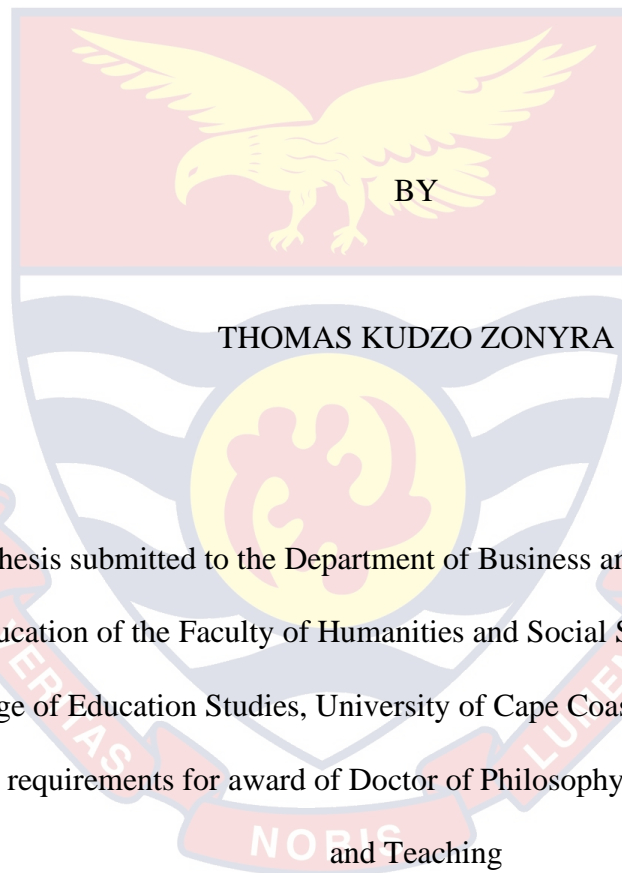


©Thomas Kudzo Zonyra

University of Cape Coast

UNIVERSITY OF CAPE COAST

TEACHERS' DESIGN AND USE OF ANIMATION FOR TEACHING
RELIGIOUS AND MORAL EDUCATION IN JUNIOR HIGH SCHOOLS: A
CASE STUDY



This thesis submitted to the Department of Business and Social Sciences
Education of the Faculty of Humanities and Social Sciences Education,
College of Education Studies, University of Cape Coast, in partial fulfilment
of the requirements for award of Doctor of Philosophy degree in Curriculum
and Teaching

OCTOBER 2020

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

Candidate's Signature..... Date.....

Name: Thomas Kudzo Zonyra

Supervisors' Declaration

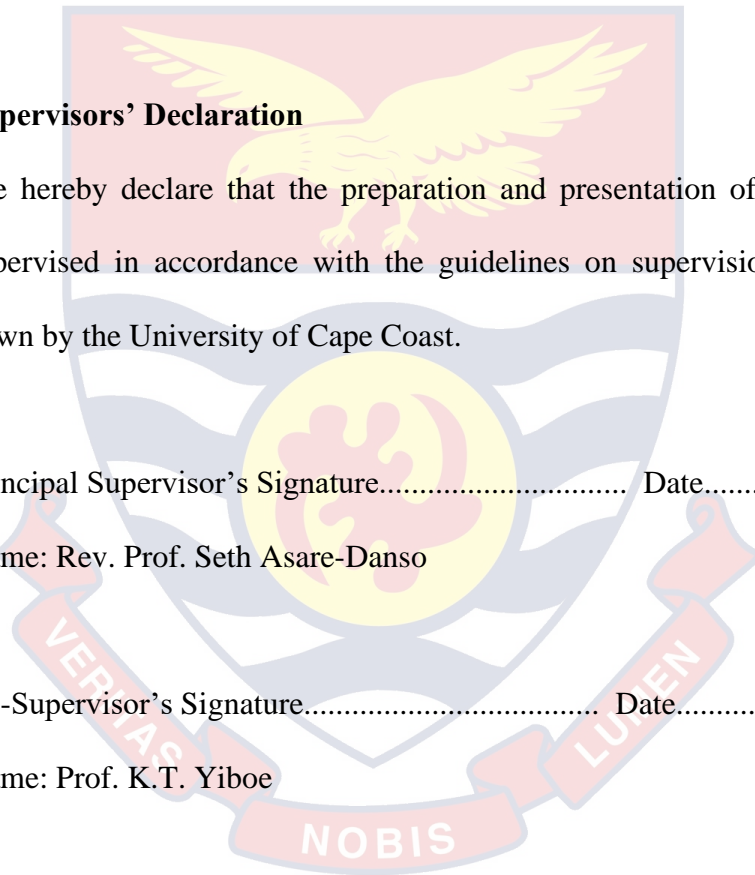
We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature..... Date.....

Name: Rev. Prof. Seth Asare-Danso

Co-Supervisor's Signature..... Date.....

Name: Prof. K.T. Yiboe



ABSTRACT

Junior high schools in Akatsi South Municipality served as the place for this present study. The purpose of this study was to find out how teachers develop and use animation to promote child-centred learning in teaching RME so as to make learning abstract concepts meaningful. Six research questions were raised to guide the study. I used a case study design for the study. The sample consisted of 10 RME teachers and 50 learners. Census and Purposive sampling techniques were used in selecting the respondents. Data were collected using document analysis, observation, interview and focus group discussions. The data were analysed using the thematic approach. The study revealed that the teachers design and or download animation videos to teach RME. Furthermore, use of animation to teach RME is polymethodical that promote child-centred education. Also, the use of animation to teach RME conforms to some of the sub-divisions of the three domains of the National Teachers' Standards (NTS). In addition, animation attracts learners' attention, promotes easy understanding of concepts, enhances teacher/learner communication and stimulates enjoyment. Challenges such as lack of equipment in schools and lack of electricity confront the designing and use of animation. The study concludes that animation is a multi-sensory tool that aids understanding of abstract concepts. I recommended that the teacher education institutions should incorporate training in animation in their curricular so that pre-service teachers can acquire the skills before they complete college. Furthermore, government should supply computers, projectors and electricity to schools to promote the use of animation in teaching.

KEYWORDS

Animation

Challenges

Design/download

Pedagogic tool

Religious and Moral Education



ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to my supervisors, Reverend Prof. Seth Asare-Danso and Prof. K. T. Yiboe, who in spite of their heavy schedules had time to vet and offer useful suggestions which enabled me to come out with this thesis.

In a similar manner to all RME teachers and learners, who have provided the essential information for my research.

I also extend my profound gratitude to Mr. Jimmy Kpeglo for his encouragement and guidance during the period of writing this thesis. His advice was “Girdle your loins and fight hard to complete the programme”.

My sincere gratitude goes to Mr. S. O. Sogbe who edited my research report. Your suggestions and criticism were very encouraging. I cannot find enough words to express my appreciation.

To my students, Messrs. Benjamin Gazangbe and Albert Dunoo who made lots of sacrifices for me to realise this dream, I say thank you.

I am greatly indebted to all my friends for their moral support in my work; I say God will reward you. I also wish to register my profound gratitude to my wife, Madam Faustina Xeflide for her special care of the family when I was away.

My sincere thanks go to all and sundry who in various ways contributed in making this work a success.

DEDICATION

To my children, Vincentia Zonyra and Hubert Kofi Zonyra



TABLE OF CONTENTS

	Page
DECLARATION	ii
ABSTRACT	iii
KEYWORDS	iv
ACKNOWLEDGEMENTS	v
DEDICATION	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xv
LIST OF FIGURES	xvi
LIST OF ACRONYMS	xviii
CHAPTER ONE: INTRODUCTION	
Background to the Study	2
Statement of the Problem	19
Purpose of the Study	22
Objectives of the Study	22
Research Questions	23
Significance of the Study	24
Delimitations	25
Limitation	25
Definition of Terms	26
Organisation of the Study	26
CHAPTER TWO: REVIEW OF RELATED LITERATURE	
Theoretical Review	28
Theory of Multimedia Learning	29

Cognitive Load Theory	34
Implications of types of cognitive load for teaching RME	35
Implication of multimedia learning theory on designing and the teaching of RME	35
Constructivist Approach to Learning	36
Conceptual Framework	42
Empirical Review	46
Design of Animation for Educational Purpose	48
Instructional Video Design	48
Virtual human representation	50
Animation for Education	58
Teacher's use of Animation to Teach RME so as to promote learner centredness in Junior High Schools in Akatsi South Municipality	66
Classroom interactions	68
Whole Class Interaction	68
Group Interaction	70
Individual Interaction	72
Child-centred education	74
The ways in which the use of animation in teaching RME is in line with the National Teachers' Standards (NTS)	81
Academic and Professional Qualifications of RME Teachers	90
Teacher professional qualities	94
Academic qualities	95
The concept of teaching RME	97
Benefits of using animation in teaching RME	108

Challenges in Designing Animation to Teach RME	112
Challenges in using animation to teach RME	113
Summary of the Related Literature	114
Implication of the Literature Review	116
CHAPTER THREE: RESEARCH METHODS	
Research Paradigm	118
Research Design	123
Population	124
Sampling Procedure	125
Data Collection Instruments	127
Documents	127
Observation	128
Interview	130
Focus Group Discussions	133
Pre-testing of instruments	134
Data Collection Procedure	136
Trustworthiness	139
COVID-19 Safety and Health Protocols	142
Data Processing and Analysis	142
Ethical issues and how I went about them	148
Chapter Summary	149
CHAPTER FOUR: RESULTS AND DISCUSSION	
Advance Organiser	151
Research Question 1. How do teachers design animation to teach RME in junior high schools in Akatsi South Municipality?	152

Documentary Data	152
Observation Data	154
Interview Data	156
Teachers' knowledge about the concept of animation	156
Participants' Experience of Designing Animation	158
Production Process of Animation	158
Some of the Software that can be used by RME Teachers to create Animation	163
Research Question 2: How do teachers use animation to teach RME so as promote learner centredness in junior high schools in Akatsi South Municipality?	168
Document Analysis	168
Observation Data	178
Interview Data	183
Creative activities in the classroom	183
Teachers' Duration of Using animation	183
Experiences of the Participants in using Animation in Teaching	184
Best Ways of Using Animation in Teaching RME	184
Making the use of animation in teaching RME lessons practical	188
The use of animation in teaching RME promotes child-centred education	190
Teachers and learners reflecting on their own teaching and learning	193
Focus Group Discussions	195
Creative activities teachers organise in the classroom	195
Various methods teachers used when teaching with animation	196
Things that teachers do to grab audience's attention and gaining interaction	196

How animation makes lesson learner-centred	196
Things that teachers do to help student perform well both on retention and transfer	197
Helping various kinds of learners during teaching and learning	198
Research Question 3: What are the ways by which the use of animation as a pedagogic resource in teaching RME is in line with the National Teachers' Standards (NTS)?	199
Documentary Data	199
Observation Data	200
Interview Data	202
Research Question 4: What are the benefits of using animation in teaching RME in JHS in Akatsi South Municipality?	203
Document Analysis	203
Observation Data	204
Interview Data	209
Skill acquisition by Learners	209
Promotes child-centred education	210
Helping learners to recall	210
Promoting self-learning	214
Getting learners' attention during lesson	214
Animation being interesting	215
Focus Group Discussions for Learners	216
Multimedia learning	216
Improving learners academic work	216
Helping various types of learners to understand concepts	217

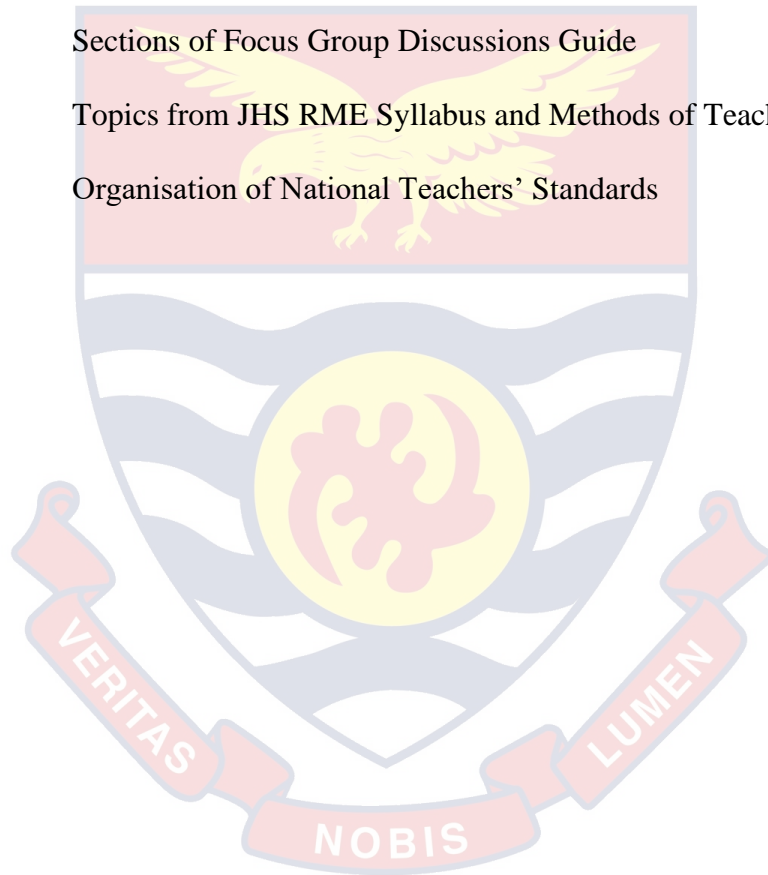
Learner's retention and transfer	218
Comparing learning through visual and audio	219
Getting learner's attention during teaching	219
Research Question 5: What are the challenges teachers faced in designing animation for RME lessons in junior high schools in Akatsi South Municipality?	220
Observation Data	221
Interview Data	221
Lack of equipment in schools	221
Absence of technical-know how	221
Animation designing consumes time	221
The cost involved in using animation in school	222
Challenge of saving videos files	222
Research Question 6: What are the challenges encountered in the use of animation in teaching RME in junior high schools in Akatsi South Municipality?	222
Document Analysis	223
Observation Data	223
Interview Data	223
Lack of equipment in schools	224
Challenges of electricity	224
Focus Group Discussions	225
Lack of computers and projectors in the school	225
Electricity is not in all classrooms	225
Discussion of Results	226

How animation can be designed as a tool for teaching RME in junior high schools in Akatsi South Municipality.	226
The concept of animation	227
Some of the Software that can be Used by RME Teachers to Create Animation	228
Teachers' Use of Animation to Teach RME so as to promote learner centredness in Junior High Schools in Akatsi South Municipality	231
Creative Activities in the Classroom	231
Teachers' Duration of Using Animation	231
Best Ways of Using Animation in Teaching RME	232
Making the Use of Animation in Teaching RME Lessons Practical	235
Learner-Centred Education	236
Teachers and Learners Reflecting on their own Teaching and Learning	238
The ways in which the use of animation in teaching RME is in line with the National Teachers' Standards (NTS)	240
The benefits of using animation in teaching RME at junior high schools	241
Improving Learner's Academic Work	241
Improving Learners Retention and Transfer	242
Helping Various Kinds of Learners to Progress Academically	243
Skill Acquisition by Learners	244
Promotes Child-Centred Education	245
Helping Learners to Recall	246
Promoting Self-Learning	246
Getting Learners Attention During Lesson	246
Animation being Interesting	247

Challenges Teachers Faced in Designing Animation for RME Lessons	248
Animation Making Consumes Time	248
The Cost Involved in Using Animation in School	248
Challenge of Saving Videos	249
Challenges encountered using animation to teach RME in junior high Schools	249
Lack of equipment in schools and absence of technical-know how	249
Challenge of Electricity	250
CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	252
Summary of Findings	253
Conclusions	259
Recommendations	264
Contribution of the thesis to knowledge	265
Suggestions for Further Research	266
REFERENCES	268
APPENDICES	286
APPENDIX A: Interview Guide for Teachers	286
APPENDIX B: Focus Group Discussions Guide for Learners	295
APPENDIX C: Documents Analysis Guide	298
APPENDIX D: Observation Guide	299
APPENDIX E: Introductory Letter for Data Collection Form	300
APPENDIX F: Clearance from the Ghana Education Service	301
APPENDIX G: Ethical Clearance from the University of Cape Coast	302

LIST OF TABLES

Table		Page
1	Breakdown of Population	125
2	Breakdown of Sample Size	126
3	Document Analysis Guide	128
4	Observation Guide	130
5	Sections of Interview Guide	132
6	Sections of Focus Group Discussions Guide	134
7	Topics from JHS RME Syllabus and Methods of Teaching them	152
8	Organisation of National Teachers' Standards	199



LIST OF FIGURES

Figure		Page
1	Conceptual Framework for Multimedia Learning in RME	43
2	The difference between 2D and 3D animation (Chang, 2019)	49
3	Teachers designing animation to teach RME lessons	155
4	Teachers designing animation to teach	155
5	Part of motion graphics animation designed by participant “H” to teach types of work.	162
6	Part of motion graphics animation designed by participant “H” to teach types of work.	163
7	Part of motion graphics animation designed by participant “H” to teach types of work.	163
8	Part of motion graphics animation designed by participant “C” to teach types of Family Systems	165
9	Part of motion graphics animation designed by participant “D” to teach types of Family Systems	165
10	Lesson Notes on Jesus Triumphant Entry	170
11	Lesson Note on God’s Creation	172
12	Lesson Notes on Decency	175
13	The Donkey Jesus Christ Rode on	176
14	Jesus Triumphant Entry into Jerusalem	176
15	One way of Environmental Degradation	177
16	Tree planting as one way of Protecting the Environment	177
17	Recycle as one way of Protecting the Environment	178

18	A teacher using real material (palm branch) in teaching to complement animation video.	179
19	Group interactions	179
20	Group interactions	180
21	Group presentations	181
22	Group presentations	181
23	Learners giving their views during brainstorming	182
24	The RME teacher writing on the board during brainstorming	182
25	Learners' participation in group discussions	204
26	Learners participation in group discussions	204
27	Part of motion graphic used to teach Bad Deeds	205
28	Indecent dressing	205
29	Indecent dressing	206
30	Role plays on decent and indecent behaviour	206
31	Decent dressing	207
32	A learner giving her view during brainstorming	207
33	Learners writing down what they have seen in the animation video	208

LIST OF ACRONYMS

2D	Two-dimensional
3D	Three-dimensional
AaL	Assessment as Learning
AfL	Assessment for Learning
CGI	Computer-Generated Images
COVID-19	Coronavirus Disease 2019
CRDD	Curriculum Research and Development Division
CS	Cultural Studies
IRB	Institutional Review Board
JHS	Junior High School
MoE	Ministry of Education
NaCCA	National Council for Curriculum and Assessment
NTS	National Teachers' Standards
RME	Religious and Moral Education
T-TEL	Transforming Teacher Education and Learning
VHs	Virtual Humans
ZPD	Zone of Proximal Development

CHAPTER ONE

INTRODUCTION

This chapter explores the background to the study, the statement of the problem, the purpose of the study, the research questions and the significance of the study. Others are the delimitations, the limitations, definition of terms, and the organisation of the study.

According to Sruthi (2015), with the advancement in new technologies, developments and pedagogy there is the need to modernize methods of learning to be in agreement with modern ways of doing things. There is the need for teachers to adopt novel teaching practices and learning organization systems in our classrooms so as to help our learners to learn better. The purpose for educational authorities building laboratories for schools is that, teachers should let learners observe concepts they are teaching so as to enable learners understand them. When the learner sees the procedure, he or she can associate the facts from the source and hence learning becomes understandable. However, it has been observed that this is minimally carried out in schools.

This study is connected to that of Amekor, Akama, Dorwu and Buabasah (2015) who found out that teachers were not using animation in their teaching procedures and therefore developed digital animation systems for teaching and learning English, Mathematics and Integrated science. This research is also related to that of Ward (2003) who explored the place of animation as a theoretical and pedagogical resource within Film and Media Studies. However, it appears the literature is silent on how animation can be

designed and used to promote child-centred education in learning Religious and Moral Education (RME).

The theoretical basis of the current study is the multimedia learning and the constructivist theories. The two theories emphasize child-centred education which is the paramount feature of the use of animation as a pedagogic tool for instruction.

Background to the Study

The people from the media industry are conversant with the fact that the impact of the spoken word and the power of the visual image are paramount and the effect is very established and very deep (Al-Khalifah, 1994). That is the reason journalists use both spoken words and visuals to disseminate information to the public for easy understanding. This implies that animation as audio-visual resources can help learners in the classroom to understand abstract concepts in RME. Animation as a pedagogical resource inspires and stimulates learners for better learning during instruction (Sruthi, 2015). This in effect transforms classroom teaching and learning.

Advancement in technology has brought improvement in classroom interactions to the extent that twenty first century learners no longer find the olden day's blackboard learning thought-provoking. Technology has brought innovation in pedagogy that could make learning more “qualitative and cooperative” than the outmoded teaching activities. Animation is one important teaching support which attracts students (Chan, 2015). Addition to that, the enjoyable characteristics of animation enable learners grasp the concept (Kwasu, 2015). Animation is in line with movies; therefore learners are engrossed with it (Sruthi, 2015).

It is a fact that teachers have difficulty in teaching abstract concepts in RME understandably (Asare-Danso, 2011). However, with the use of technology instruction, the use of visual material has dominated written information that is transforming classroom teaching and learning thereby making abstract concepts meaningful to learners (Fralinger & Owen, 2009). “When the process of learning is analysed, ‘Concentration’ will stand out to be the major criteria for a better learning, followed by ‘Understanding’ and finally ‘Remembering’. All these go hand in hand when using animation to teach” (Kuchimanchi, 2013, p.1).

Chile (2010) maintained that many educationists are basically preoccupied with pedagogical modernization and variation so as to include animation in teaching and learning. Comprehending a pictorial form of learning is easier than learning through only audio means or paper texts. Human beings by their nature will always find the easiest way to understand challenging concepts quickly so as to enable them make progress in knowledge acquisition (Amjad, 2018).

Animation is a modern teaching resource that is getting more prominence, because it can picture and simplify information better than simple diagrams (Chile, 2010). Teachers can adopt it in several circumstances: from classroom instruction to blended learning and online courses, most significantly, it makes learning a fun (Hoa, 2019).

All human beings are photographic mortals. A large portion of the human mind is attracted to images. Pictures help human cognitive activities therefore aid them to pay attention (Kuchimanchi, 2013). Pictures have the power to capture our attention effortlessly and the images stimulate our sense

of sight (Balm, 2014). According to Farrant (1980), it had been proved that when visual resources are properly used, such visual methods result in more effective learning than that which results from lecturing. This is because most of what we hear must first be changed into visual impression if we are to understand and remember it. This is particularly true of children. In the view of Mayer and Moreno (2002), constructivists advocate animation to promote learner-centred technique to substitute the outmoded learning methods in numerous nations as a result of advancement in communication and technologies.

Mertens (2005, p.12) reiterated that:

The constructivist's ontology is that reality as we know it is socially constructed through the meaning and understanding developed socially and experientially (relativism). The knower cannot detach himself or herself from the known (subjectivist). No separation between researcher and object of research (epistemology).

The current study is in line with constructivists' epistemological and ontological position. This is because the qualitative research is in line with the constructivists' paradigm.

The study focuses on using animation as a pedagogic tool to promote child-centred learning in teaching RME so as to make learning abstract concepts meaningful. The argument here is that abstract concepts in RME must be made meaningful to the learners so as to apply it in real life situation. Teaching and learning occupy very paramount place in our educational sector because it is through teaching and learning that knowledge, skills and attitude

can be acquired. Providing learning experiences for the learner is one of the paramount tasks of the teacher. Boadu and Asare-Danso (2015) noted that a learning experience is the enthusiastic behaviour of the learner. Therefore, the learner is the active participant of every classroom lesson that the teacher teaches. Pupils learn more from what they do than what the teacher does (Assiedu-Kottwi & Duah, 2008). When classroom instruction involves technologies the responsibility of the teacher is more of a facilitator of learning rather than a director deciding on what to teach and how to teach it. He or she acts as a guide, a counsellor, a coach and a motivator who organises the learning activities in such a way that learners are brought in contact with the learning resources and left to themselves to interact with the learning resources in a way they please (Shreesha & Tyagi, 2016). This means that what learners learn through animation can linger long in their memories and be able to apply the concept when the teacher adopts child-centred learning.

An experiment was conducted in the United States of America using films in instructing learners directly. Comparisons of the results between the learning of children taught in this manner with those taught by the traditional method have shown that film teaching gets as good and sometimes even better results than the traditional method (Farrant, 1980). The pictorial aspects are video, graphs, images and charts. These make learners to recall more information.

According to Admin (2019), what should concern the teacher more is the fact that the human mind can process visuals faster than text. So, if a teacher cares about creating more charming classroom learning, he or she

should include influential and attractive visuals in his or her courses. Visuals take away the liability of reading through many text, sail across language uncertainties, and making sense of terminologies and difficult sentence structures (Baharul, 2014).

Chan (2013) maintained that animation video is one of the types of multimedia resources used in teaching. Furthermore, video is highly used as teaching resources. Adopting animation as a pedagogic tool helps classroom to be joyful, stimulating, interactive, vivify and motivating. Animation also provides students with opportunities to learn with enlarged inspiration and enthusiasm and that will make teaching and learning successful. This is often achieved through offering new practices (Smith, 2012).

It was revealed that learners make progress in leadership skills, social skills, problem-solving skills, and learning commitment as a result of using animation in teaching. It came to light that animation can support learners to accomplish the projected objectives of the lesson. Animation as a teaching/ learning resource stimulates learners to understand concepts during teaching and learning (Chan, 2013).

Research has shown the requirement to incorporate modern pedagogic tool such as animations to promote small group discussion or individual activity, stimulation and critical thinking skills (e.g., Moreno & Ortegano-Layne, 2008; Cardoso et al., 2009). Educational specialists and educational authorities throughout the world are stimulating teachers from basic to tertiary level to integrate audio-visual resources into their instruction. All disciplines that are studied in school should be taught using videos because there are

several benefits students derive from learning through multimedia in the classroom as well as in acquisition of their vocations (Moviestorm, 2011).

Lucas and Rahim (2015) maintained that current research revealed that animation is potent in studying practical concepts. “Teaching animation” is a type of multimedia created to instruct students in the classroom. For instance, in teaching about the creation of the world according to the three major religions, animation can be used to explain the concept to the learners more explicitly.

According to Baharul (2014), pedagogic tool is progressively abdicating only the voiced modes of presentation lesson to learners, allowing for a more collaborative, combined learning situation. The amalgamation of traditional methods with multimedia are considered as blended learning.

The improvement in computer technology has generated great vacuum in the classroom in terms of adopting pedagogies in instructing learners. All educational authorities need to accept the fact that the world is now being driven on technology. Any teacher who will not accept technology will be left behind. Such a teacher will continue to use traditional methods in teaching and that will not improve teaching and learning and for that matter hinder the learner’s quest to acquire knowledge and break new grounds.

Amjad (2018) indicated that the developed world is constantly searching for novel and improved methods to instruct learners. Research has proven that when children have enjoyment, they concentrate on what they are learning (Kuchimanchi, 2013). It is even systematically established that understanding of concepts is at its apogee once learners are taught with animation (Fralinger & Owen, 2009).

The curriculum leaders in educational institutions and facilitators need to modify teaching methods which are found to be old-fashioned or unfavourable to the achievement of improved results. Thus, the heads of institutions should lead the staff in the unceasing research for better and more current methods of instruction and learning, believing that no finest way has yet been found (Agezo & Baafi, 2017). This corroborates with Agyeman, Assiedu-Kottwi and Duah's (2008) finding that any job that is well performed for which the result is successful needs further action to be taken to make it more successful. That is the thought of the developed world. Subsequently, they are finding new ways to improve what they have done previously. One of such methods which can improve classroom instruction and learning is the use of animation as a pedagogic tool.

Green (2017) explained that animation is now gaining admiration among students. Animation is becoming stress-free for teachers to design in the classroom. The production process of animation is now inexpensive and easier, therefore teachers who are sceptical about the use of this advanced feature in the classroom should adopt it. It is important to experience the assistances of numerous animation tools which teachers adopt so as to improve the instructional environment.

Animation as a pedagogic tool promotes vibrant display of motivating, attracting learners and stimulating instructions. The time has passed when teachers only used "chalk and talk" in their lesson delivery while learners at the back of the class dose off. Animation as a pedagogic tool rouses learners to participate in a determined and result-driven effort by way of group discussions, demonstrations and PowerPoint presentations. Therefore a teacher

who wants to promote his or her classroom instruction attention-grabbing enough should certainly adopt animation as a teaching/ learning resource in order to attract learners' attention (Green, 2017).

Researchers made us aware that teaching occupies a very principal place in imparting knowledge, attitudes and skills to learners hence the improvement of techniques to guide the teacher to do that (Tamakloe, Amedahe & Atta, 2005). These procedures are referred to as instructional methods. The teaching of RME has become a fearful activity and is often stimulated by key actors in teaching and learning RME. The teachers' content knowledge affect learners' internalization of the subject for which methodologies of teaching the discipline are no exception (Dinama, 2012). Teachers must be well trained with all the content and pedagogic knowledge in order to direct learners to interact with learning materials so as to gain experience to solve problems. This will go a long way to nurture a seasoned child who can contest productively in lifetime endeavours.

According to Nacino-Brown, Oke, and Brown (1982) instruction connotes helping somebody obtain, or modify skills, outlooks, knowledge, ideas or principles. Clark and Starr (1986) explain that teaching embraces activities that are designed and performed to produce a change in learners' behaviour. Brown et al. (2015, p.1) also explain "teaching as an activity which is performed by a more experienced and knowledgeable person with a view of helping the less experienced and knowledgeable person to learn". This means that the teacher should be more knowledgeable and experienced than the learner.

According to Kochhar (2009), there is no magic formula for transforming knowledge from the teacher's mind to bring into line with the learners'. Teaching is not an automatic process. It is a complicated, demanding and challenging job. It is not a monologue but a discussion between the teacher and the learner. The term "effective teaching" connotes promoting creative activities which lead to interaction in the classroom (Hare, 2013). Instruction and learning move hand in hand (Farrant, 1980). Therefore, when a teacher teaches, he or she must be understood by the learner. In this light teaching is regarded as the process of bringing about learning. Learning occurs when the behaviour of the learner changes positively. Effective instruction is the one that efficaciously accomplishes the learning objectives by the learners as planned by the teacher. The enthusiastic instruction promotes active participation by the learners (Hare, 2013). It is therefore mandatory for the RME teacher to adopt various teaching methods to teach so that learning can take place. This means that the methods of teaching become very important because they act as vehicles that pass on knowledge from the teacher to the learner. In fact, it is through methods that the teacher is able to generate learning experiences and conditions for others to imbibe (Grimmitt, 1978).

Grimmitt (1973) stated that, there is the need to review the job of the teacher of Religious Education in the changed circumstances of today. These changed circumstances identified as social, theological and educational represent what might be called 'the flight from confessionalism' and the prerequisite to rationalise Religious Education's (RE's) inclusion in the curriculum on educational rather than religious grounds.

Siedentop (1991) provided a structure within which the teacher coaches learners to acquire knowledge and skills. The teacher therefore has to be creative in the selection of instructional methods in order to educate his or her learners.

Computer animation is the perfect pedagogic tool for Religious and Moral Education because instructors can create videos on topics in the RME curriculum and this will help learners to learn the concept in a pictorial form. Currently, a lot of animation videos are available at YouTube and Moviestorm which RME teachers can download and use if they have difficulty designing the animation. Animation is part of multimedia which is used to show the picture of multifaceted systems.

The term “Pedagogy” came from Greek mythology. “Within ancient Greek society there was a strong difference between the activities of pedagogues (*paidagōgus*) and subject teachers (*didáskalos*). The pedagogues were slaves, often foreigners and the ‘loots of war’”(Young, 1987, p.156). These people were reliable and prominent members of rich families who took care of the sons of their ‘masters’ in everything that they do especially issues of education. (pais plus *agōgos*, a ‘child-tender’). Pedagogues started caring for their ‘masters’ children from 7 years and stayed with them until late adolescence. Pedagogic tool is therefore the art and science of teaching (Grimmitt, 2000). Pedagogic tool by its characteristic, deals with procedures, principles, interactions and methods for teaching and learning.

Noddings (2002) differentiated between caring-for and caring-about. Caring-for includes instructional situations in which a teacher provides openly the needs of learners. We cared-for at the initial stage, then progressively, we

added care about others'. Noddings then contends that caring rapport are underpinnings for instructional action. This is what animation as a pedagogic resource stands for.

Currently, the questioning method, explanation, discussion, group work and demonstration are the accessible instructional methodologies at the disposal of the teacher. In the classrooms of Ghanaian basic public schools however, the major teaching methods used are the questioning and explaining methods referred to as “eclectic” (Otame, 2009), a form of teaching where more than one instructional methods are used to teach. The questioning and explanation methods according to teachers are used mostly because they supplement each other.

RME teachers need to adopt numerous teaching strategies to teach so that learning can take place. Unfortunately, animation by its nature which can provide learners with prospect to nurture their photographic memories and visualise what is being learnt is missing entirely from the lesson notes and teaching done by teachers in the Ghanaian public classrooms (Amekor et al.,2015). This implies that visual learners, auditory learners and kinaesthetic learners will benefit immensely from the use of animation in teaching.

“Animation” comes from two Latin words “anima” and “animus” for breath, soul, and mind.” The animator, particularly the computer graphics operator, has the technological supremacy to insert spirits within lifeless objects. That is, he or she is skilful of bequeathing animation upon lifeless matter (Winter, 2003).

According to Smith (2012), animation means bringing ‘life’ into situations. This means that the teacher creates new experiences for learners to

learn. Animation is connected to instructional activities because it gives life to, to quicken, to make joyful, and to enthuse. The work of the animators is to provide opportunity to the learners to use their experience in learning. Animation is the use of pictures that varies its form or other possessions from time to time and which activates the awareness of unceasing change (Schnotz, & Lowe, 2008). Animation is a sequence of variable images that are shown enthusiastically in a manner that aid to observe unceasing changes from time to time and helps learners to develop more photographic memories of the concept being learnt. Animation is a self-motivated and intermediate activity that involves pictures or matters which seem as moving objects. Bopche (2015, p.1) also defines animation as “an illustration of images to create an impression of movement”. “Rapid display of images to create an illusion of movement is called animation” (Kuchimanchi, 2013, p.1). Animation is a graphical, creative means of communication (Pedersen & Villekold, 2005).

Discussions of animation often involve concepts of metamorphosis, anthropomorphism, transmogrification, fantasy, mimesis, the polymorphous perversity of bodies, its oddness and absurdity. Cartoon animation has an amorphous, elastic quality that allows the freedom to move and change—ordinary objects transform magically, movement is synchronized to music, and inanimate objects become humanized. (Winter, 2003, p.2)

Animation is the most projecting feature of technology-based learning and advances a learner’s ability to recall and understand (Musa, Ziatdinov & Griffiths, 2013). Animation makes a teacher’s lesson real and learner-centred.

Therefore, teachers need to include this resource in their teaching so that they can modernise traditional instructional methods.

Animation can be made by the use of animation software to teach RME since getting teaching and learning material is becoming difficult. Animation is a subset of multimedia, which epitomizes the most hopeful pedagogic tool of instructive audio-visualise in the classroom (winter, 2003).

According to Harrison (2003), using animation as teaching resources in the classroom is no longer difficult, since teachers can download from open sites to use in teaching. Animation can also be given to learners to view prior to the lesson as advance preparation of the teacher. In using animation as pedagogic tool, words and animation must go simultaneously. Animated graphic representations of multipart events can be showed and deconstructed. For instance, the teaching of “Good and Bad Manners” can be made relatively easy for students to assimilate if illustrated by animation.

Grimmitt (2000) asserted that essentially, any discipline that should be included in the curriculum; it should integrate a ‘distinctive way of thought and enlightenment which is constructive for comprehending human situation, be able to nurture a pupil’s intellectual capability and aid personal development, and be taught in such a way as to enable learners to do their own thinking.

Integrity of character stands the highest of all human virtues and the person who possesses that is in the way possessing greater power than the person, who although learned in knowledge. Roosevelt (2007) recognizes that “to educate someone in mind and not in morals is to educate a menace to society” (p. 6). On the other hand, moral bravery without brain is also not

good. Education must develop both intelligence and morals of the people. Circumstances change, opportunities pass, beauty fades, riches take to themselves wings, but the one lasting possession of humankind is character. That is why RME occupies vibrant place in the expansion of cognitive, affective and psychomotor domains of human beings. Yet teaching values and character has now held a low significance in homes because of the preoccupations of parents on various jobs. This is in agreement with Lickona (1993) who observes that families are no longer a child's primary moral teachers and the disruption of families has made a significant impact on schools. Again, there are troubling developments in youth character which include poor parenting, broken families, immoral adult role models, sex and violence. This made the school the paramount agency in educating humanity to be morally upright.

Adarkwah (2004) maintained that some of the aims of teaching RME are to develop a sense of compassion, tolerance and understanding of other people's faith, to help people develop good moral values, understanding the difference between good and bad, provision of good future leaders, promotion of moral teaching of our major religions, to expose people to their maker and promote culture.

Furthermore, the curriculum discusses the six core competencies that should be taught in every subject area. These competencies need to be emphasized during teaching and learning. This will help train the Ghanaian child to be all round people. Ministry of Education [MoE] (2017) outlined these competencies:

a. Critical thinking and problem-solving is the first competence which classroom lessons must teach the learner. This means that the Ghanaian child should be trained in such a way that they can solve numerous problems without any assistance. For instance, classroom learning should involve case study so that learners are giving the opportunity to bring out their own ideas in order to solve problems.

b. The second competency emphasized is communication and collaboration. This means that learners need to collaborate with one another during teaching and learning process so as to communicate their ideas fluently. This could be done through cooperative learning where learners discuss their ideas in groups and latter communicate their ideas to the whole class through presentation.

c. The next competency identified is creativity and innovation. This means that in the classroom situation, the teacher should give opportunity to the learners to develop their talents through activities. Learners should be able to involve in creating novel situations with the use of resources that are provided by the teacher.

d. Cultural identity and global citizenship has also been identified. The culture of Ghanaians must be taught as well as that of the developed world so that Ghanaian child can compete effectively. This means that Ghanaian languages must be taught in addition to the major foreign ones since languages act as vehicles for transmission of culture.

- e. Digital literacy has also been identified in the curriculum. This include the teachers' employment of technology in instruction and learning so that people can communicate effectively and fast-track our developmental agendas.
- f. Lastly the curriculum emphasizes leadership and personal development. This means that the learner should be able to develop leadership skills as well as developing himself or herself in other areas. For instance, through group discussion and presentation in the class the learner develops a sense of speaking in public if the person as an introvert. Leaders should influence their followers by having abundance of integrity, listening ear, understanding heart, emotional intelligence, being role model, a motivator, a good communicator and helping followers to overcome problems. Personal development is achieved when the learners are encouraged to learn on their own.

The use of animation as a pedagogic tool in teaching RME can effectively teach all the competencies if the teacher is well groomed to adopt animation in instruction. This means that animation as a pedagogic resource should be blended with group activities, demonstrations, role play etc. in order to accomplish these competencies.

Religious and Moral Education in Ghana can be traced to the pre-colonial era when religion became a vital part of Traditional African Education. During the colonial era, schools were established in the castles and religious instruction was part of the curriculum (MacWilliam & Kwamena-Poh, 1975).

Sir Gordon Guggisberg outlined sixteen principles of education. The 7th principle provides that moral training must take paramount place in education and the 8th principle provides that religious education should be taught in school (MacWilliam & Kwamena-Poh, 1975).

In 1962, the Government of Ghana under President Kwame Nkrumah decided to detach the teaching of Religious Education from Moral Education because there were some guardians who prevented their children from studying the subject. Consequently, he planned to substitute Religious Education with Moral teaching in the basic school curriculum (Asare-Danso, Annobil, Afriyie & Agyeman, 2015). The change could not take place so they continued to teach it under Religious Knowledge.

The Dzobo Committee of 1974 who reviewed the educational system in Ghana also suggested that religion should be taught under the title Cultural Studies (CS). This was made up of Religion, Social Life or Culture and Music. During the implementation of 1987 Educational Reform Cultural Studies was completely removed from the Basic School Curriculum. Religious organisation such as Christian Council of Ghana, the Catholic Bishops Conference and the Ghana Pentecostal Council and other stakeholders petitioned the government to reconsider the issue. In 1994, the subject was reintroduced under the name Religious and Moral Education (Asare-Danso, 2015).

Asare-Danso (2014, p. 4) reported that “The 2007 Education Reform Committee removed Religious and Moral Education from the school curriculum again but was reintroduced in the following academic

year in 2008 following the objections raised by the Ghanaian public and civil society groups”.

The RME curriculum in Ghana pulls its contents from the three major religions (Christianity, Islam and Africa Traditional Religion) as practised in the country and several current issues. In teaching RME, some practical approaches have been delineated to be used for the implementation of the curriculum. These include field trips, the use of resource persons, discussions, debates, dramatizations, role plays, questioning techniques and case studies (Curriculum Research and Development Division [CRDD], 2008).

On the whole as stated earlier, the degree of involvement of the learner (learner-centredness) and how the content can be seen (video) and held (audio) by the learner make animation preferable one. The visual impression is better than the descriptive lectures as learners become acquainted with experiences that movies attract our attention and remain long in our memories (Meshram, Meshram & Rawekar 2017). This is the motivation for conducting the current research.

Statement of the Problem

As a Teaching Practice Co-ordinator, my observation and casual interaction with some teachers revealed that many teachers of RME in Akatsi South Municipality have problems with teaching learning resources in teaching RME. This corroborates with Anti and Anum’s (2015) study that teachers are normally accused of not using TLMs in teaching their subjects. According to Grimmitt (2000), teaching RME demands a high level of creativity, imagination and flexibility on the part of the teacher if he or she

should teach the subject effectively. This implies that teaching RME should be done through the use of animation so as to bring creativity in teaching.

Kuusangyele (2013) developed stories to teach natural science at the primary level of education which made teaching science very interesting. Asare-Danso (2010) also worked extensively on how to use two strategies (Suitcase Strategy and Ranked Orders) under “Value Clarification Pedagogic tool” to teach RME.

Similarly, Winter (2003) worked on the role of animation in media studies and found that the term “animation” is part of “media,” and its relations to other types of media are equally complicated. Ward (2003) researched into the place of Animation as a pedagogic tool and a discipline within Film and Media Studies and found out that animation features prominently in those two areas. Mayer (2001) also researched into the role of multimedia in instructing learners and noted that students can acquire knowledge more profoundly in combination of texts and graphics than from words alone. Furthermore, Mayer (2001) suggested many traditions by which animation can be used in teaching various subject areas.

Relatedly, Alella (2013) developed animation to enhance learning mathematics and realised that animation videos help learners who are in concrete operational stage to construct their own knowledge.

Equally, in Smith’s (2012) researched in pedagogic tool, he found out that animation brings life into what the learners are learning. This is because it makes use of the experiences of the learners.

In the same way, Ouda (2012) investigated the effect of using animation on teaching English comprehension and realised that animation

used to teach an experimental group as a means of developing reading comprehension skills made them to perform better than the use of traditional method for the controlled group. This research also did not talk about how animation could be designed to teach RME.

Correspondingly, Kwasu (2015) investigated the effectiveness of animation as audio visual resources for instruction. A total of 189 experimental and 189 of control respondents were studied in science. The study reveals that those who benefited from animated instructional resource did more than those without animated material. Again, those who benefited from a lesson with animated instructional material were able to retain concept learnt than those who were taught without it.

Likewise, Chile (2010) researched into the significance of animation as a teaching/learning resource in teaching chemistry and emphasised that teachers should use visualisation technique such as animation persistently during the learning process. However, how animation could be designed and used in the classroom to teach RME was not told.

In the same way, Bopche (2015) investigated animation as a learning tool. He came out with the methods or principles one needs to follow and how one can produce error free animation or graphics leaving out how animation could be used to teach RME.

Lastly, Amekor et al. (2015) conducted a study at Akatsi South Municipality basic schools and found out that teachers were not using animation to teach. They therefore created digital animation systems for teaching and learning English Mathematics and Integrated science at Akatsi College of Education.

However, it appears they covered various disciplines except RME. Furthermore, it seems they worked on the outcome of using animation as a pedagogic tool leaving out the process.

Transforming Teacher Education and Learning (T-TEL) demanded that colleges of education in Ghana should adopt a project that would transform teaching and learning in the colleges. As a result, Akatsi College of Education selected animation project. Animation experts who were contracted trained animation team members on creating and using animations. Refresher workshop was held for animation team members by the contracted experts, in so doing, trained some teacher-trainees in designing and use of animation.

However, it appears the empirical literature is silent on digital design of animation based on JHS syllabus by those teachers trained. They use animation to promote child-centred education in teaching RME with the view of making abstract and procedural concepts understandable. The question that comes to my mind is how do these teachers design and use animation to promote child-centred learning in teaching RME? It is against these backgrounds that this study is designed to find out how animation is designed to teach abstract concepts meaningfully in RME.

Purpose of the Study

The purpose of this study was to find out how teachers develop and use animation to promote child-centred learning in teaching RME so as to make learning abstract concepts meaningful.

Objectives of the Study

Specifically, this study aims to achieve the following:

1. Explore how teachers design animation as pedagogical resource for teaching RME in junior high schools in Akatsi South Municipality.
2. Determine teachers' use of animation in teaching RME so as to promote learner-centred learning in junior high schools in Akatsi South Municipality.
3. Discover ways in which the use of animation in teaching RME is in line with the National Teachers' Standards (NTS).
4. Learn the benefits of using animation in teaching RME in JHS in Akatsi South Municipality
5. Ascertain challenges faced by teachers when designing animation to teach RME.
6. Find out challenges encountered in using animation to teach RME in junior high schools.

Research Questions

The followings are the six research questions raised to guide the study.

1. How do teachers design animation to teach RME in junior high schools in the Akatsi South Municipality?
2. How do teachers use animation to teach RME so as to promote learner- centred learning in junior high schools in the Akatsi South Municipality?
3. How is the use of animation in teaching RME in line with the National Teachers' Standards (NTS)?
4. What are the benefits of using animation in teaching RME in JHS in Akatsi South Municipality?

5. What are the challenges faced in designing animation to teach RME in junior high schools in the Akatsi South Municipality?
6. What are the challenges faced in the use of animation in teaching RME in junior high schools in the Akatsi South Municipality?

Significance of the Study

This study is important in the sense that the findings of the study could convince government to provide teachers with the relevant equipment like computers, projectors, pen drives and external hard discs which can aid teaching with animation in schools.

It could help curriculum planners to re-structure the RME course in colleges of education to include animation technologies so that teacher trainees will be better equipped with technological and pedagogical content knowledge to teach the subject more effectively. Consequently, a teacher-education curriculum could be developed including the pedagogic tool of how to use animation as teaching resources in the Ghanaian colleges of education.

This research could enable National Council for Curriculum and Assessment (NaCCA) to make animation as pedagogic tool in combination with traditional ways of teaching in Ghanaian school system. This will bring creativity in the teaching methods that will be adopted by teachers.

The findings could contribute to the knowledge base of available guidance for RME teachers on how to create and use animation in teaching RME at the basic level of education. It could also promote different types of learning among learners.

Delimitations

Junior high schools in Akatsi South Municipality served as the location for this study. This case study comprises ten RME teachers only, who benefited from animation project from Akatsi College of Education. The Junior high school RME syllabus was selected because most of the topics are so abstract that teachers may have difficulty getting resources to teach them.

Even though, there are various methods in teaching RME such as value clarification, gift to the child approach, life theme approach, existential approach and moral reasoning approach. Others are interpretive approach, neutrality in Religious and Moral Education, narrative approach and concept cracking approach. These methods were not considered in the current study.

It however, restricted to how animation could be designed as a teaching/learning resource for teaching RME in junior high schools, how animation is used in teaching and learning RME in junior high schools in the Akatsi South Municipality, the extent to which the use of animation as a teaching/ learning resource conform to the NTS, the benefits of using animation in teaching RME, the challenges in designing animation and the challenges of using animation in teaching RME in junior high schools.

Limitation

Since I used purposive sampling procedure to select respondents in schools in the Akatsi South Municipality, the findings cannot be generalised to all teachers in junior high schools in Ghana. However, this study can serve as foundation for quantitative research so that a large sample size may be used in order to generalise the result.

Definition of Terms

1. Animation: objects or cartoon that are manipulated to show an illusion of movement.
2. Animwork : animation software which helps an instructor create animation easily.
3. Eidetic vision: studying the essential features of religion. (Six dimensions of religion)
4. Epoché: suspension of value judgment on the religion or bracketing one's faith in studying religions.
5. Explainia: a site where already made animation videos can be found.
6. PowToon: animation software that aids users to generate animated productions with excellent graphics.
7. Three-dimensional (3D) animation style: computer generated animation that comprises the element of dimensions such as depth of space and form.
8. Two-dimensional (2D) animation style: a form of computer generated animation that lacks the elements of depth of space and form.
9. YouTube: a web site for numerous animation videos on virtually any topic or subject.

Organisation of the Study

The study consists of five chapters. The first chapter deals with general introduction to the study, which includes the background to the study, the statement of the problem, purpose of the study, the research questions, significance of the study, delimitations and limitations. The second chapter deals with review of related literature which consists of theoretical and

empirical review. The third chapter contains research methods. This consists of research design, population, sample and sampling procedure, instruments, pre-testing of instruments, data collection procedure, trustworthiness of data and data analysis. The fourth chapter is the results and discussion of findings. The fifth chapter is a summary of the key findings and conclusions, as well as recommendations based on the findings of the study, and suggestions for further research work.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

The focus of this research is to explore how the teacher as facilitator can develop and use animation in teaching RME at junior high schools in the Akatsi South Municipality so as to promote child-centred learning with the view of learning abstract concepts understandably. This literature review discusses issues concerning the design and use of animation in teaching. The chapter is intended to review theories of learning and related literature on the existing problem. The components of the problem reviewed include:

1. Theoretical review
2. Conceptual review
3. Empirical review
 - a. The concept of designing animation
 - b. The concept of using animation in teaching RME
 - c. Challenges teachers faced in designing animation to teach RME lessons
 - d. The Challenges of using animation to teach RME lessons
4. Summary of the literature

Theoretical Review

Allela (2013) indicated that designing and use of animation as a pedagogic tool is not complete without reviewing learning theories that underpin it. These learning theories are in agreement with what Plato explained that children are naturally endowed with knowledge that simply awaits to be activated by the teacher. Some of these theories include: the multimedia learning and constructivist.

Theory of Multimedia Learning

Mayer (2005) who is the founder of multimedia learning theory explained that learners learn more understandably when texts and graphics are used concurrently in teaching than using texts alone. According to Mayer, with the advent of technology, pictorial form of instruction has been developed to augment the verbal form of teaching. O'Donnell (2006) reported that when knowledge is integrated in both verbal and non-verbal modes, learners are permitted to construct dual representations in their mental ability and to make referential connections between those representations. Simply adding pictures to words does not give assurance for learners understanding of the concept being taught. The teacher must know procedures involved in the use of multimedia to promote effective instruction in the classroom.

According to Mayer (2005), learning from multiplicity of sources by the use of sight and sounds with teaching and learning materials which also include the use of audio-visual gadgets and equipment is multimedia learning. Multimedia learning theory emphasises the factors that underline the use of videos and texts in instruction. The process underscores the use of both senses of vision and hearing to synthesize information. This is in agreement with the popular Chinese adage which says that "Tell me and I forget, show me and I remember, involve me and I understand." This shows the importance of using audio-visual materials in teaching and allowing learners to discuss the picture they have seen. This indicates the fact that involving pupils in meaningful activities in the classroom teaching will help them understand the concept well.

The truth about multimedia learning is that the design of the multimedia must conform to how human mind works that will lead to meaningful learning (Mayer, 2005). It is therefore incumbent on the teacher to design animation to suit the ability of the learners.

The multimedia instructional message involves the use of words and pictures in communication. Words may include printed words and spoken words in narrations while pictures may be static graphics-illustrations or photos also lively graphics which include animation or video clips.

According Mayer (2005), learning can be measured by the ability of the learner to remember the presented information and apply it in real life situations. The teachers are interested in how words and picture can be used to promote understanding. This will enable learners transfer what they have learnt to solve real life problems.

According to Moll (2018), there are three assumptions of multimedia learning:

1. The double channel hypothesis explains that people possess dual ways for acquiring information: These are visually represented material and narratively represented material—what they see and hear. Creators of learning take this knowledge of how people learn into justification when they are developing a learning session or environment by presenting the material in both visual and auditory forms. Basically, they scaffold the chance for the learner to learn.
2. The limited processing capacity hypothesis states that humans have limited capacity store that can maintain unrehearsed information for about 20 to 30 seconds. Research shows that the limited processing

capacity has limited number of items (about seven chunks). A chunk is a grouping of related items of information (Moll, 2018). Designers of learning use this knowledge of limited capacity to make key decisions about the amount of content to teach learners at one time.

3. The active processing estimation states that humans enthusiastically preoccupied in mental activities in order to construct mental picture of concepts. When designers of learning use this knowledge of energetic processing, they concentrate on how to ensure learners are active listeners to the accurate information and organizing the information received. They also concentrate on how to help their learners assimilate the received information with what they already know. Humans are energetic processors, not unfilled vessels for creators of learning to simply empty their knowledge. Creators of learning take excessive care when deciding how to aggressively involve their learners with the content presented. These assumptions fit well into the use of animation in teaching RME.

Mayer (2009) developed the principles of multimedia learning.

These include:

1. Multimedia Principle: people's knowledge improve when texts and graphics are used as against words alone. Using both channels increases the chances of the learner to remember the information presented.
2. Coherence Principle's: learning progresses when unimportant material is omitted rather than included. Learning is of better-

quality when interesting but inappropriate words, pictures, sounds, music, and symbols are removed from the lesson.

3. Signalling Principle: people's understanding is improved when prompts that highpoint the organization of the important material are included. Injecting prompts that guide the learner's attention toward the important material is necessary to minimise unnecessary processing, or cognitive overwork.

4. Redundancy Principle: people learning is enhanced from graphics and narration as against from graphics, narration, and printed text. Idleness produces cognitive burden by having to visually probe between pictures and on-screen text which can also exhaust the learner mentally.

5. Spatial Contiguity Principle: learning advances when corresponding words and pictures are presented near rather than far from each other on the page or screen. Keeping matching words and pictures closely organised decreases cognitive load by dropping the mental energy needed to scan and search the page/screen and allow both to be held in the occupied memory at the same time.

6. Temporary Contiguity Principle: learning progresses when equivalent words and pictures are presented concurrently rather than sequentially. When the animation/image and the narration/words are presented to the learner at different times, it is more problematic for the learner to create mental images

and the working memory is quickly burdened. To increase the likelihood that learners build the proper mental representations, it is essential to present the animation and narration (or text and image) to the learner at the same time.

7. Segmenting Principle: people learn better when a multimedia message is presented at the level of the learner rather than a continuous unit. When presenting learners with a series of steps to a process, it is best to chunk the lesson into smaller steps so the learner can comprehend one step before moving on to the next step. This allows the learner to determine when to move to the next step through the use of continue or next button.

8. Pre-training Principle: people learn more profoundly from a multimedia message when they know the names and characteristics of the main concepts. This principle is best used when the material presented is multifaceted or fast-paced, and when the learner is unacquainted with the content.

9. Modality Principle: people learn more genuinely from pictures and spoken words than from pictures and printed words. The use of pictures and printed words overworks the visual channel of the cognitive processing system and decreases learning. Using spoken words offloads the visual channel and makes excellent use of the auditory channel reducing cognitive overload.

10. Personalization Principle: people learn better from multimedia presentations when words are in informal style rather than formal style. Personalization involves using “you” and “your” in the narration rather than “the.” Learners are more likely to be energised and engage at a deeper level when they see the author as a conversational partner.

11. Voice Principle: learning is improved when the words in a multimedia message are spoken by a friendly human voice rather than by a machine voice. It gives the learner a sense that someone is talking directly to them.

12. Image Principle: learners do not essentially learn more deeply from a multimedia presentation when the speaker’s image is on the screen rather than not on the screen. This would also embrace the use of instructive agents, or characters.

Cognitive Load Theory

Mayer (2005) cognitive theory of multimedia learning also depends on cognitive load theory. The underpinning evidence is that the kind of information we acquire during instruction leads to one of three different forms of cognitive activities.

The first one is extraneous load (also referred to as “extraneous processing”). This is the fruitless cognitive energy used on concepts or materials that do not help to achieve lesson objectives (Davis & Norman, 2016).

Similar to that is Intrinsic load (also known as “essential processing”) refers to the cognitive effort required to represent the material in working

memory and is based on the complexity or difficulty inherent to the learning materials (Mayer, 2009). Equally is germane load (also identified as “generative processing”) is the essential ability of pupils to really comprehend the concept and is powerfully pushed by their enthusiasm (Davis & Norman, 2016).

Implications of types of cognitive load for teaching RME

Teachers can reduce extraneous load by concentrating closely on the necessary material and avoiding everything that could confuse learners (such as unnecessary animations or unrelated materials). Teachers’ task is to use intrinsic load by doing task analysis so that learners can learn the material quickly (Davis & Norman, 2016).

Teachers should improve germane load by scaffolding learning and showing videos slowly. Teachers should have intention to construct audio-visual resources that manage intrinsic load, enhance germane load, and reduce extraneous load to ensure full storage in long-term memory (Davis & Norman, 2016).

Implication of multimedia learning theory on designing and the teaching of RME

These principles need to guide the teachers whenever they design animation to teach in the classroom. This will enable them to design and use the animation appropriately.

The multimedia learning theory has a lot of implications for teaching RME. Teachers of RME can improve teaching and learning by adopting texts and graphics as against words alone. People learn more genuinely from pictures and spoken words than from pictures and printed words. Using

spoken words offloads the visual channel and makes excellent use of the auditory channel reducing cognitive overload.

Similarly, when designing animation for teaching, the teachers must include only important materials in order to minimise cognitive overworks. For example, only voice and graphics should be used. If text is added it produces cognitive burden. This means that on-screen text should be removed as well as sounds and music.

Equally, voice and graphics should move concurrently when designing the animation. When this is done by the designer, it reduces cognitive load. It makes the learners process the information the teacher is putting across quickly.

In the same manner, the animation designers or the teacher should use his or her voice and to do the voice-over and not that of the machine. It makes learners have impression that human being is talking to them directly.

Related to that is the designer's picture should not be on the screen when showing images to the learners. This will affect the images the teacher wants to show to the learners.

Constructivist Approach to Learning

Grimmitt (2000) stimulated learners to explore possible associations between their world and that of formal religious traditions; socially build their own meaning; be critical, meditative and apply their own interpretations. Grimmitt explained that constructivism's epistemology admits that people construct knowledge and meaning from their involvement in activities. According to Grimmitt, constructivist approach to learning in Religious

Education backs pedagogic tool of inquiry that is open, vigorous, unrestricted and appealing.

Brown et al. (2015) emphasised that constructivist trust that for advance mental activities to be carried out, learners must establish their own insight and understanding through the stimulating activities that the teacher organised for them. Active learning is ensured when the teacher plans the lesson to suit the developmental stage of the educands. This implies that learning must proceed from known to unknown, simple to complex and concrete to abstract. The teacher needs to track how individuals are making progress in class. However, when the enrolment is too high in the classroom, it becomes difficult for the teacher to do that job well.

Constructivist theory is principally based on research about how people acquire knowledge. The theory is based on assumption that learners build their own perceptions and knowledge on their world view through undergoing activities and examining those acquaintances. Our new acquaintances must be reunited with what we know earlier.

Piaget (1972) explained that when learners participate in lessons they create new concepts, old ones modified and demonstrate understanding that are founded on their acquaintances.

Piaget, who is a cognitive constructivist, advances theory which shell learning, instructional pedagogic tool, and curriculum change. Two of his key concepts in knowledge construction are accommodation and assimilation. Accommodation refers to the restructuring of a child's mental organisation in order that new information may be included. Accommodation changes the mental structure in order that new experiences may be added. Assimilation is

the process of interpreting new experiences according to old acquaintances. In other words, children attempt to explain new phenomena by referring to their current frame of reference. Thus, the primary function of assimilation is to make the unfamiliar familiar, or to reduce the new to the old. For instance, a child who is used to sucking the mother's breast when he is given a toy for the first time, puts it in his mouth and begins to suck it, this because he has assimilated the toy into an early existing schema of sucking the mother's breast.

Social constructivist philosophical assumption stresses that learners understand concepts well when teaching is interactive, where learners interact and cooperate with well-informed learning mates. Vygotsky (1978) who is a social constructivist supported the use of activity intermediaries providing a way in which people are able to relate with the nature. Vygotsky's 'Zone of Proximal Development (ZPD)' discusses about things the learner can do self-reliantly and those things that he or she needs the help of the teacher or peers. Vygotsky explains that development can occur if the learner is given appropriate support by more capable others. If support is appropriate and meaningful, then it is argued, the understanding of the learners can be extended far and beyond that the child could reach alone. He documents that teachers must use teaching resources, worksheets, lesson plans, visual media which help learners recall concepts and ideas and rubrics all in a joint attempt to scaffold learner's learning and evaluate identified improvement as the learner attempts to use his or her knowledge to solve real life problems. The implication of Vygotsky's ZPD is that teachers should adapt scaffolding to the needs of students, Provide learners with visual resources that promote

thinking, use dialogue and group learning. Scaffolding denotes temporary support given a child who is mastering a task (Alber, 2014).

The teacher must realise that the child has some limitation, which are peculiar to his or her age. The teacher should make sure that learners see objects, felt it, taste it, touch it or held in order for the child to construct mental picture of the object. The learner is not an absolute slate (tabula rasa) but uses previous knowledge to solve new problem they encounter in life.

While Piaget studies and concentrates on individual children's cognitive development, Vygotsky's stress is placed on how individuals learn within social settings. This is in line with Owusu and Asare-Danso's (2014) findings that effective learning could be achieved through seeing, hearing, feeling, guidance and investigating relevant instructional resources. The various senses of the learner become the main vehicles that the mental ability utilizes in order to recall what is learnt. In line with this, it can be articulated that the various senses are, as it were, shipment points for active participation in classroom activities.

The constructivist approach to learning is very beneficial in teaching because learners of all stages can use it. In so doing, it will improve thinking among the learners. Learning becomes understandable to learners and can be applied to real life situations. The learner is able to apply knowledge gained in other situations in the classroom and in practical life. Also, the learner can make sense of what he or she sees or experiences around him or her. Unlike the behaviourist theory, in constructivist learning, the learners are intrinsically inspired. The learner assumes proprietorship of what he or she learns and an obligation of his or

her own learning. In constructivism, the learner is completely committed and aggressively engaged in the learning process (Ward, 2003, P. 15).

The emphasis of the constructivist tradition is on teacher and learners. Teachers should include various kinds of activity in their lessons in which the learners must be involved in order that learners built their own knowledge (Ward, 2003). As learners are working hard to construct their own knowledge the teacher performs a facilitator's role, guiding them in their learning.

Freire (1972) maintained that knowledge must be discussed and, in a sense, built by learners through the use of child-centred pedagogic tool. Teachers using teacher-centred methods to spoon-feed learners (referred to as 'banking' in Freire's (1972) terminology) are now losing its popularity. Teachers using child-centred pedagogic tool, based on interactions and active participation in lessons is what is gaining currency.

According to Hub (2012), the paramount weakness is its lack of plan. Some learners need systematic planning and presentation of lessons in order to do well academically. This is in agreement with Tamakloe, Amedahe and Atta (1996) who explain that the planning of a lesson is very important if the teacher wants to achieve his or her instructional objectives. Constructivism demands that teacher to do away with a teach-to-rule curriculum rather in preference for human-centred programme that links with the learner's previous knowledge. This may result in some learners "falling" behind others but each will find his or her level. Furthermore, it can actually lead learners to be disorganized and discouraged because the skill to correlate relationships between their entry behaviour and the new concept they are learning may be lacking. In order to overcome these disadvantages, basic RME curriculum

delivers common experiences like “the use of money”, “leisure, family systems”, “work” etc., as topics which can be taught with the use of animation.

Even though constructivism theory has some weaknesses, their views are paramount in learning structure, Learners may benefit with some constructivism principles combined into the classroom setting. Most teachers need to plan their lessons and learners need more appraisal to be successful (Hub, 2012).

Implication of constructivism learning theory on designing and the teaching of RME

Constructivism learning theory has a lot of implication on designing and the use of animation for teaching. In the first place, there should be provision of activity intermediaries. Experiences should be provided for the learners to construct their own knowledge. This means that animation as a multi-sensory tool can be used to provide experiences for the learners to learn. Learners should be given appropriate support using teaching resources, worksheets, lesson plans, visual media which can help learners to recall. The teacher should make sure that learners see objects to make them understand the concept being taught.

Similarly, Piaget’s concept of assimilation and accommodation shows that the child is cognitively active and has a strong desire to understand his environment. The teacher must stress the understanding of concepts and ideas through the use of animation.

Correspondingly, the teacher should be informed that animation designed by the teacher should be attractive, to capture learners attention. If the picture is not attractive, the lesson will be boring.

Relatedly, constructivism theory stressed that intelligence develops as a result of a child's interaction with environment. Consequently, learners must be encouraged to work in groups and given the opportunity to manipulate objects of widely different properties text, size, colour and shape. There should be constant demonstration of ideas and allow learners to experiment with materials in order to accommodate new understanding, and to discover information for themselves.

Constructivism theory also implied that the teacher should offer individual attention in teaching by acting as a guide, working with each child as he interacts with his or her environment to ensure that the child experiences are appropriate for his or her level of intellectual development.

I adopt these theories because of their learner-centred approaches of instruction and knowledge building. The use of animation as a pedagogic tool is characterised by interactions in the classroom. This makes the learners to participate effectively in the lesson.

Conceptual Framework

These include, Instructional Video Design, classroom interactions through animation, the extent to which the use of animation as a pedagogic tool is in line with the NTS, benefits of using animation in teaching RME, challenges in designing animation as a teaching resource and challenges in the use of animation in teaching RME. I designed the conceptual framework using purpose, research objectives and research questions.

The conceptual framework for this study is presented in Figure 1. It summarises the key components of the framework and provides an overview of the key elements for the study.

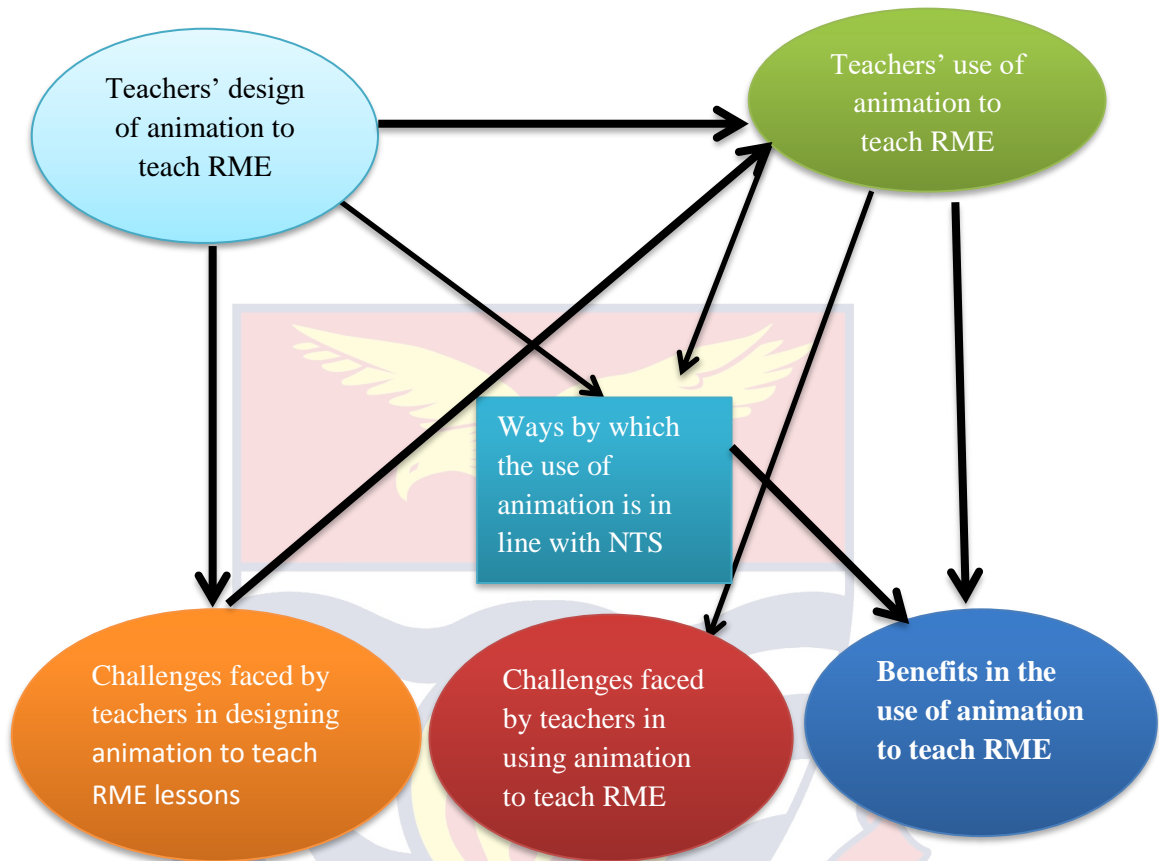


Figure 1: Conceptual Framework for Multimedia Learning in RME

Conceptual frameworks are abstract illustrations, linked to the research objectives that guide the collection and analysis of data. This conceptual framework was developed using my purpose of the study, research objectives, and research questions.

The first diagram illustrates teachers' design of animation which is linked to the usage of animation to teach RME. The designing of animation has some linkage with the middle diagram which is NTS. The NTS proposed use of audio-visual resources and ICT tools in teaching and in the learning environment hence the linkage. Designing of animation by teachers is associated with some challenges hence the connection.

Use of animation to teach RME is connected to NTS. This is because teaching with animation must meet the NTS standards. The use of animation to teach RME has some challenges as well hence relationship with the two diagrams.

The design of animation must conform to multimedia learning principles, otherwise it creates cognitive overload for the learners during teaching and learning. That is why challenges in the design diagram are linked with the usage diagram.

The use of animation in teaching RME is also linked to challenges in the use of animation diagram. This is because as teachers use the animation there is possibilities of challenges.

The middle diagram which is the NTS is linked by most of the diagrams because that is the standard which every teaching activity must meet. The NTS is the criteria which are used to assess all our teaching activities in the classroom. There are benefits of using animation to teach RME. That is why the use of animation to teach RME is linked to the benefits.

History of Animation

In the view of Kehr (2018), animation has a long standing history. History first documented animator as Pygmalion of Greek and Roman mythology, a sculptor who produced a figure of a woman so faultless that he fell in love with her and requested Venus to bring her to life. This means that in creating animation, it must be perfectly done with attractive colours so that learners' attention can be captured. It also means that animation is bestowing of life into lifeless objects. Alella (2013, p.8) also shared the history of animation:

The history of animation can be linked to Palaeolithic cave pictures drawn in an intersecting way to promote movement and pictures portraying motion found on the surface of ancient artefacts from Egypt and Iran”. At the start of the early twentieth century, during the initiation of film and motion picture camera, animators like James Stuart Blackton, Emile Cohl (“Father of Animation”), and Winsor McCay amongst others, converted animation into a new entertainment media. They did very good works in the entertainment media which include: Blackton’s Humorous Phases of Funny Faces, Fastasmagorie by Cohl and McCay’s Gertie the Dinosaur brought a new art form that inspired late animators to capture the indefinite spark of life.

Animation engineering began to adjust to the fact that television is now the paramount means of entertainment for American families. Therefore many animation studios created many cartoons for TV, using animation sophistication. Kehr (2018) mentioned that Hanna-Barbera produced the Flintstones, the pioneer animated series on prime-time television (TV).

According to a UNESCO study (as cited in Alella, 2013), African’s market is still heavily packed with imported animation packages in spite of having brilliant nature and artistic style. One will see a large portion of imported animation on our television sets even though the local programmes are preferable because they tell our local stories (Maina, 2006). This means that government needs to support local animation industries so that they can produce more animations as instructional resources to support implementation of the new curriculum.

Empirical Review

The empirical review sets the present research into perspective to show the state of the art. It includes a review of actual works previously done on the problem and evaluation of what the previous studies have and have not accomplished in solving the problem at hand. The current study will point out very carefully, the similarities and more importantly, the differences between previous studies and the current study.

Kuusangyele, (2013) developed stories to teach natural science at the primary level of education which makes teaching science very interesting. Similarly, Asare-Danso (2010) also worked extensively on how to use two strategies (Suitcase Strategy and Ranked Orders) under “Value Clarification Pedagogic tool” to teach RME.

In the same vein, Winter (2003) worked on the role of animation in media studies and found that the term “animation” is part of “media,” and its relations to other types of media are equally complicated. Ward (2003) researched into the place of Animation as a pedagogic and a discipline within Film and Media Studies and found out that animation features prominently in those two areas. Mayer (2001) also researched into the role of multimedia in instructing learners and noted that students can acquire knowledge more profoundly in combination of texts and graphics than from words alone. Furthermore, Moviestorm (2011) suggested many traditions by which animation can be used in teaching various subject areas.

Identically, Alella, (2013) developed animation to enhance learning mathematics and realised that animation videos help learners who are in concrete operational stage to construct their own knowledge. Uniformly, in

Smith (2012)'s researched in pedagogic tool, he found out that animation brings life into what the learners are learning. This is because it makes use of the experiences of the learners.

Equivalently, Ouda (2012) investigated the effect of using animation on teaching English comprehension and realized that animation used to teach an experimental group as a means of developing reading comprehension skills made them to perform better than the use of traditional method for the controlled group. This research also did not talk about how animation could be designed to teach RME.

Equally, Kwasu (2015) investigated the effectiveness of animation as audio visual resources for instruction. A total of 189 experimental and 189 of control respondents were studied in science. The study reveals that those who benefited from animated instructional resource did more than those without animated material. Again, those who benefited from a lesson with animated instructional material were able to retain concept learnt than those who were taught without it.

In the same way, Chile (2010) researched into the significance of animation as a pedagogic technique in teaching chemistry and emphasised that teachers should use visualisation technique such as animation persistently during the learning process. However, how animation could be designed and used in the classroom to teach RME was not told.

Similarly, Bopche (2015) investigated animation as a learning tool. He come out with the methods or principles one needs to follow and how one can produce error free animation or graphics leaving out how animation could be used to teach RME.

Correspondingly, Amekor et al. (2015) conducted a study at Akatsi South Municipality basic schools and found out that teachers were not using animation to teach. They therefore created digital animation systems for teaching and learning English Mathematics and Integrated science at Akatsi College of Education. However, it seems all these researches failed to address issues in RME.

Design of Animation for Educational Purpose

Instructional Video Design

According to Rahim (2017), there are a lot of instructional animations that are available on the internet. It is beneficial to develop an insight into how instructional animations are designed.

Cell-animation commonly known as traditional animation or hand-drawn animation is the oldest form of animation. This includes drawing of separate frames on paper and varying the sequence to make an illusion of movement. The designer traced on to transparent acetate or celluloid sheets called cells that are finally painted in assigned tones on side opposite the line drawings. A motion picture camera called rostrum camera is used to photograph the cels one by one against painted background (Allela, 2013, p.11)

On the part of Smith (as cited in Lucas and Rahim 2015), there are other styles of animation:

Animation is the combination of art and technology to create images that portray movement. The two major types of animation are 2-dimensional animation (2-D) and 3-dimensional animation (3-D). Computer animation which is 2D style is defined

as a form of computer generated animation that lacks the elements of depth of space and form. Two-D animation consists of flat graphics and text usually seen in cartoons or advertisements while 3-D animation uses Computer-Generated Images (CGI) to create a more realistic look., 3D style is computer generated animation that comprises the element of dimensions such as depth of space and form. It is important to note that the three-dimensional term used in this research indicates the depiction of objects in three-dimensional Cartesian space and does not include the use of stereographic techniques. A diagram was brought to illustrate the difference between 2D and 3D animation (p.4).

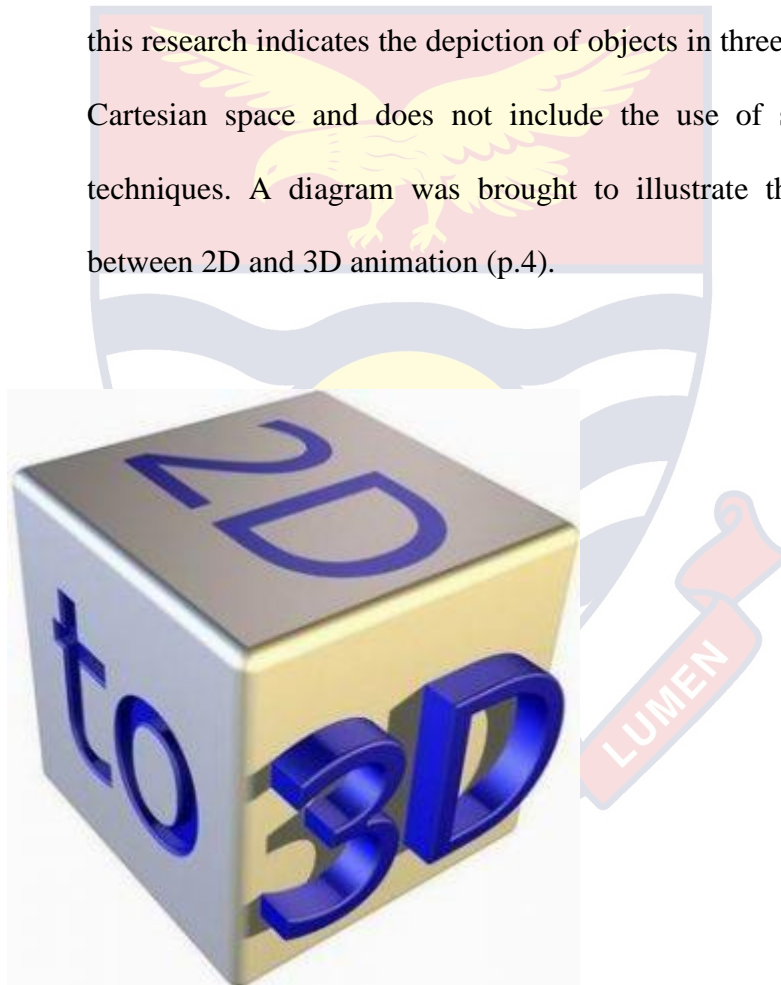


Figure 2: The difference between 2D and 3D animation (Chang, 2019)

The difference is that 2D involves a picture which has no depth therefore it is flat surface. The 3D involves “modelling,” that is creating objects in 3-dimensions which has depth. Furthermore, hybrid animation is

defined as a possible combination of two-dimensional animation style, three-dimensional animation style and live-action.

Another way of making visual media includes live action. Stop motion animation or object animation is live action animation which includes the use of video cameras to take video of live-actions. It also includes the handling of real or pre-existing objects, and also puppets, cut-outs and other figures (Ward, 2003). Live action consists of real people or animals, not models, or images that are drawn, or produced by computer. Certain videos combine live action with animation to produce a live-action animated film.

Motion graphic is one type of animation which portrays the impression of motion or movement, and both the graphic and audio move concurrently. Technology is used to inset life into series of images to show an illusion of movement. In other words, motion graphic is a graphic design which is static, but a designer uses technology to give it some movement (Breadnbeyond, 2020).

According to Lucas and Rahim (2015), for animation to promote teaching and learning in the classroom, the kind of animation that should be used and its features must be considered. This is akin to the current study because the RME teacher needs to consider the concept he or she wants to present to the learners so as to select the best type of animation which can make the lesson understandable to the learners.

Virtual human representation

Virtual Humans are graphical representations of human beings. Within inhabited Virtual Settings, Virtual Humans (VHs) are a key technology that can provide virtual presenters, virtual guides, virtual

actors, and be used to display how humans behave in various situations (Roja, 2004, P. 1).

According to Elsevier (2018), virtual humans can be epitomised to teach in the video for the learners to observe. This means human figures can be used as teachers when using animation as a pedagogic strategy to teach.

According to Leronutti and Chittaro (2007), virtual humans can teach in animation videos. This is in line with the present study in which virtual humans can be used to teach “reward and punishment” as a topic in RME. This gives opportunity to the pupils to learn on their own and comprehend.

Thalman (2017) expounded that virtual human representation can be in interactive drama titles in which the user can interact with computer-generated characters and hence be involved in a scenario rather than simply watching it. This means that the use of animation in teaching is polymethodical. This is because after seeing the video, role play, dramatisation or discussion can be used to concretise what has been learnt.

Virtual humans should look, converse, and behave like real people as much as possible. Specifically, these characters would be self-directed, thinking on their own, demonstrating and displaying feelings, and interacting in a fluid manner. The goal of generating virtual humans was to form human alternatives to play human role in training and learning exercises, but their potential is far more profound: virtual humans are able to associate with real people in influential, meaningful, and multifaceted ways. Because they mimic the behaviour of actual people, virtual humans can add an amusing social dimension to computer interactions, providing not only an inflow of information, which computers already do well, but a

way to present that information in more personal ways (Swartout, 2008, p. 1).

The main aim of computer animation is to synthesize the desired motion effect which is a socialising with natural phenomena, perception and imagination. The animator designs the object's active behaviour with his mental representation of interconnection. He or she visualises how it moves, gets out of shape or responds when it is pushed, pressed, pulled, or twisted. So, the animation scheme has to provide the user with motion regulator tools able to explain his or her wishes from his or her own language (Thalmann, 2017).

Video projects can be used to magnet together a variety of previous work. For example, if students have beforehand done picture research for a topic, this can be fused into the video. Wall charts or other diagrams they have produced can also be brought in. Video is also a decent way to present a diversity of facts, either in dialogue or as on screen text. Successfully, the video project makes a good way to complete a theme and allow the student to establish the fact that they have fully understood it. Video assignments can be given as single or group projects, although some work better as one or the other.

Animation is not intended to substitute traditional teaching tools, but to supplement and improve them. Although video construction is something students will have fun with, especially if it is new to them, the teacher should beware of handling it as a reward. If the teacher presents it as something to be done when the “real” work is finished, there is the danger that students will not take it seriously, and the academic advantage will be reduced as a result

(Moviestorm, 2011). This is parallel to the current study where RME teacher can combine the use of animation as a teaching/learning resource with other traditional methods like discussion, questioning, role play etc.

Animation is very beneficial in several ways over producing live action videos. It allows students to generate scenes that would be impractical, dangerous or unaffordable in real life. Students do not need costly film equipment such as cameras or lights. They can work in a diversity of locations, including both home and the classroom, so do not need studio space. Students working individually or in small groups can craft large scenes without needing a huge company of actors (Moviestorm, 2011, p.4).

The procedures of animation comprise choice of material for the originals to be photographed. Drawings, cut-outs, models, dolls, puppets, clay, projected silhouettes, and real objects, including fluids, coloured gases and smoke, are among the more generally animated mediums. Traditional animation films are made by drawing, etching, scratching, painting or cameras can also be used during certain stages of making animation. Also assigning objects directly onto a film's minus the use of a camera (Winter, 2003). This means that Computer animation is achieved by photographing in stop-motion that brightens a cathode ray tube (CRT), in accordance with signals fed to the CRT by a computer. Films are digitally encoded as pixels and stored in computers; their images are available for unlimited electronic operation.

According to Moviestorm (2011), in teaching RME using animation as a pedagogic tool, present a Bible story or parable (or parallel to another religion) as a video, a teacher can do it in a current dress and situation if

historical dress and sets are not available. Moviestorm presents processes that are involved in making animation video which include:

- i. Usage of voice-over, narrate the whole story in dialogue. Consider outlining the story by having somebody to relate it, and cutting from the storyteller to the story.
- ii. Complement music and a title order. This allows the student to imagine the story and bring it to life. Also, by putting the story in a contemporary context, it encourages students to think about the moral facet of it and remove that from the original setting, then see how that can be useful to their own lives. Furthermore, dramatic sequences make for a good group project which is suitable for ages 14 and above.

According to Alella (2013), generally speaking, the production procedure consists of three major stages, pre-production, production and post-production with various activities taking place at each stage. Significant differences, however, exist between, for instance, the production of “puppet” animation and cell animation, or between clay animation and computer made animation.

Pre-Production commences with a concept or, an idea that asks the questions whose answers are sought in the animated form. “The first idea may be a desire to tell a particular story; the need to address a particular theme or topic; which is vital to test the factors of art making for its sake; the urge to provoke” (Wells, 2002, p. 32)

Once the idea is made known, a reiteration stage (production) composed of research, script writing, planning, design, audio recording and storyboarding follows suit. At this stage, creation style is determined and acts

as a basis for the visual design or look of the animation. A prototypical sheet is generated for each character in the animation, specifying the characters looks in different profiles. This is known as character design and conforms to the creation style. Post-Production, the last stage in the creation process involves adding effects essential for specific acts such as tones, highlights and shadows.

Mediafreaks (2019) also noted that the procedure for producing 3D animation can be systematically divided into three phases: modelling talks about the process of making the 3D objects within a scene. The next step is layout and animation—which describes how objects are positioned and animated within a scene. The final stage is rendering which describes the final product of the completed computer graphics. Through the blending of the above phases and some other sub-phases, this finalizes the process of a 3D animation creation. This is related to the present study in the sense that animation created by teachers should epitomise the concept they are going to teach.

Showreel (2018) also came out with seven steps by which an animation video can be created. These include:

Step 1 - Briefing

People need to listen to the objectives and aims to understand the story the creator wishes to carry along with the target audience, cut-off date and budget requirements. Key essentials of this information feed in to the creator's script, treatment and style frames.

Step 2 - Scripting

Whether a manufacturer has the expertise to write his or her own script or require the help of professionals in collaboration to form a story, the

producer will always have the opportunity to steer, amend and finally sign off the script. This is the first major sign off point of the project as only once the script is signed off voice-over recording follows.

Step 3 - Style Frames & Treatment

Working in accordance with a teacher's product guidelines, the animation creator generates a number of key frames so that the teacher can see precisely how the video will look, these are not just sketched story board frames. At this time the creator shall also create a written treatment; this sits in line with the script and describes what the creator shall animate in time with the voice-over. The creator believes this will give the teacher the best appreciation of how the animation will look and what it will consist of. This marks the 2nd sign off point of the animation project.

Step 4 - Voice-over

Teachers can help to find the ideal voice to match their product and budget-if teachers want their own voice-over artist or would like to promote an animate approach and record their own voice, technicians will be happy to accommodate this.

Step 5 - Animation

With the script, style frames and VO signed off it is time to start animating. Animation is not a rapid process and this step may take several weeks to complete, depending on the length of the voice-over. This is why it is vital technicians collaborate and sign off the earlier sets.

Step 6 - Audio Mix

Any relevant spot (sound) properties are now added, huffs and puffs from the voice-over detached and the pre-determined music track mixed in.

Step 7 - Sign Off

The animated video is transferred based on official requirements and delivered to the instructor. Adding multimedia content enables the student to approach the subject in a better-off way than just using written text and motionless images. Developing a multimedia in and use it in presentation helps develop teaching skills and requires the student to reflect what information is best presented using the different media: spoken, written, or visual.

Bopche (2015) explained that in teaching lessons, that basic things and general information can be projected or narrated. However, animation or graphics being used in teaching must be well coloured. This leaves a mark on learners' mind and it is interesting therefore nobody gets tired and learners love watching it. This is in agreement with the present study which explains that in creating animation, attractive colours are used so as to entice learners to watch it.

According to Wikipedia (2014), well-created animations may help students learn quicker and easier. They are also excellent aid to teachers when it comes to explaining challenging topics. The difficulty of subjects may arise due to the involvement of calculation or imagination. For instance, the conception and birth of Jesus Christ is problematic for younger learners to comprehend at the beginning. With the aid of computer animations, learning and teaching might become understandable, quicker and entertaining.

According to Chesser (2014), educators need to select which technique is best for them. If a teacher wants to generate new animation from beginning, then he or she should go to sites such as Animwork. If a teacher wants to

select from animation that is already established for him or her then, perhaps, Explainia is more beneficial. This means that RME teachers who have no skill or think that designing animation will consume time can download videos from this site for their lessons.

One of the stress-free ways to design animation, however, is not with one's own camera and modelling clay, it is the ability to identify links to sites that give the researcher everything within their own forums. There is much software that has been identified for creating original animation or using animation tools to create lessons. The software identified by Chesser (2014) as follows:

Animation for Education

In order to help teachers to design, animation software are used. ICreate as software educate teachers and schools from primary through higher education to become better learners by making animation more-handly. It offers some great resources and cherished animation software and resources. It also has a free stop-motion animation tool called SAM. This can be great help to RME teachers in order to teach the topics practically. In addition, help learners to apply what they have learnt in a real life situation.

Pickard-Whitehead (2019) also identified some of the software for making animation. These are:

Animwork

A European corporation produced this guide to help teachers study more about using animation to teach. With some basics in place such as how to construct a moral story and what tools to use, Animwork puts everything into outlook for any teacher who wants to produce his or her own animation.

GoAnimate for Schools

A teacher who wants an easy and a quick way of making animation should choose GoAnimate for Schools is a one-stop shop for generating customised animation that is well-created and easy to use. It is globally available to any educator; it is also secure and educators get a major concession. Schools can sign up about 200 learners at a time.

GoAnimate

If the purpose of using the animation tool is solely for teaching and sharing educator-created animation, take another route to GoAnimate for business. This tool has a free sign-in where educators can use basic tools to create animation with whatever message they need to get across to their students.

According to Karamitev (2018), other animation software include:

Voki

Adding an interesting tool for communication and instruction, Voki permits teachers to make avatars that speak for them. Record or type in messages and send or implant the clips on a site. Voki helps teachers to work with free additions.

PowToon

A free business production tool, PowToon aids users to generate animated productions with excellent graphics. It even has a home devoted to teachers at any level. PowToon advertises itself as being as stress-free to use as PowerPoint and instructors seem to like it.

Wideo

Wideo helps to make current graphics with stimulating collections and fonts give producers the ability to make unique videos for business and teaching. Tutorials afford contractors with self-assurance and basic skills to begin as early as possible.

Ramalla (2018), reported about some free animation software. These include:

Zimmer Twins

One can create a movie or lookout a movie with animation tools set skilfully in place at Zimmer Twins. Generate acts from beginning or select from acts that are already set up. Instructors can gain from Zimmer Twins at School by generating accounts for up to 40 students comprising helping students to communicate.

Brown (2019) explained some of the animation software which are:

Maya

Maya is one of the principal 3D animation, simulation, modelling and application software application empowered with exceptional toolset. A teacher can use it to make animation, motion graphics, environments, character creation, as well as virtual reality to name a few.

Photoshop

Photoshop has been considered as a powerful tool for creating animations because of its significant drawing efficiencies. It renders Disney-style animation due to its frame by frame animation techniques. Teachers can use the onion peeling process for unbelievable animation experience using the 'Timeline' feature (with frame by frame approach).

Chesser (2014) enumerated some of the animation software which are:

Blender

Blender is an open source 3D animation creator available free of cost. Talk about modelling, animation, rigging, rendering, simulation, motion tracking, compositing, video editing, or game creation.

Aniboom

Equally important animation software is Aniboom. Aniboom helps the animation producer gets actual animators. One just posts a project then allocates an artist to it. One will find out that work is progressing well during the process.

Renderforest (2019) listed some animation software:

Adobe Animate

Adobe Animate is a computer animation and multimedia empowering programme designed by Adobe Systems. If a teacher needs to designed vector graphics and animation, Animate is the correct tool for use. The teacher can, later on, use his or her creation for websites, online videos, rich internet apps, video games, and television programmes. Adobe Animate helps *video and audio implanting.

Creaza

Creaza is another online animation tool which is free. With a large diversity of backgrounds and characters, using the superior version might be worth it. Creaza is used as video editor, an audio editor, a cartoon editor and a mind map builder.

Chesser (2014) emphasised that the following sites will help educators find animation that is already prepared for teachers to use. It is tested and it is

well-designed so instructors just examine their subject or their lesson objectives and take videos to help their learners' comprehension theories or even learn challenging material that they find difficult to understand.

Brain Pop

Furthermore, Brain Pop makes challenging lessons understandable in all the basic subjects comprising engineering and technology. TED Ed, supplements material regularly so teachers always have a variety to select from.

Explania

The Explania site contains animations which seem endless. It has videos about almost every subject that teachers want to teach. One has to register and gain contact to innovative animations that explain almost anything.

Google Apps

Google Apps for Education is packed with animated videos that help explain challenging concepts and difficult problems that sometimes even the best teachers cannot understand in order to teach student. This implies that animation videos accessed from Google Apps can be used to teach abstract concepts in RME.

Enlightenment

This site stimulates intellectual debates with the use of animation. Teachers use their videos as a trigger for additional debate or to introduce 21st century topics to any subject that blossoms on arguments.

Coulter (2019) listed some of the animation software that can be used.

These include:

Pencil 2D

The brilliant Pencil 2D is free and open source, which does not always mean good things in a market where paid animation software runs into hundreds of dollars. Though Pencil 2D comes with no price tag attached, it is quite powerful software for vector and bitmap animation. The usage is quite simple. A teacher who has little familiarity using animation software - even total new designers - will be able to explain what they can do with the software.

Bryce

Bryce is a standard 3D modelling, rendering and animation engine for novices to try their hands at manipulating a library of 3D objects. It was probably one of the first animation programmes that many young animators can find useful.

Vimeo

Teachers can find Vimeo as a good site for animation videos which they can use in teaching learners effectively; they find some animations professionally done. Animation contains love stories as well as attractively done animation of puzzling and informative concepts to spark originality and novelty with any learner who wants the improvement of imagination.

According to Pappas (2013), there are other Software for creating animation. Animated video software offers tools that all eLearning professionals take advantage of for the design of engaging and collaborative online training programmes. Animated designs with real-life activities and

communication are undisputable way for the accomplishment in all e-Learning courses. These animation software include:

GoAnimate

Teachers can make their first animation video in less than 5 minutes. Apparently, simplicity of use is the main benefit of this animated video software. Educators who want to create animation videos to teach will obviously make good use of this software. GoAnimate has Lip-Syncing and Voice-Over Narration. The only thing the designer has to do is supply the words. The platform syncs the words with the character's voice mechanically. If a designer supplements a voice track to the background, then the platform spontaneously assigns it as voice-over narration.

GoAnimate has industry and occupation-specific templates. It comes with animation templates for an array of diverse industries and occupations. Pronounced feature for generating animation videos that learners of each educational sector can associate with.

IClone

If a teacher wants excellent animated video software that has been used by highly celebrated organizations and companies such as the FBI, Ford and Microsoft then a teacher has found his or her solution. IClone can be used for environment creation. A teacher who wants to do interior designs or landscapes, iClone comes packed with ready-made templates for quick design.

Toon Boom Harmony

This animated video software emphasizes on providing the tools for captivating storytelling in eLearning. Well-known companies like Universal, Fox and Dream works can prove that as enthusiastic clients. It has a unique

feature for developing 2D and 3D Designs. Harmony offers the teacher the opportunity to produce unique hybrid animations that embrace both 2D and 3D designs. It is a technique for various sketching and drawing functions. Harmony has animation templates, also provides the user the opportunity to enhance designs by the use of traditional painting tools. It also gives production and implementation support. Toon Boom gives professional guidance through all phases of creation training, transitioning from alternative video animation software or even certification training for appropriate use of Harmony.

After Effects

After Effects is the most refined and reliable answer when it comes to animated video software. Adobe's After Effects boasts of distinctive structures like the Character Animator that makes it successful from all competition.

It has creative cloud libraries which is a kind of video animation software that provides tons of customization options and the ability to get them from any device. Creative Cloud Libraries allow the user to save colours and images.

In conclusion, using animation tool like Moviestorm solves the problem of searching for several different software packages to handle the different parts of film-making (Moviestorm, 2011). This could be true for teachers who struggle to design animation to teach in the classroom. This means that Moviestorm has come to solve the problem of looking for several software to develop animation to teach in the classroom.

Teacher's use of Animation to Teach RME so as to promote learner centredness in Junior High Schools in Akatsi South Municipality

Teachers who want to promote effective communication in the classroom should incorporate stimulation in their instruction (Easingwood, 2000). Animation as a teaching/learning resource is meeting this demand in various classrooms and this is confirmed by several researches (Shreesha & Tyagi, 2016). Mayer (2008) conducted numerous studies and noted that animation is one sure way of attracting learner's attention even the most difficult concepts are made meaningful.

Furthermore, animation as a pedagogic tool has helped teachers to modernise the use of pedagogic tool in providing education, especially at the basic level, promoting an element of fun during instruction. Researchers believed animation as audio visual resources has the potential to explain a difficult concept in understandable way, develop enthusiasm towards the learning of the subject (Shreesha & Tyagi, 2016). This implies that animation can be used as teaching resources to explain abstract concepts meaningfully in RME.

Atkins (2006) maintained that the skilfulness and readiness of teachers to design multimedia materials in a pedagogically suitable manner, modified to the age and desires of the pupils that use them is the paramount issue when using animation as a pedagogic tool. Atkins explains that the use of video as a teaching tool empowers the teacher to teach effectively. It also helps to link conceptual learning meaningfully to real-life practice, thus enabling transfer of learning. This implies that teachers need to acquire skills in designing and use of animation so that abstract concepts will be understood.

According to Farrant (1980), teachers need to follow appropriate procedure when using films in teaching. Farrant explained that designed film is projected to learners to watch so as to understand the concept. The RME teachers need to follow laid down procedures in order to use animation in teaching successfully. These procedures include the following:

1. The RME teacher should preview the video before he or she finally decides whether it is appropriate for teaching the lesson or not.
2. The teacher should give the gist of the video by citing the principal things to look out for in it.
3. First the teacher should show the video without stoppage.
4. There should be verbal discussion of the video aimed at consolidation the right impressions gained and drawing attention to points missed in the first observation.
5. The second showing of the video may be interjected to draw attention to specific facts in the video, running it back or simply by cutting out the sound track briefly to say something.
6. There should be group discussion of the main teaching points.

Alternative to these recommendations was Kwasi's (2015) findings that important elements in the system approach using animation are "Plan", "Implement" and "Evaluate". This means that the lesson must be planned using the topic in the syllabus. This will be followed designing of animation based on the lesson. At the implementation stage, animation must be used in conjunction with other methods. The last stage is the evaluation. This is the stage of finding out if and to what extent the lesson objectives have been

achieved. Assessment is done through class exercises, quizzes and text, observation, interviews and discussions.

These procedures identified by Farrant (1980) and Kwasu (2015) indicated that when using animation to teach the teacher should follow the laid down principles so as to promote child-centred learning in the classroom. The two procedures advocated complement each other. The justification is that these procedures will help the teacher to present the lesson systematically.

Classroom interactions

According to Assiedu-Kottwi and Duah (2010), Interaction in the classroom should flow from the facilitator to the educands, from the learner to the facilitator and among learners. The different ways through which teachers engage learners during the teaching and learning process is what is meant by types of classroom interaction. There are various types of classroom Interaction which are commonly used by teachers:

1. Whole class interaction
2. Small group interaction
3. Individual interaction
4. Pair interaction

Whole Class Interaction

The whole class interaction according to Assiedu-Kottwi and Duah (2010), refers to the type of method of instruction whereby the teacher handles all the learners or students together and manages them as unit without subdividing them. In this interaction, the teacher involves all the students at once, saying the same thing to them at the same time and with the same speed.

This is in line with the essentialist philosophy which is now outmoded in our educational system.

Features of Whole Class Interaction

1. The teacher manages and instructs the whole class as unit. The students must be of fairly equal ability, age and experience.
2. The size of the class should neither be too large nor too small.
3. The teacher identifies the students' needs and set a standard, which he expects every student to reach. Teacher organizes instruction towards the set on standard.
4. The teacher involves all the students at once, saying the same thing at the same time and speed and engaging them in the same activities.

Advantages of Whole Class Teaching

1. It is economical since it saves time, effort and resources.
2. It helps children to gain academically by learning together.
3. Children's interest and activity can easily be stimulated and activity becomes infectious to the others.
4. It helps children to cooperate with each other and develop a team spirit.
5. It saves time and energy of the whole class as a group.
6. It promotes social relationship among children as they work together.
7. It creates opportunity for students to compete with each other which motivate them to excel.

Disadvantages of Whole Class Interaction

1. Class control may be difficult, especially in situations where there is large class size.

2. The teacher can easily assume all learners have understood whatever he says which may not be so.
3. Individual students can easily become inactive or may doze off unnoticed.
4. It does not account for individuals differences in ability, experience emotional development.
5. Whole class interaction is teacher centred.
6. It can encourage passive learning.

Group Interaction

The group interaction refers to the teaching arrangement whereby the teacher divides the students into small groups for the purpose of reviewing information or solving problems. Generally, each group has a leader and a secretary for effective execution of tasks. Grouping is done to serve a purpose which requires careful planning. Tasks given to each must be clearly explained to them. The number of members should be neither too small nor too large. Ideally, groups of five (5) to seven (7) members are recommended.

Types of Grouping

Different types of groupings are used by teachers for different purpose or activities in the teaching and learning process. Among them are:

1. Ability grouping
2. Mixed ability grouping
3. Random grouping
4. Sex grouping
5. Social/friendship grouping
6. Interest grouping

Advantages of Group Interaction

1. It develops the spirit of cooperation among students as they learn and work as a team.
2. It helps learners to acquire leadership skills and social responsibility.
3. It develops self-reliance in learners and discourages their overdependence on the teacher for all knowledge.
4. The method helps teachers to use scarce or limited materials and equipment effectively.
5. It enables all students all students to participate actively in class activities.
6. This type of arrangement or interaction makes teaching flexible because different topics can be covered at the same time during group work.
7. Group interaction breaks the monotony of the class teaching and offers learners more stimulating class activities.

Disadvantages of Group Interactions

1. It is not easy to evaluate the contribution of individuals in a group work situation.
2. If not properly planned before the beginning of the lesson, time would be wasted on shifting and re-arrangement of tables and chairs.
3. The ordinary classroom space and arrangement may not be suitable for group work involving a large number of students.
4. Unless carefully controlled, the noise level in the classroom might be higher than desirable.

5. It is the time consuming especially at the preparation stage. This is because the teacher has to prepare separate specific tasks for each group
6. The teacher is always faced with organizational and management of in his or her attempt to help learners work effectively in groups work.

Individual Interaction

Individual interaction in teaching refers to the type of classroom interaction which allows the teacher to offer assistance to individuals learners. This arrangement is basically used to address the individual needs of learners. It enables individual learners to work independently. Generally, the teacher spends time exclusively with one pupil, discussing work done, progress made according to his or her level of understanding.

Features of Individual Interaction

1. It makes learning a personal activity
2. The course material is usually broken into smaller units with clearly stated objectives.
3. Each part of the course must be mastered before the next task is tackled.
4. Time is spent exclusively with one pupil discussing work done.
5. In situations where it is organized for continuous use by the teacher, a study guide is provided for each unit with detailed instructions for effective use of the material together with references.
6. Students are made to take tests at the end of the whole exercise and provided with instant feedback on performance.

Advantages of Individual Interaction

Tamakloe, Amedahe and Atta (2005) outlined advantages of individual interactions. These include:

1. The child is provided with an opportunity to compete against himself and develops a real sense of achievement, self-esteem and security.
2. The child is given better personal attention since the teacher knows each child's problems and special needs.
3. It also promotes independence or self-learning.
4. It also caters for individual differences in that children learn at their own pace and are not put under pressure to cope with others.
5. It helps children to develop a sense of initiative as children are more responsible for their own learning.
6. The individualized system of teaching promotes learners learning on their own in lesson activities.
7. It also enables the teacher to monitor student's progress closely since regular feedback is available.
8. It enables the teacher to know each child better and can identify their strengths and weakness and provide appropriate remedies.

Disadvantages of Individual Interaction

1. It denies children the social and emotional benefits of group work since learners may feel isolated by working independently.
2. It is time consuming as the teacher interacts with children individually.
3. In situations where class size is too large, class control becomes very difficult.

4. Teaching and learning materials and other resources may be inadequate.
5. Planning for individual interaction can be energy sapping or time-consuming to the teacher as a lot of time is needed to prepare for each child as postulated by (Assiedu-Kottwi & Duah, 2010).

The numerous interactions in the classroom which has been identified by various researchers are in line with the present study in the sense that animation as a pedagogic tool will promote various interactions in the classroom. These will make learners to be active participants in the lesson thereby promoting understanding.

Child-centred education

According to Assiedu-Kottwi and Duah (2008) child-centred education is the process of making the learner to play active part in the lesson. This means that all activities in the lesson are carried out by the learner. The teacher just acts as the facilitator of the lesson. According to Gould (2015), child-centred education means using the child as the pivotal for designing curriculum, teaching and learning. The notion of the child's holistic instruction must be taken seriously. This implies that children should not be necessarily seen to be given structured formal learning. Children should be treated holistically and brought up in their academic needs; psycho-social, physical and emotional needs that make them develop their unique personalities. For that reason, character education is indispensable and interwoven throughout the religious and moral education curriculum. The child's total upbringing and training are all concerned with giving children the exposures to excel as they grow (Gould, 2015). This means that in using

animation as a pedagogic tool, educands develop their own understanding as they see the videos.

Assiedu-Kottwi and Duah (2008) identified four principles of child-centred education. These include:

1. Identifying the needs and abilities of the learners which should determine what they learn at school. This connotes that teachers need to tailor their lessons to meet the needs of the learner.
2. Recognising the differences that exist among the learners so as to plan lessons to meet these differences.
3. Teaching must proceed from what they know. In other words teaching must start from what is known to the unknown, simple to complex, concrete to abstract.
4. The teachers need to apply child psychology and child development to the content and method of teaching. Thus the selection of content and teaching methodology should match the maturational level of the learners.

Gould (2015) explained that the paramount occurrence in a child-centred classroom is the involvement of students. When one visits a classroom and appraises an instruction, one is observing the children and trying to evaluate how they are involved in the lesson. This is in agreement with the use of animation where the learners will be engaged in discussion of videos that are seen in order to make meaning out of it.

According to Gould (2015), the teacher has moved out of the heart of teaching and, should carry on to do so. In child-centred education, children are at the heart of everything. This is what the use of animation as a pedagogic

tool seems to do where learners will be engaged in group works to discuss what they have seen in the video.

There is still a whole repertoire of experiences learners must have which are critically needed to equip them with such skills as communication, both written and oral, leadership, critical thinking, problem-solving, creativity, and interacting within a varied environment. This is because hi-tech communication has made world smaller and we are able to interact with all skills of people from different backgrounds and all walks of the globe. Communication has plainly become more of an essential commercial skill in the 21st century workplace (Gould, 2015).

Owu-Ewie (2008) explained that learners need to be taught in a way that he or she will be an active contributor in the teaching and learning process and be able to think for himself or herself. This can be done by teachers who have been trained to own and execute such skills". It was found that the skills in innovative teaching are lacking hence the need for training teachers in using animation to teach in their various classrooms (Kwasu, 2015). This is because animation permits data to be presented with audio-visual techniques in more ingenious ways which facilitates the motivation of learners' and sustain their interest which is very beneficial to on-line learners. This makes them develop vivid mental pictures and imagery of what they have studied by this method (Lucas &Rahim, 2015).

According to Atta, Agyenim-Boateng and Baafi-Frimpong (2000), orientation to teaching in pedagogic tool must be child-centred. The teacher provides teaching and learning resources for the child to interact with so as to expand his or her experience and to solve problems. This means that the child

turns out to be the most significant factor in teaching and learning process. Accordingly, when the RME teacher uses animation to teach, it will promote enthusiasm, motivation, understanding and interaction among learners in the classroom.

According to Tamakloe, Amedahe and Atta (1996), audio-visual resources must be able to help promote learner's clear and accurate concepts. Audio-visual resources should endeavour to reduce verbalism and promote learning which is lasting. They succeed in directing learners' interest and promote learners' active participation in the in the teaching and learning process. Visual media should be able to stimulate self- activity on the part of the learner which will help learners recall concepts and ideas and rubrics all in a collective attempt to scaffold a learner's absorption and measure the said development as the child carries on to grow in his or her ability to solve problems independently. This indicates that animation as a pedagogic tool which is in a form of visual media experience will help learners to participate fully in the lesson and as a result remember what they have learnt for a long time.

According to Assiedu-Kottwi and Duah (2008), child-centred education has numerous benefits. These include:

1. The potentials of the learners are developed. In child-centred education, the individuality of the learners are recognised and respected by teachers who also encourage them. With this learners get satisfaction as they feel the significance of their efforts.
2. Children do not get bored in school where child-centred education is practised. This is because children are provided with numerous

teaching and learning resources which provide them with different and interesting activities to perform in the classroom. For instance learners are given the opportunity to think and express themselves during activities.

3. Child-centred education makes school learning enjoyable which causes learners to be punctual and regular at school. As new material are brought to teach it stimulates their natural curiosity since the learning environment is always conducive.
4. Child-centred education promotes quality social and leadership skills. Learners get several opportunities to interact among themselves, establish and maintain friendship, maintain tolerance as well as leadership skills.
5. Learners also participate very well in the lesson thereby promoting better understanding of the subject matter.
6. Child-centred education also promotes creativity and initiative in learners as they learn at their own pace. This tends to promote self-confidence in learners.

The use of animation in teaching can help teachers use new methods in teaching. It can also help teachers to blend new methods with the old ones. Animation is a great tool to present abstract and difficult concepts because it can illustrate concepts in entertaining, motivating and informative way. The reason why animation does not play a significant part in the teaching methods is the lack of pedagogical training of the teachers. The training should equip the teachers with required basic concepts and insight in use of animation

which makes them to feel comfortable and secure about using moving pictures in their teaching (Pedersen & Villekold, 2005).

According to Sruthi (2015), to make the students engage in the process of learning, the teacher should use manipulative items that can capture the attention of the students. Animated videos capture the interest and attention. The usual appeal of this technique is so captivating that the joy of learning makes learners grasp concepts easily. It is a well-known fact that parents are having challenges in controlling their children watching the television (TV). Children can spend a whole day watching cartoons on TV. If teachers can incorporate animation in their teaching, it will help capture the attention of the learners.

Teachers who have complex information which is difficult to teach can make use of animation videos to teach the concept. If the teacher does not adopt the visual appeal of this method to enable the learners observe the ideas and concepts it will be difficult for them to understand. The teacher's ready-made tool is the use of animation videos which is readily available through Animaker, which can easily help water down seemingly complex ideas through simple animations (Sruthi, 2015).

Again, students do not do their homework as they find it uninteresting. They simply lift it verbatim from the textbook. It is not a learning situation. The teacher must give them interesting animated video assignments. For a more purposeful learning, students should be given animated videos assignments that will give them joy as they learn and then find solutions to their assignments. This will make them read and importantly imbibe the facts and at it, solve their exercises well.

According to Sruthi (2015), animation makes learners develop decent moral attitude and social behaviour while interacting among themselves. This application can help the teacher create an emotionally moving didactic (morality) tale to teach such lessons to his or her students. It will help the students develop a high sense of decorum and responsibility which will make them more acceptable in society. In this manner, the teacher shows them the way they learn.

Animation helps develop communication skills. Animation is a vivid and profound new technique to make learners use their interactive skills ideas and concepts in an authentic and unique way and its capacity to help students develop their own original and creative skills. Animation is a solution to the problems of those learners who find spelling and grammar difficult because instead of the technicalities involved they just concentrate rather on the story.

According to Hesseltine (2016), the use of animation in the classroom calls for organising group work which helps even the introvert to contribute to the development of the lesson. The teacher in this case acts as a facilitator in the classroom. The teacher must however, be alert otherwise the students will just make fun of the whole lesson. Animation can be used to promote self-expression in the classroom. In some schools the fine arts, for instance, drawing and painting are fused to help the students develop the skills of self-expression and animation videos enhance their enjoyment.

The medium of animation can be gainfully used in any field of study, both in class and for other assignments. This is because it makes all forms of ideas and concepts come alive easily in both audio-visual forms (Brain, 2012).

This can be a very effective strategy when we have effective power system in our schools to operate the machines and view the clips.

The ways in which the use of animation in teaching RME is in line with the National Teachers' Standards (NTS)

MoE (2017) had set a standard for all teachers in the country in the National Teachers' Standards (NTS).

Teacher education in Ghana aims to prepare teachers imbued with professional skills, attitudes and values as well as the spirit of inquiry, innovation and creativity that will enable them to adapt to changing conditions. This implies that teachers need to adopt creative methods of teaching that will help learners to learn.

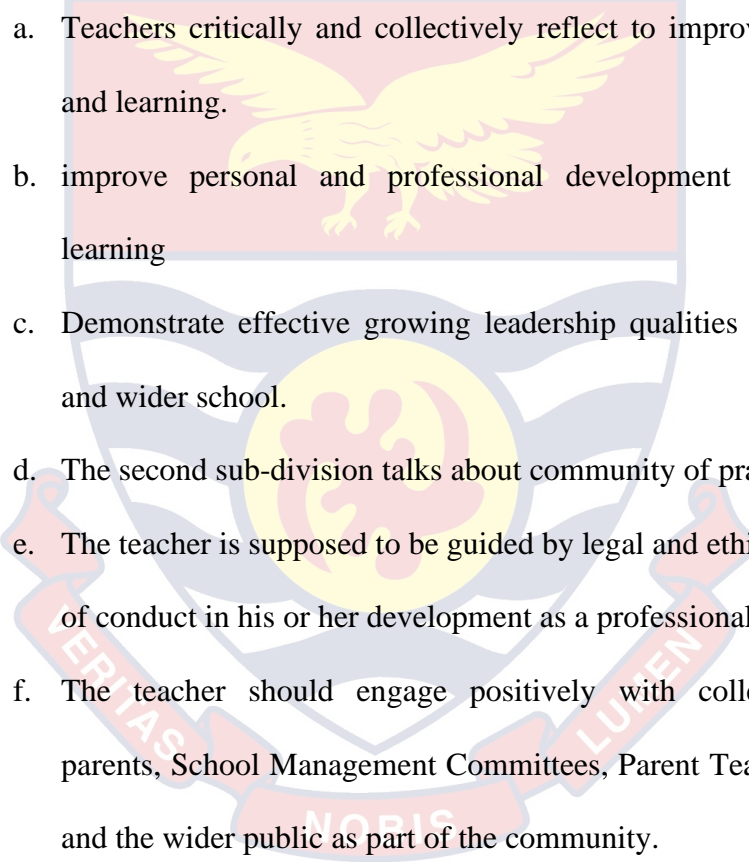
Universities and Colleges of Education must ensure that the design and content of their pre-service programmes and their delivery allow students teachers to be successfully assessed against the Standards by the end of their period of training. This will particularly be relevant for the school practicum component that must provide extended and guided periods of teaching in the actual classrooms.

District Education Directors, Circuit Supervisors, Teacher Unions, headteachers and Mentors in schools will need to use the Teachers' Standard as a guide to inform their work which will serve as a common point of reference.

According to MoE (2017), the stakeholders who were involved in the preparation of the National Teachers' Standards include: The National Teaching Council (NTC), National Council for Tertiary Education (NCTE), National Accreditations Board (NAB), Ghana Education Service (GES),

National Council for Curriculum and Assessment (NaCCA), National Inspectorate Board (NIB), Principals of Colleges of Education, Teacher Unions and Teacher Education and Universities (UCC and UEW). The standards are divided into three main domains, each with its own sub-divisions.

The first domain is Professional Values and Attitudes. The first sub-division talks about Professional Development. This is explained as:

- 
- a. Teachers critically and collectively reflect to improve upon teaching and learning.
 - b. improve personal and professional development through lifelong learning
 - c. Demonstrate effective growing leadership qualities in the classroom and wider school.
 - d. The second sub-division talks about community of practice.
 - e. The teacher is supposed to be guided by legal and ethical teacher codes of conduct in his or her development as a professional teacher.
 - f. The teacher should engage positively with colleagues, learners, parents, School Management Committees, Parent Teacher Association and the wider public as part of the community.
 - g. The teacher acts as good role model and sees his or her role as a potential agent of change for the children in the school, community and country.
 - h. Sees his or her role as potential agent of change in the school, community and country.

The second pillar discusses Professional Knowledge of the teacher. This is sub- divided into knowledge of the education framework and curriculum and knowledge of students. Concerning knowledge of education framework and curriculum, the teacher must:

- a. Demonstrate familiarity with the educational system and the policies guiding it.
- b. The teacher should have comprehensive knowledge of the official school curriculum, including learning outcomes.
- c. He or she should secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and the class they teach.
- d. At the pre-primary and primary levels the teacher knows the curriculum for the years appropriate to multigrade classes, has good knowledge of how to teach beginning reading and numeracy and speaking, listening, reading and writing and to use at least one Ghanaian language as a medium of instruction.
- e. Knowledge of students is about the teacher understanding how children develop and learn in diverse contexts and apply this in his or her teaching.
- f. Again the teacher should take account of and respect learners' cultural, linguistic, socio-economic and educational background in planning and teaching.

The third pillar is about Professional Practice. This is subdivided into Managing the Learning Environment, Teaching and Learning and Assessment.

In managing the learning environment, the teacher should:

- a. Plan and deliver varied and challenging lessons, showing a clear grasp of the intended outcomes of their teaching.
- b. Carries out small scale action research to improve practice.
- c. Create a safe, encouraging learning environment.
- d. Manage behaviour and learning with small and large classes.

In Teaching and Learning the teacher should:

- e. Employ various instructional techniques that motivate learners' participation and critical thinking.
- f. Pay attention to all learners especially girls and special needs learners ensuring their progress.
- g. Employ instructional strategies appropriate for mixed ability, multilingual and multi-age classes.
- h. Sets meaningful tasks that encourages learner collaboration and leads to purposeful learning.
- i. Explain concepts clearly using examples which are familiar to students.
- j. Produces and uses a variety of teaching and learning resources including ICT to enhance learning.

The third sub-division talks about assessment. In this, the teacher should:

- k. Integrate a variety of assessment modes into teaching to support learning.
- l. Listen to learners and give constructive feedback.
- m. Identify and remedy learners' difficulties or misconceptions, referring learners whose difficulty lie outside the competence of the teacher.

- n. Keep meaningful records of every learner and communicate progress clearly to parents and learners.
- o. Demonstrate awareness of national and school learning outcomes of learners.
- p. Uses objective criterion referencing to assess learners.

It was clear from the NTS that all teacher training institutions are to use this document as a guideline so that there will be uniformity in training of teachers for the country. This means that the behaviour of the Ghanaian teachers both inside and outside the classroom must be guided by this document.

According to Amjad (2018), the first purpose of animation in education is to help learners retain and recall what has been taught. In this regard, animations are useful in developing students' mental faculties that by and large leads them to new concepts that are taught.

According to Mayer (2001), in general, verbal modes of presentation have subjugated the way we convey ideas to one another and verbal learning has dominated education. In the same way, verbal learning has been the main determinate of educational research. This could be as a result of inadequate funds to buy the equipment, no skills in using the computers by the teachers or lack of electricity to power the equipment in teaching. In the wake of the current production stronger computer picture clarification and visualization technologies, instructors have the ability to complement verbal modes of education with pictorial modes of instruction. Improvements in computer technology have enabled an explosion in the accessibility of visual ways of presenting material.

Tamakloe, Amedahe & Atta (2005) documented that the use of audio-visual resources is still found in many teaching and learning situations. This includes the use of slide projector or film strip with running commentaries or explanations from the teacher, the television and cinematograph. The cinematograph has been the most widely used. This means that with the advancement in technology the teacher can use computers to develop animation to teach various topics in the curriculum.

When learners see the steps described in words and see the steps portrayed in the animation learners academic performance progresses. When words and pictures are presented together as in a narrated animation, students perform well both on remembering and transfer tests. Teachers are found of setting most of their objectives to cover lower level learning, a situation that will not help us to progress. However, with the current study, the use of animation will enhance the learner's ability to apply the knowledge in real life situation.

The auditory channel converts data that is heard, and the sense of sight examines information that is seen. The visual channel retains more information than the auditory channel if both the visual and auditory channels are presented with information, more knowledge is retained. However, if too much information is delivered it is inadequately processed, and long term memory is not acquired. Multimedia learning seeks to give instructors the ability to arouse both the visual and auditory channels of the learner, resulting in better progress (Mayer 2001, p. 4).

According to Balm (2014), we have all often over-used expression that can explain so many words. However, this substantive importance in using

images to provoke scientific thought. Images aid us learn, images grab attention, images explain challenging concepts, and stimulate. Colours that brilliant usually catch our attention more because our brains are naturally made to react to them. Our sense of sight is most notably our most energetic of the senses, and relates very much to how vibrant images are in our lives an illustration accompanied with images is many times more likely to be understood. Visuals are one way of catching an audience's attention and promoting interaction. This implies that animation as a teaching/learning resource will promote better explanation of concepts in RME where videos will be shown to the learners. Balm (2014) is of the view that images help educate in a world where we are bombarded by several impetus since we always prefer a stress-free and most effortless way of finding out and assimilating information. Reading is usually seen as an awkward and a long process of obtaining knowledge. Balm is of the view that images help articulate a story. On many occasions scientific findings, even the important ones, do not seem to charm us as individuals. It is because of the way we are taught. Images aid us participate. With picture, we are more likely to show a most appropriate reaction in scene than remaining on the side-lines of the lesson. The images help us to get more involved in the storytelling process that can make science more appealing. This is in agreement with Kuusangyele's (2013) finding when she developed stories for teaching science. However, the design and use of animation to teach RME was not found in the literature. Therefore it will be developed and used in the classroom.

Moll (2018) identified that any good teacher should be conscious of the fact that each student assimilates information differently. These are:

Visual Learners: Visual Learners need to see pictures and graphs to visualize. According to Weitz (2015), animation improves the learner's ability to imbibe some complex dimensional processes and theoretical concepts that change over time and space. Animation has been hired in teaching complex classifications. This means that animation can be used to teach complex concepts in Religious and Moral Education as well.

In the view of Moll (2018) almost 65 per cent of the population are visual learners, so it is probable there will be numerous of them in a particular classroom. Visual learners are frequently called spatial learners and, naturally, learn and recollect best through visual communication.

Learners who depend on the sense of sight are best to recall images they see such as pictures, diagrams, flow charts, time lines, films and demonstrations, this means that using a whiteboard, projecting maps and images, or showing photos of one's ideas work best. Visual learners have a great special sense, which makes them good with map reading and blessed with a strong sense of direction. They can easily visualize objects, so putting together a living room table is simple for them when presented with a diagram of how the parts fit. However, in most schools, very little visual information is presented (Brown et al. 2015, p, 99)

Moll (2018) noted that visual learners may also be drawing on paper or jotting notes. Learners who depend mostly on sight are generally prone to dress up well and enjoy just looking at the display of colours. Their colleagues can sometimes understand their style of learning. Photographic learners are

often particularly creative can get involved in design, photography, architecture, or professions that demand a good sense of direction and planning. This is in line with animation where the designer needs to be creative so that whatever movies are created should be in line with the objectives of the lesson. This will be verified during the data collection.

Moll (2018) mentioned that the teacher can instruct a visual learner by using pictures. He maintains that the teacher should not speak at the speed of light and think that learners will follow his or her idea. Instead, the teacher should use maps, images, pictures, diagrams and mind maps using colours and pictures in place of text, where possible. A teacher should remember that a visual learner is not trying to disobey his or her orders or blow off ideas. They may just be having a difficulty getting the message to go down in if they fail to answer words alone. However, the pictures should not be too many otherwise it will confuse the learners.

Auditory learners are those who need to hear the information. Thirty per cent of the population consists of auditory learners, who learn best through hearing. While many of their classmates fight to get through a prolonged lecture, an auditory learner will saturate the information they hear and recall all that is said. One should be careful if one finds himself/herself in a relationship with a person who learns through hearing, as they shall recall every last detail in a discussion or in an argument (Moll, 2018)

Moll (2018) indicated that tactile/kinaesthetic learners learn best through concrete experience. This means that for learning to be meaningful and understandable, learners need to be involved in the lesson. That is way child-centred education is now gaining currency. Kinaesthetic Learners are

ones who usually have to be involved in activities that are designed by the teacher to help them understand a concept. These characteristics still remain with them when they graduate from school; they are existing in every profession one finds himself or herself and works with.

Alella (2013) noted that recent studies have shown that even though there seems to be a distinctive feature in the grouping of children, they tend to indicate variations in their preference for learning as they grow through the stages of physical and psychological needs. Their choices of different stages also tend to overlap. Alella found that at a younger age of about 4 years, the pre-school child is able to recall activities of instruction that he or she sees well than when it is merely told by a narrator. This rather disappears in children who are 7 years old and who can give explanations on their own when involved in audio-visual lesson presentations than when they are taught verbally alone. They are also able to recall conversations better.

Academic and Professional Qualifications of RME Teachers

Teaching RME which is a controversial subject in itself, a highly sensitive and at times political, needs well-trained teachers who can teach the subject well (Matemba, 2011). This means that all belief systems in the various religions are not the same therefore RME teachers must be well trained so as not to indoctrinate learners.

According to Agyeman (as cited in Ankuma, 2007), the teaching profession is a productive activity which requires rigid training intellectually to give specialist knowledge to an individual who can provide specific skilled service to clients who need such service for a stated fee. Adentwi (2002) sees the profession as a type of career that needs higher education and training.

Farrant (1998) noted that a profession is calling that one has for an occupation that provides a specialized service to the clients for which one undergoes prolonged training and knowledge with skills and wisdom. A profession must have a regulatory body that controls the entry qualification and work ethics and administers this oath. According to Adentwi (2002), Medicine as a profession is better organized than the teaching profession. Hallak (as cited in Adedeji & Owoeye, 1998) highlighted that the quality of education is dependent on the academic and professional proficiency of teachers. If the profession is to prosper in its efforts it has to employ persons with high expertise, then the colleges of education must offer the conditions which will make honestly effective teaching possible. The quality of teaching staff is perhaps the most significant factor in educating learners at all levels.

Durojaiye and Fuller (as cited in Adedeji & Owoeye, 1998) asked “whether teachers’ qualification in terms of post-secondary teacher training can be associated with the teacher expertise in delivering instruction and motivation” (p. 37). What is being echoed from the authorities is that teacher education must be thorough so that they can be proficient in teaching.

Allport and Oldbert (as cited in Malikow, 2005) reported that teachers are born. In other words, personalities have a genetic constituent which can make them teach successfully. However, Malikow (2005) was of the view that nobody can be considered as a naturally endowed to become a teacher but there is the potential that some people can utilise their talents and skills to develop the flair for teaching. Additionally, these personality features have been augmented by a lifetime of positive development. Still, even the most hereditarily blessed teacher would profit from a teacher education programme.

According to Malikow (2005), Socrates and Jesus would certainly query the content of teacher education programmes. Essentially the reverse is true. The assumption that a teacher's efficiency will expand over time with repetition is an unconfirmed supposition. Teacher education offers improvement by retraining teachers to be able to devise their own plans for instruction and to be able to reappraise their classroom teaching methods and outcomes. The duplication of ineffective teaching leads to entrenchments in bad repetition, not improvement. While it is likely that lecturers will progress with repetition and research in their discipline, teaching comprises more than lecturing. Surely, primary and secondary school teachers are not lecturers.

Tamakloe, Amedahe and Atta (1996) maintained that teaching is a science for which reason there is a whole gamut of organised procedures on Teaching Methodology, Human Development and Human Learning or Educational Psychology. These thoughts and philosophies were obtained through scientific investigations which were created into theoretical blueprints. A thorough training is the only means for which a good teacher to have access to such knowledge. Teaching is therefore both an art and a science. It is in line with these assertions that I want to find out how teachers are designing and using animation in teaching.

The professional aspect of the teacher training programme cannot be over-emphasized. The acquisition of pedagogies therefore occupies an exceptional place in teacher training, for it is the approach by which teachers can teach well. Quality RME teaching can be definite if teachers are well-versed in the pedagogical skills and qualities which they need for resounding instruction.

Religious and Moral Education teacher trainees just like other teachers should of necessity possess an in-depth subject content knowledge that should be relevant to their lessons outputs in the classroom after their training. Dinama (2013) found that the present RME curriculum in Botswana consists of many religions as its content, but teachers lack the professional methodological skills which created difficulties for them when teaching the lessons. Teachers' pedagogical knowledge found to be inadequate because they do not know which pedagogies to use when they want to teach various topics. It is true that some teachers did not pursue RME as their elective course, hence are handicapped in its pedagogic tool. When it comes to actual teaching, they are found wanting.

Farrant (1980) noted that some teachers become stuck in the old ways and methods of teaching after completing their professional training without any seminars and workshops to modernize their skills in teaching. This could mean that teachers will continue to teach with outmoded procedures and techniques without being current with new innovations in teaching. Citizens in general have expressed displeasure about the way teachers are being trained in the country. Their beef is that a lot of our teachers lack acceptable qualities of efficiency and perform poorly in the field. Pecku (1998) noted that the prevailing methodologies have come to be seen as not being that effective so as to make pupils' learning in the basic schools a satisfactory one. This could be one of the reasons why some teachers are deficient in the use of technology in teaching RME.

Teacher professional qualities

Awuah and Afriyie (2006) indicated that RME teachers should possess good teaching qualities so that they can perform adequately in the preparation of students in both religious and moral training. Those qualities, correctly utilized, will enable learners make informed choices and decisions in life. These qualities include respect, responsibility, care, integrity, resilience harmony, kindness, honesty, self- control, self-confidence etc. as professionals. Qualities of the teacher such as patience, being fair and firm, having a good sense of humour, initiative, being confident, democratic and understanding were also identified (Atta, Agyenim-Boateng and Baafi-Frimpong, 2000). These finer virtues and qualities need to be owned by the RME teacher so that he or she can communicate well with both the staff and his learners.

Suitable teaching behaviours will enable us differentiate effective teachers from mediocre ones, and through that the greatness of the effect of the differences on learners can be determined. Some of these teaching behaviours in RME include being unprejudiced that is not being bias, in terms of religious positions or inclinations.

According to Awuah and Afriyie (2006), the RME teacher is also expected to bracket his or her faith and not announce it to influence his or her teaching (*epoché*). The RME teacher must also hang up value judgment in his or her teaching. During the course of teaching, the teacher is not expected to be judgmental of any religious denomination because the likelihood is that whatever they say could be imbibed by the pupils Also, *eidetic* vision which

aims at understanding essential structures (the six dimensions of religion) and connotation of those structures should be made use of (Smart, 1968).

Teachers acquire these qualities in college, but some of them do not do precisely what they are taught. It is often said that knowing something does not warrant the ability to act upon the knowledge. This means that there is a difference between knowing and doing.

The RME teacher should be an outstanding communicator so that he or she can exhibit the ability to reach out to his or her learners. The choice of words should be simple and clear. Under no conditions should the teacher speak above the level of his or her learners or use vernacular that is not understood by all members of the class (Awuah & Afriyie, 2006).

Bannerman-Mensah (2008), noted that the major cause of learners' inability to speak English correctly could be due to lack of qualified teachers in the basic schools. This assertion could mean that the academic and professional preparations of teachers are not adequate. If the learners cannot express themselves in English, it means they will be handicapped in discussing animation videos when teaching RME.

Academic qualities

The understanding of content is pivotal for any teacher who is mindful of his or her job of affecting learning in learners. For one thing, no one can teach without mastering the subject matter content. The teacher who knows his or her subject matter content equips the learner with the confidence that radiates from him or her (Awuah & Afriyie, 2006). That is exactly what is expected of the RME teachers. The teacher must understand the peculiar nature of the subject and fuse the cognitive and affective domains effectively.

Teachers should get good grounding of RME as a discipline. To do this, they are expected to read books, articles, modern translations of the Bible with commentaries, Quran and teachers' handbooks. It is also a fundamental requirement that RME teachers are academically prepared to use the RME curriculum effectively (Awuah & Afriyie, 2006). It will be excellent if Colleges of Education can use the basic school curriculum to educate the teachers so that they can improve upon their teaching.

According to Awuah and Afriyie (2006), the teacher must know more than his or her learners therefore the RME teacher must continue to learn. He or she should know the important changes in various religions and societies since religion is limited to time and space and society is dynamic. When the RME teacher updates his or her knowledge, it will enable him or her answer learners' questions. Adentwi (2002) also notes that teachers must have good in-depth knowledge of the topics they treat in the classroom, and own good class management skills and must serve as paragons of intellectual excellence.

This means that the RME teacher who has deficiencies in the background to the subject will indulged in interpreting classroom events according to commonly held ideas by passing value judgment and transferring his or her faith to the classroom to create unappreciative atmosphere in the classroom.

It is therefore mandatory on the RME teacher to have adequate theoretical knowledge about learning and human behaviour to equip him or her to draw knowledge in psychology, philosophy, sociology, test and measurement, classroom management and related disciplines to understand the complex reality of the classroom.

Awuah and Afriyie (2006) stated that RME teachers should join academic associations in their area of specialization or join others at workshops where their knowledge of methods and content of discipline is updated. RME teachers should also contribute articles in journals or publish small books or monographs to publicize ideas. This will equip them with knowledge in order to teach the discipline well.

An RME teacher should have a sense of humour. That is, he or she should be friendly, pleasant and cheerful to learners and his or her fellow teachers. Humour is something we do not purchase, but it is difficult to acquire. Humour links the teacher and the learners through enjoyment, keeps learners alive and attentive and relaxes classroom tension which enhances the teaching and learning process (Awuah & Afriyie, 2006). Also, Atta, Agyenim-Boateng and Baafi-Frimpong (2000), pointed out that a good teacher must be cheerful, pleasant and friendly to learners and his fellow teachers. However, I think that a teacher must side-step being a “funny man” or comedian else the learners will not take him or her seriously and that will lead to wasting learners’ precious instructional time. Humour must be used beneficially and not harmfully. Also it must be judiciously used during teaching.

The concept of teaching RME

Religious and Moral Education (RME) is an academic discipline that incorporates Religion, Morality and Education. The subject seeks to reinforce the type of religious and moral training that people obtain from home. It deals with both religious and non-religious or secular issues (Asare-Danso, 2011).

According to Asare-Danso (2015), the term “Religion” comes from the Latin word ‘relegere’ which suggests gathering together, to pay heed or

observe. The term “religion” also comes from two words “re” and “ligari”. “Re” is a prefix meaning return and “ligari” means to bind. Religion therefore is an obligatory relationship between humans and Divine (God).

Adarkwah (2004) specified that many scholars who tried to define the term, “Religion” come from different disciplines such as psychology, sociology, anthropology, theology, mythology etc. As a result, we come across diverse definitions of religion. None of the definitions is universally acceptable.

Some attempted definitions include:

1. Max (as cited in Awuah & Afriyie, 2006): religion is the opium of the masses.
2. Sigmund Freud (as cited in Awuah & Afriyie, 2006): religion is mass neurosis.
3. Otto (as cited in Awuah & Afriyie, 2006): religion is the feeling of the presence of ‘wholly order’.
4. Tylor (as cited in Awuah & Afriyie, 2006): religion is belief in spiritual beings.
5. Durkheim (as cited in Awuah & Afriyie, 2006): religion is a unifying system (a set of) of beliefs and practices relative to the sacred.
6. Kant (as cited in Awuah & Afriyie, 2006): religion is the recognition of all duties as divine command.
7. Smart (as cited in Awuah & Afriyie, 2006): religion is the study of the six dimensions of religion. These dimensions are: social dimension which deals with various groupings in a particular religion, with their responsibilities; the ritual dimension which talks about outward expression. Others are prayer, worship, festivals, sacrifice etc.; the

experiential dimension deals with how people experience their God e.g. Paul's Damascus Road Encounter. The next one is the doctrinal dimension which talks about various belief systems. Mythical dimension discusses origin of certain things e.g. birth, death, creation etc. Lastly, the ethical dimension involves practitioners of a religion putting up socially conduct.

Asare-Danso, Annobil, Afriyie and Agyeman (2015) maintained that religion is said to be hierocentric as well as anthropocentric because it relates human beings to the supernatural. Hierocentric means that religion is spirit centred or sacred centred. Anthropocentric means that it is human centred because it is human beings who organize to practice religion.

The three central characteristics of religion are creed, code and cult. The creed consist of faith of the worshipers, faith is therefore the charter of one's philosophy in life e.g. Christians' apostles creed, Muslims' Shahada and traditionalists believe in God, gods and ancestors. The code talks about teachings, values or rules that guide believers' behaviour. Cult is the practical aspect of the religion which includes prayer, sacrifice, praises and thanksgiving.

Morality which comes from the Latin word "mores" depicts the goodness or badness of a human action. Societies have set or established standards or moral code by which behaviour or human conduct is judged. Examples are truthfulness, obedience, hospitality, tolerance, gratitude, kindness, communalism, forgiveness, goodness, loyalty etc.

There is moral philosophy of 'Deontology' and 'Teleology'. 'Deontology' denotes ethics of rights as against ethics of good. For example it

is right for a patient to refuse to go to hospital because of his religious doctrines. ‘Teleology’ deals with ethics of good as against ethics of right. For instance, it will have been good for the patient to attend hospital in order to save his or her life (Asare-Danso, Annobil, Afriyie & Agyeman, 2015).

The term “education” as said by Peters (1966), is initiating young people into what is worthwhile. Education is a process that makes available to all young people experiences which are educationally worthwhile.

Peters’ definition implies that education should make modification in a person’s life and that difference should be necessary. Education necessitates knowledge and understanding which should expand the child’s cognitive outlook in a unique way. Finally, education should promote preparedness and voluntariness on the part of the learner.

Education has some characteristics. These characteristics include the following: education should bring needed change in people’s behaviour; necessitates acquisition of knowledge which is worthwhile; a level of understanding; freedom to function; help people to make correct choices, and effective communication etc.

Teaching involves the art of disseminating what the teacher knows including giving learners’ new skills and ideas with mores of society. This means bringing out new scenarios that will make it possible for the learners to develop the enthusiasm and desire to learn (Tamakloe, Amedahe & Atta, 1996). Walking (1982) reported that teachers must be energetic about the subject being taught, be a showman, be knowledgeable and create a warm friendly atmosphere. He insists that efforts should be made to create rapport. The teacher should make the learners aware that he or she is part of them

trying to help them. The teacher should not be too acquainted with the learners, for familiarity raises contempt and disrespect. A welcoming democratic style usually produces more work and better attitudes.

Walking (1982), noted that learners expect the teacher to be the subject expert and a fountain of knowledge, (one who really knows his or her stuff). Therefore the teacher should not be glued to his or her lesson plan. It is the best way to use “chalk-and-talk” when delivering a lesson. Walking enumerates various skills which the teacher needs to possess. They include: selecting, planning, organizing and controlling activity,

1. interpreting the curriculum,
2. defining the objectives,
3. knowing his subject,
4. knowing his learners’ capabilities,
5. being able to motivate his class,
6. maintaining attention,
7. using audio-visual aids where appropriate,
8. ensuring that learners have practical experience upon which he can base new concepts,
9. using appropriate language and terminology,
10. being able to use audible voice,
11. encouraging learners to talk by prompting and using questioning techniques,
12. providing feedback, knowledge of results and reinforcement,
13. expressing approval and practice or reward rather than punish,
14. being able to maintain control of the class and maintain discipline,

15. a teacher should be aware of learner needs to:

(a) succeed (b) perform a task well (c) take an active part in group activities (d) compete with others (e) make progress (f) satisfy curiosity (g) obtain gratification from classroom interpretation.

According to Chauhan (1979), “The relationship between learners and their teacher is an essential factor in the teaching process and must be considered a significant aspect of methodology” (p. 141). This means that good relationship between the teacher and the pupils should be considered as a pedagogic strategy. This should neither be too formal nor too cordial as it may have adverse effects on learning. It is to be noted that the teacher should not limit his or her teaching to one method, as this will not satisfy all the learners.

Halldis and Tove (2004) indicated that “Experiential Curriculum” is how the learners experience the teaching in the classroom, and what they actually learn. This issue has to do with the kind of understanding learners bring to bear upon instruction in RME so that learners can participate fully in the lesson. This is in line with the use of animation as a pedagogic tool to teach RME.

Farrant (1980), identified some professional skills that a teacher can demonstrate in various classroom situations in order to achieve the goals of RME. Good teachers should be able to:

- a. establish a creative conditions from the beginning through a well thought-out and proper planning of the procedure,
- b. use friendly humour and generate good teacher-pupil relations,
- c. fashion specific kind of climate for different lessons,
- d. workout good class mechanism and discipline,

- e. give praise charitably to learners,
- f. use learners accepted wisdom as much as possible,
- g. teaches with enthusiasm with no sign of nervous strain,
- h. explain concepts to learners undoubtedly,
- i. embrace multiplicity of learners' activity in his or her lesson,
- j. nip problems in the bud before they get out of hand,
- k. Not over-react to learners' misconduct, but use suitable punishment.

The use of various methodologies in teaching RME

Anti and Anum (2015) were of the view that we need to pay special attention to RME teacher's interaction with the learner, the way they instil mutual respect and trust in the learners. The RME teacher in this respect acts as a cultivator and nurturer of behaviours. This dimension of teaching calls for the use of animation video to make teaching interactive. This approach opens up the teaching process to humanistic possibilities which involve personal encounters and face -to-face interactions using entire learners' experiences as foundations for teaching. This reveals that the RME teacher can use animation as pedagogic tool so that learners can all contribute to the development of the lesson.

Effective teaching methods embrace the use of different approaches which include group teaching, individualised teaching, cooperative learning and incorporating audio visual resources in teaching. This means that a teacher must be well grounded in the various techniques so as to enable him or her to integrate various methods in teaching in order to care for individual differences in the classroom (National College for Teaching and Leadership [NCTL], 2012).

Fianu (2002) indicated that methods are ways of doing something. Methods of teaching refer to the various procedures or provisions that lead to diverse interaction between the teacher and his or her learners. “Teaching method” is the extensive use of the laid down norms, methods of presenting lessons and techniques of controlling learners and material that are required for good classroom tuition (Tamakloe, Amedahe & Atta, 1996). A teacher’s pedagogical skills are determined by not only the schools’ serving purpose but also the physical situations, the subjects to be taught as well as its mission statement.

Discussion method of teaching

Discussions is a method of teaching where the teacher introduces the topic and invites views of learners and gets them involved in the development of the lesson. This provides opportunities for learners to discuss ideas, issues and things planned for the lesson. Discussion is used in conjunction with other teaching methods. This implies that animation videos can be shown to learners after that they are put into groups to discuss issues in the video (Assiedu-Kottwi & Duah, 2005). Different forms of discussions that can be identified include: Small Groups, Buzz Groups, Open Questioning, Talking Circle / Word Wheels, Talk Around / Go Around, Talking Tickets, Talking Stick and Think-Pair-Share (Zvavanhu, 2010).

According to Agyeman, Assiedu-Kottwi and Duah (2005), jigsaw includes the formation of groups with five (5) members each. Each member is allocated a number (i.e. 1, 2, 3, 4, and 5) and given a unique task or material to learn and teach his or her group members. Learners bearing the same number and the same learning tasks meet as a sub group to learn the topic

together, planning on what to teach and how to teach effectively. After this, the “experts” return to their original groups to teach their members as anticipated. The entire class is then evaluated on all areas given for study.

Project method

Akubue (1992) clarified that the originator of project method of teaching was John Dewey and his followers, especially William Head Kilpatric. They felt that classroom learning had become rather bookish and had little bearing on real life’s problems. Dewey felt that this was responsible for the lack of interest, the passive nature of students and root of most indiscipline in the classroom. When learners are heavily involved in project method, the result is something we can see. This agrees with Dewey’s finding that learning is more effective when it is directed to producing some tangible results.

The major feature of the project method is that the learners accept to work on assignment independently and to complete it with the teacher coming to offer help when necessary. Children do their own planning, collect their own information and materials, evaluate them and produce the final product (freedom).

Project method of teaching implied that after learners have seen the animation videos, they can be put into groups to do any project they have seen in the video.

Field trips

Field trips which can be used as a technique to teach religious and moral education by taken students out to a particular place to obtain on-the – sport information about a particular topic (Chidi, 2013). Usually, it is followed

by meeting to analyse observations. For example, learners can be taken to a chief's palace to observe symbols they are going to learn about or have seen in the animation video.

Lecture method

According to Knowles (1980), the lecture method is a way of teaching by which conveys information to learners as the teacher teaches, for example, introducing a new topic or relate the new material to the content that has been taught before. The lecture method in teaching religious education has the disadvantages of making the students just docile learners since without necessary making any practical impute or participation in the lesson by way of using any skills. Otame (2009) advised that the lecture methods are not appropriate for developing minds, learners at the basic levels are to be stimulated to develop their minds and these can be done through the way they are instructed. Yet, Smith (2002) believed that the teachers have the ability to enhance topics which the learners are interested in. This will make the class be animated and interesting. Pilling-Cormick (1997) emphasized that if teachers can make use of the interest of students it will enable the teachers to derive maximum benefit from their natural talents so that the topics to be treated are adequately covered. This often makes the classroom experience very satisfactory for students.

Demonstration

Smith (2002) clarified that demonstration as an instructional method in teaching religious education in Adult Education uses action and words in such a manner that depicts the actual information or message that is meant to be conveyed. The teacher's verbal clarification and demonstration are usually

followed by a replication of the action by the learners on their own. For example, after treating Jesus' teaching of the beatitudes, the learners can go and demonstrate them. Animation videos can also be added to concretise what has been demonstrated by the teacher.

Questioning

Malik and Rukhsana (2013) discussed that some educationists draw interpretations about the role of the teacher from various principles of humanistic philosophy and found out that their teaching style is very close to the Socratic Method. The concept of questioning involves soliciting verbal or non-verbal response or reaction from learners. This done through asking students specific questions with regard to the topic being taught and expecting them to respond to them or students asking questions with regard to the topic being taught and expecting response from the teacher. Effective teaching involves good questioning. This is because the type and arrangement of questions in a lesson and the feedback from learners affects the level of interaction between the teacher and the learner and contributes in no small way to the effectiveness of the teaching and learning process in the classroom.

According to Akubue (1992), questions should be asked at the beginning of the lesson. This tests the previous knowledge of the children and to enlighten the teacher as to what knowledge the children possess. Question can be asked during the lesson to discover far the lesson at a point is understood. Finally question can be asked at the end of the lesson to evaluate the lesson. Questioning should be employed when using animation so as to clarify the meaning of some of the videos.

The teaching strategies talk about are very useful in giving instruction in RME. This is because they can be combined with animation as a pedagogic tool teaching the learners. This will stimulate learners to be involved in the instructional process.

Benefits of using animation in teaching RME

The use of animation as pedagogic tool in teaching RME has brought numerous benefits to both the teachers and the learners. These benefits have been identified by many researchers who investigated the concept.

Audio-visual media could arouse students' interest and enthusiasm hence promoting successful learning. Teacher's use of animation as a teaching/ learning resource can enhance students' comprehension of subject matter; promote cooperative and lifelong learning, increase team building and support students to think profoundly and creatively (Sruthi, 2015, p.3).

This is to say that the use of animation will promote child-centred education among the learners since the learners will be performing most of the activities. This is promoted by the use of videos to stimulate learners to learn.

The cognitive theory of multimedia learning is an inclusive theory which talks about multimedia based learning as well as instructional animations (Zoabi, Sabag & Gero, 2012). This theory basically plays two roles in one. It carries the notion that two mediums that are related closely are used to process information:

Basically, sensory memories are classified into iconic memory and echoic memory. The visual memory is called iconic memory and its source is the visual sensory systems. Also, the auditory sensory

memory is called the echoic memory and its source is the auditory systems (Brown et al., 2017, p. 72).

According to Sharma (2017), animation is appealing to the viewers. By using a unique attention-grabber, a teacher can help keep his or her participants involved and interested in the material the teacher presenting. Animation with its characteristics makes it pleasurable. Animated features have a license to be a little silly, which can help to break up prolonged training sessions with a bit of comedic relief.

Another benefit of animation is that it is unforgettable. When pupils observe an exceptional animation, it aids them to visualise the concepts they are learning and invigorates learners to remember what they learned for a long time (Sharma, 2017).

Furthermore Sharma (2017, p.1) noted that animation is attractive. He said that:

If participants have started to lose attention on their training, a memorable animation can help surprise them back to task. Their responsiveness will be transformed and they shall be more probable to process the information being given. Animation is the visual resources, it is a very robust proven way of learning, it brings a topic to life, it increases the attention of the viewer, it can be enjoyable to watch, the educational games and quizzes allow the guest to interact and learn and it helps to clarify and exemplify more multifaceted concepts.

According to Soffar (2016), animation stimulates learners' desire to find out new ideas for themselves. Animation teaches serious topics in a

playful way which makes children work with ease thereby imbibing much knowledge. It is used to explain concepts in RME, and promotes deeper of issues in RME.

According to Kuchimanchi (2013, p.1), “Animation is used in the marketing, the training, and the research and it is used to charm the attention. In lessons involving animation, ‘concentration’ will be prominent to be major benchmarks for a better learning, followed by ‘understanding’ and lastly ‘remembering’”

Bopche (2015) mentioned that simple and broad information can be projected or taught in a direct manner, however animation or graphics especially colour graphics leave an indelible mark on people’s minds. Adopting animation in instruction is interesting and it is easy to understand. This means that animation must be designed with attractive colours to make it interesting. Nobody gets bored when using animation in teaching and students delight in watching it.

Amekor et al. (2015) explained that when students work together it enables them to understand some of the intricate ideas and this provides them with motivation to understand challenging topics. Instruction is complex and due to this instruction for learning is presented through animation as a pedagogic tool to make the lesson interesting. The pupil’s work more closely using the materials of knowledge which they combine with their skills and abilities acquired from it.

Animation generates joy and excitement among learners which makes them very receptive to its use in studies. In fact, it hastens learners’ study skills especially when they work together. The use of this teaching technique

in combination with other teaching methods like audio-visual mechanisms, learners are more likely to share ideas based on the subject-matter or topic which helps learners to assimilate the knowledge and the skills being taught. Computer animation is an advanced way of gauging the students' level of making up their own minds on topics of study (Soffar, 2016).

Low (2009) explained that the stimulation effect of animation makes learners to understand difficult topics more easily especially when such topics generate interest enough. Animations are more attractive than still graphics in portraying lively content because animations can depict the dynamics overtly.

Computer animation allows the learners to measure their abilities to accomplish the specific task without any threat, it will help them to avoid any obstruction, it permits the learners to learn-by-viewing, learn-by-doing or learn-by-coaching and they are thought-provoking methods for developing practical skills and expanding the information retention. As learners learn the same principles and skills, the computer-based animation directs the instructional designers to organize and structure learning materials. The learners will get the instant feedback from the animation system that will improve their skills and abilities (Low, 2009, p.6)

Barak, Ashkar and Dori (2011) explained some benefits of animation, stating that animations permit learners to involve in three learning styles concurrently. These are visual, auditory and kinaesthetic which increase a learner's knowledge comprehension.

Amekor et al. (2015) reported that animation brings realism to abstract concepts seen in motion. It is ideal method to demonstrate procedures and

interactions. The computer animation helps teachers to create situations to make difficult tasks easier.

Teachers can use animation as a pedagogic tool to show concepts graphically and that will promote interaction among learners in the classroom. Animation also puts life into the teaching because there is a saying that “seeing is believing”. The use of sight enables the learners to visualise the process and procedures and to understand the concept (Barak, Ashkar, & Dori, 2011).

Challenges in Designing Animation to Teach RME

Amekor et al. (2015) identified some challenges concerning designing of animation as a pedagogic tool. Multiple tools are required to create even a short motion graphics video, making it challenging for casual motion designers to keep up with learning and using multiple (often feature-rich) software tools. Adoption of animation as a pedagogic tool calls for the use of some equipment which are not readily available.

Pedersen and Villekold (2005) maintained that the reason animation is not being used by teachers in teaching is that they do not acquire the requisite skill in designing and use of animation in teaching. The teachers need essential skill in design and use of animation so as to make use of it in teaching. This essential skill training is unfortunately overlooked in the curriculum of Colleges of Education.

Soffar (2016) emphasised that designing animation is time-consuming and energy sapping. Animation designing consumes time, so it is a herculean task to consider many, even for basic design. A lot of facilitators lack skills in

the usage of animation software to create even basic animation. Too much animation for one lesson can be confusing and even annoying.

There are some technical disadvantages of using the animation technology in education. Animation needs a wide memory and storage space. It utilises more system processing and storage resources than graphics and text as it is made up of graphic objects and the mathematical calculations (Chan, 2013, p. 8).

Jahanlou, Chilana and Odom (2015) noted that motion graphics videos are also used in informational situations to explain difficult concepts in various subjects. Creating animation videos can be a strenuous and costly process, given the expensive nature of skills needed to create a motion graphics video.

Challenges in using animation to teach RME

Amekor et al. (2015) identified some challenges concerning adoption of animation as a pedagogic tool. These include: Inadequate tools such as computers and projectors in our basic schools can seriously affect the new instruction. In some schools the teachers do not have the computers to teach computing lessons let alone using it to design animation for teaching.

It was realised that most of the schools were not hooked to the national electricity grid. It will be very difficult to get power to run the machines in the classroom (Amekor et al. (2015).

Kwasu (2015) revealed that the adoption of animation a pedagogic tool depends on the teachers' knowledge on the philosophies and practice guiding its use, the characteristics of the learners and the objectives of the lesson. The

teacher will be confused when the animation is not in line with the lesson to be taught.

It was noted that when learners see animation in teaching-learning activities in schools as entertainment, unsuccessful situation will occur. That is learners will make fun of the whole lesson (Kwasu (2015). At the end of it all, the lesson objectives will not be achieved. This will lead to waste of time and energy both on the part of the teacher and the learners.

Although the adoption of animation as a pedagogic tool has some shortcomings, I think it is the best option with the explosion of technology. This is because with the current proliferation technology, animation can be designed by teachers if given the necessary training. This will enable teachers to use the technology in teaching (Mayer, 2001).

Summary of the Related Literature

Every facet of our life is being run on technology. Those who will not embrace technology will not make progress in life. According to Sruthi (2015), with the jet-age developments in the world, scientific and technological advancements even in tuition, students' style of studying must have a commensurate change to suit the times, such as E-learning and others. There is the need for teachers to adopt innovative teaching practices and learning management systems in our classrooms so as to help our learners learn. This is why the use of animation as a teaching technique cannot be downplayed. In the use of animation as a pedagogic tool, the learner is able to visualise the concept being taught thereby promoting understanding.

According to Moviestorm (2011), the RME teacher teaches his or her Bible stories and other topics on other faiths in video lesson. This allows the learner to visualise the story and bring it to life.

Animation videos can be created through the use of animation software. These include: “Go animate”, “Crazy talk”, “Iclone”, “To Boom Harmony”, “After effect”, power point and “PowToon” (Pappas, 2013).

Alella (2013) identifies the three major processes of animation production. These include:

- i. Pre-production phase (Research, Script Writing, Planning, Audio Recording, Storyboarding),
- ii. Production (Design and Animation)
- iii. Post production (Editing and Sound Effect

Furthermore, the multimedia and constructivist theories talked about the child learning on his or her own. The teacher spoon-feeding learners is prohibited in this modern era. The teacher performs the role of a facilitator in instructional process is what is gaining currency. This is in line with the use of animation where learners will interact among themselves concerning the animation videos they have observed thereby constructing their own knowledge. This agrees with what Mayer (2001) explained that a learner-centred approach should be embraced when using multimedia in teaching.

The use of animation as a pedagogic tool does not mean traditional methods will be eliminated rather it will promote blended learning in the classroom. The use of animation as a pedagogic tool will complement the use of the traditional methods and enhance them.

The last theme is about various traditional methodologies that can be used to teach RME. Some of them include: discussion, questions and answers, role play, case studies etc. According to Hare (2013), teaching techniques make teachers aware as facilitators, coaches, models, evaluators, managers, and advocates. Moreover, teachers know how and when to use all kinds of play to cater for various categories of learners so that they can benefit from media and study materials. This therefore behoves on the teacher to acquire and develop a mastery of all the finer teaching skills and strategies to use.

Knowledge, according to the constructivists, does not reside in or removed from our “lived world”, it is constructed. Therefore, teaching methods and procedure should be co-operative, interactive and participatory in all lessons. The implication is not that the teacher becomes permissive that the learners should rather determine what should be taught to suit the demands of their education. Teacher needs to have an appreciable level of in-depth knowledge of what to teach so that he or she can tailor it to suit the learners needs (Magrini, 2012). Organising instruction must also conform to the NTS (MoE, 2017).

Implication of the Literature Review

The literature implies that animation as a pedagogic tool promotes academic excellence among the learners. Animations are multi-sensory resources used in teaching and learning. This helps learners to understand abstract concepts. In a classroom lesson, pupils who are entertained by a lesson are attracted and participate enthusiastically in the lesson. Although there are challenges that confront the use of animation as a teaching/ learning resource, a hundred miles journey starts with the first step. Challenges could

be overcome thereby using animation to promote child-centred education when teaching RME so as to make teaching abstract concepts understandable. The question that arises is how can RME teachers develop and combine animation as a pedagogic tool with traditional methods in teaching to meet the NTS? This is what I have to find out. The next chapter will deal with research methods of the study.



CHAPTER THREE

RESEARCH METHODS

This study aims at how teachers develop and use animation in teaching RME to promote child-centred education with the view of making abstract concepts meaningful. The chapter deals with the research paradigm, research design, the population, sampling procedure, data collection instruments, data collection procedures and data processing and analysis.

Research Paradigm

Bryman (2004) explained that paradigm is a conceptual framework and patterns which determines what and how a particular thing should be done and in the case of academic work, what should be studied and how researches are to be conducted and the way results should be interpreted. Constructivists or the interpretivists trust that any knowledge is constructed and consequently can be said to be subjective. They further accept that reality as we know it is generally constructed (ontology). In constructivists' tradition, truth is not one. There are numerous truths. They believe that truth is relative and tailored to suit the individual or society. There is no objective truth, but truth discussed through dialogue (Mertens, 2005).

Constructivists do not generally begin with a theory (as with post positivists) rather they generate or inductively develop a theory or pattern of meanings throughout the research process. The constructivist researcher is most likely to rely on qualitative data collection methods and analysis. Constructivists reason that human beings cannot separate themselves from what they know (subjectivist). The researcher cannot detach himself or herself from

the object of research (epistemology). Reality cannot be disconnected from our knowledge of it. Who we are and how we comprehend the world is a central part of how we understand ourselves, others and the world. What is important is that there is a discussion between researchers and participants who construct truth together (Mertens 2005, p.4).

The qualitative research is actually situated in the constructivist paradigm because it has all the characteristics of constructivism. I adopted this methodological positioning because my research questions were process questions and data that is needed to answer them successfully could be found through adoption of this paradigm (Creswell, 2003).

The assumptions of qualitative research are presented:

1. Qualitative researchers are concerned primarily with process, rather than outcomes or products.
2. Qualitative researchers are interested in meaning: how people make sense of their lives, experiences, and their structures of the world.
3. The qualitative researcher is the primary instrument for data collection and analysis. Data are mediated through this human instrument, rather than through inventories, questionnaires, or machines.
4. Qualitative research involves fieldwork. The researcher physically goes to the people, setting, site, or institution to observe or record behaviour in its natural setting.

5. Qualitative research is descriptive in that the researcher is interested in process, meaning, and understanding gained through words or pictures.
6. The process of qualitative research is inductive in that the researcher builds abstractions, concepts, hypotheses, and theories from details (Siegle, 2009, p.1).

The study needed to find answers to how animation could be developed and used as a pedagogic tool to teach RME, so a methodology that could aid the research to unearth answers was used. Qualitative paradigm was adopted for the study. Berg (2004) clarified qualitative research appropriately as trying to find answers to questions by delving into a variety of social and physical situations and the conditions of the people. This explanation fits into the focus of the study: to examine how animation could be created out of the curriculum for instruction through the study of the curriculum and observation of how teachers can use it as a teaching/ learning resource to teach in the classroom.

Qualitative research has been defined as...multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means qualitative researchers study things in their natural setting...involves the studied use and collection of a variety of empirical materials-case study, personal experience, introspective, life story, interview, observational, historical, interactional, and visual texts that describe routine and problematic moments and meaning in individuals' lives (Denzin & Lincoln 1994, p.107).

According to Leedy and Ormro (2002), qualitative research is logically used as a response to the varying nature of things that happened around us. It often tries to find out the most suitable meanings to these happenings from the point of view of those affected or involved in the events. The qualitative approach is also called the interpretative or constructivist approach.

In qualitative research, studies are embarked on in the natural location of the participants. Qualitative research encompasses the collection of in-depth narrative data (i.e. non-numerical data) on many variables over a period of time in order to gain awareness into the phenomena of interest (Siegle, 2009, p.4).

I adopted a qualitative research methodology which expected me to meet the participants in their natural settings so that they can share their experience about particular occurrence with me. This will enlighten me on the phenomenon under study (Anderson, 2001, Delamont, 2002, Lodico, Spaulding & Voegtler, 2006).

The strength of qualitative paradigm according to Berg (2004) is that input information is obtained where it can naturally be found. Due to environmental influence on behaviour, it enables subjects of study to react to situations in reflex mode which will be a genuine portrayal of their reactions to the elements of the environments. This situation provides adequate information in relation to what has been seen and heard.

Qualitative research methodology deals with an in-depth understanding because the researcher has the opportunity to make findings of the procedure and meaning of situations. In addition, qualitative methodology is a flexible process which gives the

researcher the success of adapting the research design whenever situations demand in the course of data collection. In addition, it allows for taking into account participants' kinds of meaning, people's personal experiences, and it is more adapted to the needs of people studied (Mertens (2005, p. 4).

Qualitative research paradigm as noted by Cheng (1997) promoted the formation of and execution relevant and satisfactory educational policies. Therefore, research study into the perceptions of RME teachers, who are directly involved in RME instruction could significantly increase comprehension of issues related to the nature of the subject.

The process has been debunked by some schools of thought that believe that there could be a bias in the study due to any close relation (in any way) between the investigator and the participants. The researcher can be seen to influence participants. Additionally, findings in this consideration might prove difficult to draw generalisation (Mertens, 2005).

Despite these weaknesses, I think this is the best design to use, because the method echoes a certain view of the world: the research questions best suit a qualitative approach they are "How" and "What" questions which are best answered using qualitative research.

In this study, the teachers' familiarities, viewpoints and insights were studied in a context and value system with which they happened in the classroom. Furthermore, this methodology makes the conjecture that the realistic of the true situations on the ground might be different (Hatch, 2002).

Research Design

The research design adopted for the study is the case study. The study was to find answers to how animation could be designed and used as an instructional strategy in teaching RME. In this study, I collected in-depth information about the processes that are involved in the design and the use of animation by RME teachers in Akatsi South Municipality. In order to be able to appreciate how teaching is done, I had to select schools for the study and this could only be done through a case study.

“Case study is a form of qualitative research that is focused on providing a detailed account of one or more cases. For instance, “a researcher might study a classroom that was given a new curriculum for technology use” (Asamoah-Gyimah, 2015, p.18). A case study is a systematic way of obtaining input information from various sources about a particular element or subject of study in order to understand how it operates or behaves (Berg, 2004). The case study researcher typically observes the characteristics of an individual unit, interviews teachers, observes a class, a school or community to probe deeply and to analyse intensively about the phenomenon under study so as to understand it better (Cohen & Manion, 1989).

There are various types of case studies. Amedahe and Asamoah-Gyimah (2015, p.157) identified “historical case studies, observational case study, situational analysis, and clinical case study”. The case study I adopted was the observational case study. This study often emphasises a classroom groups that teacher and learners often using a multiplicity of observation and interview methods as the major research tools which I employed.

The strengths of case studies are that a lot of details are collected that will not usually be easily obtained by other research designs. Also, case studies can help experimenters adjust ideas and craft new hypotheses which can be used for later testing. Again, within the case study, scientific experiments can be conducted (Psud, 2012, p. 1).

One of the weaknesses of this research design is that data collected cannot automatically be generalised to the wider population. Also, there can be bias in data collection because it tends to be one experimenter collecting the data. Despite these weaknesses, it is a design to use in qualitative research because detail information is collected about the phenomenon under study. Also, to be able to appreciate how teachers can develop and use animation in teaching RME, I had to select schools for the study and this could only be done through case study.

Population

Anthony-Krueger and Sokpe (2006) defined population as all the identifiable entities that are involved as a target of a study. At Akatsi South Municipality, there is Akatsi Circuit “A” “B” which had six (6) and four (4) RME teachers respectively were trained in animation designing from Akatsi College of Education. The total number of RME teachers who taught using animation were 10. The total numbers of learners in these circuits were 1,281. It means that the population was stratified into teachers and learners.

Table 1: Breakdown of Population

Categories of Circuit	No. of RME Teachers	No. of pupils
1. Akatsi circuit A	6	651
2. Akatsi circuit B	4	630
Total	10	1,281=1, 291

Sampling Procedure

Census sampling technique was used to select 10 RME teachers from Akatsi Circuit “A” and “B” because these were the teachers who benefited from training in animation at Akatsi College of Education. This is in line with Boyd’s (2001) assertion that a range of participants from two to 10 is an adequate number to reach redundancy in a study that is qualitative in nature. Lincoln and Guba (1985) also noted that sample size determination in qualitative research lies heavily on data saturation principle. This means that sample size is known when no new information is emanating from the participants. Leedy and Ormrod (2002) also emphasised that in qualitative research, a few participants are selected who can best give rich information about the phenomenon under study.

I again selected 50 learners purposively out of a list of 1,281 pupils who benefited from the animation lesson. This enabled me answer research questions two, four and six effectively. Since they were the direct beneficiaries of the animation the learners would have rich information to offer. Table 2 shows the breakdown of sample size.

Table 2: Breakdown of Sample Size

Circuit	No. of RME Teachers	No. of Pupils
Akatsi Circuit “A”	6	25
Akatsi Circuit “B”	4	25
Total	10	50

According to Ladner (2008), sampling refers to a fraction of the selected universal group of study either by “probability” or “non-probability” methods. In qualitative sampling, non-probability sampling is the paramount technique.

I used census sampling technique to enable me use the entire teacher population. I approached RME teachers in Akatsi South Municipality (Akatsi Circuit “A” & “B”) and discussed the study with them so that they could be part of it. Four of them were females while six were males. They were all diploma holders from Akatsi College of Education. Six of the participants pursued RME as a course in the college while four participants read both the content and methodology of RME.

Purposive sampling technique was used because according to Amedahe (2002), it helps to select doyens or key informants in a particular study. According to Patton (2002), it is used to select “information-rich cases” from which one can learn a great deal about the phenomenon under study.

Purposive sampling also involves a wide range of sampling techniques that can be used across such qualitative research designs; purposive sampling techniques that range from

homogeneous sampling through to critical case sampling, heterogeneous sampling, expert sampling, extreme (or deviant) case sampling, total population sampling and more. It should be noted that the identified section of the group of study does not fully indicate the totality of the homo- genius group (Lund, 2012, p.2).

Data Collection Instruments

Cohen and Manion (1991) defined instruments as the different techniques a researcher can use to fish out information for the study. I used document analysis guide, observation guide, in-depth interview guide and focus group discussions guide as methods of data collection. I developed these instruments using the purpose, the objectives, the research questions and the conceptual framework of my study.

Documents

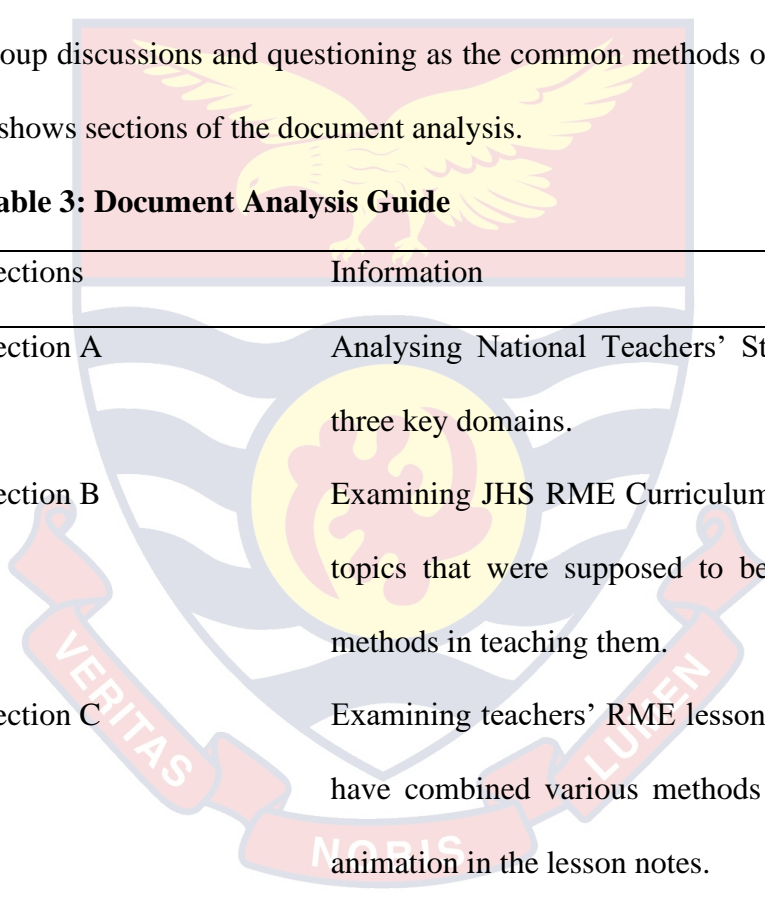
According to Adams (2010), document analysis is a useful tool which describes the study of materials that already exist and are written down as a document based on the same study which provides facts and information relevant to the current subject of study. The first source of information for this study was documents. The main documents used were the National Teachers' Standards (NTS), JHS RME syllabus and lesson plan. The relevant issue that justified the collection of data from these documents was that they specify state standards to meet, indicators to be achieved, topics that the RME teacher should teach, suggested methods that can be used and evaluation. Its main advantages are that it overcomes the difficulties of encouraging participation by users. Also there were fewer costs involved other than staff time. Again, it does not interrupt programme. However, it is not suitable to evaluate user

opinions, needs or satisfaction with services and some documents may be sensitive and not publicly available.

I analysed the National Teachers' Standards (NTS) which lay emphasis on three domains. These include professional values and attitudes, professional knowledge and professional practice.

I examined the JHS RME curriculum and found out topics that were to be taught. In examining teachers' lessons notes, I saw that most teachers used group discussions and questioning as the common methods of teaching. Table 3 shows sections of the document analysis.

Table 3: Document Analysis Guide



Sections	Information
Section A	Analysing National Teachers' Standards and the three key domains.
Section B	Examining JHS RME Curriculum and identifying topics that were supposed to be taught and the methods in teaching them.
Section C	Examining teachers' RME lesson notes, how they have combined various methods with the use of animation in the lesson notes.
Section D	Examining animation videos created by RME teachers.

Observation

I carried out classroom observations in order to assess first-hand information on how RME was taught and subsequently compared that to the

statements made by participants in the interviews. According to Sarantakos (1997), observation is time-tested process of data collection techniques that is solely based on what is seen by the researcher as the main procedure of data collection. In observation, the researcher sees participants in their natural mood and elements in relation to their own as a given environment. It is significant to collect observational data (in addition to attitudinal data) because what people say is not always what they do (Asamoah-Gyimah, 2015). In using the observation, qualitative observation was used. Qualitative observation according to Asamoah-Gyimah (2015) is investigative and open-ended, and the researcher takes extensive field notes.

During the observation of their classes in progress, particular attention was paid to the interaction between children and the reaction of the teacher and to the social actions between learners. My mission in the classes was strictly as an observer and I had no participation in the classes. I observed RME teachers closely and the proceedings of their lessons while completing the observation guide. In addition to that, I asked a friend to do a video coverage of the RME lesson with permission from the teacher. I observed teachers teaching RME in various classes. This enabled me to find out how RME teachers were using animation in teaching.

I used observation because it permitted me to directly see what people do without having to trust what they say they do. It also provided first-hand familiarity as well as a relatively objective measurement of behaviour (especially for standardized observations). I saw things that escaped the awareness of people in the setting and it was an excellent way to discover what was occurring in a setting.

It has been criticised on the ground that people may behave artificially when respondents know they are being observed (e.g., people being observed may behave in typical ways). Also, I could not observe large or detached populations. However, with these limitations, observation can be one of the effective instruments to collect qualitative data when few participants are involved which I did (Asamoah-Gyimah, 2015).

Table 4 is the observation guide which was used to enable me not to stray in the act of applying this instrument.

Table 4: Observation Guide

Sections	Information
Section A	Observing how animation videos are designed or animation videos downloaded from various sources.
Section B	Observing RME lessons being taught.eg. Introduction, development and conclusion of the lesson.
Section C	Observing various methods being used in conjunction with animation.
Section D	Observing how animation videos are promoting interactions in the classroom.

Interview

Another instrument that I used to collect data is interview guide. According to Anthony-Krueger and Sokpe (2006), interview is a structured interaction that is used in an interrogative setting that produces vital data for study. Newman (2018) reported that interviews are carefully formulated to

ferret for data from a relatively small group of people and which reveals facts attributes, behaviour, preferences, feelings attitudes, opinions and knowledge. Newman explained that interviews are most effective for qualitative research. They aid the researcher for better comprehension, and discover research participants' knowledge, behaviour, and skills about a phenomenon. Interview questions are usually open-ended questions so that detailed information will be collected.

I crafted semi-structured interview questions in relation to the aim, the objectives, research questions, the theories underpinning the research, the conceptual framework of the study and studies in the literature. The item pool was created, expert views were taken. The interview questions were semi-structured where topics to be covered were outlined and asked in a sequence based on the responses from respondents and carried out in a relaxed manner. I used semi-structured interview procedure to be able to ask further, probe questions to analyse the issue in-depth and to understand the motives behind participants' answers. This structure was chosen because similar kind of information could be obtained about the use of animation in teaching. I conducted the interview on one-on-one basis. I wrote field notes during the interviews. All participants had their interviews recorded electronically through an application on my cell BLU phone. After their responses were transcribed, the audio files were deleted. I gave participants pseudonyms such as respondent "A", "B", "C", "D" etc., so that their real identities would be concealed. I used this instrument because of the following reasons:

It provides out in-depth information, useful for investigation as well as corroboration, good for measuring attitudes and most other content of interest.

Relatively high response rates are often attainable and open-ended interviews provide useful information needed by the researcher.

Its limitation is that in-person interviews usually are expensive and time consuming. However, it was useful because it helped me understand issues from the respondents’ point of view. I asked the RME teachers fifty-five (58) questions which cut across all sections. Because the interview period was long, I provided motivation through incentives such as gift vouchers or presents, snacks and ice breakers to encourage participation. The list of questions asked can be found in appendix “A” of the research report.

Table 5 shows the various sections of the interview guide.

Table 5: Sections of Interview Guide

Section	Information
Section A	Processes involved in the development of animation videos
Section B	Ways teachers use animation to teach RME at junior high schools in Akatsi South Municipality
Section C	The ways by which the use of animation in teaching RME in line with the National Teachers’ Standards (NTS)
Section D	Benefits of using animation in teaching RME
Section E	Challenges in designing animation to teach RME
Section F	Challenges of using animation in teaching RME

Focus Group Discussions

Focus group discussion is mostly used in collecting qualitative data so as to gain in-depth knowledge about a phenomenon. Focus group discussion is understood to be less expensive in participatory research (Morgan, 1996).

Focus group discussion is sometimes seen as related to interviews, specifically the semi-structured “one-to-one” and “group interviews”.

Bloor, Frankland, Thomas and Robson (as cited in Nyumba, Wilson, Derrick & Mukherjee, 2018, p. 2) explain the difference between interview and focused group discussion.

Interviews include a one-to-one, qualitative and in-depth conversation where the researcher is an “investigator.” This means that the researcher’s questions steer the flow of the discussion, or involves in conversation with a participant at a time. However, in a focus group discussion, researchers adopt the role of a “facilitator” or a “moderator.” In this setting, the researcher moderates a group discussion between participants and not between the researcher and the participants. Unlike interviews, the researcher thereby takes a marginal, rather than a centre-stage role in a focus group discussion.

Krueger and Case (as cited in Nyumber et. al. 2018) indicated that it is generally accepted that between 6 and 8 participants are sufficient for a group discussion. In this study, I used 6 participants per group to enable me get different perspectives. Nyumba et al. (2018) explained that fatigue will set in when discussions are prolonged. It is ideal to have one to two hours,

discussion based on the complexity of the topic under investigation. I used about 40 minutes for the discussion.

Its advantages are that using focus group discussion helps to collect detailed information with explanations and examples, to generate debate about perceptions about a phenomenon that requires collective views and the meanings that lie behind. Also focus group discussion is used to clarify and expand findings. However, participants may fail to discuss some issues which are sensitive in nature (Nyumba et al., 2018). Nevertheless, focus group discussion is a good research instrument that can help get the perception of many participants at a go. Table 6 Shows sections of focus group discussion guide.

Table 6: Sections of Focus Group Discussions Guide

Section	Information
Section A	Various ways teachers use animation in teaching RME
Section B	Ways by which learners are involved in animation-based lessons
Section C	Benefits of using animation in teaching RME
Section D	Challenges with learning RME with animation

Pre-testing of instruments

The experiences of my two supervisors were critical here. They made good suggestions that helped me refined the interview guide, the document analysis guide, the focus group discussion guide and the observation guide. This helped me to achieve face validity of the items.

According to Bricki, and Green (2007), the instruments need to be piloted with people similar to researcher's participants. Sometimes small changes in how the researcher frames questions can make a big difference to the data given to the researcher which I did.

After my supervisors approved the instruments, I pre-tested the instrument at Yaluvi Basic School on 6th February, 2020. This school was selected because the teachers there have the same characteristics with my participants. Two teachers and 10 learners were used for the pilot study. Some of the responses to the items did not make sense therefore I reworded the items in order to get the data that I wanted. For example, question 54 on the interview guide reads "What is your view about efforts to create basic animation"? The participants mentioned that it should be simple. This was not the answer I was expecting from them. This question was made to explain time consuming nature of designing animation. Therefore I quickly reworded the question to read "How many hours did you spend in making basic animation? This enabled the respondents to answer correctly by saying two to three hours.

I collected data about animation in order to address credibility or validity issues. I compared documentary data, observation data, interview data and focus group discussion data through triangulation. Leedy and Ormrod (2002) noted that the collection of data from different sources is often done with the expectation of using such information as proof of the validity of a hypothetical point of view. This particular approach is common in qualitative research. Methodological triangulation provides information to examine how true such findings could be from the various sources that such data was

obtained from and to compare such findings from the different methods of research used. This means that the same themes are identified in various data sources. This is in line with Patton (2002) findings that different sources of data are triangulated to strengthen the study.

Data Collection Procedure

In order to get to the RME teachers, I negotiated access with gatekeepers who were Faculty head, District director, Heads of basic institution, teachers, parents and learners. After I finished my proposal defence and necessary correction were done, I collected introduction letter from my department which was signed by my principal and co-supervisors as well as the head of department. This enabled apply to Institutional Review Board (IRB) for the forms to be filled.

I sent the soft copy of the forms filled to the IRB for correction before sending the hard copy. The letter of introduction from Department of Business and Social Sciences Education, University of Cape Coast, enabled me proceeded to introduce myself to the District Director of Education, Akatsi South. The Director wrote a covering letter which enabled me seek assistance from headmasters/ headmistresses, and RME teachers in order to collect data on the use of animation as a Pedagogic tool in teaching RME from Basic Schools in Akatsi South Municipality. I gave out the consent agreement form which was signed by the headteachers, the teachers, and the pupils on my mission which enabled me to have access to the classroom. The three letters can be found in Appendixes E, F and G respectively. I made the RME teachers know in advance in order to prepare their minds. This involved

document analysis, interview, observation and focus group discussions. The data collection started from 8th July, 2020 to 15th September, 2020.

In the document analysis, I examined the NTS and identified standards that were supposed to be met by teachers, JHS RME syllabus and found out topics that are supposed to be taught including learning resources. In examining teachers' lessons notes, I saw that most teachers used group discussions and questioning as the common methods of teaching.

During the observation of RME lessons, I went strictly by the observation guide. I was a non-participant observer who sat at the back of the class and watched the interaction between the teacher and the learners during teaching using animation. I collected data on the introduction of the lesson, presentation of the lesson and conclusion of the lesson. In addition, I wrote field notes in combination with the video coverage of the observation which was done by a friend.

Interview was the next task I executed. The semi-structured interview guide was used. I started each interview with an icebreaker or a discussion of any topical event to ensure relax atmosphere for the discussions. Open-ended questions were used so as to explore variety of perspectives of the participants (Bauer, 1996; Bryman, 2004). The interview was on one-on-one basis so that I could explore each participant's view on the phenomenon. This interview enclosed, processes involve in making animation, how to use animation in teaching, ways in which using animation to teach is related to NTS, the benefits, as well as the challenges in teaching RME. Each interview session lasted for about one hour. I mostly used probing questions so that more information about a particular issue or event or person could be obtained. I

recorded the interview with a device on my mobile phone. I took pictures of some of the lesson notes of the participants. I also sought permission from the participants before recording the interviews. I transcribed the interview data and gave it back to the interviewees for cross-checking (member-check). Participants were given pseudonyms so that their identity would be safe. Any identifying information provided in the interview was deleted.

The final data I collected was the focus group discussions. I used this technique to get information from the learners who benefited from the animation lessons. I used single focus group where participants in every school were gathered as a team for the discussion, the ways teachers are using animation in teaching, benefits derive when animation is used in teaching as well as the challenges involved.

At the beginning of the discussion, I used an icebreaker by asking each person in the group to give a brief self-introduction. This was done to relax the atmosphere. During the course of the discussion, I asked questions in such a way that it could easily be responded to by the group members. That is I got everyone on board with their different experiences and opinions before a consensus emerges during the group discussion (Bricki, & Green, 2007). I indicated to the participants that the discussion is coming to a close, therefore each participant should give his or her final summary statement within which I asked them to point out what they think were the most important points. With common courtesy at the end, I thank all participants for their time and energy. In recording the data, I went by Bricki, and Green (2007) advice that data could be recorded through a devoted note taker as well as using mobile phone

to record the discussions. I recorded group consensus or divergent opinions as they emerged.

I was able to get information from multiple perspectives from the group members. It enabled me get a lot of information from the issues explored (Bogdan & Biklen, 2003; Morgan, 1996; Morgan & Krueger, 1993).

During the course of data collection, I encountered some challenges. That is some of the participants kept on postponing the date of meeting. However, with my determination and perseverance we were able to meet and data was collected. I foresaw from the beginning that data analysis would be laborious and time consuming therefore I paid particularly attentive to Miles and Huberman's (1994) advice to complete the coding of one set of data before re-entering the field to collect more .

Trustworthiness

Trustworthiness refers to the credibility, dependability, transferability and confirmability of the research findings. Credibility in qualitative research is parallel to internal validity in quantitative research. Mertens (2005) is of the view that the following may be done to make data credible as I did. I used triangulation which is cross-checking information and results obtained from multiple sources. Denzin (1970) identified various types of triangulation which include methodological triangulation, researcher triangulation, data triangulation, theoretical triangulation and environmental triangulation. Bogdan and Biklen (2003) stated that triangulation in qualitative research means that the use of many sources to collect information or facts for a research work is better than a single source because the different sources result in an in-depth understanding of the theory. Under this, I used data

triangulation and method triangulation (Bowling, 2002). I had corroboration as different sources and procedures of data were in agreement. The next one is peer review. That is, a discussion of my interpretations and conclusions with other people. Negative-case analysis was also used where I looked for cases that disconfirmed my expectations and tentative explanations. Reflexivity was also used where I constantly reflected on my potential biases and predispositions, and guarded against them as these might affect research process and conclusions.

Asamoah-Gyimah (2015, p. 86) stated that “interpretive validity is present to the degree that the researcher accurately portrays the meanings given by the participants to what is being studied”. I “got into the heads” of my participants and accurately documented their viewpoints and meanings. In addition, I discussed my findings with my participants so that I represent their meanings and ways of thinking as they intended it.

The question of transferability which is in line with external validity or generalizability in quantitative research is not concerned with qualitative research. Those who are attracted by generalisability may conduct a research with a greater number of participants and less intense mini studies in order to generalise the result. Transferability was not my prime objective to generalize the findings of the study to other settings or groups of people. However, Marshall and Rossman (as cited in Cobbold, 2015) is of the view that triangulation of the several sources of information and facts collection-methods used in the study could promote the relevance and the usefulness of findings to others in a similar situations, with similar research questions of practice.

Dependability in qualitative research is in line with reliability which means consistency or stability in post positivism paradigm. It talks about issues of whether a particular study's findings could be replicated if it were conducted with the same participants in the same context. The consistency of the coding must be in at least 80% agreement at all times for good qualitative reliability (Miles and Huberman, 1994). I gave my transcripts to friends to review whether there is consistency in coding. Dependability is also gained through consistency of data which is evaluated through transparent research steps and research findings (Mertens, 2005). In this, I carefully documented decisions made in the course of the study to facilitate dependability audit (Guba & Lincoln, 1985) of the research process. I also differentiated primary data from secondary data and description from interpretation (Sturman, 1999, Yin, 2003).

Confirmability parallels objectivity in quantitative research.

Objectivity means that the influence of the researcher's judgment is minimized. Confirmability means that the data and their interpretation are not figments of the researcher's imagination. Rather, the data can be tracked to its original sources, the logic that is used to interpret the data is made explicit, and the process of synthesizing data to reach conclusions can be confirmed (Mertens as cited in Cobbold, 2015, p. 9).

I gave my transcripts to colleagues, who helped review my field notes, interview and focus group transcripts, the research questions, data analysis, findings and conclusions. Interview transcripts and notes were also given to some participants for their comments.

COVID-19 Safety and Health Protocols

“Coronaviruses are a large group of viruses that are common among animals. They are zoonotic, meaning they can be transmitted from animals to humans. Viruses can spread from human contact with animals and also from human to human” (Ghana Health Service, 2020 ghanahealthservice.org/covid19). Coronavirus Disease 2019 (COVID-19) broke out in the year 2019 from China and it had become a pandemic. Ghana recorded its first case in March, 2020. Human to human transmission is by having contact with an infected person’s mouth, nose or eyes. Or when infected person cough, sneeze or handshake someone. “Coronavirus symptoms include; fever, a runny nose, cough, sore throat, and possibly a headache”(Ghana Health Services, 2020).

As we continue to combat the impacts of COVID-19, students were required to be in face mask while in the classroom in order to protect themselves. I realised that teachers had challenges during group work in the case of social distancing. Frequent hand washing was one of the most important actions that were encouraged after touching anything in the study area. Veronica buckets, water and soap were provided for that regard. Hand sanitizer which was alcohol based was provided. Temperatures of students were checked daily using the thermometer gun.

Data Processing and Analysis

I gathered all the field notes and conducted an analysis of the information in an effort to determine how teachers develop and use animation in teaching RME. The qualitative data collected included: documentary data, field notes from the class observations, focus group discussions and field notes from the interviews. The data collected using the different research tools

were not analysed independently but triangulated. Triangulation means a systematic process of looking across several data sources to cross check and approve evidence to derive themed findings (Cohen, Manion, & Morrison, 2011).

Each item was analysed to provide answers to the six guiding questions. After each of the interviews with the RME teachers was completed, each of the items was analysed by coding them. Some data analysis was done concurrently during the data collection and significant information was identified and noted.

I went by Cobbold (2015) recommendation and transcribed the documentary data, the interview data, the observation data and focus group discussions data manually. This is because manual analysis in qualitative research is not impossible (Al-Khalifah, 1994). This enabled me identify the patterns or themes that were running through the data both vertically and horizontally. “The vertical analysis dedicated to transcripts of each individual interview and focus group discussions to determine the in-house soundness and consistency of the individual [interviewee’s and group’s] story and to identify categories of data” (Kelchtermans, 1993, p.445). In the horizontal analysis, I compared categories across the data from the interviews, focus group discussions, observation and documents. Through coding and category-building processes, comparable to those outlined by Bogdan and Biklen (2003); Flick (2002); Merriam (1998); Miles and Huberman (1994); Wester and Peters (2000) and Yin (2003), I identified developing themes. By “theme” I mean types of meaning that either run throughout much of the data, or

appeared less regularly, but carried substantial demonstrative influence (Ely, Vinz, Downing, & Anzul, 1997). Some of the themes were listed:

- a. How teachers create animation on topics in public JHS curriculum
 - i. Teachers' knowledge about the concept of animation
 - ii. Processes involved in designing animation
 - iii. Software for designing animation
 - iv. Participants' experience in designing animation
 - v. Creative activities in the classroom
- b. Teachers' use of animation in teaching RME
 - i. Teachers' duration of using animation
 - ii. Experiences of the participants in using animation in teaching
 - iii. Best ways of using animation in teaching RME
 - iv. How the use of animation in teaching RME promotes child-centred education
 - v. Making animation based lessons practical
 - vi. Teachers and learners reflecting on their own teaching and learning
- c. The ways in which the use of animation in teaching and learning RME conform to NTS
 - i. The concept of NTS
 - ii. The aim of NTS
 - iii. Domains of the NTS?
 - iv. Sub-divisions of the three domains of the NTS that are in line with the use of animation in teaching RME

- d. The benefits of using animation in teaching RME at basic JHS of Akatsi South Municipality.
 - i. Skill acquisition by learners.
 - ii. Promotes child –centred education.
 - iii. Helping learners to recall.
 - iv. Promoting self-learning.
 - v. Animation being interesting
- e. Challenges teachers faced in designing animation for RME lessons
 - i. Lack of computers and internet facilities
 - ii. The cost involved in designing animation in school
 - iii. Lack of skills for teachers to design animation
- f. Challenges encountered in the use of animation in teaching RME in JHS in Akatsi South Municipality
 - i. Lack of equipment in schools and absence of technical-know how
 - ii. Challenge of electricity

There are various types of qualitative data analysis. Amedahe (2002) identified them as content analysis, narrative analysis, discourse analysis, thematic or framework analysis, and grounded theory. Content analysis talks about describing and interpreting the data while narrative analysis deals with analysing different experiences. Discourse analysis is a method of analysing naturally occurring talks (spoken interactions). Again, thematic appraisal talks about finding the main idea like the initial coding framework from which it is possible to generate emerging ideas from a previous issue or words to be able to point out particular pieces of information must relate to different framework (can be thematic or by case). Grounded theory starts with an

examination of a single case from a pre-defined population in order to formulate a general statement about a population, a concept or a hypothesis.

I adopted the framework/thematic analysis. The data collected about the six research questions were analysed based on codes, then were later arranged into categories and themes. A thematic analysis is one that looks across all the data to identify the common issues that recur, and identify the main themes that summarise all the views one has collected. This is the most common method for descriptive qualitative projects (Patton, 2002).

I adopted Patton's (2002) steps in data analysis. These include:

1. Reading and annotate transcripts: this is the elementary stage. Here one does not provide a summary of the data, but make initial observations.
2. Identify themes: The next step is to start considering detail of the data to start categorizing themes.
3. Developing a coding scheme: These initial themes can now be assembled to begin to develop a coding scheme. This is a list of all the themes, and the 'codes' that will apply to the data.
4. Coding the data: The next step is to start applying these codes to the whole set of data, by either writing codes on the margins of transcripts or notes or (if using computer software) marking the text on line.
5. Assembling themes that have common codes. Those themes that are common are brought together. Minor themes were collapsed into major themes.

6. Writing up or analysis of the themes: The major themes need to be analysed in some cases evidence are provided like quoting participants verbatim and the use of pictures.

I analysed research question one by identifying common themes in interview transcripts, observations and documents, which suggested that teachers' use audio-visual to teach. These common themes and patterns emerging in the three sources of data were coded and analysed. This helped to answer research question one.

In answering research question two, I specifically focused on patterns and common themes emerging in responses from interview, focus group discussions, observation and findings from documents dealing with specific items on how animation is used as an effective pedagogic tool in teaching RME at JHS. These patterns helped to illuminate the answers to the research questions two.

Furthermore, I analysed qualitative data on ways by which the use of animation in teaching RME conform to NTS. This involves reducing and organizing the data, synthesizing, searching for significant patterns, and separating out important data. I coded, examined and interpreted the common themes that emerged from the data and this enabled me answer the third research question. Similar thing was done to research question four.

In addition to that, data on the challenges faced by teachers in designing animation as a teaching/ learning resource in teaching RME was the next I analysed. I started by dealing with patterns, categories, or themes that evolved during the data collection. I began the analysis of research question four by repeatedly reviewing data from the three sources and reflected on the

data. From the repeated readings, I discerned patterns, organising themes and coding. This proved very fruitful in answering the research question four.

Challenges in the use of animation as a pedagogic tool in teaching RME was the last research question answered. I specifically focused on data from interview on items 53 to 58 and crosschecked it with observation data and focus group discussions data. The common patterns emerging in participants' views on challenges in using animation in teaching RME were coded and analysed and this helped me to answer the fifth research question. I did the data collection for three months.

In conclusion, I adopted the procedures of sorting and classifying, coding, category-building, data presentation with perfect record keeping, I also reviewed and summarized the responses from interviews and focus group discussions, observation and data gathered from documents, and my field-notes. I then sought categories of meanings, repeated patterns, salient themes, and built up explanations. I did everything possible to attend to all evidence, addressed the research questions together with all key opposing clarification (Cobbold, 2015).

Ethical issues and how I went about them

After I finished my proposal defence and necessary correction were done, I collected introduction letter from my department which was signed by my principal and co-supervisors as well as the head of department. This enabled me apply to Institutional Review Board (IRB) for the forms to be filled. I sent the soft copy of the forms filled to the IRB for correction before sending the hard copy.

Two key ethical issues that should be considered in any thesis are consent and confidentiality. Everyone who participates in a study should have freely consented to participation, without being compelled or unfairly coerced. This means they should be well informed about what participation entails, and reassured that declining will not affect any services they receive (Brick and Green, 2007, P.6).

I signed agreement with my participants that they were at liberty to drop out from the study if they chose to. I asked permission from the participants before recording the interviews and observations. It is not always easy or even likely to measure the dangers of a certain setting to a given population, let alone to individuals. I transcribed the interview data and gave it back to the interviewees for cross-checking (member-check). Participants were given pseudonyms so that their identity would be safe. Any identifying information provided in the interview was deleted.

Chapter Summary

The study used qualitative methodology. I used case study design which enables me to collect in-depth information about the problem under study. Census sampling technique was used to select 10 RME teachers in Akatsi South Municipality. Also purposive sampling technique was used to select 50 learners. The instruments that I used include document analysis guide, Observation guide, interview guide and focus group discussions guide. I analysed the data using thematic approach. I triangulated the data, participant feedback and reflexivity to obtain credibility of the data. The possible limitations include:

1. The researcher in qualitative research study is the main instrument of data collection. The researcher examines, observes, takes notes, and talks to people and analyses the data collected (Leedy & Ormrod, 2002). Consequently, there could be biases on my part as a researcher since I was the only one who collected the qualitative data and did the analysis. However, I used triangulation, participant checking, negative case analysis and reflexivity to reduce my biases.
2. Since I used purposive sampling procedure to select teachers in schools in the Akatsi South Municipality, the findings cannot be generalised for all respondents in junior high schools in Ghana. However, the data generated from this study can serve as bases for quantitative research where large sample size can be used in order to generalise the findings.
3. Failure of an interviewee to use correct register to bring out thoughts precisely during an interview could be a weakness to a study (Leedy, & Ormrod 2002). This research is no exception. However, I clarified the items into detail so that the participants could give the best answers during the interview.

CHAPTER FOUR

RESULTS AND DISCUSSION

Advance Organiser

This chapter covers the results and discussion of the data which were collected on teachers' design and use of animation in teaching RME in Akatsi South Municipality. The primary purpose of this study was to explore how teachers design and use animation in teaching RME so as to teach abstract concepts meaningfully.

Amedahe and Asamoah-Gyimah (2015, p.161) explained that “qualitative data involves both verbal data (interview, comments, documents, field notes) and nonverbal data (drawings, photographs, videotapes)” which I used. Documents analysis guide, observation guide, Interview guide and focus group discussions guide were used as the data collection instruments. I did data analysis using thematic approach.

I presented how teachers designed animation on topics in JHS RME syllabus, followed by how teachers used animation as an effective pedagogic tool in teaching RME, ways in which the use of animation in teaching RME is in line with NTS. Benefits of using animation to teach RME, challenges in designing animation to teach RME lessons and the challenges faced by teachers in using animation were also presented.

Leedy and Ormrod (2002) maintained that qualitative researchers are usually known for being research instruments due to the fact that their data collection is mainly hinges on their own involvement in the research situation as seen in the conduct of interview, observation, analysis and interpretation. As a result, “The voice of the researcher is heard in the presentation of

research report, as shown by the use of first person singular ('I') throughout the [study]" (Cobbold, 2015, p. 10). This agrees with School of Graduate Studies' (2017, p. 29) who shared similar view. With this understanding, I used the first person singular ("I") in presenting my research report.

The analysis was done using six research questions. It should be noted that I sought verbal permission from the participants during data collection to display some of their photographs in the research report.

Research Question 1. How do teachers design animation to teach RME in junior high schools in Akatsi South Municipality?

I asked this question to enable me find out how RME teachers were designing animation in teaching RME in Akatsi South Municipality. It came to light that teachers designed their own animation using the animation software. The computer animation is the most usable and easy kind which teachers can use in JHS in the Akatsi South Municipality.

Documentary Data

I examined the RME JHS syllabus and found out that many topics were written and methods that were suggested to teach them. Table 7 shows some topics that are in the RME JHS syllabus and methods of teaching them.

Table 7: Topics from JHS RME Syllabus and Methods of Teaching them

Topic	Method of teaching
Family Systems, Religious Festivals in Basic7.	Group discussions Group discussions, role play and demonstrations.
Money, Time , Leisure and Work in Basic 8.	Group discussions, brainstorming, case study and questions and answers
Substance Abuse, Decency in basic 9.	Brainstorming, group discussions, role play and excursions to psychiatric hospital.

Information in Table 7 revealed that the JHS RME syllabus contained topics such as Family Systems in Basic 7, Work, Money, Time and Leisure in Basic 8 and Substance Abuse in Basic 9 which were some of the topics that were to be taught. This implied that the RME teacher needs to have in-depth knowledge about these topics in order to teach them well.

Again, teaching philosophy of RME revealed that stimulating activities should be organised for the learners to participate in. There is a Chinese proverb that states “I hear, I forget; I see and I remember; and I do and I understand.” This implies that activities that are organised for the learners must meet their interest, needs, abilities and aspirations so that they can participate enthusiastically in the lesson. This will help learners to develop critical thinking, cooperative learning, communicative and leadership skills. An examination of the JHS syllabus revealed that questionings, discussion, role plays, group work, case studies, field trips, demonstrations and brainstorming were the methods suggested to be used to teach the topics. These methods were suggested to be used at the various stages of the lesson. However, these methods were just a guide for the RME teacher for effective teaching. The RME teacher could use any other methods which could bring full participation of learners in the lesson so as to promote lifelong learning.

The syllabus also revealed that:

Teaching resources such as charts, real objects and drawings helped to make lessons interesting and practical. Audio-visual resources such as films and videos were also recommended for teachers to use in their lessons for learners to acquire the right knowledge, values, attitudes and skills needed. In addition, the

teacher was expected to relate the various topics to the practical situations in their daily lives (MoE 2017, p.7).

The RME teachers' lesson notes were the next I analysed. I found out that the majority of the RME lesson notes contained the use of questions and answers, discussions and brainstorming as the proposed activities to be carried out during the lesson delivery. In a few of the lesson notes, discussion, role play and demonstrations were the activities indicated by the teachers to be used to teach the topics.

Thorough examination of the lesson notes revealed that participants filled the Teaching and Learning Material column of the note as “the use of animation videos”. This could be due to the fact that they had been trained in the development and the use of animation videos to teach in the classroom. Even when it becomes difficult to design one, they can download animation videos to teach.

Observation Data

I observed that some participants created their own animation for teaching in their computer laboratory. Figures 3 and 4 show the teachers designing animation to teach.



Figure 3: Teachers designing animation to teach RME lessons



Figure 4: Teachers designing animation to teach

It came to light that when RME teachers were in difficulty, they consulted one another for help so that they could come out with good

animation video to teach their RME lessons. This is in line with the second sub-division of the first pillar of the National Teachers Standards in which it was written “community of practice”. This further explains that teachers should collaborate positively with colleagues so as to brainstorm and come out with the best practices to improve upon teaching and learning.

Interview Data

I conducted semi-structured interview in which participants gave out various procedures used to design and or download animation from open sources. The interview data gave out detailed account of the concept of animation.

Teachers’ knowledge about the concept of animation

Participants’ dominant view was that animation is the use of the computer to design graphics, slides, and videos and pictures to behave like images or in a motion form to present a concept. It is the systematic operation of objects to appear as moving images which involve the use of sound and text.

Participant “D” emphasised that “animation is a technique whereby photographs, drawings and pictures are used to cause the illusion of movement.” (Transcript of interview held on 15/ 07/ 2020).

The participants view means that individual differences are considered during the teaching and learning situation when using animation. This is because there are some learners who are visual learners (learn through seeing) auditory learners (learn through hearing) and kinaesthetic learners (learn through practising). The use of animation in teaching helped to satisfy the needs of individual learners. For example, the slow learner, the mentally

retarded, as well as the intellectually gifted were taken care of by adopting a flexible and comprehensive attitude towards each of them. Lessons were planned in such a way that the dull, the average as well as the superior learner progressed at a rate commensurate with his or her ability.

Four common types of animation were identified and described. These include the 2D animation which means that the characters and the backgrounds in this project are created using height and width, neglecting thickness. This means that when designing a 2D animation the thickness is not shown.

Animation which is 3D animation style involves height width, and thickness. 3D animation is the animation of objects in three dimensional space, they can be revolved and look like real objects. However, the three dimension can also said to be management of 3D model or objects is carved out within three software distributing picture categorization giving them impression of animation or movement. According to participant “F”, “These are objects that have length, breadth and height. Solid objects are 3 dimensional. They have thickness” (Transcript of interview held on 17/ 07/ 2020).

The third one is the live action animation style. Live action animation style is a form of cinematography that uses photography in place of animation. Some works combine live action with animation to design a live action animation film. Live action is used to describe film, videos games or comparable visual media. Live action animation style is where live action filmmaking is combined with animation. Participant “C” mentioned that “this

is where things happening on the spot are captured by a camera and it is used to make a video” (Transcript of interview held on 08/07/2020).

The last common is motion graphic. They mentioned that motion graphics is an art form emphasizes on the capability to move graphic elements, shapes, and text. Pictures are arranged systematically; voice-over is done and given animation effect to show an illusion of movement.

The data implies that when designing animation to use to teach RME, the content the teacher intends to teach will guide the kind of animation to download or create and use. However, the animation video which will be more appealing is the 3D one. Learners will be motivated to see this particular one.

Participants’ Experience of Designing Animation

It came to light that participants had various experiences of designing animation. It ranged from two to seven years. Participant “F” said “I started designing animation videos for more than 7 years. That is from 2012 and above” (Transcript of interview held on 17/ 07/ 2020). This means that some of the participants were making animations before they were taken through the training in the college.

Production Process of Animation

The participants mentioned that the animation process depends upon what one wants to do or is looking for. Production process according to participant “I”, involves making illustrations when the designer is by the computer. The steps are as follows: 1. Brief research 2. Script and concept. 3. Mood board and story board. 4. Style and illustration. 5. Voice-over. 6. Animation. 7. Post production and revision (Transcript of interview held on 12/08/2020). Majority of participants said that generally, it may be pre-

production, production and post- production. Participant “D” mentioned that “animation stages involve pre-production, production and post-production” (Transcript of interview held on 15/07/2020).

At the pre-production stage, participants said that this is where the content and pictures to be used are decided upon. Pre-production stage is where the ideas of the lesson are conceived, modelling, creating stage or planning stage. How the designer will arrange them to become animation. “This is where a plan is developed in order to do the write up for the script so that the designer does not stray bounds. The designer needs to take photographs of inanimate objects and do voice recording” (Participant “E”, Transcript of interview held on 16/ 07/ 2020).

According to the participants production stage is the designing stage of the animation. The designer creates images and gives description to them. Cartoons are produced and sounds are created to accompany them. Participant “D” emphasised that:

Production stage involves the designer uploading pictures that he or she saved in a folder. Normally, Adobe Premier is used for posing it, does voice-over, animates it or gives it life, and renders it. It should be noted that if a designer renders it, the designer cannot correct anything. The designer should finish everything before he or she renders it (transcript of interview held on 15/ 07/ 2020).

Post-production stage is the final stage in the process of creating an animation after it has been published. The designer views the video by playing

it to see its nature. The designer then creates folder and saves it so that anytime he or she wants it he or she can access it easily.

According to the data, generally, animation process involves three stages. However, this depends on the kind of animation the designer is making. There could be changes in some specific cases. Participant “H” who designed motion graphic animation in teaching RME enumerated the stages that he used in developing the animation:

- i. Look for reference book especially the syllabus to know the specific lesson one is going to prepare.
- ii. Prepare the lesson
- iii. Take note of the systematic ways by which the lesson will be presented
- iv. Go online to search for pictures and more information that will be necessary in the lesson
- v. Get animation software which is Adobe premiere pro
- vi. Prepare animation
- vii. Get to the editing bench where both pictures are being brought to the time line for editing
- viii. Once it is done, one will render the animation to have final output which becomes resources for the lesson delivery (Transcript of interview held on 24/ 07/ 2020).

Camtasia 9 (software) is also used to develop motion graphic animation to teach. Participant “C” enumerated the stapes.

1. Get the RME syllabus and go by the topic you want to develop animation on

2. Download images of the elements or picture on the video
3. Import the files (images) into the Camtasia software and arrange them in frames. Then review the pictures that have been uploaded
4. Apply transition effect to (left swipe and pulse) to element
5. Do voice-over of the animation and make sure the narration goes in line with the pictures
6. Then review the animation and do some attractiveness and export the video in mp4 format

7. Publish the video through rendering (Transcript of interview held on 08/07/ 2020)

PowerPoint and focusky (software) were combined by participant “D” to create motion graphics. According to him, the following steps need to be followed to create the animation.

1. The RME syllabus should guide the teacher on the topic to prepare animation on.
2. Download pictures from the internet according to steps in the topic selected
3. Save the pictures in a folder on the desktop
4. Open PowerPoint and create the slides
5. Import pictures saved onto the slides systematically (According to how the lesson will be taught)
6. Open the focusky and import the pictures from the PowerPoint
7. Do the voice-over for all the slides by describing what the picture means
8. Click saves as and save the project in a folder

9. Click on animation, click on the picture to select it and select the entrance effects and time it as well

10. Save again and click on publish

11. Click on publish as video and the animation will be rendered. This takes about 15 to 20 minutes. When finished, it will indicate “successfully published, view it”. Then you can play to see.

Figures 5, 6 and 7 show part of motion graphics animation designed by participant “H” to teach “Types of Work”.

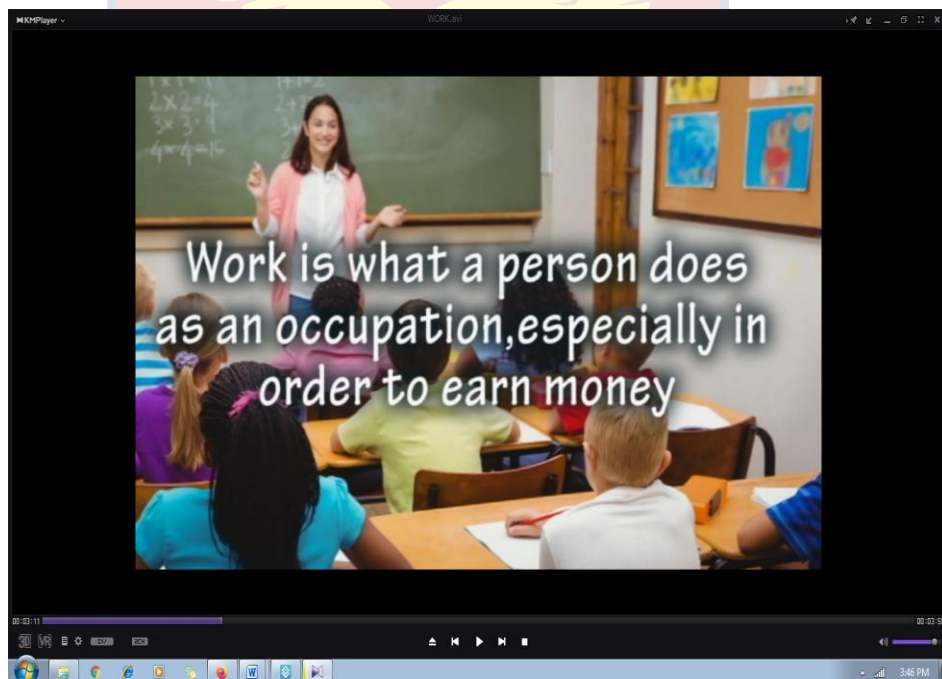


Figure 5: Part of motion graphics animation designed by participant “H” to teach types of work.



Figure 6: Part of motion graphics animation designed by participant “H” to teach types of work.

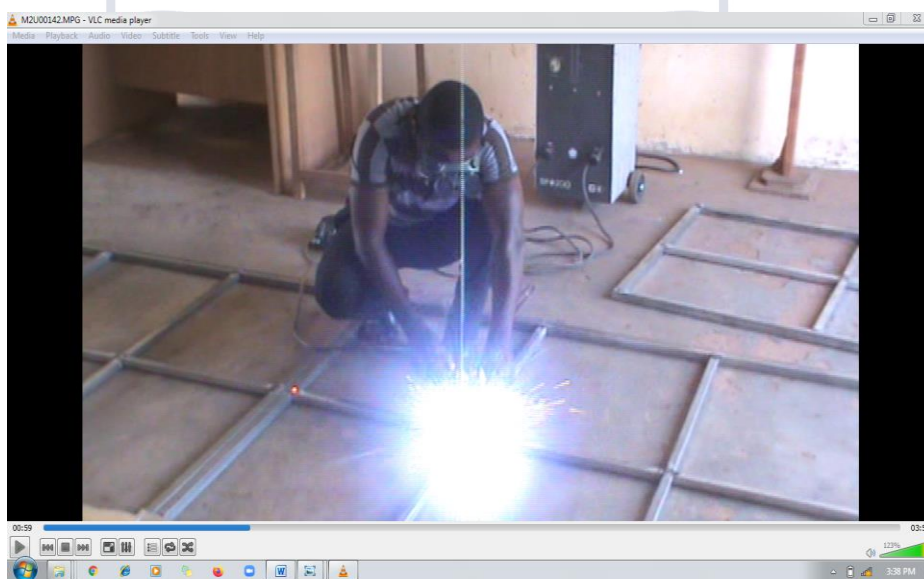


Figure 7: Part of motion graphics animation designed by participant “H” to teach types of work.

Some of the Software that can be used by RME Teachers to create Animation

They identified some software as Pow Toon, animaker, focusky, Power point, Key shift, Adobe Premiere, for creating visual communication, Blender, After effect, Inclo, Flash, Adobe Premiere pro, Photoshop, Autodesk, 3D max,

Autodesk Meya, Modo etc. According to participants PowToon could be used for creating animated presentation by manipulation of pre-created objects, imported images, provide music and user created voice-over.

The dominant view of the participants was that designing animation was time consuming. A teacher could spend two to three hours creating an animation for one lesson. Participant “D” said that “I do not design one myself but use already designed ones that are on the internet” (transcript of interview held on 15/07/2020).

However, some participants mentioned that they could create 3D animation for teaching a topic like “Creation”, according to Christian Religion. They however lacked skills in creating cartoons for teaching. Participants mentioned that PowerPoint is now very good to use for creating educational animations. When PowerPoint is correctly used, it can generate very current educational animations. Animaker can be used to create stories. The participants’ main view was that teachers could use cameras in taking photographs to make live action animation videos, for taking live action pictures for animation. It means that in taking pictures for live action animation the teacher needs a good camera of course. Blender (software) is the easiest software to use to create teaching videos. Participant “C” reiterated that the “Use of adobe premiere was very useful for creating and editing pictures” (Transcript of interview held on 08/ 07/ 2020). Figures 8 and 9 show part of motion graphic designed by participant “C” to teach family systems.

Nuclear Family System



Figure 8: Part of motion graphics animation designed by participant “C” to teach types of Family Systems

Extended Family System



Figure 9: Part of motion graphics animation designed by participant “D” to teach types of Family Systems

Animation made by teachers and how they conform to the multimedia learning principles

My observation of the animation produced by the teachers revealed that some of the animation designed corroborated with the multimedia principles while some also violated them. Coherence principle says that

learning is of better-quality when interesting but inappropriate words, pictures, sounds, music, and symbols are removed from the lesson. A lot of animations were designed without music and text at the background. However some of the teachers who designed the animation violated these principles by adding music and text to the background of the animation leading to cognitive overload.

Similar to that is spatial contiguity principle: this principle says that both graphics and its corresponding audio must move concurrently. This reduces the overworking of the cognitive. This was followed by all teachers who design the animation. The audio and the pictures were moving hand in hand.

Identical to that is modality principle: people learn more genuinely from pictures and spoken words than from pictures and printed words. The use of pictures and printed words overworks the visual channel of the cognitive processing system and decreases learning. Some of the teachers conformed to the principle by crafting animation without printed words on them. However, some animations were designed with text on the animation.

Related to that is voice principle: learning is improved when the words in a multimedia message are spoken by a friendly human voice rather than by a machine voice. This principle was followed by the teachers when they did voice-over using their own voice.

Equally, is image Principle: learners do not essentially learn more deeply from a multimedia presentation when the speaker's image is on the screen rather than not on the screen. None of the teachers who designed animation violated this principle. The designer's image was not on the screen.

The potency of a multimedia in teaching and learning is based on its quality in terms of meeting the standard principles of multimedia creation. Multimedia principles helped to reduce cognitive overload. The brain would not be over tasked when these principles are obeyed. It was revealed that some teachers who designed animation to teach did not know these principles. It is therefore necessary that teachers follow this principle when designing animation to teach RME.

I noted from the participants' explanation that because designing animation videos is time consuming, most of them just downloaded the videos from the internet. Some of the sources they got these videos from according to participants include: YouTube, Moviestorm, Explania etc. Online video converter, Internet Download Manager (IDM), Freemake, and Y2 mate. Com as downloaders can also be used to download videos very fast. The processes which are involved in downloading the video are:

1. One needs to know the animation video that will be used for a particular lesson.
2. One needs to search for the video at YouTube and play it.
3. Right click on the video and copy the link of the video
4. Open the downloader you want to use (Freemake, Internet Download Manager, Tube Ninger, Y2mate.com etc.)
5. Paste the link of the video on the downloader
6. Downloader downloads the video
7. Save the video in a folder

According to participant "E", "We can access the best seven animation software. This depends on the work the designer wants to do. E.g. adobe

animate premier, Microsoft power point, posser logo, 3D max, PowToon, Animaker and Key shift used for 3 dimensional animations” (Transcript of interview held on 16/07/2020).

In summarising information on the first research question, it came to light that designing animation consumes a lot of time. Consequently some of the teachers trained in animation development turned to download videos from YouTube so as not to waste too much time in preparing for a lesson.

Research Question 2: How do teachers use animation to teach RME so as promote learner centredness in junior high schools in Akatsi South Municipality?

This research question was asked to enable me find out how teachers use animation in teaching RME. The instruments used to collect data in order to answer this question include document analysis guide, observation guide, semi-structured interview guide and focus group discussion guide.

Document Analysis

I analysed the lesson notes of my participants and realised that they prepared lessons on topics such as “Jesus Triumphant Entry in Jerusalem”, “Caring for God’s Creation”, “Decency” etc. Teachers wrote lessons which took care of methods such as the use of animation combined with group interactions, group presentations, role play and brainstorming. Figures 10, 11, and 12 show lesson notes that were analysed.

WEEK ENDING: 07/07/2020,

SUBJECT: R.M.E

REFERENCE: HUYOR, S. RELIGIOUS AND MORAL EDUCATION: ACCRA: FONKY PUBLICATIONS.

DAY DURATION	TOPIC/SUB-TOPIC	OBJECTIVES/R.P.K.	TEACHER & LEARNER ACTIVITIES	TLMs	CORE POINT	EVA. & REM.
<p>DAY Wednesday</p> <p>DATE 07/07/2020</p> <p>TIME</p> <p>DURATION 40mins</p>	<p>TOPIC Religious Festivals</p> <p>SUB-TOPIC Triumphant entry of Jesus into Jerusalem</p>	<p>OBJECTIVES</p> <p>By the end of the lesson, the pupils will be able to:</p> <p>Narrate the story behind the celebration of Palm Sunday.</p> <p>Describe how Palm Sunday is celebrated.</p> <p>State religious significance of Palm Sunday.</p> <p>R.P.K</p> <p>Pupils can mention</p>	<p>INTRODUCTION</p> <p>Teacher introduces the lesson by asking pupils to mention some examples of religious Festivals they know e.g., Christmas, Palm Sunday.</p> <p>Teacher tells pupils that today's lesson is going to be based on Palm Sunday.</p> <p>Teacher lets pupils mention specific Sunday they went to Church carrying palm leaves.</p> <p>Teacher asks pupils the reason why they carried the palm leaves to church.</p> <p>ACTIVITY 1</p>	<p>Video of Jesus's disciples getting a donkey from somebody's house.</p> <p>Matthew 21:1 – 11 Luke 19:29 – 40</p>	<p>Palm branch is associated with Jesus's triumphant entry on Palm Sunday.</p> <p>Palm Sunday is the final Sunday in the lantern season signifying the beginning of the Holy week in the weeks.</p>	<p>EVALUATION</p> <p>1. Narrate the story behind the celebration of Palm Sunday.</p> <p>2. Describe how Palm Sunday is celebrated in our churches.</p> <p>3. Write down 5 religious</p>

<p>DAY Wednesday</p>		<p>some examples of religious festivals.</p>	<p>Teacher puts pupils into 3 groups. Teacher lets pupils see the video of Jesus on a donkey and people singing Hosanna to him. Teacher lets pupils discuss and write down its religious significance.</p> <p>ACTIVITY 2 Teacher lets pupils present in groups the significance of Palm Sunday.</p> <p>CONCLUSION Teacher summarizes the main points of the lesson through questions and answers. E.g. What is the significance of Palm Sunday? What does the palm leaves signify?</p>		<p>Holy week is the week leading up to Easter. Palm branch is considered as a symbol of victory and triumph.</p> <p>SIGNIFICANCE S Holiness Reconciliation Purification Togetherness Remembrance Re-commitment - Donkey signifies Peace.</p>	<p>significance of Palm Sunday.</p> <p>REMARKS</p>
--------------------------	--	--	--	--	--	--

Figure 10: Lesson Notes on Jesus Triumphant Entry

WEEK ENDING: 08/07/2020

SUBJECT: Religious and moral education

REFERENCE: Huyor, S. (2015). Religious and moral education. Accra: Fonky Publications

DAY DURATION	TOPIC/SUB-TOPIC	OBJECTIVES/R.P.K.	TEACHER & LEARNER ACTIVITIES	TEACHING AND LEARNING MATERIALS	CORE POINT	EVALUATION & REMARKS
DAY Friday DATE 07/07/2020 TIME	TOPIC God and Creation SUB-TOPIC Triumphant entry of Jesus into Jerusalem	OBJECTIVES By the end of the lesson, the pupils will be able to; i) Describe at least four (4) ways by which human activities affects God's creations. ii) Explain at least four ways of preserving	INTRODUCTION Teacher lets pupils mention things created by God. Expected answers: animals, air, land, mankind Let pupils mention the importance of some of the things created by God. ACTIVITY 1 Teacher shows animation videos to students about the ways by which human activities affect	Animation videos and real objects.	1. Bush burning 2. Use of chemicals on the land. 3. Indiscriminate hunting with guns. 4. chain saw operation 5. oil spillage and leakages	1. Describe four ways by which human activities affect God's creation. 2. List and explain four (4) ways of preserving God's creation REMARKS

<p>DURATION 45 mins</p>		<p>God's creations.</p> <p>R.P.K Pupils can mention things created by God.</p>	<p>God's creations.</p> <p>ACTIVITY 2 Teacher puts pupils into four (4) groups and lets them discuss what they have seen. Let pupils present their findings.</p> <p>ACTIVITY 3 Through brain storming, let pupils say what they can do to protect God's creation.</p> <p>CLOSURE Teacher goes over salient points and gives exercise</p>		<p>6. Overgrazing</p> <p>Protection</p> <ol style="list-style-type: none"> 1. Afforestation 2. Avoidance of bush burning. 3. Avoid the use of chemicals in fishing 4. Avoid polluting the air with toxic gases. 5. Preserve the forest by educating people about the effects of excessive felling of trees. 	
-----------------------------	--	--	--	--	--	--

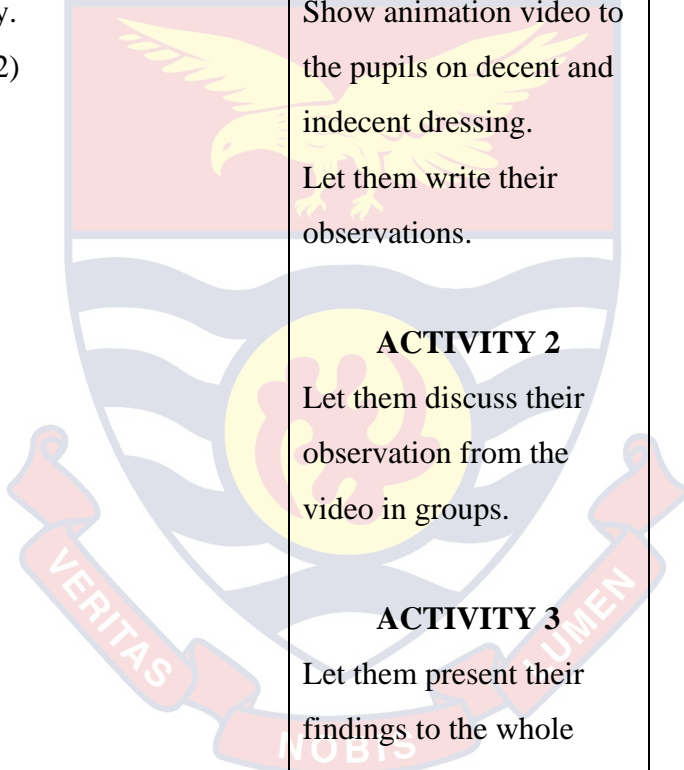
Figure 11: Lesson Note on God's Creation

WEEK ENDING: 03/07/2020

SUBJECT: Religious and Moral Education

REFERENCE: Huyor, S. (2015). Religious and moral education. Accra: Fonky Publications.

DAY DURATION	TOPIC/SUB- TOPIC/ASPECT	OBJECTIVES/R.P.K.	TEACHER & LEARNER ACTIVITIES	T/ LMs	CORE POINT	EVALUATION & REMARKS
DAY DATE	TOPIC Decency SUB-TOPIC Triumphant entry of Jesus into Jerusalem	R.P.K Pupils dress properly before coming to school. T.P.O By the end of the lesson pupils will be able to; 1. Explain decency (SRN. 4. 1. 1) 2. Give and explain four	INTRODUCTION Introduce lesson by revising the R.P.K. of the pupils through question and answer E.g. What do you do after bathing before coming to school? E.A. We dress properly ACTIVITY 1	Animation video	1. Decent dressing	

		<p>reasons why we should dress properly in the society. (4. 1. 2)</p> 	<p>Put pupils into five groups.</p> <p>Show animation video to the pupils on decent and indecent dressing.</p> <p>Let them write their observations.</p> <p>ACTIVITY 2 Let them discuss their observation from the video in groups.</p> <p>ACTIVITY 3 Let them present their findings to the whole class.</p> <p>ACTIVITY 4</p>		<p>2. Indecent dressing</p> <p>Reason for dressing properly</p> <ol style="list-style-type: none"> To meet cultural and societal expectation. For moral decency, commands, respect. Prevent general assault (rape) <p>Decent dressing is the act of dressing properly and behaving properly</p>	<p>Comment on the dressing of the Youth today.</p> <p>Let them come out with significance of dressing decently.</p> <p>Let them come out with effects of indecent dressing.</p> <p>REMARKS</p>
--	--	---	--	--	--	---

		<p>Let pupils explain what “Decency” is.</p> <p>Let pupils role play decent behaviours and</p> <p>CONCLUSION</p> <p>Teacher summarizes the salient point of the lesson through questioning. E.g.</p> <p>What is the significance of dressing properly?</p> <p>What are the effects of dressing properly?</p>		<p>in the society.</p> <p>. Not dressing properly</p> <p>2. Dressing properly</p> <p>Decent Dressing</p> <p>1. Tuck in shirts</p> <p>2. Lacing shoes</p> <p>3. Fastening belt</p> <p>4. Buckle sandals</p>	
--	--	---	--	---	--

Figure 12: Lesson Notes on Decency

Figures 13, 14, 15, 16 and 17 show some pictures in the motion graphics animations which were used in teaching RME.



Figure 13: The Donkey Jesus Christ Rode on



Figure 14: Jesus Triumphant Entry into Jerusalem



Figure 15: One way of Environmental Degradation



Figure 16: Tree planting as one way of Protecting the Environment



Figure 17: Recycle as one way of Protecting the Environment

It was revealed that some of the animation videos were adopted from YouTube and used in teaching RME. However, it is better teachers develop their own animation to suit RME topic they want to teach.

Observation Data

I observed that most of the RME teachers used questions and answers method to review the relevant previous knowledge of the learners at the introductory stage of the lesson. Some of them also used real materials to introduce the lesson. At the lesson presentation stage, in classroom teaching with animation various methods were combined. Among them was the use of group method of teaching. This method was adopted in teaching RME so that learners could discuss the videos they had watched. In promoting this interaction, it enabled learners to construct their own knowledge. Figure 18 shows a teacher using real material in teaching.



Figure 18: A teacher using real material (palm branch) in teaching to complement animation video.

Figures 19 and 20 portray the pictorial form of group interactions.



Figure 19: Group interactions



Figure 20: Group interactions

The data implied that teachers need to encourage learners to work in groups, carry out some of the functions of the teacher and act as a leader of the group. The teacher acted as a facilitator for learners working in groups so that learners would construct their own knowledge. The reason for this was to inculcate the spirit of team work, consensus building and tolerance in order to ensure peace and unity.

The RME teacher also used group presentation during the course of the lesson delivery. This presentation was made up of what they observed in the video and letter discussed in the groups. Figures 21 and 22 show group presentations.



Figure 21 : Group presentations



Figure 22: Group presentations

This implies that group presentations enable participants to give an account of what they have learnt during the course of their discussions. It puts every member of the groups on their toes since any member of the group could be called to answer a question.

After the group presentations, the RME teacher employed brainstorming method of teaching. This was made possible because learners saw the animation video, discussed it in groups, presented it in class, and therefore were able to do brainstorming well. Figure 23 shows learners giving their views during brainstorming while figure 24 shows a teacher writing on the board during brainstorming.



Figure 23: Learners giving their views during brainstorming

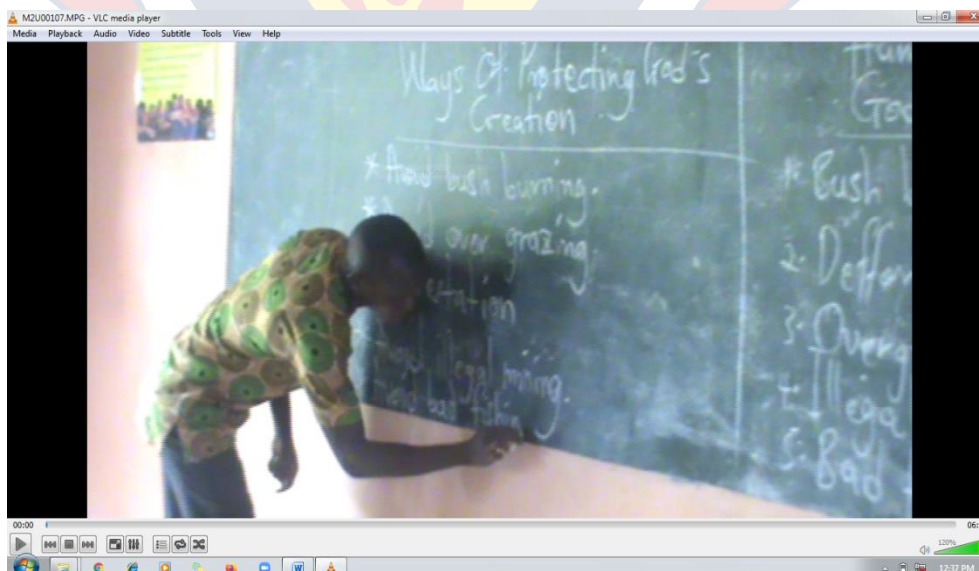


Figure 24: The RME teacher writing on the board during brainstorming

Interview Data

The interview guide was one of the most important data collection instruments used so that I could get in-depth information about the use of animation as a pedagogic tool in the classroom. The information got from the interview enabled me triangulate the data from other sources.

Creative activities in the classroom

I asked question nineteen on the interview guide to enable participants to provide information on various creative activities they used to teach RME. All the participants identified various activities including the use of animation videos and various teaching and learning resources. Participant “D” laid emphasis on the fact that:

I used animation in place of TLMs and graphs. Animation can easily represent TLMs which are handy to be brought to class. The use of animation and other resources promote activity learning in the classroom. Critical observation and analysis of pictures is the hallmark of using animation in teaching. Learners are put into groups in order to promote cooperative learning in the classroom (Transcript of interview held on 15/07/2020).

This means that animations videos were not used in isolation to teach RME, but used in conjunction with other teaching learning resources. The use of animation videos were also accompanied by the use of group discussions and cooperative learning.

Teachers’ Duration of Using animation

Question twenty on the interview guide aimed at soliciting information from participants so as to identify how long RME teachers have been using

animation videos in teaching. It was found that participants duration of using animation in teaching ranges from two to seven years. This implies that some of the teachers were using animation videos in teaching before they had the training in college. Having the use of animation experience for two years, three years, 6 years, , and seven years is enough to be proficient in teaching with animation videos.

Experiences of the Participants in using Animation in Teaching

I constructed item 21 on the interview guide to enable me find out the participants' experiences about the use of animation in teaching. Various experiences which were similar in nature came up. Participant "H" said that "A teacher must know how to get the appropriate picture for animation and how to sustain student's interest" (Transcript of interview on 24/ 07/ 2020).

Some of these experiences include being: less stressful, simplify presentation, less work is done by the teacher and students do a major part of the work. It makes the lesson interesting, helps students to understand the lesson better and often used to explain complex concepts. It creates and sustains learners' interest and reduces the teacher's talk time.

Best Ways of Using Animation in Teaching RME

I constructed items, 23, 24, 25, 41 on the interview guide to enable me get information from the participants on how best animation can be used to teach RME in the classroom. The main view of the participants was that there was no best way; it depends on the teacher and the style of his or her teaching and what he or she wants to do. Animation videos could be used at the introductory stage, presentation, the animation should be systematic. Participant "C" noted that successful use of animation videos did not only rely

on learners' viewing, nor in designing the video simply supplementary to the lesson. Successful teaching with animation depends on the selection of excellent teaching animation videos and in using them according to the laid down procedure. These procedures include:

- i. The teacher should preview the animation and identify its relevance to the lesson. In other words, a teacher who designs his or her own animation should create the video to suit the concept he or she is going to teach.
- ii. If the animation video is suitable for the lesson, the teacher must prepare a list of questions for the learners to answer after viewing the video. The feature of the video should be worth emulating.
- iii. The teacher should tell the learners the gist of the video the learners are going to observe, indicating the features worthy of close observation.
- iv. The video must be short because attention decreases with the length of the video.
- v. The video must be shown slowly with explanation. It is best not to include so many pictures in one lesson.
- vi. After the video is shown, there should be discussion with special attention to the important characteristics observed in the video. Answers to the questions should be evaluated (transcript of interview held on 08/07/2020).

The participants mentioned that one way of using animation videos was to combine them with traditional methods. However, animation videos

must be created or selected to fit and explain the topic to be taught. It should be presented in an interesting way, easy to comprehend and learners should be able to enjoy it. Participant “F” indicated that:

The teaching impact on the learners must be strong and memorable. The sound track must be clear and easy to understand. It should be developmentally appropriate to the age of the learners. This means that the level of the learner’s reasoning should determine the content, method, teaching resources and pace of work. This should also be considered by National Council for Curriculum and Assessment. The teacher should be informed that if animation videos are not conveying the actual concept the teacher wants to teach, learners may not benefit from it. That is if the animation videos are too difficult and unrelated to the topic the teacher intends to teach or the learner already knows. The learner is likely to be frustrated and this blocks effective learning. The child is motivated by a reasonable degree of cognitive conflict. (Transcript of interview held on 17/ 07/ 2020).

This is to say that the animation videos should neither be too easy nor too difficult to learn. It should not contain too much information that will confuse the learners.

Participants explained that virtual humans in animation videos gave instructions. They could be used to explain difficult concepts. When the teacher is not around, virtual humans in animation can help learners to learn. To use voice-over, the voice must come out clearly. Cartoons in the form of human beings could be used to teach learners in the video.

The principal view of the participants was that learners should see the video then put them into groups to discuss what they have seen. Through discussion, when words and pictures are presented simultaneously rather than successively it makes pupils to remember what they have seen. Participant “E” emphasised that “It facilitates learning and makes recollection of facts easier when words and pictures move concurrently, it links understanding. Less thinking is done which makes everything simple and avoids cognitive overload” (Transcript of interview held on 16/07/ 2020).

It made teaching simple, when words and pictures were presented simultaneously rather than successively learners learn a lot. According to participant “F” learners should look at the pictures first before they hear words. The teacher should not present the pictures and the words concurrently (Transcript of interview held on 17/ 07/ 2020). He explained that when using still pictures or real objects, learners need to see it first before the explanation come from the teacher. However, if it is animation video, then the video and the audio must go hand in hand.

The views of the participants was that when the content was ready, graphic representations depicted the content the teacher wanted to teach, it helped the learner to describe, stimulate and discuss among themselves. The teacher would present the animation so as to generate discussion among the students.

The participants crowned “the best way of using animation to teach RME” by saying that animation was used as a teaching resource to support learning. Intermittently, the teacher brings in animation to explain concepts to the learners. Here the presence of the teacher was not needed to facilitate

teaching. Making time to pause and give further information and carrying out evaluation at the end of every lesson are features of using animation in teaching.

Making the use of animation in teaching RME lessons practical

Question 22 and 29 on the interview guide aimed at getting information from the participants on how lessons involving animation can be made practical for learners to understand. The participants were of the view that when learners engage in discussing what they have seen in the video and move a step to practice, the lessons become practical.

Animation could be used to describe issues instead of using words. According to participant “C”, “combining animation video, role play, dramatization or discussion in teaching were sure ways of making animation lessons practical. Animation contains videos and pictures which can be combined with traditional methods. After viewing the video, learners could discuss what they have observed” (Transcript of interview held on 08/07/2020). Some participants also mentioned that Animation videos were periodically paused for learners to discuss or role play.

The interview revealed that using animation in teaching could also be combined with field trips to make the lesson practical. After learners had seen the video, they could be taken out to go and observe the physical scene. This could be local field trips or distance field trips. The participants said that field trips enabled learners to see things in their natural settings which cannot be brought into the classroom. It also developed learners’ observation as well as inquiry skills. In addition it provides newness and variety thus eradicating

monotony and boredom. Field trips made the subject matter more stimulating, practicable, applicable, challenging and comprehensible.

Majority of participants also mentioned that role play made lesson practical after they had seen the animation video. Participant “E” who used role play in the lesson said that:

Combining animation videos with role play promotes child-centred learning. That is, it immerses learner in the lesson that leads to easier understanding of a concept. It also helps learners to increase their communication skills. Role play also caters for individual differences. This is because all learners do have their chances. Learners gain knowledge, skills and attitude, in addition insight into how to deal with equivalent situations before they experience them in future. The purpose of role play is to make pupils inquiring, innovative and critical thinkers. During the role play, the pupils get the chance to display and build on their imaginative and critical thinking skills. It also inspires creativity and independent thinking. However, it is time consuming (Transcript of interview held on 16/07/2020).

The participants were also of the view that the use of animation in teaching made lessons practical when videos were in line with the experiences of the learners. The experience at this point means that lesson should progress from what is known to unknown, concrete to abstract and simple to complex.

Participants mentioned that in addition to the animation videos, the use of relevant TLMs during the teaching and learning situation made lessons

concrete and factual. This was because pupils truly engrossed with the materials and so did not learn hypothetically. The teacher also kept time because he or she did not engage in lengthy explanations of concepts. These TLMs can be tangible objects, pictures, charts etc.

Participant “E” emphasised that “apart from animation, real objects could also be brought for the learners to interact with. Watching alone might not be sufficient. Real objects for the learners to lay their hands on will go a long way to make them acquire skills” (Transcript of interview held on 16/ 07/ 2020). This means that when videos are observed the real objects of the things observed in the video must be brought so that learners could practice the skills. This is also a perfect way of using animation because there is an adage which says that “practice makes humankind perfect”. He who does not practice will “rust” like a nail.

Participant “F” pointed out “that after the learners had seen the video, they could be asked to discuss, dramatize or role play it. Some students could be asked to role play the live action animations which was shown to them” (transcript of interview held on 17/ 07/ 2020). This implied that learners could be involved in creating live animation and this will later be used to teach the whole class. In doing this, it must be role played by the learners and a good camera is used to video it.

The use of animation in teaching RME promotes child-centred education

I constructed items 26,27,28,30 and 49 on the interview guide to enable me get information on how to use animation in teaching to promote child-centred learning. Information that I derived from the participants revealed the use of animation in teaching was one of the ways of promoting

child-centred learning in the classroom. The participants mentioned that the teacher must deploy animation to be used by the learners both in and out of the class. By allowing the learners to play with animation produced, they learn on their own. Participants did mention that to promote child-centred education, learners could be given animation videos in advance to observe. They would return to class later for discussion on the video watched. Participant “H” said that:

Discussion warrants enthusiastic participation of learners in the classroom. It also increases the communication skills of the learners. Discussion also advances critical thinking, creativity and novelty of thought. It improves learners’ group feeling and tolerance as they become conscious of variation in view. The biggest disadvantage is that it is time consuming (Transcript of interview held on 24/07/2020).

Again, in the classroom, the teacher could ask students to watch the animation video carefully, for the first time and the second time, pause and ask them their views on what they have seen. This should be done in the form of discussion which would encourage learners to discuss issues presented in the animation. Pausing the animation video to and ask probing questions, follow up questions to bring the learners into the lesson is one way of involving learners in the lesson being taught. It could be individual questions on the animation shown in class. They should not observe the video just for watching sake.

Furthermore, the participants were of the view that the teacher could also put students into groups. Ask them to watch the animation video carefully

so that group secretaries should write down notes. Group interactions after they have observed the videos especially when it involves processes. In groups, learners discuss what they have seen in order to construct their own knowledge and form their understanding. In groups, learners comment on the videos they have seen and build a consensus to present to the whole class.

The teacher could make available the videos to the students to see. Child-centred learning could be achieved by asking learners to retell the story from the animation video. Individuals could perform their own activities or give their own views. When animation was provided for the learners they learned on their own. The teacher used animation to promote individual interaction during the course of teaching. Once it was prepared and given to the learners, they began to learn on their own as they watched the video over and over again.

Participants identified that animation allowed the learners to learn-by-viewing, learn-by-doing or learn-by-coaching. It helped them used the major senses in learning, for instance, feeling, sight, hearing, tasting etc. When the lesson was presented in a video form, they engaged in a lot of activities therefore they learned by doing, coaching and facilitating.

Participant “F” maintained that “the teacher could use animation to start a process which is partially complete and then let learners to complete it. Viewing animation helps learners to see the process, engage them in the work and coach them on a particular skill they have observed” (Transcript of interview held on 17/ 07/ 2020).

Through the provision of activities for learners intermittently, learners were fully immersed in the RME lesson. It led to providing activities to

convey meaning. Learners must also be kept in suspense which would spice them to engage in relevant activities.

Animation directed what the learners should be doing thereby facilitating learning and helps learners to construct their own knowledge. By discussing the videos they had watched, a teacher helped learners to construct their own knowledge with the use of animation. As learners discussed the animation and the subject matter and digest, they were able to form their own opinions and concepts about issues. Participant “C” mentioned that:

Animation was thought provoking. It engaged learners in discussing what they had seen in the video thereby promoting cooperative learning among learners. It helped learners when the teacher was absent. Animation was interesting and appealing to students therefore they continued the lesson and asked more questions even when it was time (Transcript of interview held on 08/ 07/ 2020).

Teachers and learners reflecting on their own teaching and learning

Item 31 on the interview guide was asked so that information could be derived on how effectively both the teacher and the learner could reflect on their teaching and learning.

The participants’ view on the issue was that evaluation exercises should be given to the learners and after which the teacher diagnosed the marks. The teacher could sit back to edit the animation looking at the responses given by the learners before going to the next class.

The participants mentioned that teachers mostly reflected at the end of the lesson. They asked themselves questions and also asked learners questions

and the output or various views brought out by the learners would determine whether the goals and objectives of the curriculum had been achieved. Colleagues could also critique the animation so that corrections would be made. The teacher could play it back for reflection on it. Participant “D” laid emphasis on the fact that:

Conducting assessment and analysing the result is the sure way for both the teacher and the learner reflecting on their performance after the lesson. Assessment for learning (AfL) is a modern term describing one of the significant drives of assessment. It is the process of looking for and interpreting evidence for use by learners and their teachers to decide where the learner in their learning, where they need to go and how best to go there. Assessment for learning provides information to be used as feedback to modify the teaching and learning activities in which they are engaged. This whole concept is referred to as formative evaluation. Again assessment as learning (AaL) provides opportunity for the learners to reflect on their own learning. For example, the use of brainstorming among learners, discussing animation videos, group presentation of learners after they have seen animation videos etc. helps learners to reflect on their own learning (Transcript of interview held on 15/07/2020).

This indicated the importance of formative assessment as a means by which both the teacher and the learners could reflect on their teaching activities. After teaching both the teacher and the learners need to reflect on their activities during the course of the lesson. This would enable the teacher

to focus on the gap between where a learner is in his or her learning and where he or she needs to be (the desired goal). This could be achieved through processes such as sharing criteria with learners (objectives) and effective questioning on the animation videos observed and feedback.

Focus Group Discussions

I used this instrument so that learners could tell their own story about the use of animation in teaching RME. The data gathered through the use of this instrument confirmed what I got earlier.

There were various themes that ran through the data. These were creative activities teachers organised in the classroom, various methods the teacher used when teaching with animation, things that teachers did to grab audience's attention and gaining interaction, how animation made lesson learner-centred and things that teachers did to help student perform well both on retention and transfer.

Creative activities teachers organise in the classroom

The main issue that came up in the discussion was that teachers used teaching resources to make learning easier for the learners. These resources were animation, wall charts, maps, pictures or diagrams which the teacher might exhibit and refer to during the teaching. Animation was teaching and learning tool which is handy to be brought to class. The use of animation and other resource encouraged activity learning in the classroom.

Various methods teachers used when teaching with animation

Participants discussed that there were various ways the teacher carried his message to his or her learners. The animation was a teaching tool combined with various methods helps learners to understand the lesson. Some of the methods that the teachers used include group method, individual method, question and answer etc. How learners learn and how a learner demonstrated what he or she had learnt is closely related to learner's readiness level, interest and preferred mode of learning or the entry behaviour of the learner. This is true because each learner comes to school with different set of learning needs, due to differing in academic skills development, personal and socio-economic background. This suggests that in using animation to teach various methods are used.

Things that teachers do to grab audience's attention and gaining interaction

The participants mentioned that interesting sections and activities, exhibit things they were interested in. Something they identified and involved in. It should not be remote. It should be familiar to them. Sequencing animation stories properly, creating clear voice so that learners will understand the concept.

How animation makes lesson learner-centred

Students said that they were made to watch the animation carefully, for the first time and the second time. Then the teacher paused the animation and asked them their views on what they saw. This was done in a form of discussion.

The animation was projected for the learners which enabled children of varying disabilities to engage confidently with each other. The data implied that animation as a tool for teaching promotes child-centred learning which was now gaining currency throughout the world. This was because with child-centred learning helped learners to apply the knowledge they had acquired in real life situation. This is inferred to mean that when learners participate in teaching and learning activities, they will likely to develop concentration and consequently contribute enthusiastically to lessons. In the same manner, it was anticipated that the teaching and learning of Religious and Moral Education would be participatory, and lessons not be changed into evangelization sessions. Learners will become passive learners when Religious and Moral Education teachers attempt to be paragons of intellectual excellence, providing every information to the learners and this may not encourage effective teaching and learning.

Things that teachers do to help student perform well both on retention and transfer

Participants' principal view was that animation video was one stop solution that could grab the attention of students during teaching. With its entertaining visuals, learners could clearly understand the concept, since it as similar to cartoons, students got hooked to it. This means that when lessons attracted attention retention becomes easy. Consequently, the knowledge could be applied to solve real life problems. In the argument for visual resources, it is important that in many languages the words "I see" and "I understand" are the same, because we understand when we have visualised or when we have

seen the concept being taught. It could then be said that the most effective pedagogic tool are those that contribute a visual impression.

Helping various kinds of learners during teaching and learning

The consensus of the participants on helping various kinds of learners was that animation should be used for visual learners followed by practical activities which will enable kinaesthetic learners to benefit from the lesson. Sensors remember and understand best if they could see how a concept connects to the real world. The learner might have difficulty if most of the concepts were abstract and theoretical. Most students were visual learners which indicated that most learners would understand concepts taught if more visual presentations were used in class. This implied that everyone learns more when information is presented with animation and let them do practical activities.

In summary, data on the teachers' usage of animation in teaching revealed that gaining learner's "involvement" is the paramount feature of animation. This was closely followed by "comprehension" and finally "retention" of the concept learnt. Animation was used to support traditional way of teaching which made teaching and learning effective. Animation served to develop mental-cognitive skills in students and assisted them to learn in a meaningful way instead of rote-memory learning as well as increasing their academic achievements. The use of animation in teaching promoted reflection on the teaching process by both the teacher and the learners through discussions, brainstorming, and role play thereby motivated learners to learn.

Research Question 3: What are the ways by which the use of animation as a pedagogic resource in teaching RME is in line with the National Teachers’ Standards (NTS)?

This research question was asked to enable me get information on the ways the use of animation as a teaching/learning resource conform to the NTS. The NTS is a document which helps to synchronise the practices of all teacher training institutions as well as the practices of teachers in Ghana.

Documentary Data

The first document that I analysed was the National Teachers’ Standards (NTS). The standards served as a point of reference for standards and competencies.

Table 8: Organisation of National Teachers’ Standards

Domain	Sub- division
Professional Values and Attitudes (1)	Professional Development, Community of Practice
Professional Knowledge (2)	Knowledge of Educational Framework and Curriculum Knowledge of learners
Professional Practice (3)	Managing Learning Environment, Teaching and Learning, Assessment

Table 8 contains the three domains of NTS. These are Professional Values and Attitudes (1), Professional Knowledge (2) and professional Practice (3).

I identified the fact that the use of animation as a pedagogic tool has taken care of a good number of the guidelines. These include:

1a. Teachers critically and collectively reflect to improve upon teaching and learning.

2a. He or she should secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and the class they teach.

3a. Plan and deliver varied and challenging lessons, showing a clear grasp of the intended outcomes of their teaching.

3e. Employ various instructional techniques that motivate learners' participation and critical thinking.

3h. Set meaningful tasks that encourage learner collaboration and lead to purposeful learning.

3i. Explain concepts clearly use examples familiar to students.

3j. Produces and uses a variety of teaching and learning resources including ICT to enhance learning.

I identified so many sub-divisions of the three domains of the NTS that have been taken care off by the use of animation in teaching RME.

The second document I analysed was the teacher's lesson note. Teachers planning teaching and assessment showed that they were integrating subject specific pedagogic knowledge, explicitly indicating how the approach can be used in the basic school classroom.

Observation Data

My observation revealed that teachers were demonstrating that they know what the NTS are for. They have deeper knowledge about the three

domains, and the model of a good teacher that NTS prescribe in their interactions in the classroom. They were referring to NTS in their interactions in the lesson.

During my observation in the classroom, I identified that teachers used several instructional methods to teach RME which made the lesson interactive and creative. Some of these methods include: discussion, questioning, brainstorming, role play on the animation video observed. These methods are appropriate to learners achieving the learning outcome. This is in line with 3e of the NTS which said that the teacher must employ various instructional techniques that motivate learners' participation and critical thinking.

Furthermore, after learners watch the animation video, they were put into groups to discuss what they had observed and present to the whole class. This conformed to 3h of the NTS which indicated that teachers should set meaningful tasks that encouraged learner collaboration and led to purposeful learning.

Another observation was that, with the use of animation to teach learners lessons, they were able to contribute meaningfully during the lesson. This implies that the lesson was well understood by the learners. This took care of 3i of the NTS which indicated that "teachers must explain concepts clearly using examples familiar to students".

In addition, teachers made use of computer and projector to present the lesson to the learners using animation. This fulfilled what was written in 3j that teachers should produce and use a variety of teaching and learning resources including ICT to enhance learning.

Interview Data

The participants categorised the following sub-divisions of the three domains of the NTS which were covered by the use of animation as a pedagogic tool in teaching RME. These include:

3a. Plan and deliver varied and challenging lessons, showing a clear grasp of the intended outcomes of their teaching.

2c. He or she should secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and the class they teach.

3e. employs various instructional techniques that motivate learners' participation and critical thinking.

3g. employs instructional strategies appropriate for mixed ability, multilingual, multi age classes.

3h. Sets meaningful tasks that encourage learner collaboration and leads to purposeful learning.

3i. Explains concepts clearly using examples familiar to learners.

3j. Produces and makes use of a variety of teaching leaning resources including ICT to enhance learning.

The summary of the information on the ways usage of animation in teaching RME by the participants conform to NTS were that teachers used appropriate interactive and creative approaches throughout the lesson to support learners to achieve learning outcomes and demonstrate the learning indicators throughout their own efforts. For instance, after observing the animation video, group work, role play, question and answers, brainstorming

etc. were used which are appropriate to learners achieving the learning outcomes.

Research Question 4: What are the benefits of using animation in teaching RME in JHS in Akatsi South Municipality?

Document Analysis

I discovered from the NTS that teachers should use ICT (video clips) to expand or consolidate learning. This will make learners understand the concept thereby achieving the intended learning outcomes. There was a shift from memorisation and rote application of procedures towards standards for performance that are based on conceptual understanding and reasoning. Including ICT in teaching made the learners active and challenged to think deeply, share, talk and feel able to ask questions. Teachers should address this as soon as possible through individual teaching.

The syllabus also stated that there should be creation of learning-centred classrooms through the use of creative approaches to teaching and learning as strategies to ensuring learner empowerment and independent learning. ICT offered new possibility for teachers to be enlightened to take ownership of own learning. The teacher turned a learner, a leader, designer, analyst, collaborator and a facilitator of learning. The teacher was a vested professional and learning catalyst within the culture of ICT integration in the teaching and learning process.

This information implied that the use of animation will help learners to participate fully in the lesson hence promote understanding of the concept being taught by the teacher. Learners will be able to develop in-depth ideas,

promote sense making and engage them. In this case, learners are challenged and to be actively learning.

Observation Data

The observation data revealed that when animation was used to teach learners, it promoted learner-centred education. Activities such as observation, discussions, brainstorming, role play etc. were organised for learners to participate. Learners contributed their ideas during those activities. Figures 25 and 26 show learners' participation in group discussions.



Figure 25: Learners' participation in group discussions



Figure 26: Learners participation in group discussions

My observation of a lesson on “decency” showed that the use of animation videos explained the concept into detail and learners identified the consequences of decent and indecent dressing.

Figures 27: shows bad deeds while 28, 29, 30 and 31 display pictorial representations of indecent and decent dressing respectively.



Figure 27: Part of motion graphic used to teach Bad Deeds

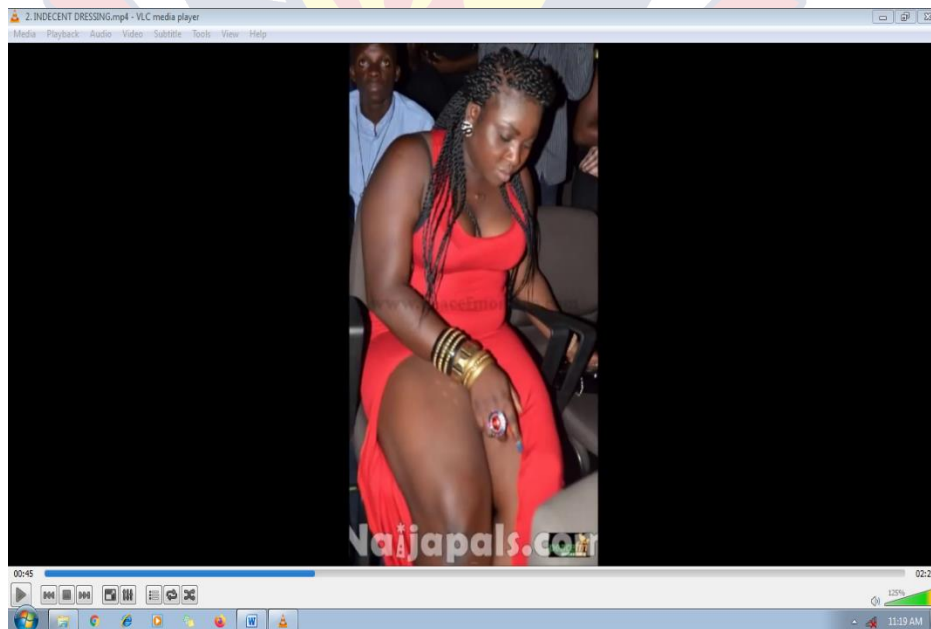


Figure 28: Indecent dressing (credit <https://www.youtube.com/watch?v=KBIidKhcSfA>)



Figure 29: Indecent dressing (credit <https://www.youtube.com/watch?v=KBIidKhcSfA>)



Figure 30 : Role plays on decent and indecent behaviour



Figure 31: Decent dressing (credit - <https://www.youtube.com/watch?v=XYr1IEYGv5I>)

I observed that the use of animation in teaching lessons challenged learners and whipped up their enthusiasm in the involvement of the lesson. Learners consistently and persistently constructed knowledge from the learning experiences provided by the teacher. This facilitated self-actualisation of the learners. Figure 32 depicts a learner giving her view during brainstorming



Figure 32: A learner giving her view during brainstorming

Observation Data revealed that learners benefited a lot when animation was used to teach. It was identified that the use of animation promoted full participation of the learners in the lesson. This was because group methods, brainstorming, and questions etc. were adopted for the learners to discuss the video observed.

It was also observed that the use of animation in teaching aroused the attention of the learners thereby promoting good classroom management. Learners concentrated on watching the videos and wrote down points. This enabled the learners to contribute meaningfully during brainstorming and group discussions. Figure 33 illustrates learners writing down what they saw in the animation video.



Figure 33: Learners writing down what they have seen in the animation video

I also observed that the use of animation in teaching made the lesson practical. When learners viewed the concept, they were learning about, they related it to their experiences. They engaged in discussing of what they observed, thus making the lesson interesting.

Interview Data

Section “C” of the semi structured interview guide is made up of items 43 to 49 which were designed so that I could dig out information concerning the usefulness of animation.

Skill acquisition by Learners

My finding from the interview data revealed that when the lesson was presented in a video form, they were later engaged in a lot of activities which every learner participated. It helped learners to be able to follow instructions quickly and on their own, practice what they observed. Learners saw the actions in the animation video and practiced what they saw; especially played and repeated, helped the learners to be interested in the animation. Animation video stimulated interest and to repeat the process that the teacher wanted the learners to do exactly. These helped learners to acquire skills.

The participants justified the use of Animation in teaching RME by saying that it did not allow learners to waste time. They took their time and played it. One could also learn at home before coming to class. This indicates that there is no time limit to what learners should do. Anywhere, one could learn with the animation video. This made learners to participate actively and acquire skills.

The majority of the participants agreed that using animation to teach a process helped learners to acquire skills and concepts better. The use of animation to teach a process which is difficult for the learners such as ‘creation story’ helps learners to acquire skills. Students could learn from the abstract, new, and unique concepts more easily by leveraging technology to present practical concepts that are difficult to comprehend. Animation helped

learners to learn the practical way of doing things through visuals and also helped learner with spelling difficulties to overcome such problems.

Promotes child-centred education

The participants' assessment was that learners watching animation videos moved them actively and emotionally into the lesson. It was noted by participants that the controlling effect of personal involvement in a lesson came from animation videos and it was this characteristic of the video which made them had strong interest in lessons.

The overriding opinion of the participant was that when the lesson was presented in a video form, the learners engaged in a lot of activities therefore they learned by doing, coaching and facilitating. Because learners saw the actions and practice what they had seen, it helped them to use their major senses in learning, feeling, seeing, hearing, tasting etc.

Participants agreed that motion pictures produced the impression of reality because of their ability to produce faithfully the scenes and movement of real life. This was important because it should be the aim of every teacher to communicate 'reality' to his learners. In this way learners were enthusiastically involved in the lesson being taught.

This implied that viewing animation helped learners to see the process, involved them in the work, and coached them on a particular skill they had observed. RME teachers must make room for pausing and on demand to review the lesson.

Helping learners to recall

The interview data revealed that teachers could build mental representation from words by adding graphics to words. Teachers could build

mental representation from words by allowing learners to see what they are teaching. According to participant “E” “plants, animals, objects etc. will give learners mental representation of what they have seen before. For instance, ‘angry’ is a word that can be understood when learners see the picture of somebody being angry” (Transcript of interview held on 16/07/2020). Adopting methods of teaching to focus more on the learner will make them develop photographic memories.

The participants explained that students performed well both on retention and transfer tests by making learning real to learners through the use of animation. Let them see the importance of what they are learning in similar situations, provide novel situation for them to apply. A number of activities should be provided for them to do, by practically demonstrating and guiding learners to repeat the concept. Practical issues learnt in animation will be easily applied to the society. That is practical topics will be easily applied.

All the participants agreed that teachers could help learners to apply the knowledge in real life situation by practicing knowledge through delivery lessons which involves animation. Participant “F” said that “it helped the learners to know where the knowledge could be applied, how they were going about their work, the teachers would serve as coaches and mentors for the learners to apply the knowledge acquired” (Transcript of interview held on 17/07/2020). Teachers also prompted learners in visual manipulation, by practising what they had seen in the video. Through the use of more visual materials to explain the concepts to them, learners turn to gain a lot therefore videos and pictures that depict the concept should be used. Project work based

on the concept learnt through the use of animation could also help learners to understand the concept well, participant "F" emphasised that:

Project method is related to life in that learning originates from the project is practical and closely related to life when the project itself produces meaningful and purposeful activities. The learners are given the chance to experience problems in real life situations. It is also a source of relief for the low achiever. Learners who are low achievers find it problematic to work in situations where abstract thinking is overriding. They easily work with concrete and practical situations which keep them busy. The project method therefore provides a great opportunity for the learner, who is a low achiever, to participate in practical learning situations which give him or her much needed intrinsic motivation (Transcript of interview held on 17/ 07/2020).

Again, participants agreed that animation helped visual learners to improve upon their academic work. Kinaesthetic learners also improved upon their understanding of a lesson by practising what they were taught. Teacher should have less talk, drawing pictures and as learners see it the teacher will have less talk. After watching the video, the teacher must provide real material for them to work with or interact with. Let learners reflect on their own activities through assessment such as brainstorming, discussion, role play etc. Teachers should also let learners recall what they learnt. Additionally, they could also draw what they have observed. This will make them practice what they have learnt. Teaching should not be limited to words alone. The learners need to be involved in practical activities. By creating and use of animation

that clearly define step by step process of doing things, learners can retain and recall what they have learnt. Concepts learn this way will linger long in their memories.

Majority of the participant agreed that visual channel holds more information than auditory channel therefore when the two forms of learning are combined learning becomes meaningful. When words and pictures are presented simultaneously rather than successively it facilitates meaning understanding and makes recollection of facts easier. It links understanding. Less thinking was done, made everything simple and avoid cognitive overload. A well-balanced media which carry clear information was the animation in teaching.

Participants, prevailing understanding was that the use of animation affected their teaching positively by reducing teaching time because many words were put into one picture. Lessons were more organised, more interesting and appealing to learners with the use of animation. The use of animation affected teaching positively in the sense that it made teachers talked less. Learning became interesting to learners. Participant “E” revealed that “I am also able to cover a lot within the shortest possible time” (Transcript of interview held on 16/07/2020).

The data revealed that as more students practised; asked questions, performance was improved through carrying out activities. It helped to explore complex concepts more easily, generated interest and understanding. It helped prevents abstract learning and brings real life understanding.

I noted from the participants that animation videos were capable of having powerful and dramatic effects on traditional methods of teaching. This

was because by their characteristics, they had the influence to create suspense, sustain rhythm or generate climaxes. The effect of these qualities could help to drive home a lesson with greater force.

Promoting self-learning

The participants reported that the use of animation promoted self-learning by giving animation to learners to watch in advance. In the absence of the teacher, learners were able to play the animation videos on their own and made meaning for themselves. Learners glued to the animation video as the interest was developed. They viewed the video at their own time and learned at their own pace. It increased ones' knowledge in ICT, also helped individual to represent and communicate ideas.

Getting learners' attention during lesson

The participants explained that animation helped to arrest the attention of the viewer because a lot of words were put into one or two pictures thereby reducing teaching time. Because of the interesting scenes and the suspense nature of the video, videos viewers were obliged to pay close attention so as to grasp concepts. This was because learners could not imagine seeing inanimate objects talking.

The participants reported that with the use of animation, it helped them to pay attention to know what happened next. The learners became interested because it kept them in suspense. Pictorial presentation helped in gaining learners attention. This means that when designing the animation, teachers must make sure that the video keeps learners in suspense.

Animation being interesting

All the participants said that interactive animation made teaching and learning faster. When concepts were presented in a video form they were engaged in a lot of activities thereby helping them to understand the lesson. It made learners to understand the lesson faster. Participant “F” noted that “during the presentation of animation videos the teacher needed to pause and ask questions for the learners to answer. It supported student cognitive process and attracted attention, engaged the learner and sustained motivation. This helped learners to follow what was being taught” (Transcript of interview held on 17/07/2020).

The participants defined multimedia learning as combining text and graphics with the aim of explaining concepts and facts. The use of more than one media in presenting concepts is referred to as multimedia. In other words, it is a term used in ICT to describe a form of learning supported by different sources of information e.g. text and graphic. They are used jointly for understanding and memorising a given content.

The principal view of the Participants was that teachers could improve learner’s academic work by using different forms of techniques in conveying knowledge to the learners. Through the use of animation, learning or teaching learning resources could improve learners’ academic work by involving learners in the lesson and reviewing methods to suit the learners. In the absence of the teacher, learners could learn on their own or with concept presented with animation.

One deviant case identified was what participant “F” noted that the learners should look at the picture first before words. The teacher should not

present the pictures and the words concurrently. It made the lesson more interesting, shorter and simpler than just audio. It also helped the teacher not to engage in long verbal explanations (Transcript of interview held on 17/ 07 2020). This could imply that the participant follows his own way of using the animation which should not be the case. The visual and the audio should be used concurrently that made the concept understandable.

Focus Group Discussions for Learners

The appendix “B” which is interview guide for learners also helped me to gather information to answer research question two. Items one to twelve of the interview guide were answered by the learners who benefited from animation lessons. This interview guide was crafted for the learners so that I can get different perspectives of learners.

Multimedia learning

According to the learners, multimedia learning is a form of computer aided instruction which involves learning from words and pictures and helps in mental representation from words. Multimedia learning is using various forms of media in teaching or feeding on information from varied sources. Participants were of the view that multimedia learning can facilitate learning or increase understanding of material being presented. This implies that the role of multimedia in the teaching and learning process is unquestionably essential. This was related to the use of animation in teaching.

Improving learner’s academic work

Participants mentioned that mental representation is built through viewing what is being taught. This means that the use of animation is very paramount if the teacher wants his or her learners to understand the lesson.

The participants mentioned that it was significant to give visual demonstration where possible during the course of the lesson and this will make learners to build their own concept. Creating images that depict the words would help learners to do self-learning and promote effective participation in lessons.

The participants also talked about using TLMs after learners have seen the animation video. This will go a long way to concretise what they are learning. Teachers need to provide concrete examples in their teaching because learners said they had tougher time understanding abstract concepts when reading about them in text books. Concrete materials helped the students to see concepts in reality. Also, kinaesthetic learners understand concepts better through doing than by being shown or told about idea. Thus they will benefit from performing the demonstration themselves. Participants emphasised that effective teaching using the right methods was paramount if the teacher determined to achieve his or her learning indicators. These teaching methods must be child-centred so that the teacher will only act as a facilitator. Learner-centred education means putting learners at the centre of their own learning. Hence, the duty of learning is placed on the students while the teacher acts as a guide. In learner-centred environment, learners are enthusiastically engaged in creating, understanding and constructing their own knowledge.

Helping various types of learners to understand concepts

Focus group discussion data from the learners indicated that animation should be used in teaching and let them practice what they have seen. In other words, the kinaesthetic learners can improve upon their understanding of a lesson by doing what they have seen. Using pictures and text in delivering

RME lessons will promote deeper understanding. Also teaching lessons with concrete materials and involving learners in activities that take place in the lesson makes various kinds of learners to benefit from the lesson.

All the participants agreed that visual learners could improve upon their academic work by helping them to see what they were learning. The lessons should include demonstrations and visually appealing resources. The teacher should make efforts to paint mental pictures for learners. This is because visual learners learn by seeing and visualising. They also used words and phrases that evoke visual images. After using animation to teach, kinaesthetic learners should be involved in problem solving after they watch the animation video.

I noted from the participants that engaging and supervising learners during practical activities was one way of helping the kinaesthetic learners to make lesson becomes understandable. I also noted that different instructional animation was necessary to be used by RME teachers so as to meet different capabilities of learners in the classroom.

Learner's retention and transfer

Participants agreed that when learners see and hear what is being taught and practice it, learning becomes permanent. Audio-visual materials must be able to help build in learners clear and accurate concepts. The animation as a pedagogic tool also helped to reduce the problem of individual differences among learners. Animation videos also strive to reduce verbalism and promoted learning which lingers long in the memories of learners. I noted from Participant discussion that Animation succeeded in directing students' interest promoted their active participation in teaching and learning situation.

When animation is systematically used it helps to widen learners' range of experience. Animation provided learners with factual experience. It stimulated self- activity on the part of the learners.

Again, participants were of the view that presenting concepts in a practical manner was ideal way of helping learners to retain what they had learnt. Animation actively engaged the learner during lesson delivery. Animation could attract and sustain attention, develop interest, adjusting learning climate and promote acceptance. Connecting learning theory to practical experience was one of the features of animation. That was learners were involved in problem solving after they watched the animation video. Providing learners with animation of lesson taught to help them watch it repeatedly will help improve upon the student work.

Comparing learning through visual and audio

Participants agreed that visual holds more information and knowledge retained than auditory channel. In effect, animation would provide avenue for the learners to remember what they had learnt. Audio-visual learning made lesson interesting. Even those who were in other classes came round to observe the concept being taught through animation.

Getting learner's attention during teaching

The participants agreed that teachers grabbed audience's attention and gaining interaction by using visual resources in teaching. Lesson became understandable when animation was used in teaching them. It promoted learner involvement in the lesson.

Furthermore, participants' main view was that the use of ice breakers help stabile classroom environment. It cools down tension in the classroom

thereby promoting academic work. Participant noted that a teacher could also have a picture that involves critical thinking for some few periods, for the teacher to ask learners to observe and answer questions based on the pictures.

This data shows that teachers could gain the attention of the learners by being humorous but not becoming a funny man. The teacher should show pictures that are thought-provoking so as to generate discussion.

In concluding information on the benefits of using animation in teaching, teachers operate a classroom in which learners pursue different questions, work at different speeds, use different resources, and work in flexible groups. Learners observing animation videos often pushing beyond the limits of the teacher's knowledge and learning to work together to produce products that demonstrated what they had learnt. All of these were carefully planned and supported by a teacher in such a way that the learners took ownership of their project and feel responsible for their own learning, while at the same time ensuring that essentials in the RME syllabus or national curriculum standards were met and that learners would perform well on whatever high-stake assessments were to be organised for them.

Research Question 5: What are the challenges teachers faced in designing animation for RME lessons in junior high schools in Akatsi South Municipality?

I asked this research question in order to fish out information from the participants on challenges that they faced when designing animation to teach RME. Data gathering tools include observation guide and interview guide.

Observation Data

The observation data revealed that most of the participants did not have computers; to design animation therefore they consulted other friends to borrow from them. It had also been observed that some of the animation videos used were downloaded from YouTube because creating new animation took a lot of time.

Interview Data

Lack of equipment in schools

Participants discussed the non-availability of computers and internet facility made the design of animation a challenge. These were the tools a teacher needed in order to design animation.

Absence of technical-know how

Animation was not commonly used by subject teachers because they lack skills in the preparation of animation videos. In other words, teachers lack technical-know how in preparing animation. Lack of information on where to get animation video to download and use in teaching RME was a big challenge.

Animation designing consumes time

Participants maintained that much time was spent in preparing animation. It could take up to two hours in preparing animation for a lesson. Creating animation needs special skills and could be expensive if one wants to download one for use. Two to three hours preparation for a lesson was difficult.

The cost involved in using animation in school

Participants explained that data would have to be purchased and could be expensive if one wants to download this animation while in traditional teaching methods; no cost may be incurred in terms of data purchase. A teacher had to go round looking for animation pictures and other equipment that were needed for the lesson. According to participant “G”

Schools do not have enough money to purchase the computers and projectors. PTA and the Government can help provide these machines, having access to internet connectivity is a challenge. Also, the purchase of software will be a challenge for the teachers. Animation is more expensive, yet worth it” (Transcript of interview held on 23/07/2020).

Challenge of saving videos files

All the participants agreed that videos files take more space than text. A text file can take one megabyte while a video file can take about 20 gigabytes. When the videos are not properly stored, it could easily get missing. Virus could attack the video and the problem of misplacement also usually occurs. One needs bigger facilities to store the video. Therefore, storage of animation video file is a challenge.

Research Question 6: What are the challenges encountered in the use of animation in teaching RME in junior high schools in Akatsi South

Municipality?

Teaching of RME using animation was bedevilled with some challenges. I asked this question in order to dig out those challenges. This will

enable me recommend ways by which these challenges could be resolved in order to promote the use of animation in teaching.

Document Analysis

Analysis of the NTS revealed that ICT tools should be used in implementing the curriculum as well as video clips or pictures. These ICT tools include projectors and computers. I found out from the documents that if equipment that had been proposed to be used were available most of the challenges would have been overcome.

Observation Data

The observation data revealed that most of the participants did not have computers and projectors for the lesson; therefore they consulted tutors at the Akatsi College of Education for some of these equipment.

It was also noted that not all the classroom blocks were connected to electricity therefore students were moved from one classroom to another when it was time to use projectors to project the videos. This created inconveniences for teachers to reorganise the classes.

Interview Data

Section “E” of the semi structured interview guide discussed challenges in the use of Animation as Pedagogic tool in teaching RME. The items in this section range from 53 to 58. I crafted these items to enable me get information from the participants on challenges they encountered when using animation in teaching.

Lack of equipment in schools

Participants discussed the non-availability of computers and projectors in the basic schools thus made the use of animation in teaching a challenge. These are the tools a teacher needs in order to use animation video to teach.

Challenges of electricity

The interview data revealed that it is imperative to get electricity in schools so as to facilitate teaching I.C.T in education. The use of animation in teaching could only succeed if electricity is provided in schools which are a major challenge. Even school that were hooked to the nation grid have some challenges such disconnections due to non-payment of bills. That was frequent power outages therefore there was need to have standby generators which was impossible.

It could be deduced from the participants' view that the use of animation was more costly than the use of traditional methods, yet worth it. The use of animation in teaching will fill the technology gap that is created in the classroom. It will also go a long way to satisfy the learner-centred education which is now gaining currency. The multiplicity of attractive colours of the animation videos and its enjoyable visuals enable teachers to incorporate it in their teaching so as to make their classrooms lively. This is because people learn abstract, new, and novel concepts more easily when they are presented in both verbal and visual form. Learners acquired knowledge, values and skills in abstract, different, and novel concepts more easily when they were instructed in both verbal and visual form.

Focus Group Discussions

I conducted focus group discussions so that I could get information from the multiple perspectives of the learners on the challenges of using animation in teaching. The participants poured out their views on the issue.

Lack of computers and projectors in the school

The consensus view of the participants about the major challenge of using animation in teaching was that the teachers did not have the computers and the projectors to use. Some teachers had the computers but no projector which was a major obstacle. This could be the reason for teachers not using audio-visual resources in teaching.

Electricity is not in all classrooms

The participant explained that some classrooms were not connected to electricity hence learners had to move from one classroom to the other before lessons could go on. The projectors specifically need to be powered by electricity then it can be operational. If really, we want to use animation in teaching, then all classrooms must be connected to electricity.

The data on challenges of the use of animation shows that every good thing comes with its own challenges. The challenges can be overcome when the government provides enough technical support by training teachers to acquire skills in the designing animation or downloading animation from open sources which makes our classroom lessons interesting and practical. Technology can become a meaningful support for learners' work if the teachers have access to the equipment that are necessary to design and use animation in teaching. This will go a long way to promote group work among

learners on long-term, multidisciplinary projects involving challenging content that is interesting and important to them.

Discussion of Results

In this section, discussion of the outcome of the data was done. The discussion was based on how teachers designed and used animation as a Pedagogic tool in teaching RME in Akatsi South Municipality. The discussion covered the six research questions formulated. The material in this unit is presented under six broad categories as follows:

1. How animation can be designed as a pedagogic tool for teaching RME in junior high schools in Akatsi South Municipality.
2. Teachers' use of animation to teach RME so as to promote learner centredness in junior high schools in Akatsi South Municipality.
3. Ways by which the use of animation in teaching is in line with NTS.
4. Benefits of using animation to teach RME in junior high schools.
5. Challenges faced by teachers in designing animation to RME in junior high schools in Akatsi South Municipality.
6. The challenges encountered using animation to teach RME in junior high Schools in Akatsi South Municipality.

How animation can be designed as a tool for teaching RME in junior high schools in Akatsi South Municipality.

Designing animation to teach in the classroom demands technical skills. Therefore teachers need to be trained by experts in order to get the skills. Teachers need to be conversant with the various animation software that are used and the processes that are involved in using them.

The concept of animation

Participants demonstrated profound knowledge about the meaning of animation during the interview session. Majority defined animation as the use of computer to design graphics, slides, videos, pictures to behave like images or in a motion form to present a concept. It is the systematic operation of objects to appear as moving images which involve the use of sound and text. These motion pictures were observed during the classroom teaching. This definition is parallel to that of Winter (2003) who explained that animation is a series of varying images that are presented dynamically in ways that help to perceive continuous change over time and develop a more appropriate mental model of a task. Animation is a dynamic medium in which images or objects are manipulated to appear as moving images.

Participants were able to identify four common kinds of animation that are used. These are 2D animation style which has width and height without thickness. Animation which is 3D animation style involves height width, and thickness. Another was live action animation style. Live action animation style is a form of cinematography that uses photography in place of animation. Some works combine live action with animation to design a live action animation film. The last one was motion graphic. This information agrees with Lucas and Rahim (2015) that there are four common styles of animation. The two-dimensional animation style is defined as a form of computer generated animation that lacks the elements of depth of space and form. In contrast, three-dimensional animation style is defined as computer generated animation that comprises the element of dimensions such as depth of space and form.

Live action animation include the use of video cameras to take video of live-actions and lastly, motion graphic.

The participants mentioned that the animation process depends on what the teacher wants to do or is looking for. Majority of participants said that generally, it may either be or at the pre-production, Production and post-production. Pre-production stage where the idea is conceived modelled. The designer will arrange them to become animation. This is where a plan is developed in order to do the write up for the script so that one does not stray bounds. The designer needs to take photographs of inanimate objects and do voice recording. According to the participants production stage is the designing stage of the animation. The designer creates images and gives descriptions to them. Cartoons are produced and sounds are created to accompany them. Post-production stage shows the final stage in the process of creating an animation and involves exporting or rendering out the animation frame and then editing the piece of animation together using audio editing software. This corresponds with Alella's (2013) findings who said that generally, the production procedure consists of three major stages, pre-production, production and post-production with various activities taking place at each stage.

Some of the Software that can be Used by RME Teachers to Create Animation

Participants were of the view that designing animation was time consuming. A teacher could spend two to three hours creating an animation for one lesson. Some participants reported that they did not design animation but used already designed ones that were on the internet. This is parallel to

Chesser's (2014) findings that educators need to select which technique is best for them. If a teacher wants to generate new animation from beginning, then he or she should go to sites such as Animwork. Chesser emphasized that the sites such as TED Ed, Brain Pop, Explania, YouTube, Brainpickings, Google Apps and Moviestorm solve the problem of searching for several different software packages to handle the different parts of film-making (Moviestorm, 2011).

Participants identified some software for creating animation as Pow Toon, animaker, Power point, Key shift, Adobe Premier, for creating visual communication, Blender, After effect, inclo, Flash, Adobe Premiere pro, Photoshop, Autodesk, 3D max, Autodesk Meya, Modo etc . This corresponds with the accounts of Chesser (2014) that Animwork, PowToon, Aniboom were very good software for creating animation. This is in line with Pappas (2013) who identified software for creating animation such as GoAnimate, Crazy Talk can be used for creating 2D or 3D avatars made from personal pictures with 3D face fitting technology Toon Boom Harmony. Harmony offers the teacher the opportunity to produce a unique hybrid of animations that embrace both 2D and 3D designs. Adobe's and After Effects as animation software boast of distinctive structures like the Character Animator that make it successful from all competition.

The participants revealed that designing animation consumed a lot of time. A designer could use two to three hours creating animation. Therefore some of the participants downloaded animation videos from YouTube. This finding is parallel to Harrison's (2003) that using animation as teaching

resources in the classroom is no longer difficult, since teachers could download from open sites to use in teaching.

The designing of animation by teachers revealed that, while some teachers designed animation to suit the multimedia learning principles, others violated them. The first principle is spatial contiguity principle: this principle says that both graphics and its corresponding audio must move concurrently. This reduces the overworking of the cognitive (Mayer, 2005). This was adhered to by all teachers who designed the animation. The audio and the pictures were moving hand in hand.

Identical to that is modality principle: people learn more genuinely from pictures and spoken words than from pictures and printed words. The use of pictures and printed words overworks the visual channel of the cognitive processing system and decreases learning (Mayer, 2005). Some of the teachers conformed to the principle by crafting animation without printed words on them. However, some animations were designed with text on the animation.

Related to that is voice principle: learning is improved when the words in a multimedia message are spoken by a friendly human voice rather than by a machine voice (Mayer, 2005). This principle was followed by the teachers when they did voice-over using their own voice.

Equally is image Principle: learners do not essentially learn more deeply from a multimedia presentation when the speaker's image is on the screen rather than not on the screen (Mayer, 2005). None of the teachers who designed animation violated this principle. The designer's image was not on the screen

Teachers' Use of Animation to Teach RME so as to promote learner centredness in Junior High Schools in Akatsi South Municipality

Teacher' adoption of animation in teaching was made possible as a result of advancement in technology. Lack of teaching and learning resources in the basic schools to teach abstract concepts meaningfully challenged teachers to look for more innovative way of teaching the topics. Use of animation as a pedagogic tool to teach is a modern way of transforming classroom teaching and learning.

Creative Activities in the Classroom

All the participants identified various activities including the use of animation videos and various teaching and learning resources. Animation can easily represent TLMs which are handy to be brought to class. The use of animation and other resources promoted activity learning in the classroom. Critical observation and analysis of pictures was the hallmark of using animation in teaching. Learners were put into groups into order to promote cooperative learning in the classroom. This is in agreement with Baharul's (2014) findings that traditional education is gradually moving away from only the voiced modes of presentation lesson to learners, allowing for a more collaborative, and combined learning milieu. The term 'blended learning' has gained significant consideration in recent years as particular forms of teaching with technology keep emerging.

Teachers' Duration of Using Animation

The three data sources revealed that RME teachers had been using animation videos in teaching. It had been found that participants' duration of using animation in teaching ranges from two to seven years. Some of the

teachers were creating animation videos before they had the training in college. Having the use of animation experience for three years, 6 years, two years, and seven years is enough to be proficient in teaching with animation videos. This is in line with Sruthi's (2015) finding that with the expansion of technologies, developments and pedagogic tool, there is the need to modernize method of learning to be in agreement with fast striding generation. There is the need for teachers to adopt novel teaching practices and learning organization systems in our classrooms so as to help our learners learn.

Participants said that a teacher must know how to get appropriate picture for animation and how to sustain student's interest. Some of these experiences include being: less stressful, simplify presentation, less work was done by the teacher and students did major part of the work. It made the lesson interesting, helped student to understand the lesson better and often use to explain practical and complex concepts. It created and sustained learner's interest and reduces teacher's talk time. This finding confirms Lucas and Rahim's (2015) study that recent studies show that animation is effective in learning practical tasks. Instructional animation is a form of animation designed to educate learners in the classroom.

Best Ways of Using Animation in Teaching RME

According to some participants, there was no best way of using animation in teaching; it depended on the teacher and the style of his or her teaching and what they wanted to do. Animation videos could be used at the introductory stage, presentation, the animation should be systematic.

The majority of the participants reported that successful teaching with animation depended on the selection of excellent teaching animation videos

and in using them according to the suggested procedure. These procedures include:

1. The RME teacher should preview the video before he or she finally decide whether it is the best way or not of teaching the lesson.
2. The teacher should give verbal overview to the video by citing the principal things to look out for in it.
3. First the teacher should show the video without stoppage.
4. There should be verbal discussion of the video aimed at consolidating the right impressions gained and drawing attention to points missed in the first observation.
5. The second showing of the video may be interjected to draw attention to specific facts in the video, running it back or simply by cutting out the sound track briefly to say something.
6. There should be group discussions of the main teaching points.

This data was confirmed by my observation of classroom teaching involving animation where RME teachers teach following the procedure. This finding corroborates with Farrant's (1980) findings that designed animation with computers are projected to learners to watch so as to understand the concept. The RME teachers need to follow laid down procedures in order to use animation in teaching successfully. These procedures include:

- i. The teacher should preview the animation and identify its relevance to the lesson. In other words, the teacher designing his or her own animation should create the video to suit the concept he or she is going to teach.

- ii. If the animation video is suitable for the lesson, the teacher must prepare list of questions for the learners to answer after viewing the video. The feature of the video should be worth emulation.
- iii. The teacher should tell the learners the gist of the video the learners are going to observe, indicating the features worthy of close attention.
- iv. The video must be short because attention decreases with the length of the video.
- v. The video must be shown slowly with explanation. It is best not to include so many pictures in one lesson.
- vi. After the video is shown, there should be discussions with special attention to the important characteristics observed in the video. Answers to the questions should be evaluated.

Participants said that one way of using animation videos is to combine them with traditional methods. However, animation videos must be created or selected to fit and explain the topic to be taught. It should be presented in an interesting way, easy to comprehend and learners should be able to enjoy it. This is similar to Mayer's (2001) finding that learner-centred approach should be embraced when using multimedia in teaching. The use of animation as a pedagogic tool does not mean traditional methods will be eliminated rather it will promote blended learning in the classroom. The use of animation as a pedagogic strategy would complement the use of the traditional methods and enhance them. The finding also collaborates with Chan's (2013) that animation can help students to attain the anticipated learning outcomes. Animations can effectively support traditional teaching and learning to accomplish learning objectives.

Making the Use of Animation in Teaching RME Lessons Practical

The participants were of the view that when learners were engaged in discussing what they had seen in the video and moved a step to practise, the lesson became practical.

Animation could be used to describe issues instead of words. According to the participants combining animation video, role play, dramatization or discussion in teaching were unquestionable ways of making animation lessons practical. Animation contains videos and pictures which could be combined with traditional methods. After viewing the video, learners could discuss what they have observed. This is comparable to Mayer's (2003) that the use of animation as a pedagogic tool does not mean traditional methods will be eliminated; rather it will promote blended learning in the classroom. The use of animation as a teaching/learning resource will complement the use of the traditional methods and enhance them. Some participants also mentioned that Animation videos were periodically paused for learners to discuss or role play. This approves Farrant's (1980) study that periodically the animation video should be paused for questioning.

The interview revealed that using animation in teaching could also be combined with field trips to make the lesson practical. After learners had seen the video, they could be taken out to go and observe specific scenes or activities.

The participants were also of the view that the use of animation in teaching made lessons practical when videos were in line with the experiences of the learners. The experience at this point means that lesson should progress from what is known to unknown, concrete to abstract and simple to complex.

Participants mentioned that in addition to the animation videos, TLMs used during the teaching and learning situation made lessons concrete and factual. This was because pupils truly get engrossed with the materials and so did not learn hypothetically. The teacher also kept to time because he or she did not engage in lengthy explanations of concepts. These TLMs could be tangible objects, pictures, charts etc. This agrees with Vygotsky's (1978) findings that teachers must use teacher resources, worksheets, lesson plans, visual media which help learners to recall concepts and ideas and rubrics all in a joint attempt to scaffold learner's learning and measure said improvement as the child continues to grow in his or her ability to resolve problems self-reliantly.

Learner-Centred Education

The participants mentioned that the teacher must deploy animation to be used by the learners both in and out of the class. By allowing the learner to play with animation produced, they learn on their own. Participants did mention that to promote child-centred education learners could be given animation videos in advance to observe. They returned to class later for discussion on the video watched. This is related to Vygotsky's (1978) study that the use of activity intermediaries provides a way in which people are able to relate with nature. Vygotsky's 'Zone of Proximal Development (ZPD)' discusses things the learner can do self-reliantly and those things in which he or she needs the help of the teacher or peers. My finding is also akin to O'Donnell's (2006) study. He reported that when knowledge is integrated in both verbal and non-verbal modes, learners are permitted to construct dual

representations in their mental ability and to make referential connections between those representations.

Furthermore, participants mentioned that pausing the animation video to ask probing questions, follow up questions to bring the learners into the lesson was one way of involving learners in the lesson being taught. It could be individual questions on the animation shown in class. They should not observe the video just for watching sake. This collaborates with Farrant's (1980) study that occasionally questions should be asked during the course of showing the video for learners to understand the concept.

Brown, et al. (2015) emphasised that constructivist trust that for advance levels of cognition to occur, learners must build their own knowledge through activities that engage them in vigorous learning. Active learning materialises when students take stock of what they already know and then move beyond it. This is akin to my findings when the participants were of the view that the teacher could also put students into groups and ask them to watch the animation video carefully and group secretaries should write down notes. Group interactions after they had observed the videos especially when it involved processes. In groups learners discussed what they had seen in order to construct their own knowledge and form understanding. In groups, learners commented on the videos seen and uphold consensus to present to the whole class.

My finding was that the teacher could make available the videos to the students to see. Child centred learning could be achieved by asking learners to retell the story from the animation video. Individuals could perform their own activities or give their own views. When animation was provided for the

learners they learned on their own. The teacher used animation to promote individual interaction during the course of teaching. Once it was prepared and gave to learners, they began to learn on their own as they watched the video over and over again. This is parallel to Mayer, and Moreno's (2002) work that with effect of rapidly emerging information and communication technologies, use of animations has been strongly advocated as an advanced, constructivist and learner-centred to substitute the traditional learning approaches in numerous countries. The finding also collaborates with Mayer's (2001) finding that learner-centred approach should be embraced when using multimedia in teaching.

Participants identified that animation allowed the learners to learn-by-viewing, learn-by-doing or learn-by-coaching. It helped them use the major senses in learning: touch, sight, hearing, taste etc. When the lesson was presented in a video form, they engaged in a lot of activities therefore learn by doing, coaching and facilitating. This relates to Soffar's (2016) study that computer animation allows the learners to measure their abilities to accomplish the specific task without any threat, it will help them to avoid any obstruction, it permits the learners to learn-by-viewing, learn-by-doing or learn-by-coaching and they are thought-provoking methods for developing practical skills and expanding the information retention.

Teachers and Learners Reflecting on their own Teaching and Learning

The participants' view on the issue was that evaluation exercises should be given to the learners and after which the teacher diagnosed the marks. The teacher could sit back to edit the animation looking at the responses given by the learners before going to the next class. This could be

linked to Farrant's (1980) study that the animation video must suit the concept the teacher wants to teach.

The participants mentioned that teachers mostly reflected at the end of the lesson. They asked themselves questions and also asked learners questions and output or various views brought out by the learners would determine whether the goals and objectives of the curriculum had been achieved. Colleagues could also critique the animation so that corrections are made. The teacher could play it back for reflection on it. This approves of Freire's (1972) study that a more radical (e.g. Freirean) pedagogic tool, based on dialogic/dialectical methods and with a strong sense of reflection on the part of the teacher and the participants is what is gaining currency.

Furthermore all participants mentioned assessment for learning (AfL) as a modern term describing one of the significant drives of assessment. It is the process of looking for and interpreting evidence for use by learners and their teachers to decide where the learner is in their learning, where they need to go and how best to go there. Assessment for learning provides information to be used as feedback to modify the teaching and learning activities in which they are engaged. This whole concept is referred to as formative evaluation.

Again, participants also mentioned assessment as learning (AaL) which provides the opportunity for the learners to reflect on their own learning. For example, the use of brainstorming among learners, discussion of animation videos, group presentations of learners after they have seen animation videos etc. helped learners to reflect on their own learning. These affirm Hare's (2013) findings that pedagogic tools make teachers know how to work as facilitators, coaches, models, evaluators, managers, and advocates.

The ways in which the use of animation in teaching RME is in line with the National Teachers' Standards (NTS)

The three data sources (document analysis, observation and interview) revealed that the use of animation in teaching RME is in line with the NTS. During the analysis of the NTS I realised that many sub-divisions of the three domains of the NTS that have been taken care of by the use of animation in teaching RME.

It should be noted that domains of the NTS are given numerals. Professional Values and Attitudes (1), Professional Knowledge (2) and professional Practice (3) The participants categorised the following sub-divisions of the three domains of the NTS which were covered by the use of animation as a teaching/ learning resource in teaching RME. These include:

3a. the teacher should plan and deliver varied and challenging lessons, showing a clear grasp of the intended outcomes of their teaching.

2c. He or she should secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and the class they teach.

3e. the teacher should employ various instructional techniques that motivate learners' participation and critical thinking.

3g. the teacher should employ instructional strategies appropriate for mixed ability, multilingual, multi- age classes.

3h. the teacher should set meaningful tasks that encourage learner collaboration and leads to purposeful learning.

3i. the teacher should explain concepts clearly using examples familiar to learners.

3j. the teacher produces and makes use of a variety of teaching leaning resources including ICT to enhance learning.

These data were also confirmed during the observation of lessons where lessons were well planned with the use of various methods and the inclusion of ICT tools. The interview data also confirmed the same data. This is in line with MOE's (2017) findings that everything that teachers do in the teaching profession should be in line with the three domains of the NTS.

The benefits of using animation in teaching RME at junior high schools

The observation, interview and focus group discussions data revealed that there were a lot of benefits that could be derived from the use of animation. It is therefore incumbent on the teachers to use animation as a teaching/ learning resource so as to reap the benefits.

Improving Learner's Academic Work

The interview data revealed that teachers could build mental representation from words by adding graphics to words. Teachers could build mental representation from words by allowing learners to see what they are teaching. The use of animation appeals to learner's sense of vision while the teacher's oral presentation attracted their sense of hearing. Graphic or visuals were particularly effective openers with less-able learners who were known to be more oriented and responsive to visuals than hearing presentations. This is equivalent to Mayer's (2001) assertion that there is the intention to believe that under certain conditions people learn more profoundly from words and pictures than from words alone.

According Mayer (2001), when learners see the steps described in words and see the steps portrayed in animation learners' academic

performance progresses. When words and pictures are presented together as in a narrated animation, students perform well both on remembering and transfer tests. This finding collaborates with my findings when the participants discussed that teachers could improve learner's academic work by using different forms of techniques in conveying knowledge to the learners. Through the use of Multimedia learning or teaching learning resources could improve learners' academic work by involving learners in the lesson and reviewing methods to suit the learners. In the absence of the teacher, learners could learn on their own with concepts presented with animation.

Improving Learners Retention and Transfer

Student performed well both on retention and transfer tests by making learning real to learners through the use of animation. Let them see the importance of what they are learning in similar situations; provide novel situations for them to apply. A number of activities should be provided for them to do. For example, teachers should practically demonstrate and guide learners to repeat the concept. Practical issues learnt in animation would be easily applied to the society. That is practical topics will be easily applied. All the participants agreed that teachers could help learners to apply the knowledge in real life situation by practising knowledge through the delivery of lessons which involved animation. This is parallel to Atkins's (2006) finding that the use of video as a teaching tool empowers the teacher to teach effectively. It also helps to link conceptual learning meaningfully to real-life practice, thus enabling transfer of learning.

Helping Various Kinds of Learners to Progress Academically

Participants revealed that animation helped visual learners to improve upon their academic work. Kinaesthetic learners also improved upon their understanding of a lesson by practising what they were taught. The teacher should have less talk, draw pictures and as learners see it the teacher would do less talking. After watching the video, the teacher must provide real material for them to work with or interact with. Let learners reflect on their own activities through assessment such as brainstorming, discussion, role play etc. Teachers should also let learners recall what they learnt. This is related to Weitz's (2015) findings that animation increases students' understanding of certain multifaceted processes or theoretical concepts that change over time and space. Visual learners who were frequently called spatial learners, naturally, learn and recollect best through visual communication.

The visual channel retained more information than the auditory channel if both the visual and auditory channels were presented with information, more knowledge was retained. However, if too much information is delivered it is inadequately processed, and long-term memory is not acquired. Animation learning seeks to give instructors the ability to arouse both the visual and auditory channels of the learner, resulting in better progress (Mayer 2001). This is also similar to that of Brown, et al. (2015) who postulated that visual learners remember best when they see-pictures, diagrams, flow charts, time lines, films and demonstrations, this means that using a whiteboard, projecting maps and images, or showing photos of one's ideas work best. Moll (2018) also documented those tactile/kinaesthetic learners learn best through concrete experience. This means that for learning

to be meaningful and understandable, learners need to be involved in the lesson. That is why child-centred education is now gaining currency.

Mayer (2001) maintained that student learn better when parallel words and pictures are presented concurrently rather than sequentially. This is also in line with what Brown, et al. (2015) explained that instructional media should help learners to see and hear at the same time. This is related to my study when majority of the participants agreed that Visual channel holds more information than auditory channel therefore when the two forms of learning are combined learning becomes meaningful. When words and pictures were presented simultaneously rather than successively it facilitated meaning understanding and made recollection of facts easier. It linked understanding. Less thinking was done, made everything simple and avoid cognitive overload. A well-balanced media which carries clear information is the use of animation in teaching.

Skill Acquisition by Learners

My finding from the interview and observation data revealed that when the lesson was presented in a video form, they engaged in a lot of activities which every learner participated. It helped learners to be able to follow instructions quickly and practice on their own. Learners saw the actions in the animation video and practised what they had seen; play and replay helped the learners to be interested in the animation.

The participants justified the use of animation in teaching RME by saying that it did not allow learners to waste time. They took their time and played it. One could also learn in the house before coming to class. This

means that there was no time limit for its use. Anywhere one could learn with animation video.

Again, pupils learnt abstract, new, and unique concepts more easily by leveraging technology to present practically concepts that were difficult to comprehend. Animation helped learners to learn the practical way of doing things through visuals and also helped the learner with spelling difficulties to solve such problems. Animation helped learners to learn the practical way of doing things through visuals and also helped the learner to overcome such problems. This is parallel to Barak, Ashkar, and Dori's (2011) finding that instructors can use the computer animation to show the things visually and that will promote interaction among learners in the classroom. Animation also put life into the teaching because there is a saying that "seeing is believing". As learners saw the process they understand the concept.

Promotes Child-Centred Education

The participants were of the view that learners watching an animation video were drawn actively and emotionally into the action of the video. Participants noted how the animation video lessons had a controlling affection for learners' personal involvement in teaching and learning and it was this characteristic of the video which made a strong teaching impact associated with them. This finding is related to Sruthi's (2005) study that the use of animation as a teaching/learning resource can enhance students' comprehension of the subject matter, promote cooperative and lifelong learning, increased team building and supported students to think profoundly and creatively.

Participants agreed that motion pictures produced the impression of reality because of their ability to produce faithfully the scenes and reflection of real life. This is important because it should be the aim of every teacher to communicate 'reality' to his learners. In this way learners are enthusiastically involved in the lesson being taught.

Helping Learners to Recall

The data revealed that as more students practised, and asked questions, performance improved through carrying out activities. It helped to explore complex concepts more easily, generated interest and understanding. It helped to prevent abstract learning and brought real life understanding. This is related to Sharma's (2017) study that animation is unforgettable. When participants observed an exceptional animation, it helped put visual context to the concepts they were learning and invigorated them to remember what they learned long after their training was ended.

Promoting Self-Learning

The participants reported that the use of animation promoted self-learning by giving animation to learners to watch in advance. In the absence of the teacher, learners were able to play the animation videos on their own and made meaning for themselves. This is in agreement with Amekor et. al's (2015) finding that animation videos can promote virtual learning where learners can have access to the animation and learn on their own in advance.

Getting Learners Attention During Lesson

Without learners' attention, nothing in the lesson would be heard; neither would students actively engage themselves in the learning process. The participants discussed that teachers must make each lesson began with an

instructional event that would engage the learners' interest, curiosity and attention through directing the eyes, ears and minds to something new. According to the participants, in the presentation of animation videos, the teacher needed to pause and ask questions for the learners to answer. It supported students' cognitive process and attracted attention, engaged the learner and sustained motivation. This helped learners to follow what is being taught.

The participants said that animation helped to gain the attention of the viewer because a lot of words were put into one or two pictures thereby reducing teaching time. Because of the interesting scenes and the suspense nature of the video, the viewers were obliged to pay close attention so as to grasp the concepts. The participants reported that with the use of animation, it helped them to pay attention to know what happened next. The learners became interested because it kept them in suspense. Pictorial presentation helped in gaining learners' attention. This means that when designing the animation, teachers must make sure that video keeps learners in suspense. This finding corresponds with Sharma's (2017) findings that animation is appealing. By using a unique attention-grabber, the teacher can help keep learners involved and interested in the material the teacher is presenting.

Animation being Interesting

All the participants said that interactive animation made teaching and learning faster. When concepts were presented in a video form they were engaged in a lot of activities thereby helping them to understand the lesson. It made learners to understand the lesson faster. This is parallel to Soffar's (2016) study that animation is exciting, stimulating and fun to use, therefore it encourages the learners to return to the programme, The learners will be faster

to learn by using the collaboration animation especially if the other techniques such as audio and video are used, the learners have more interaction with the content and they are more likely to assimilate the knowledge, the skills and the concepts involved.

Challenges Teachers Faced in Designing Animation for RME Lessons

Participants discussed non-availability of computers and projectors in the basic schools which made the use of animation in teaching a challenge. These were the tools a teacher needed in order to use animation video to teach. Animation was not commonly used by subject teachers because teachers lack skills in the preparation of animation videos. Lack of information on where to get animation video to download and use in teaching RME was a big challenge. This finding was similar to that of Amekor, et al. (2015).

Animation Making Consumes Time

I found out from the data collected that more time was spent in preparing animation. It could be two to three hours for preparing animation for a lesson. Creating animation needed special skills and could be expensive if one wanted to download one and use. Two to three hours preparation for a lesson was difficult. This finding is in harmony with Soffar's (2016) who noted that designing animation consumes a lot of time and energy. A teacher can take one to three hours creating animation for one lesson even the basic animation.

The Cost Involved in Using Animation in School

Research participants noted that data would have to be purchased and could be expensive if one wanted to download this animation while in traditional teaching methods; no cost may be incurred in terms of data

purchase. A teacher had to go round looking for animation pictures and other equipment that were needed for the lesson. This revelation conforms to Soffar's (2016) study when he noted that animation costs more money than the traditional teaching methods and it requires specialised resources like the animators and the writers.

Challenge of Saving Videos

My finding from the participants was that videos file took more space than a text file. A text file could take one megabyte while video file takes about 20 gigabytes. When the videos files are not properly stored, it could easily get missing. Virus could attack the video and then also is the problem of misplacement. One needed bigger facility to store the video. Therefore Storage of animation video was a challenge. This finding matches that of Chan (2013) who revealed that animation needs a wide memory and storage space. It utilises more system processing and storage resources than graphics and text as it is made up of graphic objects and the mathematical calculations.

Challenges encountered using animation to teach RME in junior high

Schools

It was revealed that teachers faced challenges of lack of computers in schools. The use of animation in teaching was confronted with some challenges which must be resolved.

Lack of equipment in schools and absence of technical-know how

I found out from the four data sources that lack of equipment such as computers and projectors were the major challenge in using animation to teach. Inadequate tools such as computers and projectors in our basic schools would seriously affect the use of animation as a strategy of teaching. My

finding is in line with Soffar's (2016) who reported that teachers need the skill in using the animation as a tool for teaching which a lot of facilitators lack.

Challenge of Electricity

My observation, focus group discussions and interview data revealed that it was imperative to get electricity in schools so as to facilitate teaching I.C.T in education. The use of animation in teaching could only succeed if electricity was provided in schools which was a major challenge. Even schools that were hooked to the national grid had some challenges. That was, power outages were rampant, and therefore, there was the need to have standby generators which was problematic. This is related to Amekor, et al.'s (2015) finding that most of the schools were not hooked to the national grid. Therefore it would be very difficult to get power to run the machines in the classroom.

In conclusion, some of the teachers who benefited from the animation project at Akatsi College of Education were designing their own videos but at times download animation videos from YouTube and other open sources to teach various topics in RME. It was noted that the use of animation as a pedagogic tool in teaching RME satisfied some of the requirements of the three domains of the National Teachers Standard (NTS). I discovered that animation was used in combination with other methods of teaching, which was referred to as blended learning. This means that teaching RME is poly-methodical. This corroborates the work of Chan (2013) that animations can effectively support traditional teaching and learning to accomplish learning objectives. This also related to Moviestorm's (2011) study that animation is

not intended to substitute traditional teaching tools, but to supplement and improve them.

The study also revealed that the use of animation as a pedagogic tool was an aspect of multimedia learning where both visual and auditory channels are used concurrently to help various learners to understand the concept being taught by the teacher. This affirms Zoabi et al.'s (2012) finding that in using multimedia learning information is processed through two separate but interrelated channels: a channel processing verbal information and another channel processing visual information. When knowledge is integrated in both verbal and non-verbal modes, learners are able to construct their own knowledge (child-centred education). This in line with Mayer, and Moreno's (2002) finding that as an effect of rapidly emerging information and communication technologies, use of animations has been strongly advocated as an advanced, constructivist and learner-centred to substitute the traditional learning approaches in numerous countries. As a result of the use of animation, application of knowledge becomes easy in an efficient and vigorous way compared with any other techniques that do not comprise dual coding.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter is made up of the summary of the main purpose and findings of the study, enumerate the conclusions drawn, implications and recommendations made with regard to the study. The purpose of this study was to find out how teachers design and use animation in teaching RME so as to make abstract concepts meaningful. The following were the objectives:

1. To explore how animation can be designed as a pedagogic tool for teaching RME in junior high schools.
2. To determine how teachers use animation to teach RME so as to promote child-centredness.
3. To discover the ways in which the use of animation in teaching RME is in line with the National Teachers' Standards (NTS).
4. To realise the benefits of using animation in teaching RME
5. To ascertain challenges teachers faced in designing animation for RME lessons.
6. To find out challenges encountered using animation to teach RME in junior high schools.

The design used for the study was the case study in qualitative paradigm. The sample size was made up of 10 RME teachers teaching in the Akatsi South Municipality and 50 learners who benefited from animation lessons. Census and Purposive sampling techniques were used to select the participants respectively.

I used document analysis guide, observation guide, focus group discussions guide and interview guide as instruments for data collection. The

documents, observation, focus group discussions and interview data were analysed by focusing on patterns and common themes emerging in responses dealing with specific items and giving them numerical codes, and these patterns helped to illuminate the answers to the six research questions.

Summary of Findings

My main findings from document data, observation data, interview data and focus group discussions were identified as follows:

Firstly, participants made me aware that animation was the use of computer to design graphics, slides, videos and pictures to behave like images or in a motion form to present a concept. It is the systematic operation of objects to appear as moving images which involve the use of sound and text.

The findings of the study showed that teachers either designed or downloaded animation videos from various sites to teach RME. Some of the software used to design animations were Pow Toon., animaker, PowerPoint, Key shift, Adobe Premier (for creating visual communication), Blender, After effect, Premier Pro, focusky etc. The study revealed that cameras could be used in taking animation pictures case of live action animation videos. Generally, production process may be pre-production, Production and post-production.

It came to light that some of the animation designed by teachers conformed to the multimedia learning principles which reduced cognitive over work. However, some of the animation designed also violated the principles.

The data revealed that designing animation videos was time consuming; therefore most teachers download animation videos from YouTube and other open sources. They used downloaders such as Freemake,

Y2mate.com and Internet Download Manager (IDM) to download already made animation videos to teach RME.

The participants identified four types of animation. These were 2D animation which means that the characters and the backgrounds in this project are created using the height and width, neglecting thickness. Animation which was 3D animation style involved height width and thickness and live action animation style. Live action animation style is a form of cinematography that uses photography in place of animation. Closely related animation is motion graphic in which closely related pictures were put together in a frame, did voice-over and add animation effect for movements.

Secondly, the result also revealed how teachers used animation to teach RME. It was identified that when using animation to teach, there was a procedure to follow and the following steps should be taken:

- a. The RME teacher should preview the video before he or she finally decide whether it appropriate for teaching the lesson.
 - i. The teacher should give verbal overview of the video by citing the principal things to look out for in it.
 - ii. Then the teacher should show the video without stoppage.
 - iii. There should be verbal discussion of the film aimed at consolidation of the right impressions gained and drawing attention to points the missed in the first observation.
 - iv. The second showing of the video may be interjected to draw attention to specific facts in the video, running it back or simply by cutting out the sound track briefly for explanation or discussion.
 - v. There should be group discussions of the main teaching points

- b. Animation was used in conjunction with other methods such as, questioning, discussion, role play, group work, demonstrations and brainstorming. This is what is referred to as blended learning. This means that the use of animation in teaching was polymethodical. It also came to light that real Teaching Learning Materials were also used to support the animation in teaching.
- c. Participants revealed that the use of animation in teaching promotes child-centred learning in the classroom. The teacher must deploy animation to be used by the learners both in and out of the class. By allowing the learner to play with animation videos produced, they learn on their own. Participants did mention that to promote child-centred education, learners could be given animation videos in advance to observe. They returned to class later for discussion on the video watched.
- d. The study also revealed that teachers and learners reflected on their own teaching and learning through assessment for learning (AfL) which is a modern term describing one of the significant drives of formative assessment. It is the process of looking for and interpreting evidence for use by learners and their teachers to decide where they need to go and how best to go there. Assessment for learning provides information to be used as feedback to modify the teaching and learning activities in which they were engaged. This whole concept is referred to as formative assessment). Again, assessment as learning (AaL) provides opportunity for the learners to reflect on their own learning so as to improve upon their performance.

Thirdly, the study revealed that, the use of animation in teaching is in line with some divisions of the three domains of the NTS:

- a. Produce and use a variety of learning resources including ICT tools (NTS, 3j).
- b. Employ instructional strategies appropriate for mixed ability, multi-lingual, and multi- age classes (NTS, 3g).
- c. Employ variety of instructional strategies that encourage student participation and critical thinking (NTS, 3e).
- d. Explain concepts clearly using examples familiar to students (NTS, 3i).
- e. Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and the grade they teach in (NTS, 2c).

I discovered that there are benefits of using animation in teaching RME. These include:

- a. Skill acquisition by Learners: my finding from the observation and interview data revealed that when the lesson is presented in a video form, they engage in a lot of activities which every learner participates. It helps learners to be able to follow instructions quickly and on their own practice and acquired skills.

- b. Promotes Child –centred education: I found out from the study that when the lesson is presented in a video form, they engage in a lot of activities **therefore** learn by doing, coaching and facilitating. Because learners see the actions and practice what they have seen, it helps them use the major senses in learning, feeling, sight, hearing, tasting etc.

- c. Helping Learners to Recall: participants mentioned that lessons are more organised, more interesting and appealing to learners with the use of animation. It helps to explore complex concepts easier, generate interest and understanding. It helps prevent abstract learning and brings real life understanding.
- d. Promoting Self-Learning: the participants reported that the use of animation promotes self-learning by given animation to learners to watch in advance. In the absence of the teacher, learners are able to play the animation videos on their own and make meaning for themselves.
- e. Getting learners Attention During Lesson: the participants said that animation helps to gain the attention of the viewer because a lot of words are put into one or two pictures thereby reducing teaching time. Because of the interesting scenes and the suspense nature of the video, videos viewers are obliged to pay close attention so as to grasp concepts.
- f. Animation being interesting: The study revealed that interactive animation makes teaching and learning faster. When concepts are presented in a video form they are engaged in a lot of activities thereby helping them to understand the lesson. It makes learners to understand the lesson faster.
- g. The interview data revealed that teachers can build mental representation from words by adding graphics to words. Teachers can build mental representation from words by allowing learners to see what they are teaching.

h. Through the use of Multimedia learning or teaching learning resources can improve learners' academic work by involving learners in the lesson.

i. Students perform well both on retention and transfer tests by making learning real to learners through the use of multimedia and animation. .

By practically demonstrating and guiding learners to repeat the concept, practical issues learnt in animation will be easily applied to the society.

j. The study revealed that Animation helps visual learners to improve upon their academic work. Kinesthetic learners also improve upon their understanding of a lesson by practising what they are taught. Teachers provide animation during teaching and as learners see it the teacher will have less talk. After watching the video, the teacher may provide real materials for them to work with or interact with.

k. I discovered that design and use of animation that clearly defines a step-by-step process of doing things learners can retain and recall what they have learnt. Concepts learnt this way will linger long in their memories.

Fifthly, the study further revealed that teachers faced challenges when designing animation to teach RME. These were:

- a. Lack of equipment
- b. Absence of technical-know how.
- c. Animation was not commonly used by subject teachers because teachers lack skills in preparation of animation videos.

d. Animation making consumed time: More time was spent in preparing animation. It could take two to three hours for preparing animation or a lesson which is difficult.

d. The cost involved in using animation in school: Participants reported that data will have to be purchased and this could be expensive if one has to download this animation while in traditional teaching methods, no cost may be incurred in terms of data purchase.

Sixthly, with regard to the challenges encountered in the use of animation in teaching RME, the following were revealed:

- ii. Lack of equipment in schools and absence of technical-know how: Participant discussed non-availability of computers and projectors in the basic school thus made the use of animation in teaching a challenge.
- iii. Challenges of electricity: The observation guide, focus group discussions guide and interview guide data revealed that it is imperative to get electricity in schools so as to facilitate teaching ICT in schools. Use of animation in teaching can only succeed if electricity is provided in schools which were a major challenge.

Conclusions

Firstly, the study revealed that some of the RME teachers designed and used animation to teach their learners. The procedures for designing animation include:

- i. Look for reference book especially the syllabus to know the specific lesson one is going to prepare
- ii. Prepare the lesson

- iii. Record the lesson (do a voice-over)
- iv. Go online to search for pictures and more information that will be necessary in the lesson
- v. Get animation software which are Adobe premiere pro, Google Apps, PowToon, focusky etc.
- vi. Prepare animation
- vii. Get to the editing bench where both pictures are being brought to the time line for editing
- viii. Once it is done, one will render the animation to have final output which becomes resources for the lesson delivery. This finding corroborates with Moviestorm (2011) who reported on procedures for designing animation.

However, it was found that designing animation consumes a lot of time. Consequently, most of the teachers trained in animation development turned to download videos from YouTube so as not to waste too much time in preparing for a lesson. The processes which are involved in downloading the video are:

1. One needs to know the animation video that will be used for a particular lesson
2. One needs to search for the video at YouTube
3. The link of the video should be copied
4. Open the downloader you want to use (Freemake, Internet Download Manager, Tube Ninger, Y2mate.com etc.)
5. Paste the link of the video on the downloader
6. Downloader downloads the video

7. Save the video in a folder

This finding agrees with Harrison's (2003) study who documented that teachers can download their own animation to teach. This made the work of the teacher who wants to adopt animation in teaching easy.

Secondly, the use of animation as a teaching/ learning resource to teach RME revealed that gaining learner's "involvement" is the paramount feature of animation. This is closely followed by "comprehension" and finally "retention" of the concept learnt. The use of animation in teaching is in combination of other traditional methods which are child-centred methods. This means that blended learning or eclecticism of methods were used when teaching with animation. This confirms the findings of Baharul (2014); Moviestorm (2011) and Otame (2009). The use of animation changes the learners into enthusiastic participants and co-producers of knowledge and increase learning abilities of students in modern classroom milieu and it can provide positive stimulus to students in most of the subjects they study. This is similar to those outlined by Shreeshya and Tyagi (2016). The use of animation in teaching promotes reflection on the teaching process by both the teacher and the learners through discussions, brainstorming, and role play thereby motivate learners to learn. Multimedia learning seeks to give instructors the ability to arouse both the visual and auditory channels of the learner, resulting in better academic progress.

There are various types of learners in the classroom (visual, audio, kinaesthetic). In order to take care of these learners, animation should be used so that learning outcomes can be achieved. The use of animation as a

pedagogic tool as suggested by this study, could play a big role in overcoming such difficulties of learning abstract concepts meaningfully.

The procedures for the adoption of animation in teaching include:

- i. The teacher should preview the animation and identify its relevance to the lesson. In other words, a teacher who designs his or her own animation should create the video to suit the concept he or she is going to teach.
- ii. If the animation video is suitable for the lesson, the teacher must prepare a list of questions for the learners to answer after viewing the video. The feature of the video should be worth emulating.
- iii. The teacher should tell the learners the gist of the video the learners are going to observe, indicating the features worthy of close observation.
- iv. The video must be short because attention decreases with the length of the video.
- v. The video must be shown slowly with explanation. It is best not to include so many pictures in one lesson.
- vi. After the video is shown, there should be discussion with special attention to the important characteristics observed in the video. Answers to the questions should be evaluated. This finding agrees with Farrant's (1980) who reported on the procedures that should be employed when using film to teach a lesson.

Thirdly, the new insight that has been revealed by this study is that teaching with animation is meeting the requirements of National Teachers' Standard. That is some of the sub-divisions of the three domains of NTS are

being taken care off. These domains are Professional values and attitudes, Professional Knowledge and Professional Practice. This made animation an effective tool in teaching RME.

Fourthly, teachers operated a classroom in which animation made lesson practical, stimulated enjoyment, confidence, and concentration of students, and could stir their emotions, attracting the learners' attention, and creating a stimulating atmosphere, promotes child-centred education, helped learners to transfer the concept learnt and aided them reflect on their learning. These findings are similar to those outlined by Chile, (2010); Amjad (2018) and Balm (2014).

Fifthly, teachers faced challenges in designing animation to teach RME lessons. These include lack of equipment in schools and absence of technical-know how. This agrees with those reported by Chan (2013).

Sixthly, challenges confront the use of animation in teaching. Lacks of equipment in schools were identified. Also, most of our classrooms were not connected to electricity. These challenges corroborate with those reported by Soffar (2016) and Amekor et al. (2015).

The advantages that accompany the use of animation as a teaching/learning resource for teaching RME far overshadowed its disadvantages therefore this new pedagogic tool should be integrated in teaching and learning so as to experience the benefits.

Recommendations

The following recommendations are made based on the findings of the study.

1. The teacher education institutions should incorporate training in animation in their curricular so that pre-service teachers can acquire the skills before they go out for internship this is because getting resources to teach various concepts is becoming difficult. Animation will complement the few resources that are in schools. The use of animation will help learners learn on their own with better understanding.
2. There should be in-service training for the RME teachers, so that they can acquire skills in designing and or downloading animation videos that will be relevant to be used in teaching RME. Teachers need to acquire skills and the proper procedure for using animation to teach in the classroom to meet the National Teachers' Standards (NTS). The NTS provides a clear direction for all pre-service and in-service teacher training institutions, stakeholders including administrators, supervisors in education, teachers, students-teachers, and so that everyone involved knows what the expectations are and how to meet them. In this direction, circuit supervisors, headteachers and mentors need to guide teachers so as to use animation in combined efforts to meet the standards.
3. The National Council for Curriculum and Assessment should make teaching with animation an integrated part of the Ghanaian school system in combination with traditional ways of teaching. This will go

a long way to improve teaching and learning in the classroom. This is because visuals attract learner's attention; one can see children in the house 'glue' themselves to the television from morning till evening watching their favourite movies or cartoons. As a result, using animation to teach will help learners retain and transfer what is learnt in real life situations.

4. Teachers should be made aware of the benefits of the use of animation.

This may include making the classroom to be sparkling, stimulating, interactive, vivify and motivating. The use of animation also provides students with opportunities to learn with enlarged inspiration and enthusiasm. Teachers need to use it so as to derive these benefits.

5. However, a lot need to be done in order to overcome challenges that confront teachers design and use of the pedagogic tool. The government can give computers and projectors to teachers on hire purchase so that from the teachers' salaries this money can be deducted monthly. This is necessary because it is documented in the NTS that teachers should include ICT in their teaching and also do action research. Furthermore, all schools must be hooked on the notional grid so that there will be available power for the computers and the projectors.

Contribution of the thesis to knowledge

This research has contributed to knowledge in many ways. In the first place, this research has expanded and strengthened how animation could be designed to teach RME. Animation can be used to teach other subjects in humanities because there is no peculiarity between using animation to teach

RME and other subjects. This thesis highlighted the fact that designing animation is time consuming therefore RME teachers could download animation videos from YouTube to teach the subject.

Another contribution of this thesis is the fact that the use of animation in teaching is polimethodical. That is various methods are combined when using animation to teach RME. It also came to light that the use of animation in teaching promotes learner-centred education hence abstract concepts are well understood.

Furthermore, this study highlights the ways in which the use of animation conforms to the NTS. The thesis uncovers the fact that the use of animation in teaching RME is in agreement with what is enshrined in the NTS thereby making the use of animation in teaching effective. The NTS aimed at standardising practices of teachers throughout the country.

The study also revealed that there are different kinds of learners who can benefit from the use of animation in teaching RME. These include: visual, audio and kinaesthetic learners.

The study also expands and strengthens the fact that animation aids cognitive activities of the learner. The cognitive overload is reduced when animation is used to teach. This means that animation attracts the attention of the learners, pushes what is learnt into long term memory and thereby enhances recall.

Suggestions for Further Research

Through this thesis, I anticipate to make an influence on the practical use of animation in teaching RME in Akatsi South Municipality. However,

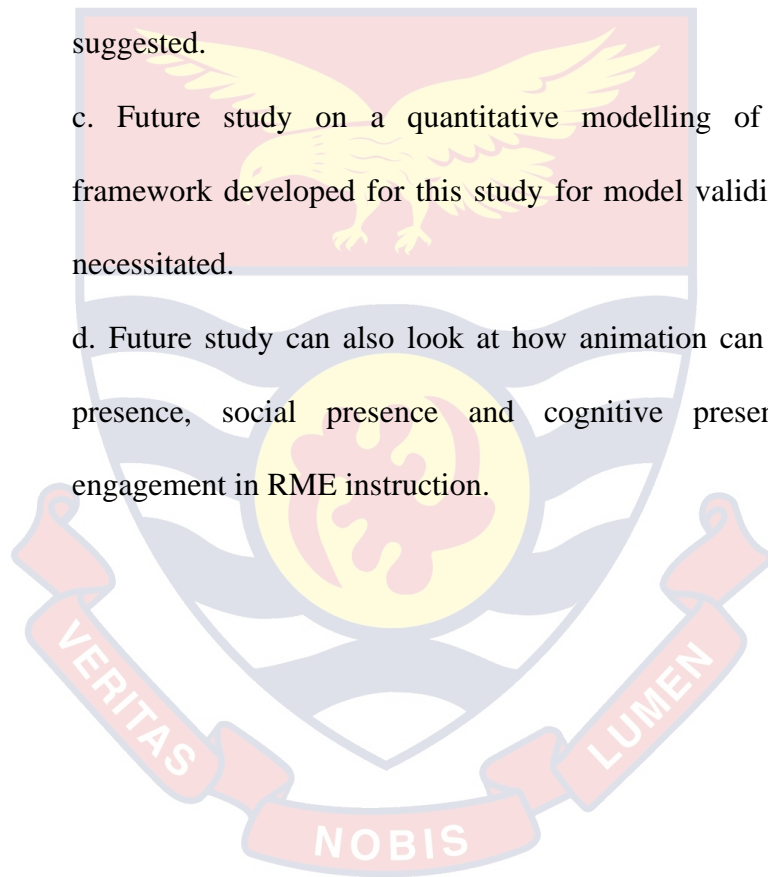
there is more room for improvement. Therefore, I will like to make recommendation that:

a. Future experimental study comparing the achievements of pupils in RME using both traditional method of teaching and animation-based teaching of RME is further suggested.

b. Future study on attitudes, competence and self- efficacy of teachers towards animation and its actual usage in teaching RME is further suggested.

c. Future study on a quantitative modelling of the conceptual framework developed for this study for model validity verification is necessitated.

d. Future study can also look at how animation can promote learner presence, social presence and cognitive presence leading to engagement in RME instruction.



REFERENCES

- Adams, C. (2010). Document analysis. Retrieved from <http://www.modernanalyst.com>.
- Adarkwah, A. (2004). *Understanding religious and moral education*. Kumasi: Geosaka Multi-Publishers.
- Adedeji, S. O., & Owoeye, J. S. (1998) Teacher quality and learner performance. *Journal of Educational Management*, 4(1), 36-45.
- Adentwi, K. I. (2002). *Principles, practices and issues in teacher education*. Kumasi: Sky Printing Works.
- Admin, J. (2019). Types of visual content you should use to increase learner engagement. Retrieved from <https://www.shiftelearning.com>
- Agezo, C. & Baafi, F. (2017). *Basic administration and supervision*. Accra: Paramount Printing works.
- Agyeman, R. O., Assiedu- Kottwi, J. G., & Duah, M. S. (2005). *Principles and method of teaching*. Kumasi: University Printing Press.
- Agyeman, R. O., Assiedu- Kottwi, J. G., & Duah, M. S. (2008). *Principles and ractice of education*. Kumasi: University Printing Press.
- Akubue, A. U. (1992). Religious education in Nigerian catholic schools. Retrieved from www.iiste.org.
- Alber, R. (2014). Six strategies for scaffolding. Retrieved from <https://www.edutopia.org>.
- Al-Khalifah, J. A. (1994). *Teachers' use of audiovisual media for teaching and Learning*. (Doctoral thesis, Loughborough University). Retrieved from <https://dspace.lboro.ac.uk>

- Alella, M . A. (2013). *Using animation to enhance learning: a case study on primary school mathematics, (Doctoral thesis, CAE)*. Retrieved from <http://cae.uonbi.ac.ke/sites>
- Amjad, D. (2018). Animation in education. Retrieved from <https://www.cgpondit.com/animation-in-education>.
- Amedahe, F. K. (2002). *Fundamentals of educational research methods*. Cape Coast: Yacci Press UCC.
- Amedahe, F. K. & Asamoah-Gyimah, K. A. (2015). *Introduction to educational research methods*. Accra: Rocky Paper Works Ltd.
- Amekor, C., Akama, S., Dorwu, I. & Buabasah, D. (2015). *Using animation to teach English, mathematics and integrated science at Akatsi College of Education*. Unpublished project.
- Anderson, G. (2001). *Fundamentals of educational research*. London: Routledge.
- Ankuma, M. (2007). *Challenges facing teacher trainees in their mentorship programme*. Unpublished master's thesis, University of Cape Coast. Cape Coast, Ghana.
- Anti, K. K., & Anum, E. B. (2015). *Religious and moral education* (8th ed.). Cape Coast: Hampton Press Ltd.
- Anthony-Krueger, C. A., & Sokpe, B.Y. (2006). *A guide to writing successful long essay and thesis*. Cape Coast: Yacci Press UCC.
- Asamoah-Gyimah, K.A. (2015). *Research methods*. Unpublished lecture note, University of Cape Coast, Ghana.

- Asare-Danso, S. (2010). Values clarification: An individualistic approach to values education. *African Journal of Interdisciplinary Studies*, 1(3) 53-60.
- Asare-Danso, S., Annobil, C.N., Afriyie, O. & Agyeman, M. (2014). *Religious and moral education for colleges of education*. Kumasi: U.G.C. Publishing House.
- Asare-Danso, S. (2015). *Pedagogies of religious education*. Unpublished lecture note, University of Cape Coast, Ghana.
- Assiedu-Kottwi, A., & Duah B. (2008). *Principles and methods of teaching*. Kumasi: University Printing Press.
- Assiedu-Kottwi, A., & Duah, B. (2010). *Principles and methods of teaching*. Kumasi: University Printing Press.
- Atkins, M.J. (2006). Theories of learning and multimedia applications. Retrieved from <https://www.researchgate.net>.
- Atta, E. T., Agyenim-Boateng, E. O., & Baafi-Frimpong, S. (2000). *The teacher as a professional*. Unpublished master's thesis, University of Cape Coast, Ghana.
- Awuah, G., & Afriyie, O. (2006). *Religious and moral education*. Kumasi: U.G.C. Publishing House.
- Baharul, I. (2014). Child education through animation. Retrieved from <https://arxiv.org/pdf/1411.1897>.
- Balm, J. (2014). The power of pictures. Retrieved from <http://blogs.biomedcentral.com>.
- Bannerman-Mensah, S. (2008, October 24). Poor usage of English language in schools: Qualified teachers not teaching. *Daily Graphic*, p.11.

- Barak, M., Ashkar, T., & Dori, Y. J. (2011). Learning science via animated movies: Its effect on students' thinking and motivation. *Journal of Computers Education*, 56 (3), 839-846.
- Bauer, M. (1996). The narrative interview: Comments on a technique for qualitative data collection methods at London School of Economics and Political Science. *Journal of Methodology Institute, Papers in Social Research Qualitative Series no 1*, 22-31.
- Berg, B.L. (2004). *Qualitative research methods for the social sciences*, (5th ed.). Boston, MA: Allyn and Bacon.
- Bopche, P.K. (2015). Animation: a learning tool. Retrieved from <http://ethesis.nitrkl.ac.in/7404/>.
- Bowling, A. (2002). *Research methods in health – Investigating health and health services*. London: Open University Press.
- Boyd, C. O. (2001). *Phenomenology the method*. In P. L. Munhall (Ed), *nursing research: A qualitative Perspective* (3rd ed.). 1Sudbury, MA: Jones and Bartlett.
- Brain, C. (2012). Using media in teaching. Retrieved from <http://serc.carleton.edu/sp/library/>.
- Boadu, K., & Asare-Danso, S. (2015). *An introduction to curriculum studies*. Accra: Rocky paper Works.
- Bogdan, R. C., & Biklen, S.K. (2003). *Qualitative research for education: An introduction to theory and methods*(4th ed.). Boston: Pearson Education Group. Inc.
- Breadnbeyond, I.K. (2020). Motion graphic animation. Retrieved from <https://www.google.com>

- Bricki, A., & Green, B. (2007). A guide to using qualitative methodology.
Retrieved from <http://hdl.handle.net/10144/84230>
- Brown, A., Ahiatrogah, C., Anyagre, E., Essilfie, B., Arhin, E., & Ghansah, D. (2015). *Principles and practice of education*. Cape Coast: Paramount Printing Works.
- Brown, L. (2019). Top 8 best animation maker for beginners and pros.
Retrieved from <https://www.wondershare.com/animated-video/best-animation-maker-for-beginners-and-pros.html>.
- Bryman, A. (2004) *Social Research Methods*. Oxford: University Press.
- Bryman, A. (2004). *Social research methods* (2nd ed.). Oxford: University Press.<https://www.scirp.org>.
- Cardoso, D. C., Cristiano, M. P. & Arent, C. O. (2009). Development of new didactic materials for teaching science and biology: The importance of the new education practices. *Journal of Biological Sciences* 9(1), 1-5.
- Chan, C.K.Y. (2013). Innovations in education and teaching international.
Retrieved from <http://hdl.handle.net/10722/197746>
- Chang, A. (2019). *The process of 3D animation*. Retrieved from <https://www.media-freaks.com>.
- Cheng, P. W. (1997). From co-variation to causation: A causal power theory. *Journal of Psychological Review*, 1(104), 367-405.
- Chesser, L. (2014). *50 Resources to use Animation as a teaching tool*. Retrieved from <https://www.opencolleges.edu>.
- Chidi, L. L. (2013). *Adult teaching methods*. Retrieved from www.ozetacademy.com/eje.

- Chile, V. M. (2010). *Importance of animation as a visual method in learning chemistry*. Retrieved from <https://pdfs.semanticscholar.org>.
- Chauhan, S. S. (1979). *Innovations in teaching-learning process*. New-Delhi: A. P. H. Publishing Co-operation.
- Clark, L. H., & Starr, I. S. (1986). *Secondary and middle school teaching methods*. (5th ed.). New York: McGraw Hill.
- Cobbold, C. (2015). Engaging with methodological issues in qualitative research: sharing personal experience to novice researchers. *Journal of culture, society and development*, 6(24), 22-28.
- Cohen, L., & Manion, L. (1989). *Research methods in education*. London: Routledge.
- Cohen, L., & Manion, (1991). *Research methods in education* (3rd ed.). New York: Chopman and Hall Inc.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education*. London: Routledge.
- Creswell, J.W. (2003). *Research design: Qualitative, quantitative and mixed methods approach* (2nd ed.). Thousand Oaks: Sage.
- Coulter, T. (2019). Animation Programs. Retrieved from <https://www.freelancer.com>
- Curriculum Research and Development Division [CRDD] (2008). *The teaching curriculum for religious and moral education: Junior High School 1-3*. Accra, Ghana: Ministry of Education.
- Davis, G. & Norman, M. (2016). Principles of multimedia learning. Retrieved from <https://ctl.wiley.com> > [principles-of-multimedia-learning](#)

- Denzin, N. & Lincoln, Y. (1994). *Introduction: Entering the field of qualitative*. Thousand Oaks, CA: Sage
- Denzin, N. (1970). Types of triangulation. Retrieved from <http://www.sociology.org>.
- Delamont, S. (2002). *Fieldwork in educational settings: Methods, pitfalls and perspectives*. London: Routledge.
- Dinama, B. (2012) The path so far: Introducing moral education in Botswana secondary schools. *International Journal of Scientific Research in Education*, 5(2), 100-108.
- Dinama, B. (2013). Pedagogical knowledge of religious education teachers in Botswana junior secondary schools. Retrieved from: www.journals.savap.org.
- Elsevier, B.V. (2018) . Virtual human representation. Retrieved from <https://www.cise.ufl.edu>.
- Easingwood, N. (2000). Electronic Communication in the Twenty-First-Century Classroom. In N. Gamble, & N. Easingwood (Eds.), *ICT and Literacy* (pp. 45-58). New York: Continnum.
- Ely, M., Vinz, R., Downing, R., & Anzul, M. (1997). *On writing qualitative research: Living by words*. London: Falmer Press.
- Farant, J. S. (1998). *Principles and practice of education* (2nd ed). Singapore: Longman Publishers Ltd.
- Farrant, J. S. (1980). *Principles and practice of education* (New ed.). Malaysia: Longman.
- Fianu, J. N. K. (2002). *Methods of teaching*. Unpublished lecture note. University of Cape Coast, Ghana.

- Flick, U. (2002). *An introduction to qualitative research* (2nd ed.). London: Sage.
- Fralinger, B., & Owens, R. (2009). YouTube as a learning tool. *Journal of College Teaching and Learning*, 6, 15–28. Retrieved from <https://www.google.com>
- Freire, P. (1972). *Pedagogic tool of the Oppressed*. Harmonds worth: Penguin.
- Ghana Health Service (2020). *COVID -19 updates*. Retrieved from <https://www.ghanahealthservice.org/covid19/archive.php>
- Gould, M. (2015). *Benefits of child-centred education*. Retrieved from <https://www.norwoodschool.org/page/child-centered-education>
- Green, E. (2017). Animation as a teaching aid; how it has entered classrooms and created a revolution. Retrieved from <https://www.opencolleges.edu>.
- Grimmitt, M. (2000). *Pedagogies of religious education*. Essex: McCrimmons.
- Grimmitt, M. (1978). *What can I do in RE?* Myahew McCrimmon: Great Walking.
- Grimmitt, M. (1973). *What can I do in RME?* Liverpool: M.H.O.
- Guba, E. G., & Lincon, Y. S. (1985). *Competing paradigm in qualitative research*. Thousand Oaks: Sage.
- Halldis, B., & Tove, N. (2004). Multi-faith religious Education in religiously mixed content. Retrieved from folk.uio.no/leirvik.
- Hare, D. (2013). Role of pedagogic tool in effective teaching. Retrieved from <http://www.basicresearchjournals.org>.

- Harrison, A. (2003). Use of resources to enhance teaching and learning. Retrieved from <https://faculty.londondeanery>.
- Hatch, J. A. (2002). *Doing qualitative research in educational settings*. New York: University Press
- Hesseltine, J. (2016). Animating the classroom. Retrieved from: <https://www.teachingchannel.org>
- Hoa, H. (2019). Hoa comics. Retrieved from <https://www.pinterest.com>.
- Hub, B. (2012). Constructivist learning theory: Pros & Cons. Retrieved from <http://www.brighthubeducation.com>
- Jahanlou, A., Odom, W. & Chilana, P. (2015). Challenges in getting started in motion graphic design: perspectives from casual and professional motion designers. Retrieved from <https://www.google.com>
- Karamitev, M. (2018). Animation Software for Beginner. Retrieved from <https://graphicmama.com/blog/best-animation-software>.
- Kelchtermans, G. (1993). Getting the story, understanding the lives: From career stories to teachers' professional development. *Journal of Teaching and Teacher Education*, 9(5-6), 443- 456.
- Kehr, D. (2018). History of animation. Retrieved from <https://www.britannica.com>.
- Knowles, M. S. (1980). *The adult learner. A neglected species* (4th ed.). Houston: Gulf Publishers.
- Kochhar, S. K. (2009). *Methods and techniques of teaching* (2nd ed.). New Delhi: Sterling.
- Kuchimanchi, B. (2013). The role of animation in student's learning. Retrieved from <https://edtechreview.in/trends-insights>.

- Kuusangyele, M. (2013). *Stories as a mode of instruction: A module for teaching natural science in basic 3*. (Master's thesis, University of Ghana). Retrieved from <http://ugspace.ug.edu.gh>.
- Kwasu, I. A. (2015). Effectiveness of animated instructional resource for Learning and facilitation among Secondary School Student in Bauchi, Nigeria. *Journal of Education and Practice*, 6(21), 2222-1735.
- Ladner, S. (2008). Sampling methods in qualitative and quantitative research. Retrieved from www.slideshare.net.
- Leedy, P. D., & Ormrod, J. E. (2002). *Practical research* (8th ed.). New Jersey: Pearson Education Ltd.
- Leronutti, L. & Chittaro, L. (2007). Employing virtual humans for education and training. Retrieved from <http://hcilab.uniud.it>
- Lickona, T. (1993). Effective character development. Retrieved From www.mtsm.org.
- Lodico, M. G., Spaulding, D. T., & Voegtle, K. H. (2006). *Methods in Educational research: From theory to practice*. San Francisco: Josey-Bass.
- Lowe, R.K. (2009). Animation and learning: Value for money? Retrieved from <https://www.ascilite.org/conferences/perth04/procs/pdf/lowe-r.pdf>
- Lund, C. (2012). Laerd dissertations. Retrieved from dissertation.laerd.com.
- Lucas, T., & Rahim, R. A. (2015). Designing instructional animation for Psychomotor learning: A conceptual framework. *In CSEDU 2015, Proceedings of the 7th International Conference on Computer Supported Education, Vol. 2*, pp. 313-318. SciTe Press.

- Maina, L. W. (2006). *Africa Media Development Initiative: Kenya research findings*. London: BBC World Service Trust.
- Malik, G. M. & Rukhsana, A. (2013). Existentialism and classroom practice. Retrieved from [IOSR http://www.iosrjournals.org](http://www.iosrjournals.org).
- Malikow, M. (2005). Are teachers born or made? The necessity of teacher training programmes. Retrieved from <http://www.nationalforum.com>
- Magrini, J. (2012). Existentialism, phenomenology and education. Retrieved from <http://dc.cod.edu/>.
- Matemba, Y. H. (2011). A comparative study of religious education in Scotland and Malawi with special reference to developments in the secondary school sector. Retrieved from <http://theses.gla.ac.uk>.
- Mayer, R. (2001). Multimedia learning. Retrieved from <https://www.amazon.com>.
- Mayer, R. E. & Moreno, R. (2002). Animation as an aid to multimedia Learning. *Journal of educational psychology review* 14(1), 87-99.
- Mayer, R. (2005). Cognitive theory of multimedia learning. Retrieved From <https://www.amazon.com>.
- Mayer, R. E. (2008). Research Based Principles for Learning with Animation. In L. Richard, & W. Schnotz (Eds.), *Learning with Animation: Research Implications for Design* (pp. 30-46). New York: Cambridge UP.
- Mayer, R. (2009). Twelve principles of multimedia learning. Retrieved from <http://elearning.olemiss.edu>
- Mediafreaks, A. (2019). The process of 3D animation. Retrieved from <https://www.media-freaks.com/the-process-of-3d-animation>

- Meshram, A., Meshram, W., & Rawekar A. (2017). Use of animation in teaching physiology: An Institutional based study. *International Journal of Clinical Biomedics*, 4(3), 234-242
- Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd ed.). San Francisco, California: Jossey-Bass Inc.
- Mertens, D. (2005). Qualitative research. Retrieved from <https://en.wikiversity.org>.
- McWilliam, H. O. A., & Kwamena-Poh, M. A. (1975). *The development of education in Ghana* (2nd ed.). Hong Kong: Commonwealth Printing, MacMillan.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks: Sage.
- Ministry of Education (2017). *National teachers' standards for Ghana*. Accra, Ghana: Ministry of Education.
- Morgan, D. L. (1996). Focus groups. *Annual Review of Sociology*, 22(12), 129-152.
- Morgan, D. L., & Krueger, R., A. (1993). When to use focus groups and why. In D. L. Morgan (Ed.), *Successful focus groups* (pp. 3-19). Newbury: Sage.
- Moll, L. (2018). How people learn. Retrieved from <https://www.nap.edu>
- Moore, K. D. (1998). *Classroom teaching skills* (4th ed.). Boston: McGraw Hill.
- Moreno, R., & Ortegano-Layne, L. (2008). Do classroom exemplars promote the application of principles in teacher education? A comparison of

videos, animations, and narratives. *Journal of Educational Technology Research and Development* 56 (4), 449-465.

Moviestorm, L. (2011). Using animation in schools. Retrieved from <http://cloud.moviestorm.co.uk/edu>.

Musa S., Ziatdinov, R., & Griffiths R. (2013). Developing educational computer animation. Retrieved from <https://www.researchgate.net>.

Nacino-Brown, R., Oke, F. E., & Brown, P. D. (1982). *Curriculum and Instruction: An introduction to methods of teaching*. London: Macmillan publishers Ltd.

National College for Teaching and Leadership, (2012). What makes great pedagogic tool? Nine claims from research. Retrieved from <https://www.gov.uk/>.

Newman, C. M. (2018). Research methods guide: Interview research. Retrieved from <https://guides.lib.vt.edu/researchmethods/interviews>.

Noddings, N. (2002). *Starting at home: Caring and social policy*. Berkeley: University of California Press.

Nyumba, O.T., Wilson, K., Derrick, J.C., & Mukherjee, N. (2018). The use of focus group discussion. Retrieved from <https://besjournals.onlinelibrary.wiley.com>

O'Donnell, F. (2006). *Simulation frameworks for the teaching and learning of distributed algorithms*. (Doctoral thesis, University of Dublin College). Retrieved from <https://www.scss.tcd.ie/publications/tech-reports/>

Otame, S.P. (2009). *Teaching methods in early childhood development*. Unpublished article.

- Ouda, J.N. (2012). The Effect of using animation on 6th graders' attitudes and comprehension of short story in Gaza Governmental Schools. Retrieved from <http://library.iugaza.edu.ps/thesis/109559.pdf>
- Owu-Ewie, C. (2008). *Enhancing the thinking skills of pre-service Teachers: A case study of Komenda Teacher Training College*. Unpublished master's dissertation, Ohio University Ohio.
- Owusu, M., & Asare-Danso, S. (2014). Teachers' use of life themes pedagogic tool in Christian religious studies: A survey of senior high schools in Brong Ahafo Region, Ghana. *International Journal of Humanities and Social Science*, 4(11), 123-132. Retrieved from www.ijhssnet.com.
- Pappas, C. (2013). The top 6 animated video software in the e-learning market. Retrieved from <https://elearningindustry.com>
- Patton, M.Q. (2002). *Qualitative research and evaluation methods* (3rd Ed.). Thousand Oaks: Sage.
- Pecku, N. K. (1998). *Teacher education in Ghana: Evolution and prospects*. Teshie Nungua Estate: Elorm Electronics Business Services.
- Pedersen, H., & Vilekold, H. (2005). Teaching with animation. Retrieved from http://cap.animwork.dk/en/teaching_with_animation.asp.
- Peters, R. S. (1966). *Ethics in education*. London: Allen and Unwin Ltd.
- Piaget, J. (1972). *The construction of reality in the child* (Vol. 82). New York: Orion Press.
- Pickard-Whitehead, G. (2019). Ten tools to create animated videos for business. Retrieved from <https://smallbiztrends.com>.

- Pilling-Cormick, J. (1997). Transformative and self-directed learning in practice. *New Directions for Adult and Continuing Education*, 1(74), 69-77)
- Psud, C. (2012). Advantages and disadvantages of case studies. Retrieved from <https://psud43.wordpress.com/>.
- Rahim, A. R. (2017). The similarities and nuances of explicit design characteristics of well-received online instructional animations. Retrieved from <http://scholar.google.com>.
- Ramalla, B. (2018). Animation software. Retrieved from <https://learn.g2.com/free-animation-software>.
- Renderforest, L. (2019). Best animation software. Retrieved from <https://www.renderforest.com/blog/best-animation-software>.
- Roja, D. (2004). Virtual human representation. Retrieved from <https://infoscience.epfl.ch/record/99006/file>.
- Roosevelt, T. (2007). To educate a man in mind and not in morals is to educate a menace in society. Retrieved from www.goodreads.com/.
- Routledge, L. (2016). Discursive theory. Retrieved from <http://www.anthropology.hawaii.edu>.
- Sarantakos, S. (1997). *Social research* (2nd ed.). New York: Palgrave
- Schnotz, W., & Lowe, R.K. (2008). *Animation: Research implications for design*. New York: Cambridge University Press. pp. 304-356.
- Shreesha, M., & Tyagi, S. K. (2016). Does animation facilitate better learning in primary education? A comparative study of three different subjects. Retrieved from <http://dx.doi.org/10.4236/ce.2016.71318>.

- Siedentop, D. (1991). *Developing Teaching Skills in Physical Education* (3rd ed.). Palo Alto: Mayfield.
- Siegle, D. (2009). Principles and methods in educational research. Retrieved from <http://www.fortunecity.com>.
- Sharma, A (2017). Benefits of using animation. Retrieved From <https://www.quora.com>
- School of Graduate Studies (2017). *University of Cape Coast guidelines for preparing and presenting project work, dissertation and thesis*. Cape Cast: UCC Printing Press.
- Smart, N. (1968). *Secular education and the logic of religion*. London: Faber & Fab.
- Smith, M. K. (2012). What is pedagogy? The encyclopaedia of informal education. Retrieved from <http://infed.org/mobi/what-is-pedagogy>
- Soffar, H. (2016). Benefits of using animation. Retrieved from <https://www.online-sciences.com>.
- Sruthi, M. (2015). Animated Video Making. Retrieved from <https://blog.animaker.com/>.
- Sturman, A. (1999). Case study methods. In J. P. Keeves, & G. Lakomski (Eds.), *Issues in educational research* (pp. 103-112). Amsterdam: Pergamon.
- Showreel, P. (2018). Animation process. Retrieve from <https://www.cubstudio.com>
- Swartout, W. (2008). Virtual humans for Learning. Retrieved From <https://pdfs.semanticscholar.org>.

- Tamakloe, E. K., Amedahe, F. K., & Atta, E. T. (1996). *Principles and methods of teaching*. Accra: Black Mask Ltd.
- Tamakloe, E. K., Amedahe, F. K., & Atta, E. T. (2005). *Principles and methods of teaching*. Accra, Ghana: Universities Press.
- Thalman, D. (2017). The role of virtual humans in virtual environment technology. Retrieved from <https://www.cise.ufl.edu>
- Vygotsky, L. S. (1978). Mind in society: The development of higher mind. Retrieved from www.brightubeducation.com.
- Walking, L. (1982). *Instructional techniques and practice*. London: Sternly Thornes Publishers Ltd.
- Ward, P. G. (2003). The place of animation in media and film. Retrieved from <http://discovery.ucl.ac.uk>.
- Wells, P. (2002). *Animation: Genre and Authorship*. London: Wallflower Press.
- Wikipedia (2014). Using animation in education. Retrieved from <https://en.wikipedia.org>.
- Winter, M.M. (2003). Theorising media. Retrieved from <http://csmt.uchicago.edu/home.htm>
- Wortman, R. (1988). Using all the senses to learn. Retrieved from <https://www.sd43.bc.ca/.../LearningServices>
- Wester, F., & Peters, V. (2000). *Qualitative analysis: Phases, techniques and computer use*. Amsterdam: JAI/Elsevier Science.
- Weitz, D. A. (2015). Effectiveness of animation as a learning strategy in a classical control theory: Introductory course. *World Journal Control*

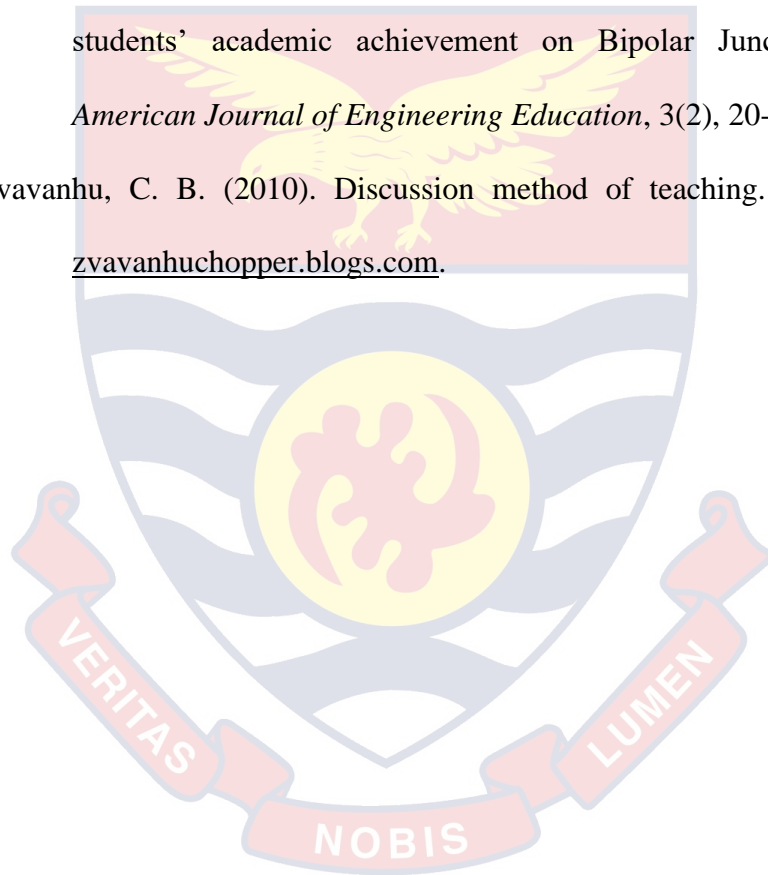
Science and Engineering, 3(1), 8-12. Retrieved from <http://pubs.sciepub.com>.

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks: Sage.

Young, N. H. (1987). Paidagogos: The social setting of a Pauline Metaphor. *Novum Testamentum*, 2(9), 150.

Zoabi, W., Sabag, N., & Gero, A. (2012). Using animation to improve the students' academic achievement on Bipolar Junction Transistor. *American Journal of Engineering Education*, 3(2), 20-29

Zvavanhu, C. B. (2010). Discussion method of teaching. Retrieved from zvavanhuchopper.blogspot.com.



APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

FACULTY OF HUMANITIES AND SOCIAL SCIENCES EDUCATION

INTERVIEW GUIDE FOR TEACHERS ON TEACHERS' DESIGN

AND USE OF ANIMATION FOR TEACHING RELIGIOUS AND

MORAL EDUCATION (RME) IN JUNIOR HIGH SCHOOLS IN

AKATSI SOUTH MUNICIPALITY

This interview guide seeks your views on Teachers' Design and Use of Animation for Teaching (RME) in JHS in Akatsi South Municipality. It is purely for academic work. I therefore ask for your maximum co-operation and assure you that information provided here will be treated with outmost confidentiality.

The aim of the study is to find out how teachers design and use animation for teaching RME with the view of helping learners to understand abstract concepts. You can stop at any time if you feel uncomfortable or unhappy about any question.

Semi- structured Interview Guide for RME Teachers

Section "A": Developing animation from JHS RME syllabus

1. What is animation?

.....
.....

2. How long have you been designing animation from the RME syllabus?

.....

3. What is two-dimensional (2D) animation style?

.....
.....

4. What is three dimensional (3D) animation style?

.....
.....

5. What is live action animation style?

.....
.....

6. When analysing a visual scene and reading longer sentences, which one will take shorter time?

.....
.....

7. What can we do to tell a story quickly?

.....
.....

8. What can teachers use Animaker for?

.....
.....

9. What are the production processes of animation?

.....
.....

10. What can a teacher do at Pre-Production stage?

.....
.....

11. What can a teacher do at Production stage?

.....

.....
12. What can a teacher do at Post-Production stage?
.....
.....

13. Identify some of the animation software in the market.
.....
.....

14. What animation software can the teacher use to create stories in learning?
.....

15. PowToon as animation software can be used for.....

16. How can a teacher use cameras in making animation?
.....
.....

17. Where can teachers download animation videos to teach RME?
.....

18. Which downloaders can teachers use to download animation Videos faster?
.....

Section B: Use of animation as a teaching/ learning resource in teaching RME

19. What are the variety of creative learning activities that you provide in your classroom to develop learners' creative skills?
.....
.....

20. How long have you been using animation in teaching?
.....

21. What are your experiences about the use of animation in teaching RME?

.....
.....

22. How can a teacher combine animation video, role play, dramatization or discussion in teaching?

.....
.....

23. How can a teacher use virtual humans in animation videos for teaching?

.....
.....

24. How can a teacher improve learning when words and pictures are presented?

.....
.....

25. What is the best way by which a teacher can use animation in teaching?

.....
.....

26. How can a teacher use animation to promote child-centred education?

.....
.....

27. How can a teacher use animation to promote individual interaction during the course of teaching?

.....

28. How can a teacher use animation to promote group interaction during the course of teaching?

.....
29. What are some of the ways by which the teacher can make lesson practical through the use of animation?

.....
30. How can a teacher help learners to construct their own knowledge with the use of animation?
.....

31. How can the teacher and the learners reflect on their own teaching and learning through the use of animation?
.....

Section c: Ways by which the use of animation in line with the National Teachers' Standards (NTS)
.....

32 What is the NTS?
.....

33. What is the aim of NTS?

34. How many domains has the NTS?
.....

35. Which sub-divisions of the three domains of the NTS are in line with the use of animation in teaching?
.....
.....

36. What is multimedia learning?

.....
.....

37. What are some of the ways by which we can build mental representation from words?

.....
.....

38. What can we do to improve the learner's academic work?

.....

39. What can a teacher do to help the student perform well both on retention and transfer tests?.....

40. How can we help learners to apply the knowledge in real life situations?

.....
.....

41. How can a teacher help visual learners to improve upon their academic work?

.....
.....

42. How can a teacher help the kinaesthetic learners to improve upon their understanding of a lesson?

.....
.....

43. With visual and auditory channel which one holds more information and more knowledge retained?

.....

44. What happens when words and pictures are presented simultaneously rather than successively?

.....
.....

45. What can a teacher do to grab audience's attention and gaining interaction?

.....

46. How does the use of animation affect your teaching positively?

.....
.....

47. How does the use of animation promote self-learning?

.....
.....
.....

48. How does animation help to gain the attention of the viewer?

.....
.....
.....

49. How can animation motivate and improve skill acquisition of learners?

.....
.....
.....

50. How does interactive animation make teaching and learning faster?

.....
.....
.....

51. How does animation become interesting methods for developing practical skills?.....

.....

52. How does animation allow the learners to learn-by-viewing, learn-by-doing or learn-by-coaching?

.....
.....
.....

SECTION D: challenges teachers faced in designing animation to teach RME.

53. How many computers do you have in your basic school?

.....

54. How many hours do you spend in making basic animation?

.....

55. Why is animation not commonly used by subject teachers?

.....

55. What issues do you have in terms of costs in animation as compared to the traditional teaching methods?

.....
.....

57. In storing animation videos and texts which one takes more space?

.....

SECTION: E

58. How many computers and projectors do you have in your school?

.....

59. Are all classroom blocks in your school connected to electricity?

.....

60. What are the steps in using animation to teach RME?

.....

.....



APPENDIX B

UNIVERSITY OF CAPE COAST

FACULTY OF HUMANITIES AND SOCIAL SCIENCES EDUCATION

FOCUS GROUP DISCUSSIONS GUIDE FOR LEARNERS

on Teachers Use of Animation for Teaching Religious and Moral Education (RME) in junior high schools in Akatsi South Municipality

This discussion guide seeks your views on Teachers Use of Animation for Teaching (RME) in JHS in Akatsi South Municipality. It is purely for academic work. I therefore ask for your maximum co-operation and assure you that information provided here will be treated with outmost confidentiality.

The aim of the study is to find out how teachers use animation for teaching RME with the view of helping learners to understand abstract concepts. You can stop at any time if you feel uncomfortable or unhappy about any question.

Background Information

Name of school.....

Number of learners in the focus group.....

The use of Animation in Teaching

1. What is multimedia learning?

.....

2. What are some of the creative activities your teacher organises in teaching RME?

i.....

ii.....

iii.....

iv.....

v.....

3. What methods does the teacher use when teaching with animation?

i.....

ii.....

iii.....

4. What can a teacher do to grab audience's attention and gaining interaction?

.....

5. What is your perception about the use of animation in teaching?

.....

6. How does a teacher make lesson learner-centred with the use of animation?

.....

7. What can a teacher do to help student perform well both on retention and transfer tests?

.....

8. List benefits derived from learning with animation?

i.....

ii.....

.....

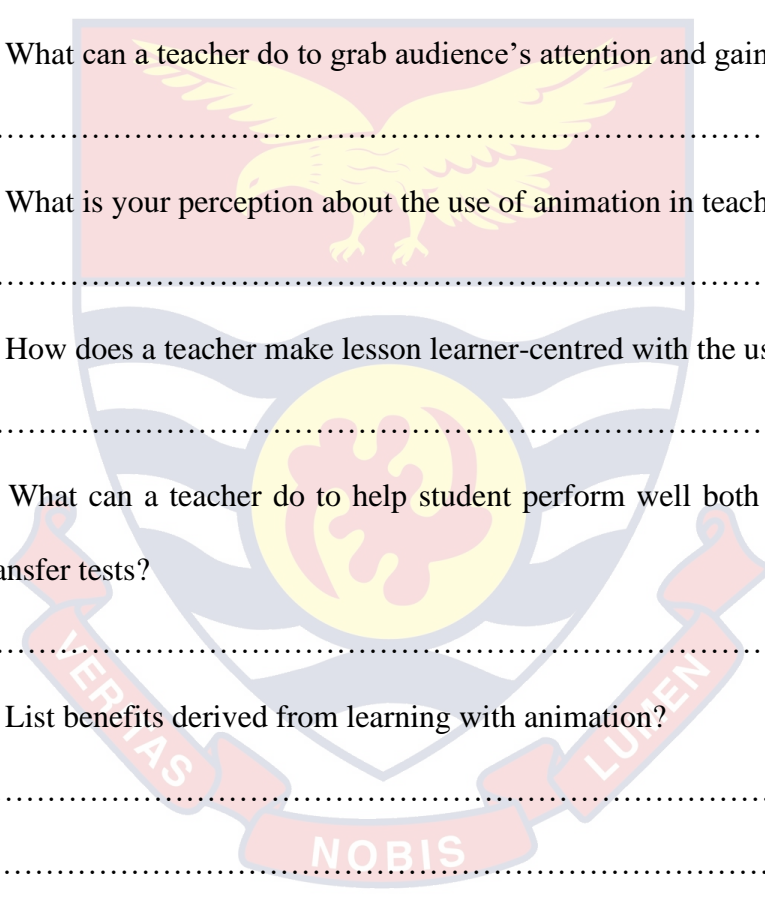
iii.....

.....

iv.....

.....

v.....



9. How can a teacher help visual learners to improve upon their academic work?

.....

10. How can a teacher help the kinaesthetic learners to improve upon their understanding of a lesson?

.....

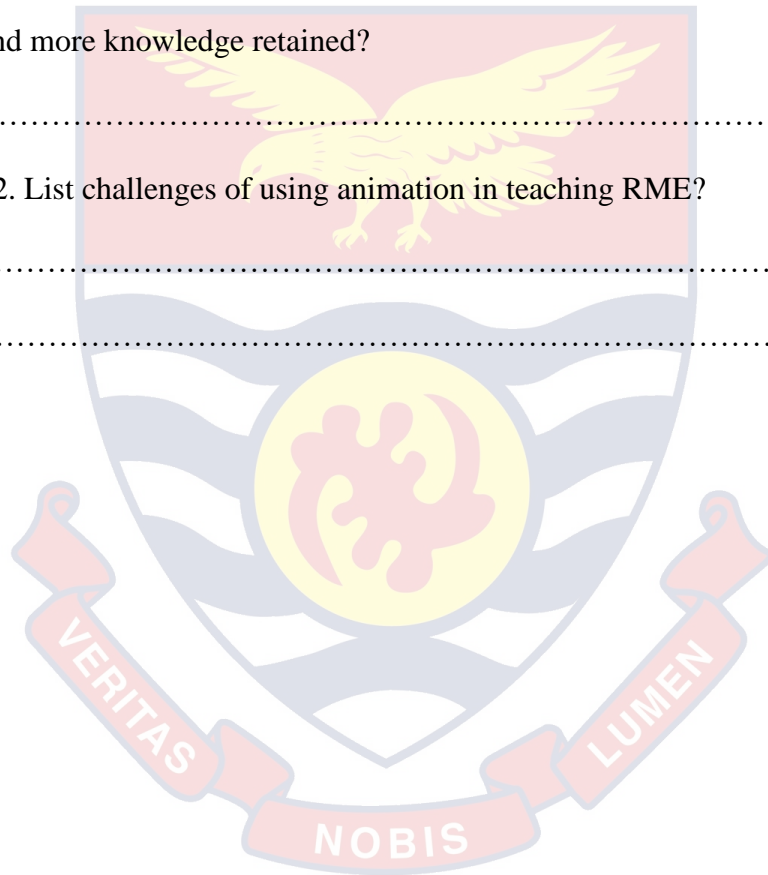
11. Between visual and auditory channel which one holds more information and more knowledge retained?

.....

12. List challenges of using animation in teaching RME?

i.....

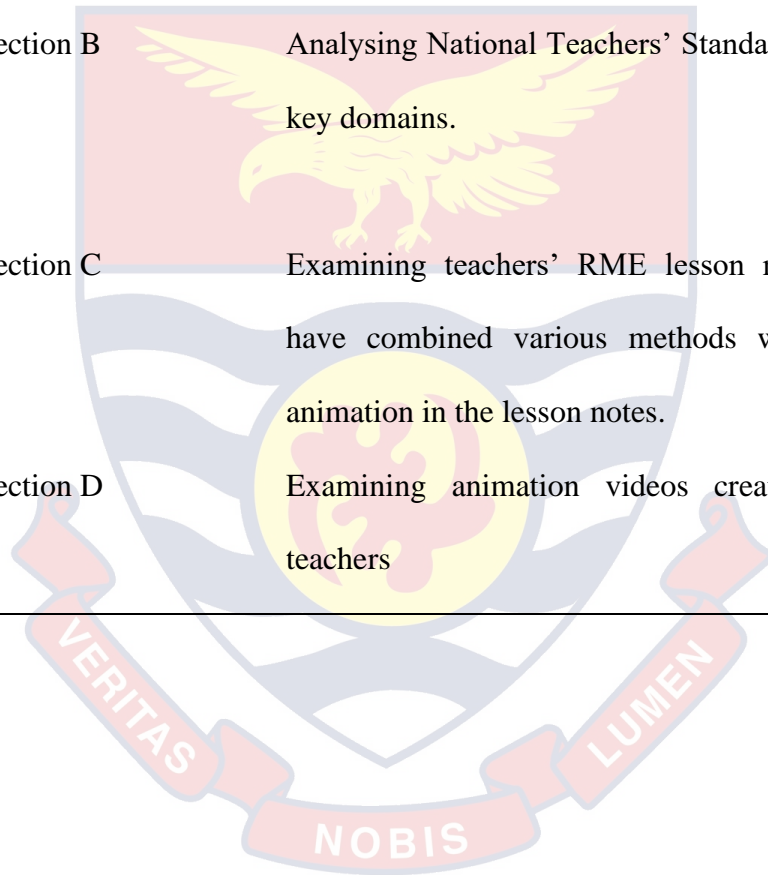
ii.....



APPENDIX C

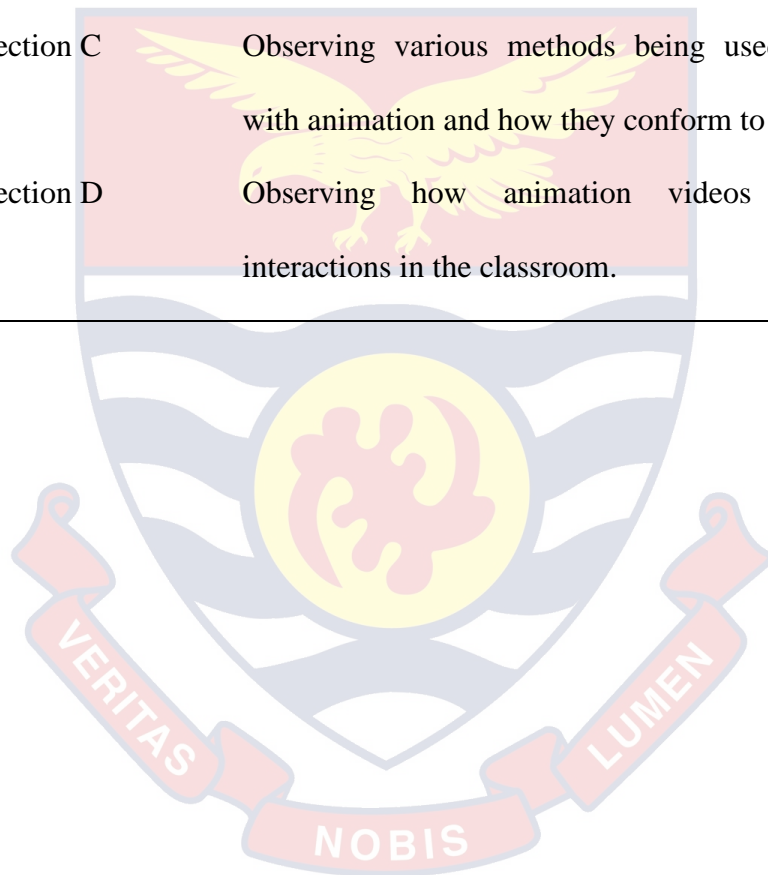
DOCUMENTS ANALYSIS GUIDE

Section	Information
Section A	Examining JHS RME Curriculum and identifying topics that were supposed to be taught, the methods in teaching them as well as the teaching and learning resources.
Section B	Analysing National Teachers' Standards and the three key domains.
Section C	Examining teachers' RME lesson notes, how they have combined various methods with the use of animation in the lesson notes.
Section D	Examining animation videos created by RME teachers



APPENDIX D
OBSERVATION GUIDE

Sections	Information
Section A	Observing how animation videos are designed or animation videos downloaded from various sources.
Section B	Observing RME lessons being taught.eg. Introduction, development and conclusion of the lesson.
Section C	Observing various methods being used in conjunction with animation and how they conform to NTS.
Section D	Observing how animation videos are promoting interactions in the classroom.




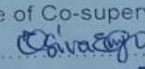
APPENDIX E

INTRODUCTORY LETTER FOR DATA COLLECTION FORM

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF HUMANITIES & SOCIAL SCIENCES EDUCATION
DEPARTMENT OF BUSINESS & SOCIAL SCIENCES EDUCATION

INTRODUCTORY LETTER FOR DATA COLLECTION FORM

NAME OF STUDENT: THOMAS KUDZO ZONYRA	
PROGRAMME: PHD (CURRICULUM AND TEACHING)	
TOPIC: TEACHERS' DESIGN AND USE OF ANIMATION IN TEACHING RELIGIOUS AND MORAL EDUCATION AT JUNIOR HIGH SCHOOLS: A CASE STUDY	
BRIEF EXPLANATION OF THE STUDY: The study is to find out how teachers who were trained in animation design at Akatsi College of Education are using animation in their schools to modernise their methods of teaching.	
TYPE OF DATA NEEDED AND FROM WHOM: Documents analysis, observation, interview and focus group discussion. From R.M.E teachers and learners.	
PURPOSE FOR DATA NEEDED:	Piloting <input type="checkbox"/> Firm up problem <input type="checkbox"/> Field work <input checked="" type="checkbox"/>
If this is for field work, supervisor should indicate whether or not permission is granted by IRB. Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	

SUPERVISOR'S CONSENT	
Rev. Prof. S. Asare-Danso	Prof. K.T. Yibo
Name of principal supervisor	Name of Co-supervisor
	
Signature/Date 03/02/2020	Signature/Date 27/01/2020
Phone No.: 0244573688	Phone No.: 0556769767
Email: sasare-danso@ucc.edu.gh	Email: kyibo@ucc.edu.gh


For office use:	
Permission Granted by HOD <input checked="" type="checkbox"/>	Permission Not Granted by HOD <input type="checkbox"/>

APPENDIX F

CLEARANCE FROM THE GHANA EDUCATION SERVICE

GHANA EDUCATION SERVICE

In case of reply, the number and date of this letter should be quoted


REPUBLIC OF GHANA

Akatsi South District Educ. Office
P. O. Box 20
Akatsi
Email: akatsisoutheducation@gmail.com
GPS Address: VX-0000-6505

Our Ref No: GES/VR/AKSD/4/V.8/33

Your Ref:

5th February, 2020

**THE HEADS CONCERN.
AKATSI DISTRICT**


**RE-APPLICATION FOR PERMIT TO VISIT
SOME SCHOOLS TO COLLECT DATA
MR. THOMAS KUDZO ZONYRA**

You are permitted to go into the following Schools;

1. Akatsi Practice Cluster of Schools
2. Yaluvi D.A JHS
3. Zuta D.A JHS
4. Wlitye JHS
5. Akatsi No.
6. Duawodome

This is to enable you collate the needed information that you need for your academic advancement. It is the hope that your presence does not affect productivity in the Schools.

I wish you the very best.


**JOSEPH YOGAN ADOVOR
DISTRICT DIRECTOR
AKATSI SOUTH**

cc:
Mr. Thomas Kudzo Zonyra
Akatsi College of Education
Akatsi.

APPENDIX G

ETHICAL CLEARANCE FROM THE UNIVERSITY OF CAPE COAST

