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TEACHERS' PERCEPTION AND PRACTICE OF CONSTRUCTIVIST TEACHING APPROACH IN TEXTILE TECHNOLOGY AND DESIGN CLASSROOMS: THE CASE OF SECONDARY SCHOOLS IN UMZINGWANE DISTRICT, CLUSTER 11.

BY

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A RESEARCH SUBMITTED TO DEPARTMENT OF APPLIED EDUCATION IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE BACHELOR OF EDUCATION DEGREE IN TEXTILE TECHNOLOGY AND DESIGN.

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APPROVAL FORM

The undersigned certify that they have read and recommended to Midlands State University

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A research project submitted to the Department of Applied Education

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DEDICATION

This project is a special dedication to my husband and children.

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Abstract

The major purpose of this study, therefore, was to investigate teachers' perceptions and current practices of the constructivist teaching approach as well as the major challenges that hinder its implementation in TTD classrooms in secondary schools in Umzingwane district, cluster 11**.** To attain this purpose, the case study research design was employed. The population of the study consisted of eight TTD teachers from four secondary in Umzingwane district, cluster 11 secondary schools. The sample was made up of four TTD teachers (one from each school) selected using the purposive sampling technique. Data was collected using semi-structured interviews and observations. Descriptive statistics and the thematic approach were used to analyze the collected data. The results of the study revealed that TTD teachers have positive perceptions of the constructivist teaching approach. In spite of their good perceptions, their practices of constructivist teaching approach were low. Among the major factors affecting the effective implementation of constructivist teaching approach were teachers' lack of knowledge about constructivism, large class sizes, inadequate teaching and learning materials, inadequate infrastructure (TTD laboratory, furniture etc.), inadequate teaching equipment, long syllabus and lack of time. From the findings of this study, it is possible to conclude that teachers were positively perceived the constructivist teaching approach and it was inadequately practiced. The study recommends 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.

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CHAPTER ONE

THE RESEARCH PROBLEM

1.1Introduction

The purpose of the study is to analyse the extent to which teachers are using the constructivism in the teaching and learning of the subject Textile, Technology and Design (TTD). 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

Constructivism teaching is based on the belief that learning occurs as learners are actively involved in the process of meaning and knowledge construction rather than passively receiving information.

Constructivism is a view of learning based on belief that knowledge isn,t a thing that can be simply given by the teacher at the front of the room to learners in their desks rather ,knowledge is constructed by learners through an active mental process of development, learners are the builders and creators of meaning and knowledge. Twomey Fosnot (1989),defines constructivism by reference of four principles, learning in an important way, depends on what we already know, new ideas occurs as we adapt and change our old ideas. Learning involves inventing new ideas, rather than mechanically accumulating facts ,Meaningful learning through rethinking old ideas and coming to new conclusions about new ideas which conflict with our old ideas .Therefore constructivism is a way for education to impart responsibility on the learners to own their understanding.

Constructivism learning technique not only helps learners, as efficiently as possible they also give learners the opportunity to practice and perfect skills needed in real life situation. Reynolds (2005),views that teaching is about empowering the learners and allowing them to discover and reflect on realistic experiences. Constructivism teaching fosters critical thinking and creates motivated learners. Daniel and Hyde (1993) views that in all subjects' areas involves inventing and constructing new ideas, they suggested that constructivism theory be incorporated into the curriculum, and advocates that teachers create environment in which learners construct their own understanding.

Teaching practices, adopted through the updated curriculum, require that learners participate in classroom activities, become more involved in the learning process, and take responsibility for their own learning. It also requires that teachers give learners the opportunity to work at their own pace according to individual abilities and levels of development. Both teachers and learners are required to focus on predetermined results or outcomes that should be achieved during each learning process. It is envisaged that teachers, as facilitators in their own classrooms, will use a range of constructivist strategies.

The realities of teaching in Zimbabwean secondary schools pose numerous problems in terms of resources (Fullan, 1994). In the light of the competency based curriculum, currently being put into practice in Zimbabwe, it is important to examine ways to assist teachers to implement the TTD curriculum. One means by which teachers may be able to improve their classroom teaching practices could be through reflective practice. This study aimed to assist teachers in the development and implementation of improved classroom practices through reflection on their learners' perceptions of the learning environment (as assessed using the Constructivist Learning Environment Survey). This means that both the teacher's role and the classroom environment have to change as the curriculum changes.

Students bring their past knowledge to the present classroom, experience a lesson, reflect on it, and integrate it with their prior knowledge (Mayo, 2010). Building knowledge from existing knowledge, or a constructivist approach to teach, has been used in apparel and textiles courses (e.g. Yaoyuneyong & Thornton, 2011) and has been found to increase student learning and motivation. Given the importance of TTD and the success of a constructivist approach, the study seeks to to analyse, the extent to which TTD teachers are using constructivism in the teaching and learning of the subject.

Moreover , in order to equip learners with the most up to date scientific tricks in creative manner and to enable them to lead their future life in a better way, teachers should not only have the knowledge of the subject matter that they are assigned to teach but also the necessary skills of applying various strategies of teaching. This makes teaching both an art and science (Derbesa, 2004).

The art of teaching involves the creative as well as the practical ability to use various means of skills in a new way based on the situation of the learners in the classroom. On the other hand, the science of teaching practice and examining involves the ability to observe teaching practices and examining the ever growing knowledge in the field (Goge, 1978).

Since the theory of constructivism describes the process of meaning-making, in which individuals construct mental models that ground their understanding in a deeply personal and unique fashion, different schools in the world are using it in their instruction. Further, they employ it in the actual classroom believing that certain activities and environmental enrichments can enhance the meaning making process. These activities

include using active learning through kinesthetic, visual and auditory modalities, creating opportunities for dialogue, fostering creativity and providing a rich, safe and engaging learning environment (Brooks and Brooks, 1992). Since constructivism is a learning theory describing the process of knowledge construction to create autonomous learner, the Zimbabwean Education Policy strongly supports its practice in the classroom (MOPSE, 2017). In other words, the constructivist teaching approach allows students not only to receive information from their teacher but also to discuss, analyze, solve problems, present their ideas and opinions while teaching and learning is going on.

Despite of lots of discussions and arguments among scholars and teachers about constructivist teaching approaches, it is seldom to hear the TTD teachers' perspective on Constructivist based learning. How do TTD teachers define constructivism based learning? What kinds of challenges the TTD teachers experience when having constructivism based learning? What difficulties the teachers find when having constructivist based learning? It is the need to understand the TTD teacher's perception of constructivist instructional methods that can provide a rich source of data to help teachers their classes with constructivist instructional strategies.

This by implication would mean that the perceptions and practice that teachers have about the constructivist teaching approach influences the way how teachers select and utilize different instructional approaches in the classroom .The major concern of this study, therefore, was to investigate teachers' perceptions and current practices of the constructivist teaching approach of secondary schools in Umzingwane district, cluster 11**.**

1:3 Statement of the problem

TTD teachers in Zimbabwe do not observe a framework that lays out the essential ideas involved in teaching TTD for understanding (Chimbindi, 2017). ManyTTD teachers do not employ ideas of how to make understanding a more central and reachable goal in their classrooms. Many TTD teachers do not use examples, questions and activities that draw on the teaching for understanding / constructivist framework. The textile and clothing stakeholders also raise concern, through ATF, ILO & UNESCO (2012) and UNESCO & ZIMDEF (2005), that, despite the training received by TTD teachers , it is not clear whether the TTD teachers are using the delivery strategies that cater for students' diversity in the implementation of TTD programmes.Teachers need support and / or training to ensure effective application of teaching TTD for understanding strategies. It is against this background that this study sought to to find out teachers perception about the constructivist teaching approach, to investigate the extent of teachers applications of the constructivist teaching approach in secondary schools and to observe whether there are obstacles in implementing the constructivist teaching approach.

1:4 Research Questions

The study was guided by the following research questions:

- What are the TTD teachers perception about the constructivist teaching approach?
- How do TTD teachers apply the constructivist teaching approach in their classrooms
- What obstacles do TTD teachers face in implementing the constructivist teaching approach
- what support and /or training opportunities TTD teachers need to ensure effective application of constructivist teaching aproaches in their classrooms.

1:5 Significance of the study

It is hoped that the results of this study would benefit the TTD teachers on how to help students make sense of what they are learning in the context of the working world. It is further hoped that the results of this study would be used by some teachers to improve their own teaching practices, teaching approaches, as well as setting of assessment tasks that would support teaching and learning for understanding. Such information might also be useful to teacher educators at Colleges of Education to train student teachers on how to teach TTD for understanding. Information generated might also be useful to curriculum planners at MOPSE during TTD teachers' training workshops to enhance effective TTD teaching in Zimbabwe.

The findings and recommendations from this study could have several benefits for school teachers, school principals, school inspectors and material developers who wish to base their teaching materials on constructivist approaches. In the same vein, the information might be useful to teacher educators to integrate teaching TTD for understanding in the curriculum. Finally, the research findings of this study could further be helpful to other researchers to carry out more research on how to implement constructivist strategies in teaching TTD.

1.6. Limitations

The study was based on the use of the application of the constructivist teaching approach by TTD teachers in Umzingwane district, cluster 11 secondary schools only. This was due to limited time and financial constraints. The time that was available at the researcher's disposal was limited to cover all the education districts in the country. Based on the limitations, generalizations of the study findings were limited to Umzingwane district, cluster 11 only as

conditions and situations might be different in other regions in the country. Furthermore, this study was not fully funded by any sponsor or organization, as a result, there were no funds available that would make it possible to extend the study to other education regions.

1.7 Delimitations

Delimitations are the boundaries, within which the researchers would like to place their study. This study was limited to TTD teachers' perceptions and practices of constructivist teaching approach in selected secondary schools in Umzingwane district, cluster 11.

1:8 Definition of terms

-Constructivism-According to Reynolds (2005),Constructivism is basically a theory based on an observation and scientific study about how people learn,Lt says that people construct ,their own understanding and knowledge of the world through, experiencing things and reflecting on those experiences.

-Constructive Approaches-Driscoll(2000) Explains that constructivist theory asserts that knowledge can only exist within the human mind and it does not have to match any real world reality.

-T.T.D-Textile Technology and Design.

Case study- A detailed account of the development of a person or a group of people over a period of time,Gobo(2004).

1.9 **Summary**

This chapter outlined the background to the study, statement of the problem, research questions, and significance of the study, assumptions, delimitations and limitations of the study and definition of terms. The importance of the constructivist teaching strategies was

also highlighted in this chapter as well as the need to understand the teacher's perception of constructivist instructional methods that can provide a rich source of data to help teachers and educators approach their classes with constructivist instructional strategies.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The literature review consists of short summaries of what is already known and what is still unknown and untested by previous researchers about the research problem. This chapter deals with the review of related research in order to contribute to the knowledge about the research problem. It also comments on both strengths and limitations of the reported studies, the methodologies used to gather information, research findings and recommendations for further research. The review of literature will be based on the research questions raised in the previous chapter.

2.2 Teachers perception about the constructivist teaching approach

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 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) [5] . 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) [10] . Constructivist approach supports student-centered learning, improves student motivation and student skills and establishing an efficient learning environment. (Boddy et al., 2003) [2] . 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 TTD teachers' perceptions and current practices of the constructivist teaching approach in secondary schools in Umzingwane district, cluster 11.

2.3 How do TTD teachers apply the constructivist teaching approach 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 t 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

2.7 **What obstacles do TTD teachers face in implementing the constructivist teaching approach**

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 Dagnew (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 Support and /or training opportunities TTD teachers need to ensure effective application of constructivist teaching aproaches in their classrooms.

Dagnew (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.

2.8 Summary

This chapter has reviewed literature on TTD teachers perception about the constructivist teaching approach, 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 aproaches 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 focuses on the methodology used in the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

In this chapter the researcher described the research methodology. Focus was also on research design, instruments used to collect data, data collection procedures, data presentation and analysis procedures. Furthermore, the instruments used in collecting data also justification to why considered appropriate in order to enhance validity, reliability and ethical considerations.

3.2 Research Design

Research Methodology is a principle used in a Research to collect data ,Leedy (1998:211)defines Research Methodology as an operational framework with which data is collected. Methodology summarizes the research process. It is where assumptions about nature of reality and knowledge, value and theory and practise on a given topic coming together, Chilisa,(2011).A qualitative approach will be used to carry out this Research.

According to Trochim(2006),A research design is the glue that holds the research project together. The research design will provide the overall plan for collecting data, instruments used, type of data and the plan for its interpretation. The researcher will use the case study to obtain information. A case study approach is particularly useful because it permits the collection and presentation of more details and softer data. A case study will be used in analysing the extent to which ,Textile Technology and Design teachers are using the constructivism in the teaching and learning of the subject. Case study can be defined as an

empirical research method used to investigate a contemporary phenomenon, focusing on the dynamics of the case, within its real life context(Yin, 2003).

Case study could be exploratory, descriptive or explanatory. Case study is an ideal method, when the aim of research is to find answers to why and how types of questions as well as when it is not possible to control the behavioral events. Contemporary events are studied. Case studies are specifically used in situations where the contextual details have to be analyzed, but the phenomenon is not distinct from context. Case study method recommends triangulation of data by giving the observant an opportunity of collecting data using different techniques, such as a survey, interview, experiment etc., all under a single study.

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 drwa conclusion. 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 four secondary in Umzingwane district, cluster 11 secondary schools. There are 8 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 4 TTD teachers whose teaching experience was more than 15 years.

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 understand TTD teachers' views and practices about the use of constructivist teaching strategies. An interview protocol and self-designed observation schedule were used to collect data from the 4 TTD teachers on how 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 4 selected teachers were conducted to determine whether the respondents applied constructivist instruction 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. The interview questions were also focused on the problems encountered by the TTD teachers when implementing constructivist teaching strategies in their classrooms. 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' beliefs and practice of constructivist teaching. Ideas of how and what to observe emerged from literature on class observation (Evertson and Holley 1981; Delamont and Hamilton, 1984) and from my theoretical framework (Weimer, 2013; Blumberg, 2009; McCombs and Whistler 1997; Mostrom and Blumberg, 2012).

Continuous observation of the whole period was undertaken in order to get clear evidence on teachers' teaching for understanding. The data were recorded on the observation schedules. 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 applied consrtuctivist 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 srategies. 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 Cluster 11 schools. Permission was granted to carry out the research in four secondary schools in Cluster 11. When granted permission through the district office in order to make appointments with school heads ,to get consent from fellow teachers . Teachers were informed of the purpose of the research and politely asked to participate.

3.6 Data Presentation and Analysis

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,Clesne and Peshkin(1992).The data

collected from questionnaires,interviews and observation was analysed using the thematic approach. 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, population and sampling techniques, data collection instruments, data collection procedures, reliability and validity issues as well as the data analysis and presentation. The next chapter will discuss data presentation, analysis and interpretation.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter primarily focuses on the presentation and analysis of data that was collected from four TTD teachers regarding their perceptions and practice of constructivist teaching approach in TTD classrooms in Umzingwane District, Cluster 11. The data that were obtained through the use of the two research instruments: interview questions and lesson observations are presented under five subheadings. The results are presented, analysed and were interpreted according to the research questions of the study outlined in Chapter 1. The subheadings of this chapter include:

- Biographical information of the participants.
- TTD teachers' perception about the constructivist teaching approach
- How TTD teachers apply the constructivist teaching approach in their classrooms
- Obstacles TTD teachers face in implementing the constructivist teaching approach
- Support and /or training opportunities TTD teachers need to ensure effective application of constructivist teaching approaches in their classrooms.

4.2 Biographical information of the participants

The biographical information of participants such as gender, age, teaching experience and teaching qualifications are shown in table 4.1 below.

Table 4.1: Biographical information of the participants

	Gender	Age (years)	Experience (years)	Teaching Qualification
Teacher A	Female	40	16	BED
Teacher B	Female	45	20	BED
Teacher C	Female	44	18	BED
Teacher D	Female	43	17	BED

All the participants were female teachers with a Bachelor of Education degree in Fashion and Textiles. Their teaching experience ranged between 16-20 years. The data in table 4.1 indicates that the teachers are qualified to teach TTD.

4.3.1: TTD teachers' perceptions about the constructivist teaching approach.

In the interview schedule, there were two questions that aimed to determine the teachers' general perceptions of the constructivist teaching approach. The first one asked them to describe their understanding about constructivist based teaching and learning. The TTD teachers perceived constructivism as a theory of learning that mainly evokes student-centred learning where teachers assist /facilitate pupils to construct understanding of concepts. This allows students to be actively and discover knowledge. The following excerpts help us to better understand the mentioned results:

In my view, It is a child-centred method of teaching where teachers' act as facilitators. Constructivism means student-centred learning. The teacher is rather in position of a guide and director. Besides, the student has the opportunity to discover him/her own talents (Teacher A).

When saying constructivism, student-centred learning and an approach in which the student is active but the teacher is passive, come in my mind. The main role of the teacher is to guide the students in their learning (Teacher C).

It is a theory of learning where teachers help learners to construct their own meaning and understanding of a topic (Teacher D).

From these comments, it can be seen that TTD teachers underline student-centred learning and draw our attention to the role of teacher in the learning by associating it with that of a guide or director. Furthermore, the TTD teachers also indicated that constructivism offers students to realize their capabilities and at the same time the student is more active than the

teacher. This indicates that TTD teachers have positive perceptions about the constructivist teaching approach.

The second one asked the significance they attributed to constructivist teaching strategies in relation to student engagement. The teachers gave the following reasons why they consider constructivist approach to teaching to be significant: It enhances permanent learning, assessment, understanding, and interactions among pupils.

Textile Technology and design is such that you don't have to talk too much. It is practical work, so once you use the constructivist approach you are involving the pupils. You are doing it with them and using it to assess pupils is faster than any other method (Teacher B).

Constructivist teaching is important because it helps the pupils to interact among themselves and also because it involves practical activities (Teacher C)

I think it improves the understanding of the pupils because it enables the pupils to understand the concept of the topic you are teaching (Teacher D).

Constructivism is an approach requiring students to actively participate in learning environment with their own feelings and thoughts as well as take responsibility for their own learning. Knowledge cannot directly be transferred into the students, but it can be discovered by themselves with examples from the daily life (Teacher A).

The comments indicate that TTD teachers believed that constructivist instructional strategies promote understanding, interaction and socialisation among pupils. Hence their perceptions can be regarded as positive about constructivism because it emphasizes the importance of student-centred learning and teaching environments.

4.3.2 How TTD teachers apply the constructivist teaching approach in their classrooms

In an attempt to understand How TTD teachers apply the constructivist teaching approach in their classrooms, the participants were asked to identify teaching strategies they used to enhance student engagement in their classes. The idea was to identify constructivist teaching approaches that were known to the participants and how they applied them in their classroom instruction. The participants' responses are presented in Table 4.2.

Table 4.2: Constructivist strategies used by TTD teachers

Teaching strategies used by TTD teachers	**Frequency (%)**
Demonstration method	100
Discussion method	100
Guided Discovery	25
Exploration & Investigation	25
Lecture Method	100
Chalk and Talk	100
Observation	75
Projects	25
Cooperative learning	100
Question & Answer	100
Problem Solving	50

As shown in table 4.2 above, it was interesting to find that teachers used a variety of teaching approaches in teaching TTD. All the participants indicated that they used two or more of the learner centred related approaches that supported constructivist teaching. However, it was observed that only one participant encouraged students to learn by doing through enquiry, projects, guided discovery, investigation and demonstration methods during their instructional process. It was also interesting to note that the lecture, the chalk and talk, demonstration, question and answer method, cooperative learning and discussion method are the most frequently used teaching methods by the participants.

After the interviews, participants were observed during teaching TTD lessons to ascertain the extent to which they used and practiced constructivist teaching approaches in their teaching. The behaviour(s), skills and / or approaches observed are presented in Table 4.3. The responses "observed", and "not observed" were used to indicate the prevalence of the behaviours, skills and / or approaches that were observed.

Table 4.3: Behaviours, skills and approaches exhibited by the participants during lesson observations

	Frequency %	
Characteristic	**Observed**	**Not observed**
Knowledge construction (through activity and interactions)	3 (75)	1(25)
Knowledge collaboration (through interacting and social learning)	4 (100)	0(0)
Previous knowledge (building on previous experiences)	4 (100)	0(0)
Teacher encourages all students to actively participate in their own learning process	3 (75)	1(25)
Use of activities that make understanding a more central and student-directed goals (also, student-centred)	3 (75)	1(25)
Metacognition (evidence of students being asked to reflect on thinking and learning processes)	3 (75)	1(25)
Multiple representations (also, multiple modality, multimedia)	1(25)	3(75)
The teacher encourages students to learn through enquiry, discovery, exploration and projects.	1(25)	3(75)
Alternative viewpoints (multiple perspectives and diversity)	2(50)	2(50)
Authentic activities (use of real-life or familiar contexts)	3 (75)	1(25)
The teacher puts the students' needs into consideration	2(50)	2(50)
Conceptual interrelatedness (e.g., making connections to other concepts, topics, or subjects)	1(25)	3(75)
Scaffolding (support structures such as hints, summaries)	1(25)	3(75)
Authentic assessment (e.g., variety in assessment for/of/as learning)	1(25)	3(75)
Teachers as coaches (or guide, facilitator, orchestrator)	1(25)	3(75)

Table 4.3 shows that all the participants (teachers) encouraged knowledge construction through activity and social interactions as well as by building on previous experiences. However the use of guided discovery, exploration, inquiry, projects, multiple representations, scaffolding and authentic assessment are rarely implemented in the classroom as indicated by only one teacher who uses them. When asked why such activities were not observed, the

teachers highlighted that the application of these strategies is difficult due to a number of challenges.

4.3.3 Obstacles TTD teachers face in implementing the constructivist teaching approach

The participants were asked to indicate the obstacles and challenges they encounter when implementing the constructivist teaching approach. All the participant teachers indicated that it was not easy to teach TTD for using the constructivist approaches due to various factors like overcrowded classrooms, and lack of teaching / learning materials.

The participants were also asked to indicate the challenges and / or factors that they thought made it difficult or easy for them to apply constructivist teaching approaches. The TTD teachers considered the problems of: inadequate teaching and learning materials, overcrowded classrooms (high teacher-learner ratio), inadequate infrastructure (TTD laboratory, furniture etc.), inadequate teaching equipment, long syllabus, lack of time and lack of knowledge about constructivism. The following extracts were typical of such comments:

I believe that constructivism is a good approach because it takes students to the centre and. However, it takes 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).

When it is really implemented and the students are active, constructivism has great significance. But, its well-application is very difficult because we do not have adequate teaching and learning materials, facilities and equipment (Teacher C).

I am positive about constructivism, but I am not sure that it is completely understood by the teachers. In my opinion, most of the teachers have not sufficient knowledge on constructivism (Teacher A).

I cannot reach every student in a class of 30 students, and in most cases slow learners are left behind, moreover the syllabus is too long and we do not have a TTD laboratory (Teacher D).

The comments indicate that the TTD teachers have some anxieties about the fidelity of implementation of constructivist teaching approach. Some of them believe that constructivism needs a lot time. Therefore, the teacher may have problems in finishing the curriculum on time. Furthermore, one of the biggest obstacles to the implementation of constructivism is the teachers' weaknesses of knowledge about constructivism.

4.3.4 Support and /or training opportunities TTD teachers need to ensure effective application of the constructivist teaching approach

To establish necessary support and training required for TTD teachers regarding effective application of the constructivist approach in their classrooms, the participants were asked to indicate the support and /or training that they needed. Several types of support and training were identified by the participants. According to them, staff development, induction courses for new TTD teachers, in-service training opportunities as well as provision of teaching and learning materials and equipment are necessary for them in order to be equipped with the necessary skills which would enable them to implement the constructivist teaching approach effectively. This is supported by some TTD teachers' comments, as illustrated below:

My training was more content based and less on methodology. It is therefore important that new TTD teachers are provided with the necessary support, models and tools for beginning their teaching careers in order to establish classroom norms that support implementation of the constructivist approach (Teacher A).

In-service training for TTD teachers is needed to provide training in important areas of the curriculum such as planning classroom activities and assessments. We also need an annual TTD teachers' conference as a platform where TTD teachers could meet and debate issues pertaining to the teaching of TTD in general. Such platforms could create a quality teaching force and introduce new approaches to the teaching of TTD (Teacher D).

TTD teachers need to be provided with adequate teaching and learning materials and equipment so that they can be able to implement the constructivist approach effectively (Teacher C).

According to the comments, it can be asserted that the TTD teachers might be helped and supported to effectively implement the constructivist approach through in-service training workshops, induction programmes for new teachers, strengthening TTD teachers' associations as well as provision of resource materials and facilities. This was believed by the participants would help TTD teachers to be enabled to effectively apply the constructivist approach in their teaching.

4.4 Discussion of findings

4.4.1 TTD teachers' perception about the constructivist teaching approach

The findings of the study revealed that teachers have positive perceptions about the constructivist teaching approach because it encourages student-centred learning, gives a role of guide to the teacher, and helps students to become aware of their capabilities. This finding is consistent with Andrew (2007), as well as Çınar, Teyfur and Teyfur (2006) who identified that the teachers' views on constructivism were in general positive, hence more inclined to use constructivist-based pedagogy in their classroom.

The findings of many research studies are also consistent with the findings of the current study. Karadağ, Deniz, Korkmaz and Deniz (2008) concluded that although the teachers had positive attitudes for the constructivist approach, they were doubtful about its practices. 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.

4.4.2 How TTD teachers apply the constructivist teaching approach in their classrooms

From the information collected from the participants during the interviews and observations it became clear that teachers in the sample used a variety of teaching approaches in the teaching of TTD. These teaching methods in order of frequency of use were: observation,

demonstration, lecture method, chalk and talk, question and answer method, discussion, problem solving, exploration and investigation, guided discovery and projects (Table 4.2). The results appear to suggest that TTD teachers are using a variety of teaching strategies but however, were reluctant to let go of traditional teaching approaches. The above data agrees with Worthington (2008) who argues that teachers are "experts" in consistent use of a range of teaching strategies; however comes in contrast to previous research findings of Aydoğan, Farran & Sagsoz (2015) that indicate that teachers generally implement teacher centred instruction.

4.4.3 Obstacles TTD teachers face in implementing the constructivist teaching approach

The results show that TTD teachers have some anxieties about the implementation of constructivism as required. The need for more time, the teachers' lack of knowledge about constructivism and the lack of resource materials and facilities in schools were considered at the top of these anxieties to the well-implementation of constructivism. 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.

4.4.4 Support and /or training opportunities TTD teachers need to ensure effective application of constructivist teaching approaches in their classrooms.

From the findings of the study, TTD teachers suggested that they may be supported to effectively implement the constructivist approach through in-service training workshops, induction programmes for new teachers, strengthening TTD teachers' associations as well as provision of resource materials and facilities. This would enable them to effectively apply the

constructivist approach in their teaching. 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.

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

The previous chapter presented and discussed the findings of the study. In this chapter the summary, conclusion and recommendation of the present study are given.

5.2 Summary

The purpose of the study was to find out the extent to which teachers are using the constructivism in the teaching and learning of the subject Textile, Technology and Design (TTD). This by implication would mean that the perceptions and practice that teachers have about the constructivist teaching approach influences the way how teachers select and utilize different instructional approaches in the classroom. The major concern of this study, therefore, was to investigate teachers' perceptions and current practices of the constructivist teaching approach as well as the major challenges that hinder its implementation in TTD classrooms in secondary schools in Umzingwane district, cluster 11**.**

Research shows that teachers have varied ideas, beliefs, and practices of constructivist instructional strategies and their classroom practices, which are likely to be more effective when it is informed by an understanding of how pupils learn. It is therefore important that major implications of learning theory reflect in classroom practice (Palmer, 2005). Central to constructivism is the notion that learners play an active role in constructing their own meaning. Knowledge is not seen as fixed and existing independently outside of the learners but rather learning is a process of accommodation or adaptation on new experiences or issues (Dagnew, 2017).

The research design adopted in this study was the case study design. In this study the population comprised of eight TTD teachers from four secondary in Umzingwane district, cluster 11 secondary schools. The sample was made up of four TTD teachers. One teacher was selected from each school using the purposive sampling technique. The teachers who were selected had teaching experience of more than 15 years. Data was collected using semi-structured interviews and observations. Descriptive statistics and the thematic approach were used to analyse the collected data.

The findings of the study revealed that TTD teachers have positive perceptions of the constructivist approach. However, there are major challenges that hindered effective implementation of constructivist teaching such as teachers' lack of knowledge about constructivism, large class size, inadequate teaching and learning materials, inadequate infrastructure (TTD laboratory, furniture etc.), inadequate teaching equipment, long syllabus and lack of time. Furthermore, it was 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.

5.3 Conclusions

Based on the findings of the study, it can be concluded that TTD teachers have positive perceptions of the constructivist approach and seemed to be inclined towards the utilization of constructivist teaching approach. However the magnitude of its practice in TTD classrooms was found to be low with teachers reluctant to let go of traditional teaching approaches.

The effective implementation of constructivist teaching approach was found to be low due to teachers and other related challenges. It was found that currently teachers' pedagogical

knowledge and skill were not adequate to implement constructivist approach. Moreover, large class size, lack of time to carry out active learning in greater depth and scarcity of learning materials and facilities were other challenges that adversely affecting teacher's utilization of constructivist teaching approach in in TTD classrooms in secondary schools in Umzingwane district cluster 11**.**

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. Which teaching strategies do you use to enhance student engagement in your class?

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2. Describe your understanding about constructivist based teaching and learning

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3. How frequently do you use each constructivist teaching strategies that foster student engagement.

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4. What significance do you attribute to constructivist teaching strategies in relation to student engagement.

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5. How do you implement 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 support and / or training do you need to ensure effective application of constructivist approaches for teaching TTD?

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APPENDIX B: OBSERVATION GUIDE

Characteristic	**Observed**	**Not observed**
Characteristic		
Knowledge construction (through activity and interactions)		
Knowledge collaboration (through interacting and social learning)		
Previous knowledge (building on previous experiences)		
Teacher encourages all students to actively participate in their own learning process		
Use of activities that make understanding a more central and student-directed goals (also, student-centered)		
Metacognition (evidence of students being asked to reflect on thinking and learning processes)		
Multiple representations (also, multiple modality, multimedia)		
The teacher encourages students to learn through enquiry, discovery, exploration 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 (e.g., making connections to other concepts, topics, or subjects)		
Scaffolding (support structures such as hints, summaries)		
Authentic assessment (e.g., variety in assessment for/of/as learning)		
Teachers as coaches (or guide, facilitator, orchestrator)		