



**TEACHER COMPETENCES IN APPLYING CONSTRUCTIVIST PRINCIPLES IN
THE TEACHING OF TEXTILES TECHNOLOGY AND DESIGN IN MBERENGWA
SECONDARY SCHOOLS**

BY

Bodzo Thenjiwe

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GWERU

ZIMBABWE

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APPROVAL FORM

The undersigned certify that they have read and recommended to the Midlands State University for acceptance a dissertation entitled:

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By

BODZO THENJIWE

REG NUMBER: R

In partial fulfillment of the requirements of the Bachelor of Education Degree in Fashion and Textiles

Student Date.....

Supervisor..... Date.....

Chairperson Date.....

External examiner..... Date.....

RELEASE FORM

NAME OF AUTHOR: BODZO THENJIWE

TITLE OF PROJECT: TEACHER COMPETENCES IN APPLYING
CONSTRUCTIVIST PRINCIPLES IN THE TEACHING
OF TEXTILES TECHNOLOGY AND DESIGN IN
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DEDICATION

I dedicate this research to my children and husband for their inspiration, prayers, support, encouragement and understanding.

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Abstract

The study was carried out to investigate the competencies of TTD teachers in Mberengwa peri urban cluster in implementing constructivist principles in their classrooms. The intention was to find out if teachers were implementing these principles in the teaching of TTD and the challenges that hinder them from implementing constructivist principles in teaching and learning. The research adopted the case study design to provide an in-depth analysis of teacher competences in applying constructivist principles in the teaching of textiles technology and design in Mberengwa peri-urban cluster secondary schools. The population comprised of five secondary in, Mberengwa peri-urban cluster and 4 TTD teachers. The sample was made up of three TTD teachers. The purposive sampling technique was used to select 3 TTD teachers (one from each school offering TTD) whose teaching experience was more than 10 years. Data was collected using semi-structured interviews and observations. The thematic approach was used to analyse the collected data. The findings of the study revealed that TTD teachers have positive perceptions towards the use of constructivist principles in teaching. However, the positive perceptions did not translate into the actual implementation of these principles in classroom teaching. Furthermore, TTD teachers were not competent enough to implement constructivist principles in teaching as a result resort to use the traditional teacher centred methodologies. The challenges that hindering the effective implementation of constructivist principles in teaching are inadequate time, lack of knowledge skills about constructivism and inadequate resource materials and facilities in schools as well as overcrowded classes. The study recommended that implementation of teacher professional development programmes, induction courses for new teachers, in-service training opportunities as well as ensuring that all schools are adequately equipped with material resources will go a long way in supporting teachers to effectively implement constructivist principles in the teaching of TTD.

Contents

APPROVAL FORM	ii
RELEASE FORM.....	iii
DEDICATION	iv
ACKNOWLEDGEMENTS	v
Abstract.....	vi
CHAPTER ONE.....	viii
THE RESEARCH PROBLEM	Error! Bookmark not defined.
1.0 Introduction.....	Error! Bookmark not defined.
1.1 Background of the study	Error! Bookmark not defined.
1.2 Statement of the problem	4
1.3 RESEARCH QUESTIONS.....	5
1.4 Significance of the study	5
1.5 Limitations of the study	6
1.6 Delimitations of the Study	6
1.7 Definition of key terms	7
1.8 Summary	7
CHAPTER TWO	Error! Bookmark not defined.
REVIEW OF RELATED LITERATURE	Error! Bookmark not defined.
2.1 Introduction.....	Error! Bookmark not defined.
2.2 Teachers' perceptions of constructivist principles in teaching and learning	8
2.3 How do TTD teachers apply constructivist principles in their classrooms?.....	Error! Bookmark not defined.
2.4 Challenges TTD teachers experience in implementing constructivist principles in their classrooms	16
2.5 Suggestions by TTD teachers for effective implementation of constructivist principles...18	
2.6 Summary	Error! Bookmark not defined.
CHAPTER 3	20
RESEARCH METHODOLOGY	20
3.1 Introduction.....	20

3.2 The research design.....	20
3.3 Population and sample and sampling procedures	22
3.4 Research instruments	23
3.4.1 Interview	Error! Bookmark not defined.
3.4.2 Observation	24
3.5 Data collection procedures.....	Error! Bookmark not defined.
3.6 Data analysis plan	Error! Bookmark not defined.
3.7 Summary	Error! Bookmark not defined.
CHAPTER FOUR.....	Error! Bookmark not defined.
DATA PRESENTATION, ANALYSIS AND DISCUSSION	Error! Bookmark not defined.
4.1 Introduction.....	Error! Bookmark not defined.
4.2 Demographic information of the participants	Error! Bookmark not defined.
4.3 Teachers’ perceptions of constructivist principles in teaching and learning.....	30
4.4 How do TTD teachers apply constructivist principles in their classrooms?.....	Error! Bookmark not defined.
4.5 Challenges TTD teachers experience in implementing constructivist principles in their classrooms	33
4.6 Suggestions by TTD teachers for effective implementation of constructivist principles...34	
4.7 Discussion of the findings.....	Error! Bookmark not defined.
4.9 Summary	Error! Bookmark not defined.
CHAPTER FIVE	40
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	40
5.1 Introduction.....	40
5.2 Summary	40
5.3 Conclusions.....	Error! Bookmark not defined.
5.4. Recommendations.....	Error! Bookmark not defined.
References.....	Error! Bookmark not defined.
APPENDICES	Error! Bookmark not defined.

CHAPTER ONE

THE RESEARCH PROBLEM

1.1 Introduction

The purpose of the study is to analyse teacher competences in applying constructivist principles the teaching of Textiles Technology and Design (TTD) in Mberengwa secondary schools. The chapter provides the background of the study, statement to the problem, hypothesis, significance of the study, delimitations and limitations of the study, definition of terms and the summary.

1.2 Background to the study

Textile Technology and Design is a practical subject where students apply their hands and minds to acquire lifelong skills (Magagula, Mpofu and Bhebhe, 2019). It is a learning area in the competency based curriculum that imparts in the learner both practical and theoretical skills (Zimsec, 2015). The learning area Textile Technology and Design (TTD) was introduced in the secondary school curriculum in 2015. According to ZIMSEC (2015), this learning area places emphasis on acquisition of skills related to self-reliance, enterprising and sustainability in textile related aspects of the economy.

The assessment of learners in this learning area is by continuous and summative assessment (ZIMSEC, 2015). The assessment comprises of three aspects namely paper 1 (theory), paper 2 (practical test) and paper 3 (continuous assessment). Thus assessment at the end of O' Level comprises of both practical and theoretical examinations. Zimsec (2015), further notes that the teaching of this learning area develops in learners knowledge in problem solving, design thinking, communication, technological, management, self-reliance, enterprising, creativity and innovation skills.

For effective implementation of this learning area, it is necessary that a participatory approach that entails implementation of constructivist principles be used (Fernando and Marikar, 2017). According to Dagneu and Endris (2020), a participatory approach underpinned by constructivism entails that students be actively engaged in the learning process and in the active construction of knowledge. This means that, learners should be actively involved in knowledge construction rather than just passively take in information. As they experience the world and reflect upon those experiences, learners build their own representations and incorporate new information into their pre-existing knowledge (schemas) (Semerci and Batdi, 2015).

Textile Technology and design teachers should therefore have a thorough understanding of constructivist principles and pedagogical practices in order to provide effective teaching and learning in the Textile Technology and Design classroom (Makgato, 2012). Although there are several approaches to constructivism, the common perspective is that construction of knowledge by students is basically a learning process that involves change. Therefore in applying constructivist principle in the classroom the TTD teacher as highlighted by Makgato (2012) should ensure that classroom conditions are motivating to students, implement problem based learning activities, elicit relevant prior knowledge, Apply knowledge with feedback and encourage students to reflect on their learning. A Constructivist classroom should therefore reflect active participation and deep learning through inquiry based approach as opposed to surface learning.

Furthermore, as explained by Ogundola, Popoola and Oke, (2010). In the constructivist classroom, students work primarily in groups and that learning and knowledge are interactive and dynamic. There is a great focus and emphasis on social and communication skills, as well as collaboration and exchange of ideas. This is contrary to the traditional classroom in which students work primarily alone, where learning is achieved through repetition and where subjects are strictly adhered to and guided by textbooks. The teacher's role in a constructivism

classroom is to prompt and facilitate discussion. Thus, the teacher's main focus should be on guiding students by asking questions that will lead them to develop their own conclusions on the subject (Ogundola, Popoola and Oke, 2010). Such a constructivist classroom is considered to have a greater effect on learner success.

However, the researcher has observed that Textile Technology and design teachers in Mberengwa district secondary schools are not consider constructivism as an efficient teaching-learning approach within the TTD curriculum. According to Magagula, Mpofu and Bhebhe (2019), the competencies of teachers in implementing constructivist principles in teaching TTD can be determined by their ability to impart knowledge and skills to the students. The knowledge and skills include scientific knowledge of fibres and fabrics in relation to selection, use and care, technological and creative skills in designing, use of patterns, construction and maintenance of textile artefacts, as well as skills in self-reliance, manipulative skills and accuracy of sewing processes machine stitching skills and hand stitching skills (ZIMSEC, 2015; Magagula, Mpofu and Bhebhe, 2019) .

If teachers are to impart these skills in learners, they ought to possess these skills themselves and be able to use effective methodologies (constructivist methodologies) in imparting these skills. However, Komolafe (2016) has shown that textile teachers do not possess adequate competence in the use of constructivist principles in teaching and learning as a result their students are not able to practice and apply what they have been learning to solve problems in the society. The participatory teaching practices adopted through the TTD curriculum of 2015, necessitate that learners participate in classroom activities, become more involved in the learning process and take responsibility for their own learning. Both teachers and learners are required to focus on predetermined outcomes that should be achieved during or at the end of each learning process. However, it has been shown that many TTD teachers including those in Mberengwa do not possess skills to implement classroom practices as demanded by the

curriculum; since they still use the traditional teacher-centered approach (Magagula, Mpofu and Bhebhe, 2019).

Based on the foregoing background, it is uncertain if constructivist principles are being used by Textile Technology and Design teachers in teaching and learning. If students cannot successfully perform activities in the society by applying what they have been taught and learned, it reflects that the teachers lack competence in imparting skills and using effective methodologies to impart these skills. This study therefore seeks to assess the ability/inability of teachers of Textile Technology and Design to demonstrate the use of appropriate constructivist teaching methods in their classrooms.

1.3 Statement of the Problem

Several changes were introduced in the Zimbabwean secondary schools curriculum in 2015 in an attempt to provide quality education in Zimbabwe. This saw the curriculum shifting from being content based to competency based. Such a shift brought with it the advocacy of using constructivist principle in teaching and learning which are mainly competency-based and learner centered approaches. Observation has revealed lack of application of constructivist principles in the teaching and learning process. Therefore, this study aimed at assessing the application of the constructivist approaches in the teaching and learning of Textile Technology and Design in Mberengwa secondary schools. The aim was to find out to the extent to which teachers use constructivist approach and ascertain teacher competences in implementing constructivist teaching methods in their classrooms.

1.4 Research Questions

The study sought to answer the following questions:

- How do teachers perceive constructivist principles in teaching and learning?
- How do TTD teachers apply constructivist principles in their classrooms?
- What challenges are TTD teachers experiencing in implementing constructivist principles in their classrooms?
- What are the possible suggestions by TTD teachers for effective implementation of constructivist principles?

1.5 Significance of the study

The study is significant to various educational stakeholders in a number of ways. Firstly, it provides educational policy makers; planners as well as school administrators with information relating to the use of constructivist approaches in implementing the competency based curriculum as well as the challenges teachers face as they implement constructivist principles in their teaching. This will help the policy makers to take proper measures of addressing the challenges.

Secondly, the findings of this study will help teachers to be better able to implement effective constructivist teaching methodologies in teaching and learning of Textile Technology and Design thus improve their pedagogical practices. Thirdly, the study makes significant contribution to knowledge and understanding of important factors that influence the use of constructivist principles in teaching Textile Technology and Design. Lastly, the study will contribute to the body of knowledge which can be used for academic purposes such as obtaining data for further comparative studies.

1.6 Limitations of the study

Price and Murnan (2004) define limitations of the study as those characteristics of design or methodology that impact or influence the interpretation of the findings of research. They

are the constraints on generalizability and utility of findings that are the result of unanticipated challenges that emerged during the study.

In conducting this study a number of challenges were faced. The respondents were reluctant to provide information as some were not ready to be interviewed. The researcher therefore had to establish a good rapport with respondents before actual data collection. This helped the researcher to get the data needed.

1.7 Delimitations

Delimitations describe the boundaries that the researcher has set for the study. In other words these are restrictions and limits in what the research covers. The study focused on assessing the implementation of constructivist principles in teaching TTD subject in the selected secondary school in Mberengwa district. For this reason, the study focused only on teaching and learning process, specifically in TTD subject and not on other disciplines.

1.8 Definition of Key terms

Constructivism: is ‘an approach to learning that is based on the premise that that people are involved in knowledge construction and meaning making based on their experiences (McLeod, 2019).

Constructivist teaching: an approach to teaching in which educators provide learning experiences for learners to be actively involved in a process of meaning and [knowledge construction](#)(Schreiber and Valle, 2013).

Competency-based curriculum: a *curriculum* that emphasizes what learners are expected to do rather than mainly focusing on what they are expected to know. It implies that learners should acquire and apply the knowledge, skills, values, and attitudes to solve situations they encounter in everyday life and across the globe (Kabombwe and Mulenga, 2019).

1.9 Summary

This chapter has provided the background of the study by describing the context in which the study originates. The chapter highlighted the importance of applying constructivist principles in teaching Textile Technology and design. The statements of the problem as well as research questions guiding the study were clearly outlined. The chapter also described the significance of the study. The limitations as well as the scope and delimitations of the study were highlighted in the chapter. The chapter concluded by providing operational definitions of key terms. The next chapter presents the review of the related literature.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter will look at what other authorities have found and written in relation to the use of constructivist principles in teaching and learning. The chapter will review literature on teachers' perceptions on constructivist principles in teaching and learning, how constructivist principles are applied in teaching and learning, the challenges TTD teachers experience in implementing constructivist principles in their classrooms and the possible suggestions for effective implementation of constructivist principles in teaching and learning.

2.2 Teachers' perceptions of constructivist principles in teaching and learning

Holland (1997) claimed that the environments foster the development of competencies, motivate people to engage in different activities, and reward people for their display of values and attitudes. Environment thus influences personal and professional self-perceptions, competencies, attitudes, skills, and values. Constructivism is a popular approach at designing learning environments. Constructivism is a view of learning that students actively construct knowledge and learn based on their interaction with their environments. In a constructivist approach, learning is taking place not because of the transference of knowledge from teacher to student via text or a personal knowledge base, but because the students interpret and make sense of their surroundings. In this context the teacher's role is to facilitate activities that will guide the learner into developing meaningful concepts (Peters & Stout 2006). Therefore, the design of learning environment is one of the most important factors to support the constructivist learning.

Creating an effective learning environment has become one of the teachers' challenges in helping students engage in and take responsibility for their own learning (National Research Council, 1996). Teachers are key actors who shape students' learning and have a critical role in implementing new approaches to learning. Leithwood et al (2009) confirm that teachers are important school-based factors in impacting student achievement. Hence, the development of education reforms relies heavily on teacher's capacity, perspective, motivation, commitment and their belief systems. Teacher belief systems are the most important factor to adopt constructivist practices (Levin & Nevo, 2009). Beliefs and behaviors work collaboratively (Levitt, 2002) and beliefs have a powerful effect on teacher's classroom practices (Fullan, 2011). As teachers' epistemological beliefs guide their instructional and curricular decision making and their desire to adopt new pedagogies, opportunities to challenge and realign beliefs are critical if constructivist practices are to be adopted (Brand & Moore, 2011).

Classrooms have changed today from traditional to non-traditional methodologies in order to enhance students' learning in general. Yet, not all teachers know or realize the importance of this. Constructive teaching and learning strategies require effort from both students and teachers. Thus, it is important to investigate the teaching methodologies adapted by the teachers in this case (Nayak, 2013). Thus, in order to improve the students' learning, the teachers' perception of different teaching methodologies specifically the constructivist should be examined. It is true that there isn't much research in Zimbabwe that studies, examines and investigates the TTD teachers' perception of the constructivist teaching strategies when applied in the classroom, yet this section will summarize the main research that deals with this topic.

As teachers move from behaviourism to cognitivism to constructivism, “the focus of instruction shifts from teaching to learning, from the passive transfer of facts and routines to the active application of ideas to problems” (Ertmer & Newby, 2013, p. 58). It is crucial for teachers willing to adopt constructivism to not only shift traditional beliefs but move away from traditional practices that emphasize drill, practice, and correct answers toward adopting constructivist beliefs and practices that support active learning where the learner controls goals and constructs meaning. Studies on pre-service and in-service teachers’ beliefs and practices of constructivism have shown that constructivism is often carried out by teachers (Akyeampong & John Pryor Joseph, 2006; Beck, Czerniak, & Lumpe, 2000; Lui & Bonner, 2016; Myagmar, 2010; Tang, Wong, & Cheng, 2012; Yildirim & Kasapoglu, 2015). However, the limitations of some of these studies are self-reported data and teachers not being observed in their classrooms. In this context, teachers may have reported data that is favourable or revealed beliefs that are inconsistent with their practices, which makes it hard to determine the consistency between professed beliefs and beliefs in action. Other studies have shown that teachers carried out approaches that aligned more with traditional teaching models (Aydogdu & Selanik-Ay, 2016; de Mesa & de Guzman, 2006; Kaymakamoglu, 2017; Tsai, 2002). Research has also demonstrated that teachers incorporated both traditional and constructivist teaching models (Cleaver & Ballantyne, 2014; Ng & Rao 2008; Garrett, 2008; Sapkova, 2011), and that some teachers are in the process of transitioning from more a traditional to constructivist approach (Dole, Bloom, & Kowalske, 2016; Gunel, 2008; Moloney & Xu, 2015; Niaz, 2008).

In constructivist teaching, a teacher sets up problem and monitors students exploration, guides students inquiry, and promotes new patterns of thinking. Students play an active role in carrying out experiments and reaching their own conclusions. Teachers assist the students in

developing new insights and connecting them with previous knowledge, but they leave the discovery part and discussion to the students group. “According to this approach, learning is a process of creating an understanding related to the world. Information in learning environment is created through social interactions and it is special to the individual” (Fox, 2001). It helps students to develop their own understanding of the subject matter based on previous knowledge, and can correct any misconceptions they have. Teachers perception of constructivist curriculum change was significantly related to their implementation of constructivist teaching and learning activities in class at primary school level (Koray, 2010) Constructivist approach supports student-centered learning, improves student motivation and student skills and establishing an efficient learning environment. (Boddy et al., 2003) . Cinar and Teyfur (2006) investigated ‘teachers and administrators’ beliefs on the constructivist approach of recent curriculum and teachers were found to be ‘undecided’ with maintaining classroom discipline during curriculum implementation.

Barman and Bhattacharya (2012) conducted a study on attitude of secondary school teachers towards teaching through constructivist approach and found that these teachers possess favorable attitude towards constructivist approach. They also found that there is no significant difference in their attitude in relation to gender, locality and stream. An attitude that expresses a predisposition reaction of individuals against any subject around them has been a case that causes bias in decision-making process and shapes the behaviors of individuals. If the attitude developed against any object or event is positive, then the possibility of the decisions related to those to be positive will be higher. For this reason, attitude has been considered as the most important factor that affect motivation and behavior of teachers positively or negatively. Another study conducted by Ekici (2002), on impact of attitude on behavior states that attitude has been accepted as an important explicative of behavior with its cognitive, affective and

behavioral dimensions. Attitude has been found an element that shapes behaviors of the individual.

A constructivist approach to teaching 21st century skills involves new roles and demands on teachers. Teachers should understand the goals of constructivist curriculum, the students in their classrooms, and how to structure the learning environment to meet their needs. The most important way to improve productivity in educational environments based on constructivist approach is to take teachers' personal beliefs and values into account. Since the teacher is a critical component in the teaching and learning processes, identifying teacher perceptions about their own learning environment is necessary to implement the tenets of the constructivist reform movement in the classrooms. Thus, the purpose of this study is to examine teacher competences in applying constructivist principles in the teaching of Textiles Technology and Design in Mberengwa secondary schools

2.3 How do TTD teachers apply constructivist principles in their classrooms?

In the constructivist classroom, students work primarily in groups to engage with daily activities. Constructivist teaching methods emphasize communication and social skills, as well as intellectual collaboration (Pagán,2006). This is different from a traditional classroom where students primarily work alone, learning through repetition and lecture. Pascoe, Monroe, & Macfarlane (2018) identify activities encouraged in constructivist classrooms. These include:

Experimentation: Students individually perform an experiment and then come together as a class to discuss the results.

Research projects: Students research a topic and can present their findings to the class.

Field trips: This allows students to put the concepts and ideas discussed in class in a real-world context. Field trips would often be followed by class discussions.

Films: These provide visual context and thus bring another sense into the learning experience.

Class discussions: This technique is used in all of the methods described above. It is one of the most important distinctions of constructivist teaching methods.

Campus wikis: These provide learners with a platform for curating helpful learning resources.

Constructivist approaches can also be used in online learning. Tools such as discussion forums, wikis and blogs can enable learners to actively construct knowledge. Because existing knowledge schemata are explicitly acknowledged as a starting point for new learning, constructivist approaches tend to validate individual and cultural differences and diversity (Pagan, 2006).

Previous work (Hughes et al., 2010) argues that textile technology is an essential subject to introduce pupils to the types of technology encountered in modern industrial and business environments. However, it is suggested that in order for the subject to become applicable to a modern school curriculum it should retain a technological focus and that the technological features of the subject should be tightly coupled to the design function. For example, the subject could combine design creativity, knowhow and application with an understanding of textile issues such as needle heating and seam pucker, the mechanics of the fabric/machine interface, the effects of automated equipment on design decisions and how advances in operations management may affect design thinking.

As noted by Makgato (2012), constructivism theory underpins a variety of teaching methods such as problem-based learning, inquiry-based learning, project-based learning, case-based teaching, and discovery based learning which promote active participation in the classroom.

Makgato (2012), used these constructivist methods of teaching and learning in his study to identify the attributes of constructivist practices in the teaching and learning of technology in classroom or laboratory. The study incorporated the aspects of PCK theoretical framework which also includes the principles of constructivist theory, particularly on the use of relevant methods (PK) in teaching and learning. The study reported the difficulties experienced by teachers in applying the appropriate methods of constructivist theory and attributes of PCK in teaching and learning of technology at some schools in Kwa-Zulu Natal, South Africa. The results showed that teachers don't know how to use the appropriate constructivist methods and principles in the teaching and learning of technology. It was also found that teachers lack the proper aspects of PCK in the teaching and learning of technology.

Textile technology and design is about solving practical problems, thus it involves “creativity rather than an investigatory activity” (Gumbo & Makgato, 2008). TTD subject contributes towards learners' technological literacy by giving them opportunity to develop and apply specific skills to solve technology problems and to understand the concepts and knowledge used in technology. It also gives learners opportunity to interact with each other within teams where they develop technological solutions and explore both the positive and negative impacts of technology. The content of technology subject allows learners to understand the concepts and principles used in TTD. According to Khumalo (2004) teachers do not have enough content knowledge to teach TTD because most were not trained in technology at the time of implementation. Gumbo and Makgato (2008) also found that teachers are being blamed for their apparent inability to prepare learners with the content knowledge and skills of technology. They further argue that technology could be better taught and learnt if teachers have an understanding of what should be taught and learnt. Teachers should also have a thorough understanding of how teaching and learning occurs in technology classroom.

There are several approaches to constructivist theory with major branches, those built on philosophical theories of learning and those focusing on psychological theories (Olsen,1999). The constructivist theory of learning is reflected in the developmental theories of Piaget (Piaget,1972) , Dewey (Dewey,1997) , Bruner (Bruner, 1961) and Vygotsky (Vygotsky, 1978). In Cognitive constructivism from the work of Piaget, a student reactions to experience lead to learning. From the work of Vigotsky, social constructivism play important role in the construction of meaning from experience (Prince and Felder, 2006). Teachers should have understanding of constructivist theory, principles and pedagogy in order to provide effective teaching and learning in the TTD classroom. Although there are several approaches to constructivism, the common perspective is that construction of knowledge by students is basically a learning process that involves change (Olsen,1999). Thus, knowledge construction is the process of learning. In implementing a constructivist classroom the teacher should (1) influence or create motivating conditions for students (2) take responsibility for creating problem situations (3) foster acquisition and retrieval of prior knowledge and (4) create the process of learning, not the product of learning (Olsen, 1999). Constructivist classroom should reflect active participation and deep learning through inquiry based approach as opposed to principles for effective teaching and learning:

1. Teaching should begin with content and experiences familiar to the students, so they can make connections to their existing knowledge structures. New knowledge should be presented in the context of real-life applications, rather than abstract.
2. Knowledge should be presented in a manner that does not change students cognitive models drastically. In the region between what they know/can do independently and what they are capable of doing under adult guidance or capable peers (Vygotsky, 1978).

3. Teaching should enable students to fill the gaps and extrapolate information and materials presented by the teacher. The goal should be to empower learners with skills to be independent, and access use relevant information from various sources to answer their problems and challenges
4. Teaching should involve students working in small groups dialoging and arguing to find solutions to the learning activities. This attribute of cooperative learning support all forms and approaches of constructivism and essential in social constructivism

2.4 Challenges TTD teachers experience in implementing constructivist principles in their classrooms

Educators and educational theorists have been aware that implementing constructivist pedagogy in practice is fraught with many dilemmas. This is due to the fact that “‘Constructivist pedagogy’ is less a model than a descriptor for instructional strategies” (Windschitl, 2002, p.136). There is no blueprint as to how classroom proceedings should be organized in a constructivist classroom. Consequently, attempts to translate constructivist assumptions into pedagogical strategies have met with numerous challenges. Among these is the need to ensure that lessons lead to solid learning outcomes while giving the students the freedom to engage in active learning. Another dilemma concerns the assessment of the students’ learning where the instructor needs to allocate marks to individual learners for their participation in a collective effort (see Johnston and Karageorgis, 2009, p.1). Indeed, one of the misconceptions about educational constructivism has been that since the learners must be given a considerable degree of freedom “no rigorous assessment strategies” are required (Windschitl, 2002, p.139).

Another finding that emerged from a study by Nikitina (2010), was that in moving towards more constructivist classrooms, the teachers were being confronted with quite a number of tensions, challenges and dilemmas. These include maintaining an appropriate balance between knowledge construction and the development of learning objectives, how can teachers keep track of what individuals are learning, How much choice should students have and what support do teachers need to sustain the high level of energy and enthusiasm needed to develop classroom culture with a constructivist orientation.

The findings of the researches conducted in Turkey show that classroom teachers are certainly in need of an in-service training in terms of acquisitions, content, learning-teaching process, instructional technologies and material development, and measurement and evaluation dimensions in order to perform the implementation of the program properly. Besides it was also determined by these findings that there are some problems concerning the implementation of constructivist pedagogy such as insufficient resources and equipment, large class sizes, limited time provided for experiment and research, the overwhelming tendency towards traditional methods. Research results also point out that the problems generally emerge in practical phase, particularly in designing learning environments (Yaşar et al, 2005; Erdoğan, 2005; Bozyılmaz & Bağcı-Kılıç, 2005; Saylan & Yurdakul, 2005; Özdemir, 2005; Selvi, 2006; Yücel et al, 2006; Çubukçu, 2006; and Batdal, 2006).

In study to determine the needs and problems of classroom teachers about designing constructivist learning environments and to lay down the practical suggestions concerning these problems in Turkey, Acat, Anılan & Anagun, (2010) investigated 94 classroom teachers from 81 provinces who had participated in the workshop aimed at designing constructivist learning environments. The groups evaluated their own learning environments. Based on these

evaluations, they formed documents which included defining their needs, the problems encountered and practical suggestions. It was concluded by means of document analyses that the learning environments were not real-life oriented, that they did not sufficiently relate to students' experiences, that the constructivist approach was not grasped efficiently and that students were not properly granted autonomy in learning process.

The result of a study by Dagnev (2017), revealed that teachers were not found to play the role of facilitator, reflective practitioner and scaffold of students learning except relationship building role. The study also revealed that major challenges that hindered effective implementation of constructivist teaching were teachers' lack of dedication to implement constructivist teaching, large class size, scarcity of allotted time to carry out active learning in greater depth, teachers lack of skill and knowledge to utilize constructivist teaching strategies and scarcity of learning materials especially in natural science department. Based on the finding it can be concluded that even though currently teachers teaching practice seemed to be inclined towards the utilization of constructivist teaching approach, the magnitude of its practice found to be low. Teachers teaching approach in the schools that were included in the study was not found to be basically different from traditional approach in which the classroom instruction were usually dominated by teachers.

2.5 Suggestions by TTD teachers for effective implementation of constructivist principles

Dagnev (2017), also says that to enhance effective implementation of learner focused constructivist teaching approach, educational experts (district educational officers, supervisors and principals) should, provide well organized training work shop in each cluster centers for teachers to develop clear concept about the meaning and ways of utilizing constructivist teaching methods in their school context; encourage classroom supervision and exchange best

teaching practice or experiences between schools.; strengthening in service training program of continuous professional development by evaluating its progress in relation to teaching practice and students learning competence and they should apply different encouraging systems for those teachers who are effective in their teaching so as to raise their internal motivation.

2.6 Summary

This chapter has reviewed literature on TTD teachers perception about the constructivist teaching principles, how TTD teachers apply the constructivist teaching approach in their classrooms, the obstacles TTD teachers face in implementing the constructivist teaching approach as well as the support and /or training opportunities TTD teachers need to ensure effective application of constructivist teaching approaches in their classrooms. The chapter has highlighted that to promote constructivist teaching approach teachers are expected to update their knowledge and skill through reading, participating in continuous professional development, & sharing experiences. The next chapter describes the methodology used in the study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter is going to describe the methods that were used to address the research problem and find answers to the research questions raised in the first chapter. In this chapter a description and justification of the research design used is given. The chapter further describes the population, sample as well as sampling techniques used in the study. The instruments used to collect data and the procedures followed in the process of collecting the data are also explained. The chapter also highlights how the collected data was analysed and concludes by giving a summary.

3.2 Research design

Lavrakas (2008), describes a research design as a general plan or strategy that a researcher adopts when conducting a research study so as to thoroughly address research questions of interest. The research design is thus a complete plan that defines and describes how the research questions are to be formulated, the data to be collected, how it is to be collected, analysed and how the research findings are to be reported. Saunders, Lewis and Thornhill (2012) also define a research design as a general plan that a researcher will adopt to answer the research questions of the study. It is a systematic approach to conducting a scientific inquiry, which brings together several components, strategies, and methods to collect and analyse data. For Creswell and Creswell (2018), a research design is a framework that includes the methods and procedures to collect, analyze, and interpret data. In other words, the research design describes how the researcher will investigate the central problem of the research.

3.2.1 The case study design

This study employed a qualitative case study design. Crowe, Cresswell, Robertson, Huby, Avery and Sheikh (2011) define a case study as an approach to research that generates an in-depth, multi-faceted understanding of a complex issue in its real-life context. Crowe et.al., (2011) further say that the major tenet of the case study design is the in-depth exploration of a phenomenon or event in its natural context. It is for this reason sometimes referred to as a "naturalistic" design; this is in contrast to an "experimental" design (such as a randomised controlled trial) in which the investigator seeks to exert control over and manipulate the variable(s) of interest.

According to Rashid, Rashid, Warraich, Sabir, and Waseem (2019), a qualitative case study is a research methodology that helps in exploration of a phenomenon within some particular context through various data sources, and it undertakes the exploration through variety of lenses in order to reveal multiple facets of the phenomenon. In case study, a real-time phenomenon is explored within its naturally occurring context, with the consideration that context will create a difference.

The qualitative case study design was considered more appropriate in providing a better understanding of the research problem. This research design has several benefits as it produces a detailed description of participants' feelings, opinions, and experiences and interprets the meanings of their actions (Magagula, Mpofu and Bhebhe, 2019). It also simplifies and manages data without destroying the context and complexity. Furthermore, in qualitative research, participants elaborate on a point to give clear meaning, perceptions of participants can be taken into consideration and is appropriate for research that requires a deep understanding (Magagula, Mpofu and Bhebhe, 2019). The use of the case study research design in this study enabled the researchers to provide an in-depth analysis of teacher competences in applying constructivist principles in the teaching of textiles technology and design in Mberengwa secondary schools. The study used the descriptive case study design to describe the teacher

competences in applying the constructivist teaching approaches in teaching TTD in Mberengwa High Schools. The descriptive case study approach involves observing and describing the behaviour of a subject without influencing it in anyway. This type of research design was preferred as the participants were observed in a completely natural and unchanged environment.

3.3 Population and sample

Fraenkel and Wallen(2000),defines population as an arrangement of people or things that a researcher has in mind from which one can obtain, information and draw conclusions. Oyedele (2011), says population is a group of interest to the researcher which they would like the results generalised. In this study the population comprises five secondary in, Mberengwa peri- urban cluster. There three school offering TTD in the cluster are 4 teachers teaching TTD in these schools.

Kothari (2004) defines, a sample as a smaller group of subjects drawn from the population ,in which the researcher is interested in gaining information and drawing conclusions. Sampling Techniques refers to the process of selecting the participants of the study as a sample from the population. The researcher handpicks the cases to be included in the sample on the basis of her judgement. She builds a sample that is specific to her research needs and its advantages are that the units or respondents are specifically qualified to assist in the research, though it can be highly prone to research bias and it is difficult to defend representatives of the sample. The purposive sampling technique was used to select 2 TTD teachers whose teaching experience was more than 10 years. The purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use

of limited resources. The teachers who were selected were viewed as the most knowledgeable and experienced in the field of Textile Technology and design. sub heading sampling techniques

3.4 Research Instruments

Research instruments are instruments used for collecting or obtaining data from a study of something. According to Bell (2005) research instruments are selected and devised to enable the researcher to obtain answers. The obtained data from the study will be then generalised to the whole group or population under study. Structured interviews and direct observations were used to collect data from the sample. These methods were chosen in order to provide an in-depth analysis of teacher competences in applying constructivist principles in the teaching of textiles technology and design in Mberengwa secondary schools. A semi-structured interview protocol and self-designed observation schedule were used to collect data from the 2 TTD teachers on how they implemented constructivist teaching strategies in their classrooms.

3.4.1 Structured interviews

An interview is a face to face or direct verbal way of obtaining information, Cohen and Manion,(2000). Interviews are subjective and interviewer must be a good listener. The interviewer initiates the dialogue to obtain the intended information for the research, they seek to delve into the participants' attitude experience, values and motivations in particular subject of interest. Semi-structured interviews are widely used in flexible designs (Robson, 2006) as they allow “a certain degree of standardisation of interview questions, and a certain degree of openness of response by the interviewer” (Wengraf, 2004, p. 62). The semi-structured interviews keep the interview focused on specific issues and give to interviewees the latitude to talk freely of their perspectives and experiences (Freebody, 2003; Patton, 2002).

Interviews with the 2 selected teachers were conducted to determine their competences in using constructivist teaching approaches in their classrooms. The interviews also helped to determine how school environments, assessments and classroom activities that teachers used to prepare their students could best support constructivist teaching of TTD. Interviews were used to collect data in this study because it helped to uncover more detailed and in-depth information from participants. Interviews were also appropriate as it allowed respondents to discuss and raise issues that the researcher may not have considered (Magagula, Mpofu and Bhebhe, 2019).. In addition, Magagula, Mpofu and Bhebhe (2019) state that the interviewer also has the freedom to probe the interviewee to elaborate on the original response or to follow a line of inquiry introduced by the interviewee; hence, it helps to uncover more detailed and in-depth information.

The interview questions were also focused on how teachers perceive constructivist principles in teaching and learning, how TTD teachers apply constructivist principles in their classrooms, the problems encountered by the TTD teachers when implementing constructivist teaching strategies in their classrooms and possible suggestions by teachers for effective implementation of constructivist principles. Furthermore, the interviews helped to verify and supplement information obtained from the observations as well as the information that were impossible to get from the observations such as teachers' understanding of the constructivist teaching framework. The responses were recorded in the interview protocol.

3. 4. 2 Class observations

Observation is at the heart of qualitative research. Classroom observations data complemented my interview responses and helped me gain a better understanding of teachers' competencies in the use of constructivist teaching approaches. Ideas of how and what to observe emerged from literature on class observation (Weimer, 2013).

The researcher observed two theory lessons and two practical lessons in order to get clear evidence on teachers' competencies in using constructivist teaching strategies. The data were recorded on the observation schedules. Observation was used because observations are more reliable and they serve as a technique for verifying or nullifying information provided in face to face encounters, for instance, observe situation participants have described in interviews (Magagula, Mpofu and Bhebhe, 2019). Magagula, Mpofu and Bhebhe (2019) echo that information obtained from participants may not be realistic or genuine and participants were less likely to provide accurate information about their competence consequently, observation was used in conjunction with interviews.

The observation schedules were designed to collect information regarding whether the TTD teachers implemented constructivist teaching approaches in their classroom and whether their lesson objectives as well as activities and assessments used to prepare their students were in accordance with the constructivist framework. The observation schedules were designed to evaluate whether TTD teachers were competent in applying constructivist approaches and the extent to which they practiced them in their teaching.

Evertson and Holley (1981, p. 90) state that "classroom observation gives us a view of the climate, rapport, interaction and functioning of the classroom available from no other source". The authors however advise observers to explain to teachers the purpose of their observations beforehand. Thus to alleviate the anxiety and stress I have myself experienced when I had an observer in class, I always arrived early on my research site and had a casual conversation with my participants to reassure them that my research aimed at understanding the way they implemented constructivist teaching strategies. After observations I had small debriefing sessions with teachers where I sought clarifications of classroom events I had observed but where my understanding was limited.

3.5 Data Collection Procedures

The researcher obtained an introductory letter from the Faculty of Education at Midlands State University. The researcher then wrote an application letter and attached research instruments, photocopy of the National Identity card .The researcher then sought permission from the Director: Planning, Research and Statistics of the Ministry of Primary and Secondary Education, The Provincial Education Director and from the District Schools Inspector to carry a research in Mberengwa peri-urban cluster secondary schools. Permission was granted to carry out the research in the secondary schools. When granted permission through the district office, the researcher visited the schools in order to make appointments with school heads and to get consent from fellow teachers . Teachers were informed of the purpose of the research and politely asked to participate in the study.

The researcher also observed some ethical considerations. The researcher asked for permission from the participants of their willingness to participate, and assured them that their names will not be disclosed and kept a secret. The researcher also informed the respondents of the nature and implication of the study through a letter. They were informed that they are also free to participate as well as to withdraw from the study at any time they feel like (Gall et al., 2007). The researcher also ensured confidentiality as no one had access to names and responses of respondents except the researcher. Besides, the names of respondents were not used in the data. Only the researcher knew which data relates to a particular respondent and only if the codes of names are compared with the data. No personal identifying data was left loosely.

3.6 Data analysis plan

Data analysis is a process that entails editing, coding, classification and tabulation of collected data(Kothari ,1990). It involves organizing what the researcher has seen, heard and read so that

the sense can be made of what a researcher has learnt, (Glesne & Peshkin, 1992). Since the study was purely qualitative, thematic analysis was used to analyse the data. According to Magagula, Mpofu and Bhebhe (2019) thematic analysis is the process of analysing the data without engaging preexisting themes, which means that it can be adapted to any research that relies upon participants' clarifications. Magagula, Mpofu and Bhebhe (2019) further note that data collected from interviews and observations can be analysed by interpreting the data, transcribing and checking, reading between lines, coding (identification of topics, similarities, differences that are revealed through the participants' narratives and interpreted by the researcher), theming and planning and writing the report. Consequently, the researcher used the thematic analysis for analysing the data. The researcher identified common themes emerging from the data, coded the data, categorized and classified and labeling the patterns in the data. The researcher then went deeper into the patterns and themes already identified" and "making connections among different patterns and themes" (Patton, 2015, p. 555). By doing this, the data were organized into high-level inductive themes, presented in chapter four.

3.7 Summary

This chapter gave the researcher's basic plan of the study. It is in this chapter the researcher took a closer look on the research design. The case study research design was used in this study to investigate the research problem. Out of a population of four TTD teachers, two teachers were purposively selected to participate in the study. The study employed semi-structured interviews and classroom observations to collect data for the study. The data collected was analyzed using the thematic approach. Thematic analysis involved reading through and examining the data to observe meanings and patterns that appear repeatedly across the data set. The meanings and patterns seen in the data were then sorted into common themes. The next chapter will focus on the presentation and discussion of the findings of the study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

The purpose of this chapter is to present the findings of the study carried out to investigate teacher competencies in implementing constructivist principles in teaching Textile Technology and Design in Mberengwa peri urban cluster schools. The findings of the study shall be presented in accordance with the research questions of the study. This chapter is organised into six sections which are :

- ◆ the biographical information of the participants.
- ◆ the perceptions of TTD teachers towards constructivist principles in teaching and learning.
- ◆ the application of constructivist principles by TTD teachers in their classrooms.
- ◆ the challenges TTD teachers experiencing in implementing constructivist principles.
- ◆ suggestions for effective implementation of constructivist principles.
- ◆ discussion of the findings

4.2 Biographical information of the participants

The biographical information of participants is presented in table 4.1 below.

Table 4.1: Biographical information of the participants

	Gender	Age (years)	Experience (years)	Teaching Qualification
Teacher A	Female	42	18	DipED
Teacher B	Female	46	22	BED
Teacher C	Female	40	16	DipED

The information from the table above indicates that all the participants were female teachers whose teaching experience ranged between 16-22 years. The teachers are all qualified to teach TTD up to Ordinary Level.

4.3 Perceptions of TTD teachers towards constructivist principles.

In order to determine the perceptions of TTD teachers towards constructivist principles in teaching and learning, there were two main questions that were asked in the semi-structured interviews. The first question required them to demonstrate their understanding about constructivist based teaching and learning while the second required them to give their perceptions regarding the use of constructivist approaches in teaching and learning. Generally the three teachers viewed the constructivist pedagogy as a theory of learning that is mainly grounded in student-centred learning where students are at the centre of the learning process and influence the content, materials, activities as well as the learning pace. The teachers viewed themselves as being there to facilitate the learning process by organizing authentic activities and learning experiences that help learners in knowledge construction. This allows students to be actively involved in constructing and discovering knowledge. The following interview excerpts help us to better illustrate the teachers' perceptions towards use of constructivist principles in teaching and learning.

Constructivism, is a student-centred learning pedagogy where the learner is actively involved in the process of learning and the teacher is rather passive so to speak. The main role of the teacher is to act as a guide to the students in their learning (Teacher A).

I view constructivism as a method of teaching which is largely learner-centred and teachers will be acting as facilitators. To me, constructivism means learning that is student-centred with the teacher's position being that of a guide and director. (Teacher B).

It is a learning theory where the role of the teacher is to mentor the learner in the process of creating new knowledge (Teacher C).

From the above excerpts, it can be concluded that the teachers perceive constructivism as a student-centred learning pedagogy where learners are actively involved in the construction of new knowledge. In other words this pedagogy places the learner at the centre of the teaching and learning process. It implies that learning is not a process of transferring knowledge from the teacher to the students but rather the teacher has to act as a facilitator to enable the learner to make sense of the new information by associating it with what they already know, and then assimilate it into their existing knowledge. This indicates that TTD teachers have sound knowledge about constructivist pedagogy and also have positive perceptions about the constructivist teaching approach.

Furthermore, the teachers highlighted the significance they attribute towards the use of constructivist principles in teaching and learning. The teachers gave several reasons why they view the use of constructivist principles to be significant.

Since Textile Technology and design is a practical subjects that makes use of use of hands-on activities, investigation as well as laboratory activities when the teacher engages learners in practical work, he/she is using the constructivist approach and is involving the pupils learning activities. (Teacher C).

Constructivist teaching is important because it allows learners to work cooperatively with others through social interaction among themselves and in groups as they are engaged in practical activities (Teacher A)

I think its use improves the creativity, problem solving skills, motivation as well as deep learning among the learners as a result they understand concepts easily and obtain good grades in the subject. (Teacher B).

From the above comments it can be seen that TTD teacher highly value the significance of constructivist principles in teaching and learning since they encourage social interaction among the learners, cooperative learning, and inquiry based learning and hands on activities. This encourages deep learning among learners. Deep learners, actively search for evidence, establishing connections, making meaning and employing higher order thinking skills to construct their own meanings by relating existing and new knowledge and transfer their learning to original situations.

4.4 Application of constructivist principles by TTD teachers in their classrooms.

For the researcher to be able to understand how TTD teachers implement constructivist teaching principles in their classrooms, the participants were asked to identify any six constructivist teaching strategies that can be used to enhance student engagement in their classes. The participants’ responses are presented in Table 4.2.

Table 4.2: Constructivist strategies

Teaching strategies identified by TTD teachers
Demonstration method
Discussion method
Guided Discovery
Exploration & Investigation
Lecture Method
Chalk and Talk
Observation
Projects
Cooperative learning
Question & Answer
Problem Solving

The findings from table 4.2 indicate that TTD teachers were aware of the constructivist teaching strategies that they can use in their classrooms. The teachers were also asked how frequently they used each of these identified teaching strategies. The findings indicate that the most frequently used methods are the lecture method, chalk and talk, question and answer and the demonstration method. Classroom observation further revealed that the TTD teachers in Mberengwa peri urban cluster tend to use the traditional teacher centred approaches more often than the learner centred methodologies. The findings further revealed that the teachers lacked the skills and knowledge to competently implement the constructivist teaching principles in their classrooms since they could not use problem solving, inquiry based, cooperative learning, guided discovery as well as exploration and investigation. The findings seem to indicate that despite teachers' claims on awareness constructivist teaching principles, TTD teachers do not understand how to implement them in the classroom.

4.5 Challenges experienced by TTD teachers in implementing constructivist principles.

This section is guided by the key research question of “What challenges are TTD teachers experiencing in implementing constructivist principles in their classrooms?” With regards to this question, the findings centre on the overcrowded classrooms, lack of knowledge and skills, inadequate time, resources and motivation of teachers towards the teaching. The teachers argued that, implementing constructivist principles in teaching and learning is time consuming to practice in relation to the content coverage hence they always opted teacher centred approaches regardless the understanding of the learners.

Teacher A argued that: *“I am conversant with the constructivist approach but it takes a lot of time to cover the content in form of topics hence its time consuming to let students discussing, doing experiments, teacher summing up and making conclusion...”*

The implementation of constructivist principles in teaching and learning is very important as it actively engages students. However, it consumes a lot of time. An activity based on constructivism may consume one hour of lesson. Therefore, the learning objectives cannot be sufficiently implemented or remain incomplete (Teacher B).

The participants further noted that inadequate teaching and learning materials, overcrowded classrooms (high teacher-learner ratio), inadequate infrastructure (TTD laboratory, furniture etc.), inadequate teaching equipment, and lack of knowledge and skill about constructivism hinder the implementation of constructivist principles in teaching.

If effectively implemented, constructivist principles have great significance TTD teaching and learning. However, as a result of lack of sufficient teaching and learning materials, facilities and equipment the application of these principles is very difficult (Teacher B).

While constructivism is the way to go, I do not really know if all teachers have adequate knowledge and understanding about constructivism. I would want to believe that most of the teachers do not have sufficient knowledge on constructivism (Teacher C).

In my class there are about 35 learners whom it is difficult to reach all of them as a result the slow learner is left behind (Teacher A).

The research findings revealed that the failure of implementing constructivist teaching principles is being affected by among the other things a shortage of resources such as teaching equipment, inadequate infrastructure, large class sizes and lack of knowledge and skills on how to implement constructivist principles in teaching and learning.

4.6 Suggestions for effective implementation of constructivist principles.

To address this section, teachers were requested to make suggestions on how the effective implementation of constructivist principles in teaching and learning of TTD can be enhanced. Some of the suggestions made included the implementation of teacher professional development programmes, induction courses for new teachers, in-service training opportunities as well as ensuring that all schools are adequately equipped with material resources to support the teaching of TTD using constructivist principles. The following interview excerpts help to illustrate this.

When I trained as a teacher, the methodology courses did not adequately equip us on how constructivist principles can be implemented in the classroom in a peri-urban set up as ours. Therefore there is need for more support to be given to teachers in the form of in-service course, workshops, resource materials to enhance their capabilities on the use of constructivist principles in teaching TTD (Teacher A).

TTD teachers need professional development and in-service training to equip them with knowledge and skills in important areas of the curriculum such as planning classroom activities and assessments. There is also need to strengthen the Zimbabwe Home Economics Teachers' Association (ZHETA) so that TTD teachers can be able to meet more often to discuss issues relating to the teaching of TTD. (Teacher C).

Schools should provide TTD teachers with adequate teaching and learning materials and equipment so that they can be able to implement the constructivist approach effectively (Teacher B).

From the above comments, it can be seen that if teachers are to effectively implement constructivist principles in their teaching they need to be supported through a number of

initiatives such as in-service training workshops, induction programmes for new teachers, strengthening TTD teachers' associations as well as provision of resource materials and facilities.

4.7 Discussion of the findings

4.7.1 Perceptions of TTD teachers towards constructivist principles.

From the findings of the study, it can be seen that TTD teachers have positive perceptions towards the use of constructivist principles in teaching their subject. The teachers highlighted that constructivist teaching approach encourages student-centred learning, gives a role of guide to the teacher, and helps students to become aware of their capabilities. The findings are similar to those of Andrew (2007) and Çınar, et.al., (2006) who observed that teachers had positive views about implementing constructivist principles in their classrooms, as a result they were more inclined to use constructivist-based pedagogy in their classroom.

The findings of this research study are also consistent with the findings of Karadağ, Deniz, Korkmaz and Deniz (2008) that also discovered that teachers had positive attitudes towards use of constructivist approaches, however, they were doubtful about its practices. In addition, Evrekli, İnel, Balım and Kesercioğlu (2009) found out that teachers had positive attitudes towards the constructivist approach. The present study also came to the conclusion that teachers had generally positive attitudes towards the constructivist approach. If teachers have favourable perceptions towards the use of constructivist principles, this contributes towards the successful implementation of constructivist teaching in the classroom.

4.7.2 Application of constructivist principles by TTD teachers in their classrooms.

From the information gathered during the interviews and classroom observations it was noted that the most frequently used teaching methods are the lecture method, chalk and talk, question and answer and the demonstration method. Classroom observation further revealed that the

TTD teachers in Mberengwa peri urban cluster tend to use the traditional teacher centred approaches more often than the learner centred methodologies. The findings further revealed that the teachers lacked the skills and knowledge to competently implement the constructivist teaching principles in their classrooms. The findings are in agreement with Rweyemamu (2012) who argues that, some curriculum stakeholders and teachers do not understand the use of constructivist approaches. They may know about constructivist principles but they actually lack knowledge and skills to put these principles into practice. The missing link between what TTD teachers think they know and what they can do in practice is likely to be a result from the lack of training on use of constructivist practices among college tutors. The findings are also in agreement with Selemani (2014) who noted that teachers' failure to adopt and use constructivist approaches was attributed to teachers' incompetency in terms of academic (subject) matter content and constructivist pedagogy.

4.7.3 Challenges experienced by TTD teachers in implementing constructivist principles

The findings of this research study have shown that TTD teachers encounter several limitations as they try to enact constructivist principles in their classrooms. Some of these constraints include inadequate time, lack of knowledge skills about constructivism and the lack of resource materials and facilities in schools as well as overcrowded classes. These findings agree with Baştürk (2016) who found out that teachers are reluctant to implement constructivist strategies due to inadequate time to finish the syllabus, lack of teaching and learning materials and facilities, large classes as well as inadequate pedagogical content knowledge on implementing constructivist teaching strategies. The findings are in consonance with Schoenfield (2002) who observed that teachers' inability to frequently implement the constructivist instructional strategies could be due to their inadequate pedagogical knowledge of constructivist instructional strategies. It could also be due to the teachers' inability to have expert and

experienced teachers who would expose them to constructivist instructional strategies (Kauchak & Eggen, 1998).

4.7.4 Suggestions for effective implementation of constructivist principles.

The participants of the study made some suggestions on how constructivist principles can be effectively implemented in their classrooms. These included the implementation of teacher professional development programmes, induction courses for new teachers, in-service training opportunities as well as ensuring that all schools are adequately equipped with material resources to support the teaching of TTD using constructivist principles. The findings are in line with Albalawi (2010) who highlighted the need for improving teacher pedagogies professional development and in-service training programs for teachers to be able to implement constructivism in their classrooms.

The findings are also in agreement with Callison, (2013) who noted that administrative support is crucial to helping teachers implement hands-on, student-centred instruction. It is also vital for administrators to provide opportunities for teachers to participate in professional development and continuing education that broadens their content knowledge as well as allows them to participate in constructivist-based learning environments so they can expand their knowledge of how constructivist teaching works and how it can be implemented into classrooms. Selemani (2014) also observed that the success for using constructivist approach needs support in terms of teacher's professional development and material resources for curriculum implementation.

4.5 Summary

The findings of the study have been presented and discussed by addressing the research questions. The findings have indicated that while teachers have positive perceptions on the

constructivist approach, they have major hesitations in its implementation in the schools due to a number of challenges. The findings also revealed that TTD teachers should be provided with resources that would enable them teach using constructivist strategies as well as to forestall this, in-service and professional development programmes should continually be organized for teachers to keep them abreast of constructivist strategies. In the next Chapter, the summary, conclusions and recommendations of the study are presented.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In the previous chapter, the findings of the study were presented and discussed. This chapter is going to present the summary of the whole study, the conclusions as well as the recommendations of the study.

5.2 Summary

The study was carried out to investigate the competencies of TTD teachers in Mberengwa peri urban cluster in implementing constructivist principles in their classrooms. The intention was to find out if teachers were implementing these principles in the teaching of TTD and the challenges that hinder them from implementing constructivist principles in teaching and learning. The implementation of any instructional strategy depends on the perceptions and attitudes of teachers. If teachers have favourable perceptions towards the use of constructivist principles, this contributes towards the successful implementation of constructivist teaching in the classroom. The effective implementation TTD learning area requires a participatory approach underpinned by constructivist principles that requires students to be actively engaged in the learning process and in the active construction of knowledge.

According to Makgato (2012), Textile Technology and design teachers should have a thorough understanding of constructivist principles and pedagogical practices in order to provide effective teaching and learning in the Textile Technology and Design classroom. Therefore in applying constructivist principle in the classroom the TTD teacher as should ensure that classroom conditions are motivating to students, implement problem based learning activities, elicit relevant prior knowledge, apply knowledge with feedback and encourage students to reflect on their learning. A Constructivist classroom should therefore reflect active

participation and deep learning through inquiry based approach as opposed to surface learning. Magagula, Mpofo and Bhebhe (2019), explain that the competencies of teachers in implementing constructivist principles in teaching TTD can be determined by their ability to impart knowledge and skills to the students. However, Komolafe (2016) has shown that textile teachers do not possess adequate competence in the use of constructivist principles in teaching and learning as a result their students are not able to practice and apply what they have been learning to solve problems in the society.

In this research, the case study design was used. The use of the case study research design in this study enabled the researcher to provide an in-depth analysis of teacher competences in applying constructivist principles in the teaching of textiles technology and design in Mberengwa peri-urban cluster secondary schools. In this study the population comprised of five secondary in, Mberengwa peri-urban cluster and 4 TTD teachers. The sample was made up of three TTD teachers. The purposive sampling technique was used to select 3 TTD teachers (one from each school offering TTD) whose teaching experience was more than 10 years. Data was collected using semi-structured interviews and observations. The thematic approach was used to analyse the collected data.

From the findings of the study, it was revealed that TTD teachers have positive perceptions towards the use of constructivist principles in teaching. However, the positive perceptions did not translate into the actual implementation of these principles in classroom teaching. The findings revealed that the TTD teachers were not competent enough to implement constructivist principles in teaching as a result resort to use the traditional teacher centred approaches more often than the learner centred methodologies. A number of challenges hindering the effective implementation of constructivist principles in teaching such as inadequate time, lack of knowledge skills about constructivism and the lack of resource materials and facilities in schools as well as overcrowded classes were cited by the participants.

The study also showed that implementation of teacher professional development programmes, induction courses for new teachers, in-service training opportunities as well as ensuring that all schools are adequately equipped with material resources will go a long way in supporting teachers to effectively implement constructivist principles in the teaching of TTD.

5.3 Conclusions

From the findings of the study, it can be concluded that the perceptions of TTD teachers towards implementing constructivist principles in teaching and learning are positive. However the magnitude of its practice in TTD classrooms was found to be low with teachers reluctant to let go of traditional teaching approaches. Thus TTD teachers lack the competence, skills and knowledge to implement constructivist principles in teaching and learning.

A number of factors such as inadequate time, lack of knowledge skills about constructivism and the lack of resource materials and facilities in schools as well as overcrowded classes are hindering the effective implementation of constructivist principles in TTD classrooms. It was found that currently teachers' pedagogical knowledge and skill were not adequate to implement constructivist approach.

Even though TTD teachers face challenges in implementing constructivist strategies in their classrooms, they have positive perceptions of constructivist approach. It is therefore important that teachers are provided with more training opportunities such as induction courses, in-service training, professional development programmes, and adequate resources in order to implement the constructivist approach with fidelity.

5.4 Recommendations

In view of the findings reported in this study, the following recommendations were made:

In order to effectively implement the constructivist approach in their classrooms, TTD teachers should be provided with proper training on how constructivism is related to the curriculum, the value it can offer and how it can be effectively applied in their instructional approaches.

The new TTD teachers should be provided with induction programmes to give them support and tools for beginning their teaching careers, as well as the mentors to guide them through curriculum planning. During the first year of teaching, schools, and the Ministry of Primary and Secondary Education officials should focus on assisting and supporting new teachers rather than simply assessing their work.

The Ministry of Primary and Secondary Education should continue with organizing in-service training, workshops and seminars in order to improve the use of constructivist strategies in teaching and learning. Regular advisory services from subject specialists should be enforced to give support to teachers who might be experiencing difficulties in effectively implementing the constructivist approach in teaching TTD topics in the school syllabus.

The Ministry of Primary and Secondary Education should address issues such as overcrowded classrooms that hinder effective implementing of the constructivist approach. The policy on teaching norms, teacher-to-learner ratio of 1:20 for practicals should be revised, in order to reduce overcrowded classrooms and thereby realize the effectiveness of implementing the constructivist approach.

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APPENDIX A:INTERVIEW GUIDE FOR TEACHERS

1. What is your understanding about constructivist based teaching and learning

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2. What are your perceptions regarding the use of constructivist approaches in teaching and learning?

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3. Identify any 6 constructivist teaching strategies that can be used by TTD teachers in their classrooms

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4. How frequently do you use each of these constructivist teaching strategies?

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5. How do you implement each of these constructivist teaching strategies in your classrooms?

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6. What challenges do you experience in implementing constructivist based teaching learning?

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7. What are the possible suggestions can you offer for effective implementation of constructivist principles?

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APPENDIX B: OBSERVATION GUIDE

Characteristic	Observed	Not observed
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Classroom and materials		
The classroom setting is inviting, comfortable, and attractive.		
The classroom is designed by both students and teachers to accommodate their needs and develop a sense of ownership		
Materials which promote exploration and experimentation are accessible.		
Varied materials address all learning styles (visual, auditory, and kinesthetic).		
Materials are used to promote active, hands-on involvement in learning.		
The lesson		
Student's prior knowledge was reviewed		
Teacher allows knowledge construction (through activity and interactions)		
Teacher used techniques (interaction/social learning/collaboration) which promote cooperative learning.		
Teacher allowed students to interact constructively with one another		
Teacher encouraged all students to actively participate in their own learning process		
Teacher asks questions that students answer themselves		
Teacher seeks elaboration of learners' initial responses		
Teacher encourages students to reflect on thinking and learning processes		
The teacher encourages students to learn through enquiry, discovery, exploration, demonstration, experimentation and projects.		
Alternative viewpoints (multiple perspectives and diversity)		
Authentic activities (use of real-life or familiar contexts)		
The teacher puts the students' needs into consideration		
Conceptual interrelatedness (making connections to other concepts, topics, or subjects)		
Scaffolding (support structures such as hints, summaries)		
The teacher provides students with rich on-going authentic assessments and feedback that foster understanding of TTD.		
The teacher functions as a facilitator, guide, orchestrator of learning		
The teacher teaches explicitly and allows students to make connections to meaningful contexts outside the classroom		