

**INFLUENCE OF PEDAGOGICAL STYLES ON STUDENTS' ACADEMIC
ACHIEVEMENT IN KISWAHILI IN SECONDARY SCHOOLS IN KAKAMEGA
NORTH SUB-COUNTY, KENYA**

BY

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**DEPARTMENT OF EDUCATIONAL COMMUNICATION, TECHNOLOGY AND
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DECLARATION

Declaration by the Candidate:

I confirm that this is my original work and has not been presented for a degree in any other university. No part of this thesis should be published without the permission of the author and/or Maseno University.

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DEDICATION

I dedicate this thesis to Dad Albert Misigo and Mum Margaret Misigo.

Mum and Dad,

Your dream has finally come true.

Thank you very much for believing in me.

ABSTRACT

Academic achievement is a function of many variables, including pedagogical styles. However, pedagogical styles elicit a lot of controversy in research. Their influence on academic achievement, including in Kiswahili, has not been established conclusively. Kakamega North Sub-County (KNSC) in Western Kenya has continuously underperformed in Kiswahili in Kenya Certificate of Secondary Education (KCSE) examinations. Between the years 2010 and 2014, KNSC registered the lowest mean score of 4.85 compared to a mean score of 6.88 of the top performing sub-county in Kakamega County. There are efforts to improve teaching and learning, but given that teaching and learning styles vary, the crucial question for research is “what teaching styles would be appropriate for what kind of learners?” The purpose of this study was to establish the influence of pedagogical styles on students’ academic achievement in Kiswahili in KNSC. The objectives of the study were to: determine the influence of environmental dimension of pedagogical styles on academic achievement; establish the influence of sociological dimension of pedagogical styles on academic achievement; determine the influence of emotional dimension of pedagogical styles on academic achievement; establish the influence of physical dimension of pedagogical styles on academic achievement and determine the influence of psychological dimension of pedagogical styles on academic achievement in Kiswahili. The study was anchored on Dunn and Dunn’s (1992) theory of learning styles from which a conceptual framework was developed to illustrate the relationship between pedagogical styles and students’ academic achievement. The study was based on descriptive survey and correlational designs. The target population was 2,520 form four students and 42 form four Kiswahili teachers. Yamane’s (1967) formula was used to derive a sample size of 345 students who were selected by means of simple random sampling technique. Saturated sampling technique was used to select 38 Kiswahili teachers. Data was collected by use of questionnaire, observation schedule and document analysis guide. Face, content and construct validity of the instruments were ascertained through expert judgment and revision. A pilot study was carried out and, using test-retest method, the reliability coefficient of the questionnaire stood at .72 for teachers, and .76 for students, while .81 for the lesson observation schedule through inter-rater reliability. These were within the acceptable range. Quantitative data was analyzed using frequency counts, percentages, means, independent samples t-test, Pearson’s correlation, simple linear regression and Analysis of Variance (ANOVA). Qualitative data was categorized into themes and reported in form of verbatim excerpts. The findings revealed that dimensions of pedagogical styles: physical $R^2 = .276$ (27.6%), psychological $R^2 = .252$ (25.2%), environmental $R^2 = .229$ (22.9%), sociological $R^2 = .173$ (17.3%), and emotional $R^2 = .039$ (3.9%) influenced academic achievement in Kiswahili. Further, learning styles: motivation and use of varied activities under sociological; responsibility under emotional; kinesthetic and visual styles under physical; analytic and reflective styles under psychological dimensions were significantly associated with better students’ academic achievement ($p < .05$). This implies that teaching styles of Kiswahili should focus on motivation, varied activities, responsibility, motion and manipulation of objects, pictorial presentations, sequential and innovative thinking. The findings may be useful to teacher trainers, teachers and instructional designers in making informed instructional decisions by considering teaching and learning styles as an important variable in instruction.

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ABBREVIATIONS AND ACRONYMS

ANOVA	- Analysis of Variance
DAG	- Document Analysis Guide
EFA	- Exploratory Factor Analysis
KCSE	- Kenya Certificate of Secondary Education
KLSI	- Kolb Learning Style Inventory
KMO	- Kaiser-Meyer-Olkin
KNEC	- Kenya National Examinations Council
KNSC	- Kakamega North Sub-County
LOS	- Lesson Observation Schedule
LSI	- Learning Style Inventory
PLSPQ	- Perceptual Learning Style Preferences Questionnaire
SFILS	- Solomon Felder Index of Learning Styles
SPSS	- Statistical Package for Social Sciences
SQ	- Students' Questionnaire
TQ	- Teachers' Questionnaire
USA	- United States of America

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The problem of dismal academic achievement among students has elicited significant global interest that has led to many research efforts aimed at explaining its cause. Mushtaq and Khan (2012) have generally linked student performance to social, psychological, economic, environmental and personal factors which they observe to vary according to individuals. Other researchers have been more specific. For example, Erdogan, Bayram and Deniz (2008) as well as Olatunde (2009) have reported that the attitude of students is a key determinant of achievement. Deary, Strand, Smith and Fernandes (2007) have observed that intelligence is what matters most, whereas Bankston and Zhou (2002) argue in favour of self-esteem. The socio-economic status of the student has been reported by Considine and Zappala (2002) to influence the students' achievement. Consequently, the role played by institutional resources has been reported by Kimeu, Tanui and Ronoh (2015), while Eitle (2005), McCoy (2005) as well as Moochi, Barasa, Ipara, Ogata and Shitandi (2013) have stressed the role of gender in student achievement. Further, classroom communication processes have been reported to impact on students' achievement (Good & Brophy, 2000; Okorodudu, 2006).

Whereas the aforementioned studies are useful in planning for improved student achievement, they have not addressed the link between teachers and students, particularly their teaching and learning styles. Kopsoovich (2001) and Ngozi (2015) delved into this area and reported that teachers and students have specific teaching and learning styles that positively influence the academic achievement of the latter. Findings that contradict this, have, however, been reported

by other researchers (Akdemir & Koszalka, 2008; Massa & Mayer, 2006) who posit that teaching and learning styles do not influence students' achievement. The divergence in the two studies on the role of teaching and learning styles elicits curiosity and invites need for confirmatory pedagogical investigation.

Proponents of pedagogical research (Burke, 2000; Dunn & Dunn, 1999; Entwistle, 2001; Hattie, 2009; Keefe, 1987; Kolb, 2006) have argued that the diagnosis of the ability of learners to internalize new and difficult information, as well as the adjustment of instructors to this ability is important in enhancing learning outcomes. In fact, in a study carried out in Hawaii University, the United States of America (USA) on teaching and learning of English, Oxford (2003) contended that teaching and learning styles are among the main factors that help determine how well students learn a second language. Oxford further stressed that the more teachers know about their students' preferences of style, the more effectively they can orient their second language instruction to match those preferences. According to Oxford, a single methodology cannot suit an entire class filled with students who have a range of stylistic preferences. Therefore, there is need to consider students' learning styles for effective instruction.

Oxford (2003) further observed that a second language is studied in a setting where it is the main vehicle of everyday communication and where abundant input exists. Kiswahili shares similar attributes: it is a second language in Kenya and doubles up as a national and official language. Oxford concluded that, when there is harmony between teaching style and students' preferences in second language instruction, the student is likely to perform well, feel confident and experience low anxiety. On the other hand, Oxford (2003) argued that if clashes occur, the student often performs poorly, feels less confident and experiences significant anxiety. The

findings were generalized to the teaching and learning of second languages. However, preferences in style of teaching and learning Kiswahili are virtually unknown hence the need for the present study.

In a study in USA, Dunn et al. (2009) found that teachers tend to apply on their students those teaching strategies that are best suited for their own learning experiences. The same learning strategies, however, may not work well for all students. Hence, Dunn et al. indicated that teachers should adjust their way of teaching to match every student's needs. They stated that a match between teaching and learning styles improves academic achievement while a mismatch leads to low academic achievement. Dunn et al. concluded that emotional, environmental, sociological, physical and psychological dimensions of teaching and learning styles influence academic achievement. Their study did not include an investigation on the magnitude of influence of the mentioned dimensions of styles on students' academic achievement. Therefore, the current research employed correlation, regression and analysis of variance to uncover particular pedagogical styles that greatly influenced academic achievement in Kiswahili.

Pedagogical research has steadily evolved. This has led to the emergence of varied theories, models and instruments on teaching and learning styles. Towards the end of the twentieth century, international researchers from America such as Reid (1987) as well as Felder and Silverman (1988) investigated teaching and learning styles which led to the development of theories and models. Reid (1987) developed a learning style model focusing on how students learn best using their perceptions which comprise of visual, auditory, kinesthetic and tactile preferences including two social aspects of learning: group and individual preferences. Reid's study focused narrowly on students' learning styles while the current study further examined

teacher behaviours and their techniques of presenting new and difficult information to learners. Whereas Reid's (1987) study only investigated perceptual learning styles encapsulated in the physical dimension and group learning of the sociological dimension of students' learning styles; their linkage to students' academic achievement was not established. Therefore, the influence of physical and sociological dimensions of teaching and learning styles on academic achievement needed investigation.

In an attempt to explore learning styles, Felder and Silverman (1988) categorized learners into four different dimensions. The first dimension is active and reflective where active learners learn best by trying things out and applying what they learn. In contrast, reflective learners prefer to think about and reflect on the material. The second dimension covers sensing and intuitive learners. Learners who prefer a sensing learning style like to learn facts and are persistent in details. They also like relating materials to the real world. In contrast, intuitive learners prefer to learn abstract learning materials. The third dimension of visual-verbal learners differentiates those who remember best when they learn from what they have seen, and learners who get more from the spoken word. Lastly, the fourth dimension has sequential learners who tend to follow logical stepwise paths in finding solutions. In contrast, global learners use a holistic thinking process and learn in large leaps. The learning styles in the study by Felder and Silverman encompassed elements mainly in the psychological dimension. Nevertheless, from the findings, it was not clear whether the particular styles influenced students' academic achievement which was worth establishing.

The presence of abundant evidence showing that people differ in the degree to which they process information has therefore necessitated incorporating teaching and learning style

assessments in general educational practice in the twenty first century (Hu & Ackerman, 2011). Studies by Chatterjee and Ramesh (2015) as well as Pashler, McDaniel, Rohrer and Bjork (2009) have reported that matching teaching and learning styles is a novel approach to teaching because it enhances acquisition of new information and improves students' achievement. Moreover, the investigation conducted by Pashler et al. (2009) revealed little evidence on the educational applications of learning styles. Pashler et al. argued that the contrast between enormous popularity of learning styles approach within education and the lack of credible evidence for its utility is both striking and disturbing. Consequently, an academic research is requisite to substantiate the need for the teaching and learning styles approach to instruction.

Furthermore, studies by Gable, Hendrickson, Tonelson and Van Acker (2000) as well as Guild (2001) documented that while educators understand that not all learners are the same, and that their needs are diverse, few teachers accommodate these differences in their classrooms. This may in turn negatively impact on students' achievement. The studies by Gable et al. (2000) as well as Guild (2001) lacked an assessment of the dimensions in which teaching and learning styles differ. Their arguments thus necessitated the task of assessing the teaching and learning styles in Kiswahili while focusing on the various dimensions of the environmental, sociological, emotional, physical and psychological facets. This is because the current study postulated that learners are unique in varied ways.

In Canada, LaRocque (2008) examined the physical classroom environment and concluded that it influenced students' academic achievement. LaRocque asserted that teachers and students are in an excellent position to provide data about the learning environment because they are participants, capable of assessing information that an observer may miss or consider

unimportant. Nevertheless, an individual's perceptions may be based on feelings and may not reflect a clear picture of the actual learning conditions in the classroom. LaRocque (2008) only used the questionnaire to establish teaching and learning styles in the physical environment. In the present study, both questionnaires and classroom observation schedules were used to collect data on the teaching and learning styles under the environmental dimension in order to complement each other.

Researchers, Beebe and Masterson (2003), Elgort, Smith and Toland (2008) as well as Wright and Lawson (2005) regard the sociological dimension of teaching and learning style to be important to learning outcomes. The aforementioned authors noted that group work enhanced students' retention of the knowledge learnt. The authors however did not ascertain the extent of the application of group learning in actual classrooms. Similarly, the extent of the influence of the sociological dimension on students' academic achievement was not determined. It was therefore worth investigating whether the styles in the sociological dimension impacted significantly on students' learning outcomes.

In different studies, Bostrom and Hallin (2013), Huntly and Donovan (2009) as well as Kopsovich (2001) note the importance of emotional dimension of teaching and learning styles on students' academic achievement. For instance, Bostrom and Hallin (2013) observed that nursing students were highly motivated and preferred guidance from authorities. Huntly and Donovan (2009) as well as Kopsovich (2001) found that students' learning styles in the area of persistence significantly impacted on their academic achievement. The above mentioned studies only used questionnaires to assess learning style preferences. There was therefore need to assess the styles through classroom observations. Further, they lacked an assessment of teaching styles in the

emotional dimension. In order to ascertain whether instructional methods cater for students' learning styles, it was necessary to establish teachers' teaching styles as well.

In the case of Africa, few researches have focused on pedagogical styles (Alade & Ogbo, 2014; Vawda, 2005). For instance in South Africa, Vawda (2005) observed that there was need for teachers to recognize the diversity of learners. Vawda noted that creating awareness of learning styles could assist in improving the quality of teaching and learning, thereby solving the problem of failure and dropout rates. Vawda thus called for institutions of higher education to stress the importance of varied learning styles in teaching and learning. This could therefore translate to their application at secondary school level. In Nigeria, Alade and Ogbo (2014) recommended teachers' use of a variety of teaching styles to accommodate the various learning styles of their students in order to improve academic achievement. However, Alade and Ogbo (2014) as well as Mwangi and Nyagah (2011) note that the African context has teachers dominating in most classrooms majorly employing the lecture style. This makes the teacher the sole authority in content delivery. This style of teaching flouts the principles of effective instruction that call for collaborative participation of both the teacher and the learner. It is an inherent constraint against provision for individualized instruction. The lecture method of instruction also dominates Kiswahili classrooms as revealed by Ambuko and Odera (2013) as well as Ayoti and Poipoi (2013). The authors, Alade and Ogbo (2014), Vawda (2005), Mwangi and Nyagah (2011), Ambuko and Odera (2013), as well as Ayoti and Poipoi (2013) however, did not assess the particular teaching and learning styles that influenced students' academic achievement. This is one gap that called for the current investigation.

Research on teaching and learning styles has informed instruction in some countries. For example, Scott (2010) reported that an inspection done on State Education Department's website in Australia revealed that learning style theory is actively promoted as an educational principle. Consequently, the New South Wales Department of Education and Training has posted a policy document on its website 'Report of the consultation on future directions for public education and training' which states that job advertisements for teaching should specify the capacity to utilize learning styles in teaching practice as an essential attribute of any successful candidate. In the Kenyan context, the Ministry of Education (2012) notes that the general consensus is that teacher education in Kenya has not kept pace with the developments that have occurred in most developed countries. It is further explicated by the Ministry of Education that there is lack of a policy framework for teacher education. It is noted that in Kenya, there is lack of clear educational guidelines on the application of teaching and learning styles in general instruction.

The Ministry of Education (2012) argues that teaching and learning ultimately makes a difference in the mind of the learner, thereby affecting knowledge, skills, attitudes and the capacity of young people to contribute to contemporary issues. According to the report by the Ministry of Education, the major challenge facing the teaching profession concerns changing instructional practices towards adopting greater collaborative relationships between the teacher and learners. The report further states that there is ineffective teaching in schools, which in turn, leads to low levels of achievement. These observations provided the impetus to the researcher to examine how teaching and learning styles influence academic achievement of students.

The Kiswahili syllabus (Kenya Institute of Curriculum Development, 2002) recommends the teacher's use of 'methodologies that match learners' abilities, needs and their learning

environment.’ This statement clearly shows that the Kiswahili curriculum requires teachers to consider assessing learners’ needs and the learning environment when planning for instruction. The question that prompted the current study was whether the teaching of Kiswahili takes into consideration preferences for students’ learning style and whether the styles influence academic achievement.

It was thus important to correlate pedagogical styles and academic achievement in Kiswahili given that effective learning occurs when teaching and learning styles match. Where there is a mismatch, learning effectiveness is diminished. This mismatch may contribute to poor performance in examinations. Kakamega North Sub-County has registered below average achievement in Kiswahili for the period 2010-2014. This situation calls for empirical investigation on teaching and learning styles. The performance is shown in Table 1. The table shows the disparity in academic achievement in Kiswahili in the Kenya Certificate of Secondary Education (KCSE) examinations among sub-counties in Kakamega County.

Table 1: Kiswahili KCSE Examination Performance in Kakamega County, 2010- 2014

Sub-county/ Year	2010	2011	2012	2013	2014	Overall Mean Score
*Kakamega North	4.95	4.99	4.46	4.65	5.19	4.85
Kakamega Central	6.11	6.79	5.23	5.45	6.46	6.01
Lugari	5.93	6.02	5.43	5.50	6.45	5.87
Butere	6.42	6.93	5.32	5.89	6.45	6.20
Kakamega South	6.07	6.66	5.72	5.38	6.92	6.15
Kakamega East	6.02	6.24	5.69	5.35	6.36	5.93
Mumias	6.80	7.24	6.31	6.61	7.43	6.88
Matete	5.94	5.42	5.34	5.06	5.70	5.49
Khwisero	6.08	6.05	5.10	5.51	5.78	5.70
Matungu	7.12	7.51	6.10	6.30	6.86	6.78
Navakholo	6.47	6.25	5.74	5.87	6.57	6.18
Overall County Mean Score in Kiswahili	6.17	6.37	5.49	5.60	6.38	6.00

*Area of study

(Source: Kenya National Examinations Council (KNEC) Educational Statistics, 2010-2014)

Table 1 reveals that Kakamega North Sub-County has consistently posted poor KCSE results in Kiswahili as compared to the other sub-counties in Kakamega County. This continuous disparity in performance calls for the need for research intervention. According to the Kakamega North Sub-County Educational Report (2014), head teachers have been put on notice over poor examination results. During the area’s Education Day held at Malava Boys High School, County leaders and educationists said disciplinary action should be taken against teachers who failed to deliver impressive academic results. Consequently, education stakeholders in the sub-county sought to know why the region has consistently performed poorly (Inyanji, 2014). Apart from the role played by teachers, there is paucity of research evidence to unveil the cause of the consistent low academic achievement in Kiswahili in Kakamega North Sub-County in relation to other sub-counties in Kakamega County. This called for the current investigation.

1.2 Statement of the Problem

Ineffective instructional methods that flout collaborative relationships between the teacher and the learners lead to dismal academic achievement. This also applies to Kiswahili as a subject in secondary schools in Kenya. The problem is particularly evident in Kakamega North Sub-County which has consistently posted the lowest mean score in KCSE Kiswahili examination compared to the neighbouring sub-counties as shown in Table 1. While teachers stand accused for the poor performance, there is paucity of research evidence on actual and preferred teaching and learning styles in relation to Kiswahili pedagogy in Kakamega North Sub-County. Although teaching and learning styles have been shown by previous research to contribute to academic achievement, there was need to examine the influence of particular dimensions namely environmental, sociological, emotional, physical and psychological on academic achievement in Kiswahili. This multidimensional approach was necessary to shed light on what teaching and learning styles particularly influence academic achievement in Kiswahili. Ultimately, the question to be answered in this research was ‘what teaching styles would be appropriate for what kind of learners?’

1.3 Purpose of the Study

The purpose of this study was to establish the influence of environmental, sociological, emotional, physical and psychological dimensions of pedagogical styles on students’ achievement in Kiswahili in the KCSE examination in Kakamega North Sub-County in Western Kenya.

1.4 Objectives of the Study

The study objectives were to:

1. Determine the influence of environmental dimension of pedagogical styles on students' academic achievement in Kiswahili.
2. Establish the influence of sociological dimension of pedagogical styles on students' academic achievement in Kiswahili.
3. Determine the influence of emotional dimension of pedagogical styles on students' academic achievement in Kiswahili.
4. Establish the influence of physical dimension of pedagogical styles on students' academic achievement in Kiswahili.
5. Determine the influence of psychological dimension of pedagogical styles on students' academic achievement in Kiswahili.

1.5 Research Questions

The research questions were:

1. How does the environmental dimension of pedagogical styles influence students' academic achievement in Kiswahili?
2. To what extent does the sociological dimension of pedagogical styles influence students' academic achievement in Kiswahili?
3. How does the emotional dimension of pedagogical styles influence students' academic achievement in Kiswahili?
4. To what extent does the physical dimension of pedagogical styles influence students' academic achievement in Kiswahili?

5. How does the psychological dimension of pedagogical styles influence students' academic achievement in Kiswahili?

1.6 Scope of the Study

The study was carried out in secondary schools in Kakamega North Sub-County in Western Kenya. The investigation focused on pedagogical styles in Kiswahili classrooms based on different dimensions namely environmental, emotional, sociological, physical and psychological from Dunn and Dunn's (1992) theory of learning styles. Only Form IV Kiswahili students participated in the study. This was because they had been exposed to various learning modes in the course of their four-year study period. Consequently, they understood their learning styles well enough to participate in the study. Their respective teachers also participated in the study.

1.7 Limitations of the Study

A questionnaire responded to by one participant was detected to have the floor and ceiling effect. The respondent seemed to have inflated responses to the questions by ticking responses towards one end of the continuum of the Likert scale questionnaire. The open-ended questions in the second part of the questionnaire afforded objective responses to some of the inflated responses by the respondent.

1.8 Assumptions of the Study

The assumptions of the study were that:

1. Form IV students in secondary schools in Kakamega North Sub-County differ in their learning styles in Kiswahili.

2. Teaching styles are congruent to learning styles in environmental, emotional, sociological, physical and psychological dimensions in Kiswahili.
3. Form IV Kiswahili students are exposed to various modes of learning and can easily describe their learning styles.
4. Kiswahili teachers in Kakamega North Sub-County are capable of using various teaching styles.

1.9 Conceptual Framework

The study was based on five related concepts in pedagogical styles: environmental, emotional, sociological, physical and psychological expounded by Dunn and Dunn (1992). These concepts formed the independent variables while the dependent variable was students' academic achievement as measured by KCSE Kiswahili examination results of 2014. Intervening variables that may have influenced the independent and dependent variables were gender and type of school (county and sub-county schools). To control for these possible intervening variables, data was collected from both single sex and co-educational schools. Similarly students from both county and sub-county schools participated in the study. The conceptual framework is as follows:

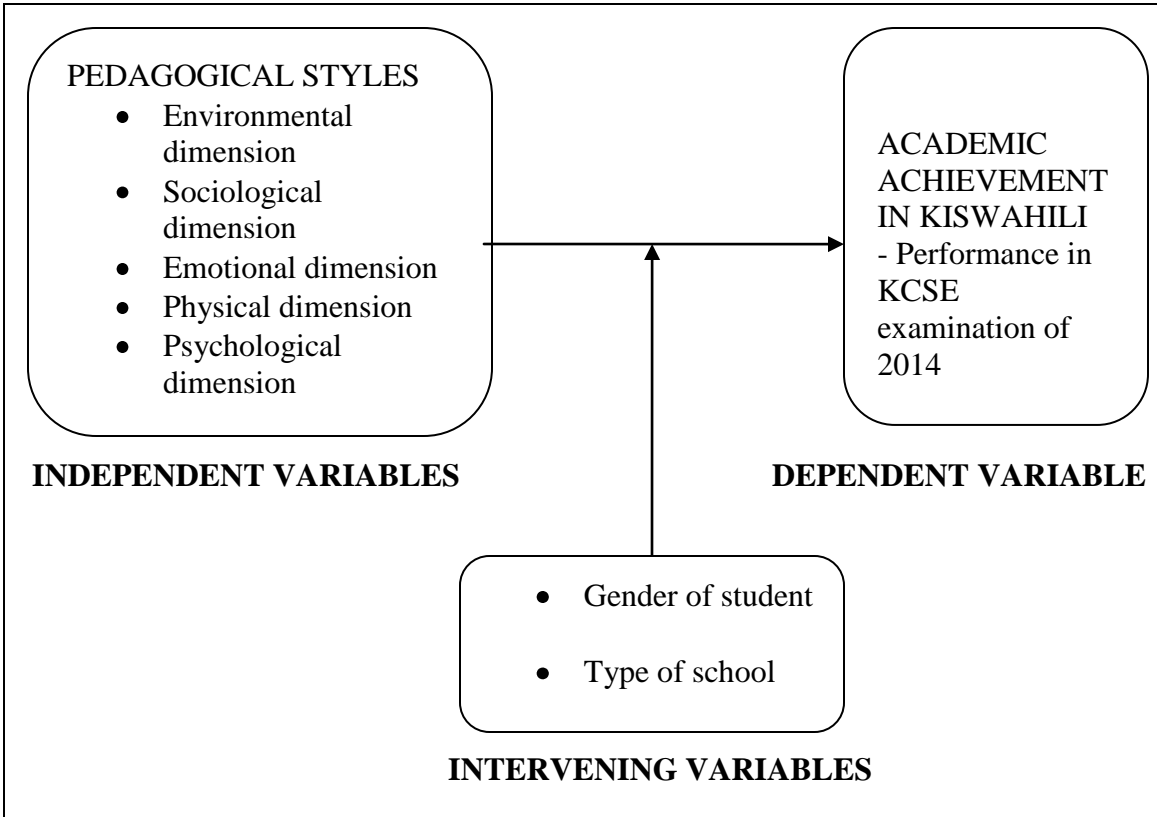


Figure 1: Conceptual Framework of the Influence of Pedagogical Styles on Academic Achievement in Kiswahili (Adapted: Dunn & Dunn, 1992)

There are various theories on learning styles such as those by Entwistle (2001), Fleming (2001) and Kolb (2006). However, many of these theories focus on learning styles in terms of modality and psychological dimensions leaving out environmental, emotional and sociological aspects. As a departure from the many theories on learning styles, the current study was built on Dunn and Dunn’s (1992) theory of learning style. The theory posits that learning differs in terms of environmental, sociological, emotional, physical and psychological dimensions. Dunn and Dunn note that the various learning conditions under the various strands make up the learning styles. Dunn and Dunn claim that teaching should be aligned to these learning styles. Therefore, in this study, the theory is adapted to establish both teaching and learning styles.

In agreement with the theory, Bostrom (2011) argues that Dunn and Dunn's (1992) model is multidimensional and widely used with children, adolescents and adults. It is therefore quite applicable to education and health professionals. Consequently, Bostrom states that the model is grounded in research and proven in practice in both language and science disciplines. Further, Bostrom highlights the vast applicability of the Dunn and Dunn's model in research both in secondary schools and higher institutions of learning. Dunn and Griggs (2007) noted that a multidimensional perspective helps the researcher to reflect individual differences based on one's biological, developmental and psychological experiences which are encompassed in the model by Dunn and Dunn. It is also the most comprehensive, researched and practiced theory of learning style (Dunn & Griggs, 2007). According to Dunn and Griggs, one reason for the popularity of Dunn and Dunn's categorization system is that it was generated by classroom experience. It therefore has considerable ecological validity. In addition, a major question around learning styles is how the teacher should use them. Should the teacher attempt to match instructional learning environments to each individual student, or teach students to adapt their learning styles to match different learning situations? These are difficult questions for teachers. Further, Coffield, Moseley, Hall and Ecclestone (2004) advanced that the Dunn and Dunn model meets one critical criterion of predictive validity, namely, the extent to which a set of scores predicts an expected outcome. This lends credence to the model.

Dunn and Dunn (1992) note that developmental research suggests the following trends in terms of learning styles:

- i) When children come to school, they are basically parent/adult motivated.
- ii) Younger students are more peer-motivated while older students move toward being self-motivated.

- iii) Under achievers tend to remain peer-motivated even into their late teens.
- iv) Most young children are kinesthetic and become more tactile in their first years in school.
- v) Auditory and visual skills develop during the early elementary years of learning.
- vi) Significant portions of students are uncomfortable with a conventional, row-based classroom design.
- vii) Younger students need more structure than older students.
- viii) Preference for time of day changes over time.

Dunn and Dunn (1992) therefore identified dimensions on which teaching and learning styles differ. First, the environmental dimension of teaching and learning styles which includes sound, light, temperature and the formality of seating arrangements. Environmental elements of teaching and learning style such as sound, light, temperature and design affect the learner's way of taking in new and difficult information and the teachers' teaching techniques. For example, while some teachers and students teach and study in a quiet place, others prefer noisy environments. Some teachers and students may prefer softly-lit rooms while others may prefer bright light or a cool room.

The emotional dimension of teaching and learning styles includes motivation, persistence, conformity and structure. Emotional elements of teaching and learning style vary between self-motivation as well as teachers and students for whom teaching and learning in conventional classrooms is hardly fulfilling.

The sociological dimension of learning styles accounts for students who learn with an authority figure present, who work alone or with others, or learn in a routine or varied manner. Sociological elements of learning style determine how students react to working alone, with an

authority, in a pair, in a small team or group, in a large team or group, or in other varied circumstances. The sociological elements of teaching style determine how teachers use strategies that encourage individual, group learning and other varied strategies.

The physical dimension of teaching and learning styles includes preferences for perceptual modality (auditory, visual, tactile and kinesthetic), food intake, time of day and mobility. Perceptual elements are of particular interest to teachers since they govern the reception and production of language. In addition, some students feel that they need to have something to eat or drink while learning something new and others cannot learn while eating or drinking. Some students prefer learning new and difficult material early in the morning, others in the afternoon, evening or late at night. Teaching styles may also differ regarding these physical elements.

The psychological dimension of learning styles refers to the way that a student absorbs and processes new concepts. Dunn and Dunn (1992) categorized students into global, analytical, impulsive and reflective. The psychological elements of teaching and learning style present the terms analytic/global and impulsive/reflective. These variables appear congruent to each other. Whereas global teachers and students are concerned with the whole meaning and the end results, analytic teachers and students prefer to teach and learn details at one time in a meaningful sequence. Sequential or analytic thinkers deal more easily with grammatical structure and contrastive analysis, while global thinkers are better at learning language intonation and rhythms. Finally, impulsive teachers and students draw conclusions and make decisions quickly unlike the reflective ones who think about various alternatives and evaluate each before making a decision.

The basic tenet of the Dunn and Dunn (1992) model is that individual styles must be assessed, and, if a student is to have the best opportunity to learn, instructional techniques should be

congruent with each student's learning style. Therefore, the learning style theory by Dunn and Dunn (1992) provided a framework for conceptual and methodological constructs underlying this study. The theory evoked the perspective for understanding teacher and student behaviours in line with their preferred teaching and learning needs.

Regarding the methodology of this study, the Dunn and Dunn (1992) theory of learning style formed the basis on which constructs in the teaching and learning style questionnaire were developed. The elements in the theory gave direction to the development of instruments to assess teaching and learning styles in Kiswahili classrooms. The elements guided the assessment of the actual and preferred teaching and learning styles in Kiswahili. The students' and teachers' questionnaires developed are attached as Appendix A and B respectively. The relationship between the significant parameters of teaching and learning styles with academic achievement was also sought. This led to the identification of constructs in the theory that influenced academic achievement in Kiswahili that merited further investigation.

1.10 Significance of the Study

The study has both theoretical and practical contributions. Theoretically, the study established that motivation and use of varied activities under sociological; responsibility under emotional; kinesthetic and visual styles under physical; analytic and reflective styles under psychological constructs had significant differences in the students' academic achievement in Kiswahili. In terms of applicability, since teaching and learning styles in the current study successfully predicted students' academic achievement in Kiswahili, the study provides empirical evidence about the learning styles: motivation, use of varied activities, responsibility, kinesthetic, visual, analytic and reflective that influence academic achievement in Kiswahili. This is because the

students whose teachers' teaching techniques incorporated the above mentioned styles performed better than those who occasionally or never incorporated the styles in their teaching. Hence, these findings encourage Kiswahili education researchers to work on pedagogical frameworks that address individual differences with regard to teaching and learning styles.

Likewise, the study may be useful to instructional designers. This is because it may inform their instructional decisions by recognizing teaching and learning styles as one of the background variables to consider in Kiswahili curriculum design. The Kiswahili curriculum may thus be designed to spell out activities that motivate and vary learning as well as encourage self-drive and responsibility of learners. Furthermore, the teaching of Kiswahili may involve much of hands-on and visualization of concepts, and those activities that encourage creative and critical thinking among learners. This may further influence the choice of Kiswahili instructional materials and the design of the learning environment based on the teaching and learning styles identified.

Further, the study identified reasons that influence the choice of teaching and learning styles among teachers and students which could inform policy as well as theory and practice in Kiswahili pedagogy in secondary schools. These include: class size, time available and scope of the syllabus, time of day when teaching occurs, discussion group method, teacher presentation, and motivation. Moreover, this study establishes a platform for further research and provides a basis to other researchers in the field of Kiswahili pedagogy for in-depth understanding of how teaching and learning styles influence instruction.

1.11 Operational Definition of Terms

The following terms are used in the study:

Academic Achievement - refers to a measure of cognitive abilities and knowledge revealed by the performance of Form IV students in Kiswahili in the Kenya Certificate of Secondary Education Examination of 2014.

Actual Styles- refers to the teaching and learning techniques practised by teachers and students.

Alignment – refers to the compatibility between teaching and learning styles. This occurs when learners’ preferred methods of processing information are matched with the actual teachers’ styles of teaching.

Kenya Certificate of Secondary Education (KCSE) Examination – refers to a national examination sat at the end of 4 years in the Kenyan secondary education system.

Learning Styles – refers to learners’ ways of acquiring new and challenging material which are represented in environmental, sociological, emotional, psychological, and physical dimensions.

Nature – refers to Kiswahili classroom environment including teacher and student behaviours defining their teaching and learning styles.

Pedagogical Styles - refers to techniques of teaching and learning in Kiswahili classrooms which are characterized as environmental, sociological, emotional, psychological and physical dimensions.

Preferred Styles- refers to the teaching and learning techniques favored by teachers and students.

Teaching Styles – refers to the strategies and methods that teachers employ in Kiswahili classrooms to impart information to students based on environmental, sociological, emotional, psychological and physical dimensions of learning.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter outlines the existing debate on the influence of environmental, sociological, emotional, physical and psychological dimensions of pedagogical styles on academic achievement in Kiswahili. However, due to the dearth of literature pertaining to teaching of Kiswahili, the review borrows much from studies conducted on English language and other related fields. The review is organized according to the objectives of the study.

2.1 Influence of Environmental Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

Based on the Dunn and Dunn (1992) theory, the environmental dimension of teaching and learning styles consists of preferences for either sound or quiet environment, dim or bright light, warm versus cool temperatures, and formal or informal teaching and learning setting. Dunn and Dunn postulate that these preferences influence the academic achievement of students. Indeed, Earthman (2004) and Schneider (2002) viewed noise as an important factor in the teaching and learning environment in providing for learners' individual differences. Sonia (2014) conducted a similar study involving Latino students at a Community College located in New York City and found that the students had the most preference for noise. Further, Barrett and Zhang (2009) acknowledged that good lighting helps to create a sense of physical and mental comfort which, in turn, improves learning outcomes. The authors further noted that although many teachers believe that they have little control over the elements in the environmental category, it is possible for

them to make adjustments in their teaching environment to accommodate the varied learner preferences.

Classroom learning environment is a subject of research due to its contribution to learning outcomes (Becker & Luthar, 2002). According to Abucay (2009), environmental elements, such as the type and quality of instructional materials and equipment that play an important role in the efficiency of the teacher's instruction and personality, make the teacher an important element in the learning environment hence in the failures and success of the learner. It has also been shown that learning and teaching depend upon the student's capacity to learn and the teacher's capacity to teach. Therefore, cognitive factors, alone, cannot sufficiently explain the success and failure of most students and teachers (Becker & Luthar, 2002; Cambourne, 2002). Entwistle (2001) suggested that knowledge of students' perceptions of their academic environment, particularly those related to teaching characteristics, can aid instructors in selecting appropriate teaching strategies and structuring the academic environment to better serve students' needs in learning. The aforementioned authors argued that teachers need to connect with students' interests and find the right balance of challenge and support for every student. This can be done by ensuring optimum environmental learning conditions by the teacher providing for students' preferred learning styles regarding the environmental dimension. As much as the authors regarded the environmental dimension to be important, the influence of environmental teaching and learning styles on students' academic achievement needed investigation, a gap that this study sought to fill.

In Sweden, Bostrom (2011) conducted a study that investigated teachers' and students' teaching and learning style profiles in upper secondary schools. The study involved 53 secondary school teachers and 101 students who were randomly selected. The author found that teachers needed

more light and had more need for warm surroundings compared to their students. The difference in the preferences to warmth and light between teachers and students as observed by Bostrom (2011) may influence the academic achievement of students. It should be noted that, Bostrom did not determine the influence of the environment-related styles on students' academic achievement which the current study sought to establish.

The classroom environment has been found to influence students' academic achievement (Dunn & Griggs, 2007). Nevertheless, learning styles related to the environment have not been given due attention (Mugambi, Mwove & Musalia, 2015). Mugambi et al. (2015) observed that teaching and learning is effective when the learner is placed in a learning environment that is learner friendly, responsive, and enabling. They further noted that teaching styles adopted by the teachers should focus on their learners' needs to encourage inquiry and discovery. Their assertions call for research on assessment of whether environment-related teaching styles favour learners' learning styles. In spite of this, the authors did not focus on particular elements of the environment to which teaching and learning styles should be related. Important environment-related teaching and learning styles such as noise, temperature, light, and classroom design need investigation and thus formed the focus of the current study.

Harris (2011) noted that causative agents of academic achievement include interpersonal relationships in the school environment, the physical characteristics of the classroom and the nature of competition and cooperation among learners and teachers. According to Harris, textbooks, instructional materials, school-supplied materials and other equipment used in the teaching and learning process are environmental factors that play a major role in learning difficulties among learners. The study falls short of identifying other important variables inherent in the learning environment such as noise, light, temperature and classroom design that could

influence academic achievement. In the same vein, Sisante (2008) advanced the view that lack of interest among learners indicated a weakness on the part of the school system to make education and learning environment interesting for the students. In most cases, the teacher's personality plays a very crucial role in learners' learning difficulties. It is believed that the teacher's vital task should be to harness the power to lead and to inspire learners through the influence of the teacher's personality. Teaching style is therefore an integral determinant for students' academic success. These techniques of teaching need to be congruent to learners' learning styles for improved academic achievement. In contrast, the study by Sisante did not include a survey of teaching and learning styles for matching purposes. The results are therefore limited in use in terms of determining the style that would match particular learning preferences. Further, the study by Sisante did not show the extent to which teaching and learning styles influenced academic achievement. The current study attempted to fill this gap.

Teaching and learning styles are impinged on by the environmental conditions in the classroom (Konings, Brand-Gruwel & Van Merriënboer, 2005). Konings et al. (2005) claimed that classroom teaching and learning environment embody more than physical facilities. It is therefore worth noting that educational researchers have overly focused on the physical environment leaving out other important variables like teaching and learning styles. Researchers including Konings et al. (2005), LaRocque (2008) and Lizzio, Wilson and Simons (2002) contended that the characteristics of the physical teaching and learning environment affect teachers' and students' styles of teaching and learning as well as the quality of the learning outcomes. The studies by Konings et al. (2005), LaRocque (2008) as well as Lizzio et al. (2002) were, however, not particular on the elements in the teaching and learning environment that influence students' acquisition of new knowledge that deserve further research.

In Canada, LaRocque (2008) examined students' perceptions of their physical classroom environment, as well as the possible effect of these perceptions on academic achievement. Over 17,000 students, between third and sixth grade, were surveyed. The survey assessed students' feelings regarding cohesion, friction, satisfaction, difficulty and competitiveness within the classroom. The study found that when students perceived their environment as more difficult, their academic achievement was lower. LaRocque built her study on the notion that the most valuable information regarding the effectiveness of a classroom environment came from the students within that classroom. The author asserted that students are in an excellent position to provide data about this environment because they are participants who are capable of assessing information that an observer may miss or consider unimportant (LaRocque, 2008).

The current study bears a similar notion to LaRocque (2008) that students are an important source of information regarding the teaching-learning environment. In particular, in the current study, teachers' assessments of the teaching-learning environment were sought to complement the students' responses. This is because teachers are indeed important participants in the teaching-learning environment. The current study thus focused on the teaching and learning style preferences regarding the teaching-learning environment. LaRocque only used the closed-ended questionnaire as a data collection instrument in order to assess the classroom environment. The current study employed an observation schedule in addition to using questionnaires for purposes of triangulating information given by the teachers and students.

In Malaysia, Kadir (2013) conducted a study to determine college students' perception on learning style and their academic achievement. The study was built on the Dunn and Dunn (1992) model of learning style. Data was collected via questionnaires from 508 students. The

study utilized correlation and regression statistics to analyse the data. The findings of the survey revealed that environmental elements of sound, light, temperature and furniture or seating design did not contribute to students' academic achievement. It is worth noting that Kadir's (2013) study did not focus on a particular subject. These results would vary within other subject disciplines. Further, Kadir's study was only based on the positivist approach whereby only quantitative data was collected. This methodology may be limited in the breadth of data collected. Therefore, there was need for additional inductive techniques for in-depth and robust data. In addition to the closed-ended and open-ended questionnaires used in the present study, classroom observations were conducted to triangulate the findings.

In Kenya, Muiruri, Awori and Ng'asike (2015) conducted a study on the classroom environment and its support for effective classroom communication for hearing impaired learners. The main objective of the study was to establish whether the classroom environment was supportive of effective classroom communication for learners with hearing impairment. The study involved 71 respondents including 1 head teacher, 10 teachers and 60 learners from a deaf school in Kiambu County, Kenya. A combination of content analysis and thematic approach was used to analyze the qualitative data. The findings indicated that the classroom environment was not supportive to effective classroom communication. The study also found that the school had large class sizes which affected teacher-learner interaction. Muiruri et al. (2015) recommended the implementation and improvements such as small class sizes, spacious classroom, good ventilation, adequate lighting and noise management in order to improve the students' academic achievement. Muiruri et al. concluded that teaching approaches should focus on the above mentioned environmental elements so as to realize supportive and effective classroom environments for learners with hearing impairment.

The study by Muiruri et al. (2015) found that environmental elements influenced the teaching and learning of the hearing impaired learners which constituted their scope of study. The findings may be different with a different cohort of learners who do not have the hearing disability hence the need for a confirmatory study. Further, the study by Muiruri et al. did not determine the extent to which teaching and learning styles based on these environmental elements influenced academic achievement. It was therefore imperative to establish the influence of teaching and learning styles in the environmental dimension on students' academic achievement in the present study.

2.2 Influence of Sociological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

According to Dunn and Dunn (1992), the sociological dimension accounts for students who learn with an authority figure present, who work alone or with others, or learn in a routine or varied manner. Therefore, teaching styles based on this dimension determine how teachers use techniques that encourage individual, group learning or other varied strategies.

Research based on the sociological dimension, for instance, Elgort et al. (2008) proposed that effective student participation in group work is an important learning outcome. Burke (2011) and Light (2001) noted that students, who participated in collaborative learning that involved group participation got better grades, were satisfied with their education and demonstrated high retention. Moreover, Elgort et al. (2008) recorded that assigning students to a group does not itself create critical thinking outcomes. Elgort et al. therefore recommended that the instructor must be cognizant of how best to facilitate effective collaborative learning environments. In this regard, Burke (2000) outlined four stages of group work: first, the instructor must decide that he

or she wants to incorporate group work into the class, second, teach students to work in groups, third, monitor the groups and lastly, give an assignment which should be graded. Further, Beebe and Masterson (2003) highlight the advantages of group work as follows: groups have more information than a single individual, they stimulate creativity, students remember what is learnt in group discussions better, decisions that students make help yield greater satisfaction, and students gain better understanding of themselves.

According to Beebe and Masterson (2003), larger groups decrease each member's opportunity of participation. The authors note that, in situations where there is a shorter amount of time available to complete a group task, such as in-class collaborative learning exercise, smaller groups are more appropriate. In similar perspective, Wright and Lawson (2005) found that group work helped students feel that the class was smaller and encouraged greater student class attendance. The students felt more invested in the course and in the class material, which promoted active learning in a large class environment. Elgort et al. (2008), Burke (2011), Light (2001), Burke (2000), Beebe and Masterson (2003) as well as Wright and Lawson (2005) contended that group work was an important approach to teaching and learning. However, the authors did not establish whether the use of group work in teaching and learning influenced students' academic achievement. Consequently, there was need to establish if there existed a significant relationship between the group style and students' academic achievement.

In relation to use of varied activities in teaching and learning, Park (2001) argued that teachers could meet the learning needs of all students with multiple opportunities for learning, given the reality that classes usually consist of diverse learners. Park reiterated that teachers need to help secondary school students to identify their learning styles and describe their strengths, and show

students how to help themselves to learn through their learning preferences. Park (2001) further noted that teachers need to provide their students with instruction on diverse and specific learning strategies and assist them to become competent and self-directed learners in order to improve their academic achievement. In connection with this, Stellwagen (2001) stated that the primary role of the teacher is to recognize the many potentialities of his or her students and to consciously plan for the balanced development of each individual across each of the learning styles. Beck (2002) further elaborated that the most common reason for implementing a learning styles approach is to help teachers select the most appropriate teaching strategies to meet the learning styles of their students. Beck noted that, as teachers become more cognizant of learning styles diversity, they develop a deeper sense of responsibility for reaching and motivating their students. Beck therefore asserted that before beginning to match learning styles to teaching strategies, it is important to establish a comprehensive and clearly defined set of teaching strategies to serve as a point of reference. As a result, instruction and learning is improved when teachers use multiple teaching strategies in conjunction with the learning style preferences of their students.

In their study on the analysis of factors that influence the processes of assisting performance, Lugendo and Smith (2015) revealed that second language teacher education maintains a traditional approach. They concluded that the imparted teaching techniques and the resources in use could be responsible for the widespread transmission of knowledge approach that is teacher dominated. In this vein, Tomlinson (2000) averred that in most elementary classrooms, some students struggle with learning, others perform well beyond grade-level expectations, and the rest fit somewhere in between. Within each of these categories of students, individuals also learn in a variety of ways and have different interests. Tomlinson further noted that to meet the needs of a

diverse student population, many teachers differentiate instruction. However, Lugendo and Smith (2015) as well as Tomlinson (2000) did not determine the influence of use of varied teaching and learning techniques on academic achievement. There was need, therefore, to establish the implication of use of varied activities in teaching and learning on students' achievement in the current study.

In contextualizing teaching and learning styles, studies, for example by Fischer and Rose (2001), McCoy and Ketterlin-Geller (2004), Mulroy and Eddinger (2003) as well as Tomlinson (2004) advocate for the need for teachers to know how to respond to the burgeoning diversity of contemporary classrooms. Besides, research such as by Forsten, Grant and Hollas (2002), McBride (2004), McCoy and Ketterlin-Geller (2004) as well as Tomlinson (2002) argue that the use of the one-size-fits-all strategy no longer meets the needs of the majority of learners. Moreover, in the views of Guild (2001) as well as Fischer and Rose (2001), the use of single-paced lessons delivered through a singular instructional approach disregards the different learning styles and interests present in all classrooms. In addition, Stronge (2004) and Tomlinson (2004) suggested that addressing student differences and interests appears to enhance their motivation to learn while encouraging them to remain committed and stay positive. According to Tomlinson (2004), ignoring these fundamental differences may cause some students to fall behind, lose motivation and fail to succeed. From the foregoing, the need to establish the teaching and learning styles in contemporary classrooms and their influence on academic achievement is of prime importance.

Educationists, such as Esia-Donkoh, Eshun and Acquaye (2015) have examined the extent to which students' failure to learn appropriately in second cycle schools reflect at tertiary

institutions despite availability of numerous study materials. Laguador (2013) posits that students do not know how to think, study properly and effectively due to their inability to accumulate as well as assimilate information. This is because most students may have limited knowledge of learning styles or may find it difficult to adapt to a particular teaching style that best suits their learning competence in the social dimension. Laguador (2013) reiterates that the ripple effect might be their inability to perform according to the standard expected of them. In support of this claim, Esia-Donkoh et al. (2015) argue that as a result, people are likely to raise questions regarding the willingness of learners to learn, the state of the learner at the time of learning, the value that learners place on learning, learners' approach to learning, and the knowledge learners have about their learning styles. Answers to these and other questions will help improve learners' outcomes of academic achievement.

Therefore, to Esia-Donkoh et al. (2015), issues about students' achievement have made it necessary for academia to take a fresh look at the learning styles employed by students in various institutions. The general call is for improvement of education with the focal point being teaching and learning styles, since academic achievement is greatly influenced by the student's ability to learn, as well as the choice of appropriate learning styles with matching teaching styles. Laguador (2013) and Esia-Donkoh et al. (2015) mentioned that generally the social dimension of learning styles is important in teaching and learning. The particular styles in this strand are, however, not clear in their studies. It was therefore important to establish sociological-related teaching and learning styles in relation to academic achievement.

Chan (2001) investigated the learning styles of 398 gifted and non-gifted Hong-Kong Chinese secondary school students using the Chinese version of the Learning Styles Inventory (LSI). This

instrument helped to assess students' preferences for nine teaching modes including discussion, drill and recitation, independent-study, lecture, peer-teaching, programmed-instruction, projects, simulations and teaching-games. Chan (2001) included the dimensions of preferred learning activities common for gifted and non-gifted students to be factors interpretable as learning through verbal interaction, learning by role-play, and learning by engaging in varied activities. In the study by Chan, gifted students indicated significantly greater preference for learning styles related to interpersonal verbal exchanges and autonomous learning. Although there were no significant gender differences in preferences for learning style, the younger age group indicated significantly greater preference for learning styles related to structured activities and games than the older age group.

Moreover, the study by Chan (2001) revealed that both gifted and non-gifted students prefer learning styles that are related to verbal interaction between teachers and students, and among students. Gifted and non-gifted students shared a similar dislike of teacher-directed structured activities that involved drilling and recitation. The learning preferences assessed by Chan can be related to those encapsulated in the sociological dimension in the Dunn and Dunn's (1992) model which were the focus of the current study. It was also essential to assess the influence of these sociological learning preferences on students' academic achievement in this study.

A study by Njagi (2014) investigated the teachers' perspective with regard to differentiated instruction as a teaching and learning approach in Kenya. The study purposefully sampled 20 Form 3 Mathematics teachers who had been trained in differentiated instruction and had implemented the approach in their schools. Njagi argued that teachers need to prepare students for future by utilizing effective instructional alternatives for teaching an academically diverse

population. Consequently, teachers should be sensitive to the needs of students, accommodate their different learning styles and find ways of helping them make connections for learning to occur in the best possible way. Njagi (2014) reiterated that teachers are continually challenged to implement modifications to their lessons within the classroom to provide students with a positive, interesting, challenging, collaborative and supportive learning environment to ensure that each individual student's academic needs are met. The author further noted that since learning is social in nature, students should be actively involved in the process.

Njagi (2014) recommended the need for teachers to create instructional environments that maximize the learning opportunities and help students in developing the knowledge and skills necessary for achieving positive learning outcomes. This study concurs with Njagi's argument. The divergence is that the study by Njagi did not point out the styles in the social strand that differentiation in instruction should focus on. The current study went further to establish teaching and learning styles in the sociological dimension which could shed light on ways of effectively differentiating instruction in Kiswahili classrooms. Further, the study did not deal with the influence of sociological styles on students' academic achievement, the knowledge gap that the current study attempted to fill through correlation and regression analyses.

2.3 Influence of Emotional Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The emotional dimension encompasses teaching and learning style preferences for motivation, responsibility, persistence and need for structure (Dunn & Dunn, 1992). Burke (2000) points out that it is particularly important to pay attention to these emotional elements and to give each student individual attention after assessing their learning styles.

Several research studies have delved into the identification of students' learning style preferences in the emotional dimension. For instance, Bostrom and Hallin (2013) conducted a study involving 156 students (78 nursing and 78 teaching) in a rural university in Sweden. The purpose of their study was to examine the learning style preferences of the two student groups. The study employed the Dunn and Dunn (1992) model of learning styles. The study found that a majority of nursing students were motivated and preferred authorities compared to student teachers. In contrast, the student teachers were highly persistent. The findings suggest the need for widely diverse teaching approaches and conscious didactic action skills in higher education. Another divergence is that the study did not examine the teachers' approaches regarding the learning styles. It would be critical to establish whether similar preferences would be the same for high school students and how they would impact on their academic performance.

Kopsovich (2001) investigated the relationship between learning styles of students and their mathematics scores on the Texas assessment of academic skills tests in USA. Data was collected from 500 randomly selected fifth grade students attending a North Texas Intermediate school. The Pearson Product Moment correlation and the point-biserial analyses revealed a significant relationship between learning styles of students and their mathematics scores. Kopsovich established that the learning style preferences of all students in the area of persistence significantly impacted on their mathematics achievement scores. Gender and ethnicity were the mitigating factors in the study. The author suggested that teachers' knowledge of students' learning styles benefits student achievement. It would be important to establish whether similar results would be realized by students from other contexts using different achievement tests in different subjects. For this reason, the current study sought to establish the relationship between

the emotional dimension of teaching and learning styles and students' Kiswahili scores in the Kenya Certificate of Secondary Education examinations.

Further, Huntly and Donovan (2009) conducted a study involving two tutors of first year teacher education students at a Queensland regional campus in Australia. The study aimed at identifying teaching and learning styles with the potential to assist students to persist at a task. The findings revealed that student persistence could be developed and enhanced through teaching and learning styles focusing on reflection on learning, shared experiences, and positive feedback. In another study by Klopfenstein (2003) in Canada, online learners were found to be responsible for their own learning. The author further noted that in order to provide opportunities for responsibility and self-direction in learners, the teacher must accept a change in his or her pedagogical role from an 'authority' to a 'facilitator'. These studies, however, did not conduct a survey to establish the students' ability to persist on tasks and their responsibility in pursuing assigned tasks during learning which was important to ascertain in the current study.

Velasco, Gonzales, Agena, Beldia, Orence and Laguador (2015) conducted a similar study involving Junior Marine Transportation students in a private Asian university. The study used the descriptive survey method where data was collected by use of questionnaire. The study aimed at determining the learning style of the Marine Transportation students in terms of emotional elements of motivation, persistence, responsibility and structure. Results showed that high performing students had significantly higher persistence and responsibility in completing the tasks they began as well as in enjoying working on several tasks simultaneously. Velasco et al. (2015) concluded that these Marine students preferred complete instruction in order for them to perform the activities accurately. Since teachers need to match their instruction to learning styles

in order to improve academic achievement, it was important to establish their preferred styles of teaching in the current study. Furthermore, Velasco et al. (2015) did not quantify their claim that persistence and responsibility significantly influenced students' academic achievement. This further constituted a knowledge gap that the current study sought to fill.

In an effort to establish the relationship between students' learning styles and academic achievement, Kadir (2013) explored the styles in the emotional strand which included motivation, responsibility, persistence and structure. The emotional dimension accounted for the highest contribution (28.3%) to academic achievement as compared to the other dimensions ingrained in Dunn and Dunn's (1992) model of learning styles. The results suggested that focus should be on the student's level of motivation, persistence, responsibility, and need for structure in order to improve the academic achievement of students. Kadir (2013) and Velasco et al. (2015) used the student questionnaire as the only instrument for data collection. The use of the questionnaire alone may not yield robust data on the students' learning styles. An observation schedule was therefore considered an important tool of data collection to enable triangulation of the findings of the current study.

2.4 Influence of Physical Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The physical dimension of teaching and learning styles entails preferences for time of day, mobility, food intake and perceptual modality preferences like auditory, visual, tactile, and kinesthetic (Dunn and Dunn, 1992). According to Dunn and Dunn, perceptual elements are of particular interest to teachers since they govern the reception and production of language. In addition, some students prefer to have something to eat or drink while learning whereas others do

not. Furthermore, some students prefer learning early in the morning, others in the afternoon, evening or late at night. The teachers' teaching techniques may also vary based on the above mentioned elements. Dunn and Dunn (1992) postulated that the physical dimension of teaching and learning styles influence students' academic achievement.

Omrod (2008) observed that some students seem to learn better when information is presented through words (verbal learners), whereas others seem to learn better when it is presented in the form of pictures (visual learners). Clearly, in a class where only one instructional method is employed, there is a strong possibility that a number of students will find the learning environment less optimal and this could affect their academic performance (Mlambo, 2011). Similarly, Lightbown and Spada (2006) contend that students who absorb content best by listening are auditory learners. Those who learn best by seeing are visual learners, while those who need to add a physical action to the learning process are kinesthetic learners. Therefore, according to Lightbown and Spada, visual learners learn by seeing. They do best with textbooks that have graphs, photographs and charts. Auditory learners learn by being read to, and by discussing what has been read. They are also more likely to be distracted by sounds. The kinesthetic learner will enjoy being able to move while learning. They have a hard time sitting still for long periods and may cause disturbance in class if they are not allowed to get up quite often during the day.

Further, Lightbown and Spada (2006) expound that the visual learner may relate theory to pictures and learn best from visual displays including diagrams, illustrated text books, overhead transparencies, videos, flipcharts and hand-outs. During a lecture or classroom discussion, visual learners often prefer taking detailed notes to comprehend the information. Videos can be good

for visual learners, as they can see what is going on and specific examples of the subject they are learning. These learners need to monitor the teacher's body language and facial expression to fully understand the content of a lesson. They tend to prefer sitting at the front of the classroom to avoid visual obstructions. Consequently, auditory learners might learn best through verbal lectures, discussions, talking things through and listening to what others have to say. They interpret the underlying meanings of speech through listening to tone of voice, pitch, speed and other nuances. Written information may have little meaning until it is heard. These learners often benefit from reading texts aloud and using a tape recorder. Kinesthetic learners, on the other hand, learn best through a hands-on approach, by actively exploring the physical world around them.

It is noteworthy that according to Lightbown and Spada (2006), when learners express a preference for seeing something written or for memorizing material which we feel should be learned in a less formal way, we should not assume that their ways of working are wrong. Instead, we should encourage learners to use all means available to them as they work to learn another language (Lightbown & Spada 2006). Students preferentially take in and process information in different ways, and teaching methods should also vary accordingly. How much a student can learn is also determined by the compatibility of the student's learning styles and the teacher's teaching styles. Lightbown and Spada conclude that it is important for teachers to know their learners' preferred learning styles because this knowledge will help teachers to plan their lessons to match learners' needs and provide the most appropriate activities for a particular learning group. Teachers thus need to recognize the conflict and difference between teaching and learning to enhance the learning process. Matching the language instruction methods to student learning styles can enhance academic achievement.

In an attempt to investigate the perceptual teaching and learning style preferences, Yildirim, Acar, Bull and Sevinc (2008) examined the relationships of teachers' teaching and students' learning styles in terms of visual, auditory, tactile and kinesthetic styles to students' academic performance in Turkey. The study involved 746 eighth-grade students from seven mixed-sex public schools in Istanbul. The results showed no significant relationship between students' learning styles and academic achievement. Similarly, Safaa (2012) assessed the learning styles preferred by learners (n=88) studying English as a Foreign Language at Taibah University in Saudi Arabia, and found that 41 (46.6%) were visual learners, 29 (33.0%) were auditory learners, and only 18 (20.5%) were kinesthetic learners. According to Safaa, learners prefer to see how to do things rather than just talk about them. The results demonstrated the lack of a significant relationship between learning styles and academic achievement. The controversy in the findings on the influence of physical dimension of teaching and learning styles on academic achievement elicited curiosity and there was need for confirmatory investigation.

Many researches on perceptual teaching and learning preferences have given much focus on English language. For instance, the study carried out in Lebanon by Sabeh, Bahous, Bacha and Nabhani (2011) involving 103 Lebanese students enrolled in an American affiliated Lebanese University and 5 English language teachers. Sabeh et al. (2011) indicated that the majority of the Lebanese students had major preferences for four learning styles: visual (66.7%), tactile (77.1%), kinesthetic (79.2%), and auditory (87.5%). Their study revealed that the Lebanese students valued learning through listening more than through spoken and oral explanations. Nevertheless, preferences may not reflect the real learning conditions experienced by the students. The current study, other than assessing learners' learning style preferences, also observed how they actually learnt Kiswahili in real contexts.

Moreover, Fu (2009) investigated pupils' learning styles whilst learning English vocabulary at a primary school in the south of China. His study involved 253 pupils aged between 8 and 12 years as well as 21 teachers of English. Fu used a questionnaire which was mailed to the primary school in China to collect data. Of the 274 participants, only 182 pupils and 21 teachers returned the questionnaires. Fu found that the proportion of the pupils who characterized themselves as visual learners was 70.3%. Nearly 23.7% of the pupils had a preference for auditory learning and the rest (6%) of the pupils preferred kinesthetic learning. Fu felt that these results reflected learners' interest in the use of images, graphs and other structures that could support their learning. Moreover, the participants who considered themselves as auditory learners suggested that the pupils preferred lectures, tutorials, group discussions and presentation of tasks. Consequently, the participants who characterized themselves as kinesthetic learners expressed their desire to experience and do things in order to learn. The pupils' great preference for visual learning could be because the Chinese are generally considered to be visually aligned due to the pictorial nature of their language which involves use of images instead of individual letters as seen in English. This scenario prompted investigation on Kiswahili language to find out if similar results would be yielded.

In the same vein, a study by Reid (1987) involving 113 Malay students learning English as a Second Language at universities in the United States found that the Malay respondents indicated kinesthetic and tactile as their major learning styles. A claim further explicated by Kia, Aliapour and Ghaderi (2009) as well as Reese and Dunn (2008) that the kinesthetic style is the most dominant learning style for high school students. The studies by Fu (2009) and Reid (1987) were conducted at primary and university levels respectively. Their findings prompted the need for research on learning styles in secondary schools more so in Kiswahili. Further, mailing of the

questionnaires to respondents may not be an appropriate method of data collection as evidenced in the study by Fu (2009) because of the limited response rate. Questionnaires in the current study were administered by the researcher in person which led to a higher return rate.

Consequently, Adi (2011) investigated students of low English proficiency in a tertiary college in Malaysia. The findings by Adi (2011) were in contrast to those by Fu (2009), Reid (1987), Sabeh et al. (2011) and Safaa (2012). The mean scores realised in the study by Adi (2011) showed that the students did not have any preferences of major or minor learning style. All of the learning styles were non significant with the individual learning style considered the least preferred learning style. Adi felt that it was somewhat unsettling to discover that among the students, all learning styles were considered negligible. This is because the findings suggested that, no matter what the teacher does in the classroom, or no matter what instructional style the teacher employs, the students would not be able to learn as effectively as they should. Adi therefore postulated that no ideal match can ever occur between teaching and learning styles. Nevertheless, his assertion needs confirmation. Adi (2011), Fu (2009), Reid (1987), Sabeh et al. (2011) and Safaa (2012) only explored modality learning styles encapsulated in the physical aspect of learning styles. In addition, the current study established preferences for food intake, time of day of teaching and learning, and mobility which are part of the physical dimension of teaching and learning styles. It further examined the influence of these physical dimension styles on students' academic achievement in Kiswahili.

In Philippines, Abante, Almendral, Manansala and Manibo (2014) investigated learning styles and factors affecting the learning of general Engineering students. The study involved 74 Engineering students. Abante et al. (2014) found that students' difficulty in learning may be due

to different factors including psychological, physical, emotional, social and environmental. Based on the data, most of the respondents were visual learners and the factors that greatly affected their learning were physical, for example, physical defects, nutrition and physical development. The study did not go further to link the learning styles with academic achievement. This was a further gap that the current study sought to fill.

Existing literature (Chatterjee & Ramesh, 2015; Felder & Spurlin, 2005; Pin, Pinto & Williams, 2008) acknowledges the importance of teaching and learning style congruence in building effective classroom environment. In the African context, teachers mostly focus on the auditory style of learning rendering learners passive (Ali & Muhammad, 2012). In most cases, the lecture method does not meet students' learning needs. Liu and He (2014) note that the teacher-talk dominated classrooms encourage the construction of a unidirectional relationship which ultimately neglects the students' individual differences. They further observe that this approach contradicts the principle of language acquisition and cannot encourage student participation. Since students passively receive knowledge, or are mechanically drilled under the teacher's control, they cannot understand their own learning styles effectively or improve their learning abilities based on their learning styles. Normally, students are never satisfied with the classroom teaching or enthusiastic for the classroom learning (Liu & He, 2014). Similarly, Kapadia (2008) observed that most engineering classes are verbal or oral with the professors relying more on the lecture method. Lecturing is very well suited to students that have an auditory learning style. However, many engineering students have a visual learning style leading to a mismatch in teaching and learning (Kapadia, 2008). The study by Kapadia focused on engineering students. It is therefore not clear whether students' learning styles in Kiswahili are in tandem with teachers' teaching styles hence the need for this investigation.

While making a conference presentation on teaching and learning styles in Engineering education in the USA, Kapadia (2008) stated that teaching methods vary according to professors: some lecture, while others demonstrate, some focus on principles while others deal with application, some stress memory and recalling facts while others work on understanding. Kapadia emphasized that each of these pairs of teaching styles takes up contradictory positions yet is valuable and essential in its own right. Kapadia finally noted that since there are so many different teaching and learning styles, mismatches in teaching and learning can and do occur. When there is a mismatch, both the student and the professor suffer. Therefore, the question is whether similar teaching and learning patterns apply in the various educational programmes.

Learning styles influence the way students learn and how they approach learning situations. Understanding student learning styles is therefore important in the quest to improve the effectiveness of student learning (Amir, Jelas & Rahman, 2011; Zhou, 2011). These authors argue that how much information a student learns is determined by the compatibility between learning and teaching styles. It is therefore important for teachers to know their learners' learning styles. This knowledge will help them plan their lessons to match or adapt their teaching to students' preferred learning styles and provide the most appropriate and meaningful activities or tasks to suit a particular group of learners at different stages (Amir et al. 2011; Zhou, 2011). In a bid to shed light on the compatibility between teaching and learning styles, Ford and Chen (2001) explored the relationship between matching and mismatching of instructional presentation styles with students' cognitive styles. The results of their study suggested that the group with matched conditions had better performance than the one with mismatched conditions.

Gilakjani (2012) involved over 100 Iranian students learning English in filling a questionnaire to determine whether their learning styles were auditory, visual or kinesthetic. Gilakjani noted that a teacher could be very knowledgeable, creative, caring and enthusiastic but may fail to facilitate learning for students whose strengths or learning styles are not acknowledged or addressed by the teaching methods in the classroom. Results of students whose learning styles do not match those of their teachers, may not be very good and therefore frustration and de-motivation would build up. Developing on Gilakjani's study the current research used a questionnaire for students and teachers to, not only identify students' learning styles, but also assess teachers' provisions for the particular learning needs. It went further to document classroom practices through observation of lessons to underscore the findings from the questionnaire.

In Nigeria, Alade and Ogbo (2014) investigated the preferences of learning style of Chemistry students in both public and private secondary schools in Lagos, metropolis. The study involved 200 Chemistry students. The findings showed a significant relationship between preferences of learning style of students and their achievement in Chemistry. Visual learning style was the predominant preference among students in both school types. The study concluded that an alignment between teaching and learning styles will improve the teaching, learning and academic achievement of students. Their study, however, did not reveal the alignment that was considered to be important.

Similarly, Odebiyi and Salami (2015) conducted a study involving 213 teachers and 2130 pupils in primary schools in Nigeria. The authors described kinesthetic and tactile-based instructional style to be demonstrated by teachers who are mobile while teaching and encourage mobility in learners too. They explained that any teacher using these styles encourages "do", that is, hands-

on or minds-on activities. Such a teacher gives projects, assignment and various practical activities to the learner together with outdoor learning activities that are preferable to passive classroom learning. Further, Odebiyi and Salami (2015) note that visual-based instructional style is demonstrated by teachers who believe in seeing. Such teachers present visual aids including pictures, graphics, charts, drawings and real objects of what is being taught to learners to see. Such teachers give less hands-on activities and give short explanations.

Odebiyi and Salami (2015) note that auditory-based instructional style is characterized by presentation and detailed explanation, allows learners to share ideas, encourages talks and discussion as well as the use of audio gadgets to aid the instructions. In their study, Odebiyi and Salami found that visual-based and tactile-based instructional styles enhanced academic achievement of pupils positively. Since Odebiyi and Salami conducted their study in primary schools but did not focus on a particular subject, there was need for a similar study that focused on particular subjects and at a different level of education to see whether the results would be comparable. Therefore, the current study interrogated the teaching and learning styles in Kiswahili subject at secondary school level.

The studies reviewed majorly used frequencies and percentages to present data on teaching and learning styles. These were weak statistical analyses which did not determine the extent to which teaching and learning styles in the physical dimension influence students' academic achievement. This is a gap the current study attempted to fill by use of more rigorous statistics like regression and analysis of variance.

2.5 Influence of Psychological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

According to Dunn and Dunn (1992), the psychological dimension of teaching and learning styles encompass the analytic, global, reflective and impulsive styles. Analytic students learn more easily when information is presented step by step in a cumulative sequential pattern that builds towards a conceptual understanding. In comparison, the global students learn more easily when they understand the concept first then concentrate on the details, or are introduced to the information with, preferably, a humorous story replete with examples and graphics (Dunn & Dunn, 1992). Reflective learners like learning facts, are interested in discovering the possibilities of relationships and are innovative and practical (Lesmes-Anel, Robinson & Moody, 2001; Naimie, Siraj, Abuzaid & Shagholi, 2010; Rassool & Rawaf, 2008). Finally, impulsive students learn by drawing conclusions and making decisions quickly.

Beecher and Sweeney (2008) asserted that the focus of education should be on helping students experience significant progress in fulfilling their learning potential and psychological development. Such learning potential can be realized through differentiated instruction because it allows teachers to tailor the curriculum to meet the needs of individual students. On this ground, the current study focused on teaching and learning styles which provide the basis for differentiated instruction. According to Muthomi and Mbugua (2014), differentiated instruction is an approach that assumes the existence of diversity of learners in every classroom and that all learners can be reached when a variety of methods and activities are used. Nevertheless, Beecher and Sweeney (2008) as well as Muthomi and Mbugua (2014) did not establish the psychological constructs on which differentiation in teaching and learning may be based. This study therefore endeavored to find out the role of the psychological dimension.

Research (Lau & Yuen, 2009) has shown that the relationships between the psychological dimension of teaching and learning styles and students' academic achievement can be influenced by subject matters. For example, in the study by Lau and Yuen (2009), science and math-related subjects were more appropriate for students who preferred to think sequentially while the random learners did well in fine arts courses. This implies that, the sequential style was better suited for subjects that require logical and analytical thinking, and the random style was more suitable for subjects that require global, intuitive, and creative thinking. Although the subject matter has been shown to influence the relationships between psychological styles and learning achievement, researchers (Bhat, 2014; Drysdale, Ross, & Schulz, 2001) found that all learning styles (global and analytic) influenced achievement in liberal arts and social science subjects. Therefore, the findings concerning the influence of subject matter in the relationships between the psychological dimension of teaching and learning styles and student's achievement are uncertain. In view of this, there was need for research to contribute to the literature on the relationships between students' styles and the learning outcomes in different subjects such as Kiswahili.

Terregrossa, Englander and Wang (2009) conducted a study to explore the link between student achievement and learning styles in microeconomics. The study was based on the Dunn and Dunn (1992) model of learning styles. The results showed that the students with an analytic learning style performed better in inductive type questions while students with a global learning style performed better in deductive type questions. The authors concluded that the results could be utilized to enhance student achievement in the instruction of economics and other subjects. Apparently, the findings on the link between psychological dimension of teaching and learning

styles and academic achievement in other subjects such as Kiswahili remain inconclusive. This fact prompted the current study.

Gogus and Gunes (2011) investigated the students' learning styles and effective habits in a Turkish university. In their study, they aimed at investigating the relationship between the learning styles for students' learning English as a second language, their effective learning habits and academic achievement. The researchers argued that knowledge of the students' learning styles could help educators to design a learning environment suitable for students with different interests and preferences. They discovered that Turkish students generally like to learn through practical application like solving problems, trying to make correct decisions and preferring to deal with technical works or problems as opposed to working with social relations. In their study, the dominant learning style was the reflective style. According to these researchers, Turkish students rarely preferred taking risks in generating new ideas, observing situations from different perspectives or bringing different ideas together which is the global style. Gogus and Gunes conducted their study on university students. It was therefore felt that a similar study may yield different results when conducted in a different context involving a different scope of participants like secondary school students.

In Malaysia, Mohamad, Abbas, Helan and Kiranjit (2011) conducted a study involving 317 students to investigate the relationship between preferences for learning style and overall academic achievement. The study found that students had a similar preference for analytic, impulsive and reflective styles. Mohamad et al. (2011) found that learning style preferences had an impact on the students' overall achievement. Regardless of this attempt, the study lacked an

assessment of the actual classroom with reference to the psychological dimension of teaching and learning styles which was worth establishing through the current study.

Similarly, Razawi, Muslim, Razali, Husin and Samad (2011) investigated the diverse learning styles employed by students learning English as a second language in Malaysia. The study used the questionnaire to collect data which was distributed to 90 students in a secondary school. The findings revealed that the students' learning styles can be categorised as global, impulsive and reflective. The authors thus recommended the need to improve teachers' lesson planning to cater for the students' diverse learning styles. The study suggested that the sample size could be expanded so as to produce more generalisable results. The current study used a relatively larger sample which was expected to result in different findings.

Su (2012) investigated relationships between the learning style preferences and academic performance of Taiwanese college hospitality students. The study involved a sample of 360 students in a hospitality management programme at a university in Taiwan. The results indicated that the students were more likely to be reflective, sequential and global. A significant difference between sequential and global learners emerged with respect to academic achievement. It emerged that sequential learners performed better academically than the global learners. Similarly, Narayani (2014) investigated learning style of higher secondary students in relation to their academic achievement. The study found that the mean value of academic achievement of sequential learners was greater than the mean value of the global learners. The studies by Su (2012) and Narayani (2014) used the questionnaire as the instrument for data collection. The studies however, lacked the actual assessment of classrooms to find out whether the sequential

and global teaching and learning styles were practised, a knowledge gap that the current study attempted to fill by conducting an observation physically in Kiswahili classrooms.

In Thailand, Damrongpanit (2014) conducted a study involving 3,382 ninth-grade students and 110 mathematics teachers. The study investigated the interaction of learning and teaching styles that influence achievement in mathematics by the ninth-grade students. The findings revealed that most students were categorized in the reflector style. In the same way, Shi (2011) conducted a study focusing on the relationship between cognitive styles and learning strategies of 184 second-year English majors from the Foreign Language School of a university in Wuhan, China. A learning style survey was conducted to examine the learning styles of the participants. The results showed that impulsive style had a significant influence on learners' choices of learning strategies. Shi observed that, with impulsive style, learners would react quickly in acting or speaking without thinking critically about the situation. In spite of this, Shi did not assess how this particular style could impact on academic achievement which is of significance. Moreover, Damrongpanit (2014) and Shi (2011) conducted their studies on teaching and learning of Mathematics and English subjects respectively. The findings may be different in other subjects. Therefore, it was considered necessary to carry out the present study on Kiswahili subject to confirm if the findings could be similar across disciplines.

In Africa, a study was conducted by Letele, Alexander and Swanepoel (2013) in Lesotho to determine the extent to which matching teaching and learning styles enhances academic achievement of learners in the rural secondary school ecologies of Lesotho. This was with a view to improving academic achievement of such schools. The Solomon Felder Index of Learning Styles (SFILS) and self-designed teaching questionnaire were used involving 190 learners and 95

teachers from rural secondary schools. The study investigated psychological-related teaching and learning styles of active versus reflective, and analytic versus global styles. The findings indicated that mismatches of teaching and learning styles largely inhibit academic achievement while matching enhances it. They recommended that teachers should match their teaching styles with the learning styles of their learners in most lessons to enhance their learners' academic achievement. Identification of students' learning style is therefore important for effective teaching and learning leading to improved academic achievement. Such identification is yet to be done in relation to Kiswahili.

In a similar study in Nigeria, Ngozi (2015) investigated the effects of learning styles on the performance of senior secondary school Biology students. The study adopted the quasi-experimental design that involved 300 Biology students. Kolb Learning Style Inventory (KLSI) was used to identify the students' learning styles. The Biology Achievement Test was used to determine the students' performance in both pre-tests and post-tests. The author found that psychological-related learning styles influenced academic achievement. Ngozi recommended that Biology teachers should identify the learning styles of their students and use teaching strategies that complement them. In line with Letele et al. (2013) as well as Ngozi (2015), this study established the influence of learning styles on students' academic achievement. Contrary to the authors, this study used the model by Dunn and Dunn (1992) to establish learning styles in Kiswahili which were hitherto unknown. The current study also went further to establish the influence of teaching styles on students' academic achievement, an aspect that was not exploited by the aforementioned studies.

Finally, most of the studies reviewed only used a single approach, either qualitative or quantitative, which could be limited in the breadth of data gathered. The point of departure of the current study was that it was conceptualized on the pragmatic approach which involved collection of both quantitative and qualitative data on teaching and learning styles and their influence on students' academic achievement in Kiswahili.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The previous chapter entailed a critical review of related literature on pedagogical styles and academic achievement. This chapter presents the methodology and describes how the current study was conducted based on its philosophical stance. The chapter includes the research design, area of study, the target population, the sample size and sampling techniques, the instruments of data collection, the validity and reliability of instruments, the data collection procedures, the ethical considerations, and data analysis procedures as discussed in sections 3.1 to 3.10.

3.1 Research Design

The current study was based on descriptive survey and correlational study designs. According to Leedy (1993), a survey research design is used to investigate, assess opinions and preferences in educational issues and problems. This design is considered the most appropriate method for measuring attitudes, beliefs or personality structures in a natural setting through tests or attitude scales or questionnaires (Leedy, 1993). The descriptive survey design was chosen because it is appropriate for educational fact-finding as it yields a great deal of accurate information. It also enables a researcher to gather data and use it to describe the nature of the existing conditions (Cohen, Manion & Morrison, 2000). In the current study, a descriptive survey design was used to establish the actual and preferred teaching and learning styles in Kiswahili in the various dimensions of environmental, sociological, emotional, physical and psychological styles.

According to Kombo and Tromp (2006), a correlational design enables researchers to assess the degree of the relationship that exists between two or more variables. In the current study, the

variables that were correlated were teaching and learning styles in environmental, emotional, sociological, physical and psychological dimensions, and students' academic achievement in Kiswahili. In this research, correlational design was used to determine the influence of teaching and learning styles on students' academic achievement in Kiswahili.

This study thus employed a mixed methods approach which is defined as a research that combines qualitative and quantitative data collection and analysis within a single study (Plano Clark, 2005). According to Wisdom, Cavaleri, Onwuegbuzie and Green (2012), quantitative and qualitative research strategies complement each other to produce enriched data for holistic description of issues that cannot be achieved using a single method. As a result, the philosophical perspective adopted by this study is the pragmatic approach. According to Creswell et al. (2016), the pragmatic approach provides for the use of both qualitative and quantitative research methodologies to collect information and make inquiry into complex phenomena in social and natural contexts. Saunders, Lewis and Thornhill (2009) expounded that in the epistemological paradigm, pragmatism provides for practical research by integrating different perspectives which help to elucidate the data interpretation process in research. Therefore, the pragmatic approach helps to understand the assumptions that underpin knowledge and inquiry. Deducing from the above explanations, the pragmatic paradigm was best suited for the current study. This study used closed-ended items of the questionnaire to gather quantitative data and the open-ended items of the questionnaire, document analysis guide, and lesson observation schedule to collect qualitative data. The qualitative data was thus used to validate the quantitative data.

3.2 Area of Study

The current study was conducted in Kakamega North Sub-County, Kenya. Kakamega North Sub-County is located in Kakamega County of Kenya. Its neighbouring sub-counties are: Kakamega Central, Lugari, Butere, Kakamega South, Kakamega East, Mumias, Matete, Khwisero, Matungu and Navakholo. The neighbouring sub-counties have consistently yielded better results in the KCSE examinations as shown in Table 1 in Chapter 1. This disparity in achievement called for research intervention. Kakamega North Sub-County covers a total area of 427.4 km² and has a population of 205,166 persons. It lies between Latitude 0° 4' N and 0° 5' N and Longitude 34° 47' E and 35° 20' E (see map attached as Appendix O). The sub-county has 42 secondary schools which have perennially recorded poor academic achievement in Kiswahili. Schools in the sub-county have posted mean scores of 4.95, 4.99, 4.46, 4.65 and 5.19 in the years 2010, 2011, 2012, 2013 and 2014 respectively in the KCSE Kiswahili examinations. It was the persistent low academic achievement in Kiswahili in Kakamega North Sub-County in comparison to the neighboring sub-counties in Kakamega County that called for research to seek explanations for the phenomenon. Kiswahili teachers have been blamed for this low academic achievement. However, there is a notable lack of research evidence on Kiswahili subject teaching and learning process to support this apportioning of the blame solely on the subject teachers. Hence there was need for the current study to assess how teaching and learning styles influenced academic achievement in Kiswahili in Kakamega North Sub-County.

3.3 Study Population

The current study involved 2,520 Form IV students in the year 2014 and 42 Form IV teachers of Kiswahili in 42 secondary schools in Kakamega North Sub-County. The Form IV class was chosen because the students had been exposed to various learning modes in the course of their

four-year study period. The guiding factor was that this level of students could easily identify their learning styles. It was also important to include the Kiswahili subject teachers for this particular group of students in the current study in order to establish the relationship between the teaching and learning styles.

3.4 Sample Size and Sampling Techniques

The sample size for this study was 38 Form IV Kiswahili teachers and 345 Form IV students. Following a formula by Yamane (1967) for calculating sample size, a group of 345 Form IV students was realised as the sample size for the current study. Yamane’s formula is appropriate for large populations, assuming a normal distribution with 95% confidence level, and was thus considered suitable for determining an appropriate sample size. According to Yamane, the formula is computed as follows:

$$n = \frac{N}{1 + N * e^2}$$

where:

n = represents the sample size

N = represents the population size

e = represents the acceptable sampling error (the error of 5 percentage points = 0.05)

The sample was drawn from the 38 secondary schools in Kakamega North Sub-County including: 4 for boys, 6 for girls and 28 co-educational ones. Saturated sampling technique was used to select 38 teachers of Kiswahili, after using 4 schools for pilot study. Saturated sampling is a method where the whole population is used as a sample (Koul, 2004). Simple random sampling technique was then used to select 345 Form IV students of the year 2014. In simple random sampling technique, each individual is chosen entirely by chance such that everyone has

the same probability of being chosen at any stage during the sampling process (Gall, Borg & Gall, 2007). The sampling frame is given in Table 2.

Table 2: Sampling Frame

Subjects	Population (<i>N</i>)	Sample (<i>n</i>)	Percentage (%) of sample to population size
Form IV Kiswahili Teachers	42	38	90
Form IV Kiswahili Students	2,520	345	14

Hamre and Maxwell (2011) advanced a recommendation on the appropriate number of classrooms to be sampled and observed in order to achieve representativeness in a study. These researchers argue that observing at least one third of the total number of classrooms in the sample is adequate for the purpose of employing a classroom observation schedule. Following this recommendation by Hamre and Maxwell, the researcher randomly selected and observed 13 classrooms (1 boys, 2 girls and 10 co-educational). These represented one third of the 38 classrooms and schools visited. The choice of the 13 classrooms for observation was based not only on the willingness to participate by the respective teachers and students but also on proportionate representation.

3.5 Instruments of Data Collection

A variety of data collection instruments were employed in the current study, including: questionnaires, document analysis guide and lesson observation schedule. The questionnaire method was used as a primary data gathering instrument. It helped gather quantitative data on pedagogical styles that were later correlated with students' academic achievement in Kiswahili.

The document analysis guide and the lesson observation schedule were used to gather qualitative data that was used to corroborate the information given in the questionnaire. Descriptions from the documents and observation schedules therefore augmented the evidence from the students' and teachers' questionnaires. A description of each instrument is entailed in sections 3.5.1 to 3.5.4 respectively as follows:

3.5.1 Students' Questionnaire (SQ)

The students' questionnaire was used to collect data on the actual and preferred learning styles. Oxford (2003) asserted that the most recommended type of assessment tool for second language learning styles is the written survey which enables students to answer questions freely thereby revealing their particular learning styles. The students' questionnaire contained the five dimensions of Dunn and Dunn's (1992) learning style model (see Appendix A). The student questionnaire included both open and closed-ended questions. Part 1 entailed 54 closed-ended questions that sought information about learners' styles of learning Kiswahili. A 5-point Likert scale ranging from DT- Definitely True, T-True, ST- Somewhat True, NT- Not True to DNT- Definitely Not True was used. The purpose of the 13 open-ended questions that constituted Part 2 was to allow the students to freely express themselves about their learning styles. The findings from the open-ended questions would confirm the results from the closed-ended students' questionnaire.

3.5.2 Teachers' Questionnaire (TQ)

A two-part questionnaire, consisting of 5 dimensions of the Dunn and Dunn (1992) learning styles model, was administered to 38 Kiswahili teachers to assess their actual and preferred teaching styles (see Appendix B). Part 1 of the teachers' questionnaire contained 54 closed-ended questions which collected information about the teachers' preferences and provisions the

teachers made for various learning styles in the classroom. On the other hand, Part 2 had a series of 13 open-ended questions where the subject teachers described their teaching techniques. Some categories in the Dunn and Dunn (1992) learning style model have more sub-categories than others thus the variations in the items for each category in the questionnaires.

3.5.3 Document Analysis Guide (DAG)

The use of documents as a data-gathering technique helps the researcher to focus on written communications that may shed light on the phenomenon under investigation (Creswell et al., 2016). The use of a Document Analysis Guide (DAG) focused on the analysis of documents that were deemed relevant in the current study including: Kiswahili schemes of work, lesson plans and the Kenya Certificate of Secondary Education (KCSE) examination results for the year 2014. The DAG is attached as Appendix C. These documents gave invaluable information, namely the Form IV students' mean grades in Kiswahili examination and an overview of how the subject teachers planned for lesson instruction. Since the KCSE is a standardized test, the results for the year 2014 were used to establish the students' academic achievement because it served as an objective form of assessing secondary school level learners' achievement. During data collection, the researcher requested for sample Kiswahili schemes of work and lesson plans to establish how the subject teachers focused on learning style preferences when planning for instruction. After the release of the 2014 KCSE examination results, the researcher obtained the official schools' Kiswahili subject mark sheets from the Kakamega North Sub-County Education Office. The researcher noted the mean scores of the particular students who participated in the current study and the overall mean score for each participating school. During the administration of the questionnaires, students were requested to write their index numbers. This aided in the identification of the students who participated in the current study.

3.5.4 Lesson Observation Schedule (LOS)

Following the constructs outlined in the learning style theory by Dunn and Dunn (1992), a Lesson Observation Schedule (LOS) was designed for use in the current study to capture information on the nature of Kiswahili classrooms. Dunn and Dunn's theory of learning style identifies five key dimensions on which students' learning styles vary, namely: environmental, sociological, emotional, physical and psychological. The LOS was designed by the researcher (see Appendix D). Only the observable elements of these 5 dimensions were recorded. The observable elements in the environmental dimension that were assessed included the classroom surrounding regarding noise, lighting and the classroom design with reference to the formal and informal seating arrangements. Under the sociological dimension, the group method of teaching and learning, the subject teachers' presence in class and the varied teaching and learning methods were noted. For the emotional dimension, the levels of learner motivation, persistence, responsibility as well as structured teaching and learning were assessed. For the physical dimension, the audio, visual, tactile and kinesthetic forms of teaching and learning, the students' desire to eat something while learning, the time of day of lessons and the students' mobility were assessed. Finally, on the psychological dimension, the researcher assessed the approach to concepts during teaching and learning which were considered to be global, analytical, impulsive or reflective. The researcher ticked in boxes adjacent to the category observed giving remarks based on the evaluation made on each element. The data from the observation schedule was used to corroborate the participants' responses elicited by the two questionnaires, SQ and TQ.

Yin (2011) notes that observation is an invaluable way of collecting data because what one sees with their own eyes and perceives with their own senses is not filtered by what others might report or what an author of a document might have seen. The observation schedule employed

during lessons in the current study was structured in nature. According to Cohen, Manion and Morrison (2007), a structured observation is very systematic and enables the researcher to generate numerical data from the observations. The numerical data in turn facilitates the making of comparisons between settings and situations while noting frequencies and patterns. Mulhall (2003) noted that structured observations are predetermined using taxonomies developed from a known theory. Treanor (2010) depicted structured observation as quantitative, positivistic approach of data gathering and evaluation which uses predetermined behavioural categories. Treanor further observed that a positivist methodology has been widely used in educational research and is a popular tool of studying classroom behaviour. This study adopted the positivist approach whereby the qualitative data gathered through the observations was tallied and presented quantitatively in frequencies and percentages for ease of interpretation. In the current study, the LOS developed documented information on the overt classroom provisions made for learners with different learning styles. The observations were based on topics that represented all the three broad content areas covered in the Kiswahili syllabus namely grammar (*matumizi ya lugha*), literature (*fasihi*) and composition (*insha*).

3.6 Validity of the Instruments

Validity is the extent to which a test measures what it is supposed to measure (Kombo & Tromp, 2006). A research instrument may be considered valid when its contents are relevant and appropriate to the research objectives. Validation of the data collection instruments was done before embarking on the actual research. According to Burton and Mazerolle (2011), the common types of validity are: face, content and construct validity. Face and content validity are guaranteed by a panel of experts who judge the survey's appearance, relevance and representativeness of its elements. The panel of experts is comprised of individuals with

expertise in the area the data collection instrument will measure (Netemeyer, Bearden & Sharma, 2003). To address face validity in this study, the evaluation of the appearance of the data collection instruments was done by several experts at Maseno University's Department of Educational Communication, Technology and Curriculum Studies, and the School of Education. The aspects scrutinized with regard to face validity included the ease of use, clarity and readability of the data collection instruments. A pilot study was undertaken by the researcher to establish content validity. The researcher evaluated the representativeness of the data collection instruments regarding the topic under investigation in order to establish the credibility, accuracy, relevance and breadth of knowledge within the scope of the current study. The feedback from the pilot study and the experts' suggestions and recommendations improved the efficacy of the instruments of data collection.

Construct validity is the degree to which an operational measure correlates with the theoretical concept investigated (Burton & Mazerolle, 2011). Construct validity provides the researcher with the confidence that a survey actually measures what it is intended to measure. For the sake of addressing construct validity in this study, the evaluation of the ability of data collection instruments to relate to the variables in the study was done through factor analysis in order to establish their effectiveness. In this case, the researcher first piloted the questionnaire. After assessing the dimensionality of the questionnaire items, the researcher carried out factor analysis to assess construct validity in order to reduce the research items to only those that addressed the variables under investigation. According to Burton and Mazerolle (2011), Exploratory Factor Analysis is an important statistical analysis that researchers can use to evaluate the construct validity of a data collection instrument. Out of the initial 70 research items that had been constructed to test pedagogical styles, 54 items were retained through Exploratory Factor

Analysis (EFA) with a Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy of .71 and a significance value of .00. Kaiser (1974) recommended that values greater than .60 should be accepted. According to Netemeyer et al., (2003) construct validity allows the researcher to draw legitimate conclusions from findings.

3.7 Reliability of the Instruments

Kombo and Tromp (2006) define reliability as the measure of how consistent the results from a test are. For the purpose of conducting a pilot study, Nieswiadomy (2002) recommended obtaining and involving approximately 10 participants or 9 to 10 % of the final study size. To determine reliability of the data collection instruments in this study, a pilot study was carried out on 4 Kiswahili teachers and 252 Form IV students in 4 secondary schools in Kakamega North Sub-County. It is important to note that this group formed 10% of the target population and was not part of the sample. The reliability of the students' and teachers' questionnaires was determined through the test-retest method. In this case, these data collection instruments were administered to the same respondents twice within an interval of two weeks (Hinton-Bayre, 2010).

For the lesson observation schedule, inter-rater reliability was used. According to Gwet (2014), inter-rater reliability is established when two individuals referred to as raters independently classify the same set of objects. Gwet further notes that the extent to which these two categorizations coincide represents inter-rater reliability and if the reliability is high, then both raters can be used interchangeably. In the current study, the researcher and the trained research assistant observed Kiswahili lessons and coded occurrences in the classrooms based on the various dimensions of pedagogical styles. After collecting data for the pilot study, Pearson

Product Moment Correlation (r) was used to determine the correlation coefficients. The teachers' and students' questionnaires were reliable with r values of .72 and .76 respectively while the lesson observation schedule had an r value of .81. The r values for the three instruments were therefore above the recommended threshold of .70 (Bowling, 2002). Hence the instruments were deemed reliable.

3.8 Data Collection Procedures

Before undertaking the actual study in sampled schools, an approval of the research proposal by the Maseno University School of Graduate Studies was sought. The proposal was then presented to Maseno University Ethics Review Committee for approval. After obtaining approval from the ethical review committee (see Appendix M), the researcher sought permission to collect data from the Sub-County Education Office, Kakamega North. On obtaining the necessary approval (see Appendix N), consent was sought from the head teachers of the schools where the researcher conducted the current study (see Appendix L). The researcher made personal visits to the sampled schools, met the respective head teachers to inform them about the research and to arrange for the possible dates of data collection.

The researcher administered both the students' and teachers' questionnaires in person with the assistance of one research assistant who was trained on how to administer the research instruments before the start of the process. The questionnaires were first given to students preparing to sit their KCSE examinations in 2014, and to their Kiswahili teachers. The teacher and student participants also responded to open-ended questions in the respective questionnaires which afforded the researcher a chance to probe for more information about their teaching and learning styles in Kiswahili respectively.

Prior to conducting lesson observations in the actual classrooms, voluntary participation of the Kiswahili teachers was sought. The researcher attended actual Kiswahili lessons accompanied by a trained research assistant and observed the nature of the classroom environment as well as the students' and teachers' behaviours with regard to the elements outlined in the Dunn and Dunn (1992) model. A total of 13 teachers who were willing to have their lessons observed were picked. The lessons observed were based on the following topical areas which represented all the three broad content areas covered in the Kiswahili syllabus: *lugha- ufahamu na ufupisho (tarakilishi; utandawazi; matumizi ya maktaba); sarufi (virejeshi 'amba' na 'o'; uchanganuzi wa sentensi); isimu jamii (sajili ya sokoni, michezo); fasihi- fasihi andishi (uchambuzi wa mbinu za uandishi katika Tamthilia ya Mstahiki Meya; uchambuzi wa wahusika katika riwaya ya Damu Nyeusi; ushairi- bahari mbalimbali katika ushairi); fasihi simulizi (aina mbalimbali za nyimbo; vitendawili); insha- kumbukumbu, wasifu kazi.*

Polit and Beck (2004) outlined the challenge of observation as reactivity whereby people tend to act differently when they are aware that they are being observed. This may prevent a researcher from recording the authentic nature of classrooms. In the current study, a non-participant observer's role was employed by the researcher and trained research assistant so as not to interfere with the natural classroom learning conditions. The box adjacent to the category observed was ticked. Pictures of the observable aspects were also taken to provide vivid descriptions of the actual teaching and learning styles.

According to Polit and Beck (2004), the crucial aspects of using structured observation are observer consistency and inter-observer agreement. The observations made by the researcher and trained research assistant in each class were compared to ensure consistency in the findings. The

researcher then had to wait for KCSE examination results for the year 2014 to be released in order to collect the mean scores for the particular students who participated in the current study. The raw scores for students' academic achievement for KCSE 2014 that were correlated with teaching and learning styles are attached as Appendix F. The mean scores were extracted from the marksheets for the 2014 KCSE examination results obtained from Kakamega North Sub-County Education Office.

3.9 Ethical Considerations

The current study strictly adhered to professional research ethics. This practice helped avoid any ethical dilemmas. Babbie and Mouton (2001) stress the importance of having research grounded in ethical practices. According to Halai (2006), the purpose of ethical considerations is to ensure that the moral principles and rules are maintained such as pursuing an apt outcome of the study, reducing the magnitude of harm, and respecting the respondents. In order to protect the respondents in this research, the researcher observed the ethical principles which included the right to voluntary consent, the principle of anonymity, the implication of confidentiality, and the essence of data protection. Halai concurred that an adherence to ethical principles in research is closely linked to assuring the quality and rigour of the study in terms of its credibility and dependability. In this study, the components of credibility and dependability were intensified by the facets of anonymity, confidentiality and voluntary participation of the respondents.

3.9.1 The Right to Voluntary Consent

The principle of voluntary consent entails that the respondents are not coerced to participate in a research (Hannan, 2006). According to Hannan (2006), the concept of intentional involvement is directly related to the requirement of informed consent from the participants in the study. Hannan (2006) further averred that it is the right of potential respondents to be fully informed

about the nature, procedures, and possible risks that are involved in a given research before they give their consent for participation. In this research, participation of the respondents was completely voluntary. There was no obligation for either the teachers or students to participate or any adverse consequences for those who either chose not to participate or discontinue their participation at any time throughout the current study. Informed consent was obtained from all participants (see Appendix L) prior to the commencement of the study.

Before conducting an observation schedule in Kiswahili classrooms, the respondents were given an opportunity to consent to participate in the study or to decline. According to Halai (2006), it is illegal and unethical for a researcher to put the respondents in a situation which might lead them into a risky or harmful condition as a result of their participation in a study. The freedom of participation was a momentous cause to intensify the level of trustworthiness in this study.

3.9.2 Anonymity of the Respondents

Anonymity is one of the essential principles of research ethics (Trochim, 2003). According to Abelson, Frey and Gregg (2004), the reason why anonymity of the respondents is assured is to ensure that the individuals disclose what they actually think and feel. The respondents in this research were encouraged to complete the questionnaires without any reservation as they would remain anonymous. To uphold the anonymity of individuals, the researcher used numbers to protect their identities. The questionnaires were assigned pseudonyms to maintain secrecy. In this context, the researcher used hypothetical names, for instance, teacher or student 1, 2, 3...345, and schools A, B, C...Z to represent the respondents involved in this study. This aspect of anonymity was crucial because it enabled the respondents to participate without fear. This intensified the trustworthiness of the responses.

3.9.3 Confidentiality

Confidentiality refers to respondents' right to obtain the assurance that any identifying information will not be made available to anyone who is not directly involved in the study (Trochim, 2003). To ensure confidentiality in the current study, the researcher reminded the respondents that the information given was entirely meant to support the study and was not for any other purpose. Further, the respondents were informed that the data and information they provided would be treated with strict confidentiality.

3.9.4 The Necessity of Data Protection

It is the obligation of the researcher to protect the data obtained from the respondents. According to Kombo and Tromp (2006), protection of data is crucial in any research because it includes the regulations for processing personal information such as records kept in papers and the data held in form of software in computers. In this research, the raw data from the field was kept under lock and key while processed data was stored in a computer encrypted by a password and was accessed only by the researcher. All participants were assigned an alpha-numeric code which was used to compile and organize all subsequent data. The data collected was organized and packaged in the form of a thesis and disseminated through articles in refereed journals and conferences for ease of access by participants and other stakeholders.

3.10 Data Analysis Procedures

Data was coded and organised for analysis using the Statistical Package for Social Sciences (SPSS) version 21. Items on the teacher and student questionnaires on teaching and learning styles were scored on a scale of 5 points as follows: DT-Definitely True = 5 points, T-True = 4 points, ST-Somewhat True = 3 points, NT-Not True = 2 points and DNT-Definitely Not True = 1 point. Negatively-stated items were reversed to control for response set. The purpose of the

midpoint ‘ST-Somewhat True’ in the Likert scale was to avoid forcing respondents into expressing agreement or disagreement when they may lack such a clear opinion (Johns, 2005). Johns (2005) argued that the midpoint is a useful means of deterring what might otherwise be a more or less random choice between agreement and disagreement. In this study, the ‘Somewhat True’ category in the questionnaire was used to group the teachers and students who sometimes used a particular style in teaching and learning of Kiswahili.

In the interpretation of the likert scale, Johns (2005) noted that mean scores below 3.00 point towards the negative, mean score of 3.00 is neutral, and those above 3.00 are positive. Based on Johns’ interpretations, this study categorized mean scores for actual teaching and learning styles from 1.00 to 2.99 to mean ‘does not favor the style, that of 3.00 meant ‘somewhat favors the style’ while that from 3.01 to 5.00 ‘favors the style’. Teaching and learning style preferences with mean scores of 1.00 to 2.99 were considered least preferred. The mean score of 3.00 suggested agreement with the preference to a small extent while mean scores between 3.01 and 5.00 were considered to indicate the most preferred styles. The interpretation was reversed based on the nature of the statement.

In the analysis of the teachers’ and the students’ questionnaires, frequencies and percentages for Definitely True (DT) and True (T) were summed up to establish the preferred teaching and learning styles. On the other hand, frequencies and percentages for Not True (NT) and Definitely Not True (DNT) were summed up to ascertain non preferred teaching and learning styles. The same measures were applied in analysis of the actual teaching and learning styles.

3.10.1 Analysis of Quantitative Data

Quantitative data was analysed using frequency counts, percentages, means, Pearson Product Moment Correlation, t-test, simple linear regression, and one-way Analysis of Variance (ANOVA). The alpha level of significance was set at .05.

3.10.1.1 Frequency Counts, Percentages and Means

Pallant (2002) notes that descriptive statistics such as frequency counts, percentages and means are useful in describing the characteristics of a sample. In this study, teaching and learning styles of Kiswahili were analysed and presented in tables using frequency counts, percentages and means. This described the actual and preferred teaching and learning styles of Kiswahili in Kakamega North Sub-County.

3.10.1.2 Pearson Product Moment Correlation Analysis

According to Creswell et al. (2016), the Pearson Correlation Coefficient is a measure of the strength of the linear relationship between two quantitative variables. The analysis reveals the direction and strength of the relationship. It also reveals the statistical significance of the relationship (Creswell et al., 2016). In this study, the teaching and learning styles based on environmental, sociological, emotional, physical and psychological dimensions were correlated with students' academic achievement in Kiswahili. The magnitudes of the correlation analysis were interpreted as follows: 0- no correlation, 0.01-0.39- low correlation, 0.40-0.69- moderate correlation, 0.70-0.99- high correlation and 1- perfect correlation (Cohen, Cohen, West & Aiken, 2013).

3.10.1.3 The t-test

According to Pallant (2002), independent samples t-test is used when you want to compare the mean scores of two different groups of people or conditions. In this study, independent samples t-test was used to assess the alignment between the actual teaching styles and the preferred learning styles of Kiswahili. This would help confirm the theory by Dunn and Dunn (1992) that students' learning styles need to match the teachers' instructional techniques for improved academic achievement.

3.10.1.4 Simple Linear Regression

Creswell et al. (2016) note that simple linear regression is used when there is only one independent variable. This means that each independent variable is computed against the dependent variable separately. Usually the dependent variable is denoted by *Y* and the independent variable by *X*. In the current study, the students' academic achievement in Kiswahili was the dependent variable. The environmental, emotional, sociological, physical and psychological dimensions of teaching and learning styles were the independent variables that were computed separately based on the study objectives. These predictive dimensions from Dunn and Dunn's (1992) theory of learning styles were tested against academic achievement in Kiswahili. Pallant (2002) observes that regression analysis displays how well a variable is able to predict a particular outcome. The variance shared by each variable on academic achievement in Kiswahili was therefore established.

3.10.1.5 Analysis of Variance (ANOVA)

Analysis of variance is used when there are more than two independent groups that need to be compared on a single quantitative measure or score (Creswell et al., 2016). In this study, one-way ANOVA was conducted to test the existence of possible differences among learning styles

and students' academic achievement. Each learning style was categorised into three groups of learners: those who used the style, those who somewhat used the style and those who did not use the style in the actual learning situation. The scale ranged from scores of 1 to 5 on the Likert scale questionnaire. Scores of 4 and 5 represented those who practised the style, score of 3 for those who occasionally practised the style and scores of 1 and 2 represented those who did not practice the style. The mean scores for each category were computed with their academic achievement in Kiswahili to assess if there were significant differences in their performance.

3.10.2 Analysis of Qualitative Data

According to Grbich (2007), thematic analysis is the process of segmentation, categorization and linking of aspects of the data prior to final interpretation. In the interpretation of data using thematic analysis, words or explanations of research respondents are put alongside the words of other respondents to enable the researcher to: describe the data, explore the data for meanings, look for relationships between different parts of the data and explain the similarities and differences apparent in the relationships (Mathews & Ross, 2010). Data from the observation schedule and the open-ended questions in the teachers' and students' questionnaires were organized into themes and presented using pictures and verbatim excerpts. This served to shed light on the participants' responses to the closed-ended questions. In this study, data from the open-ended questionnaires were compared among respondents, categorized and interpreted. The explanations that related to the quantitative data gathered through the closed-ended questionnaire were reported verbatim thereby substantiating the findings.

According to Mathews and Ross (2010), the guiding questions in thematic analysis are: what the respondents say, why they might say that and what they might have meant by what they said? In presenting a thematic analysis, the researcher needs to write an account based on the emerging

themes from which the researcher shows by using diagrams and selected verbatim quotations from the data, how the categories were developed (Mathews & Ross, 2010). In this study, written information from the open-ended questions was read repeatedly to make them familiar and emerging themes were noted. Sections of the transcript that reflected various themes were identified and connected with the research questions. The themes were then reviewed in categories and verbatim excerpts extracted from them. The excerpts that clearly reflected the themes were picked. The respondents were assigned numbers as pseudonyms to conceal their identity. Based on the thematic areas realised, explanations made from the observations accompanied by sample pictures of teaching and learning styles in Kiswahili classrooms were also presented.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

In the last three chapters, the concept of teaching and learning styles and its relation to academic achievement has been discussed. The current chapter presents the findings and discussion of the investigation that was undertaken with respect to the objectives and research questions outlined in chapter one. This chapter is divided into five sections corresponding to the research objectives. These are to: determine the influence of environmental dimension of pedagogical styles on students' academic achievement; establish the influence of sociological dimension of pedagogical styles on students' academic achievement; determine the influence of emotional dimension of pedagogical styles on students' academic achievement; establish the influence of physical dimension of pedagogical styles on students' academic achievement and determine the influence of psychological dimension of pedagogical styles on students' academic achievement in Kiswahili.

The first part of every section in this chapter presents frequencies, percentages and means highlighting teachers' and students' actual and preferred teaching and learning styles. Therefore, several teachers' and students' remarks are quoted to corroborate the responses made in the closed-ended questionnaire items. Further, descriptions from the lesson observation schedule administered are also reported to triangulate the findings. Subsequently, the results from bivariate correlations using Pearson Product Moment Correlation analysis, simple linear regression and Analysis of Variance (ANOVA) are presented to demonstrate the influence of the teaching and learning styles on students' academic achievement.

4.1 Influence of Environmental Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The influence of the environmental dimension of teaching and learning styles on students' academic achievement in Kiswahili was sought. Before ascertaining the relationship, environmental-related teaching and learning styles in Kiswahili with regard to noise, light, temperature and design are described.

4.1.1 Environmental Dimension of Teaching and Learning Styles in Kiswahili

According to the theory of learning styles by Dunn and Dunn (1992), environmental-related styles of teaching and learning affect the learners' way of taking in new and difficult information and their learning outcomes. For instance, while some students study in a quiet place, others like noisy environments. Whereas some learners may prefer soft and warm rooms, others favour brightly lit and cool rooms. Similarly, teaching styles may also differ based on these particular environmental aspects. The results for the environmental-related teaching and learning styles in Kiswahili classrooms are summarised in Tables 3 and 4.

Table 3: Environmental Dimension of Learning Styles (Student, n= 345)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Learning Styles						
1. Any form of noise disrupts my learning of Kiswahili.	118(34.20)	116(33.6)	19(5.5)	52(15.1)	40(11.6)	3.64
2. Light does not interfere with my learning of Kiswahili; I am comfortable with any form of lighting.	47(13.6)	100(29.0)	31(9.0)	108(31.3)	59(17.1)	3.09
3. I do not learn Kiswahili well when temperatures are extremely high or low.	40(11.6)	66(19.1)	25(7.2)	126(36.5)	88(25.5)	3.45
4. I prefer to engage in outdoor activities when learning Kiswahili.*	53(15.4)	107(31.0)	31(9.0)	107(31.0)	47(13.6)	3.03
Overall mean score						3.30
Actual Learning Styles						
1. I learn Kiswahili in a noisy environment.	19(5.5)	49(14.2)	14(4.1)	135(39.1)	128(37.1)	3.88
2. I learn Kiswahili in a dimly lit classroom.	16(4.6)	26(7.5)	29(8.4)	100(29.0)	173(50.1)	4.13
3. I learn Kiswahili under cool temperatures.	61(17.7)	119(34.5)	62(18.0)	60(17.4)	42(12.2)	3.28
4. I go for field excursions to learn Kiswahili.	138(40.0)	83(24.1)	31(9.0)	54(15.4)	40(11.6)	3.66
Overall mean score						3.74

KEY:

Preferred: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=most preferred; 3.00=preferred to a small extent; 3.01 to 5.00=least preferred).

* Reverse of the above interpretation

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

Table 4: Environmental Dimension of Teaching Styles (Teacher, n= 38)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Teaching Styles						
1. Any form of noise disrupts my teaching of Kiswahili.	7(18.4)	18(47.4)	0(0)	8(21.1)	5(13.2)	3.37
2. Light does not interfere with my teaching of Kiswahili; I am comfortable with any form of lighting.	6(15.8)	12(31.6)	4(10.5)	15(39.5)	1(2.6)	2.82
3. I do not teach Kiswahili well when temperatures are extremely high or low.	4(10.5)	5(13.2)	2(5.3)	18(47.4)	9(23.7)	3.61
4. I prefer to teach Kiswahili using outdoor activities.*	1(2.6)	12(31.6)	4(10.5)	15(39.5)	6(15.8)	2.66
Overall mean score						3.12
Actual Teaching Styles						
1. I teach Kiswahili in a noisy environment.	2(5.3)	3(7.9)	1(2.6)	24(63.2)	8(21.1)	3.87
2. I teach Kiswahili in a dimly lit classroom.	1(2.6)	2(5.3)	2(5.3)	19(50.0)	13(34.2)	4.11
3. I teach my Kiswahili students under cool temperatures.	1(2.6)	8(21.1)	15(39.5)	13(34.2)	1(2.6)	2.87
4. I take students on field excursions to learn Kiswahili concepts.	3(7.9)	16(42.1)	1(2.6)	12(31.6)	6(15.8)	2.95
Overall mean score						3.45

KEY:

Preferred: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=most preferred; 3.00=preferred to a small extent; 3.01 to 5.00=least preferred).

*Reverse of the above interpretation

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00 somewhat does not or favors style; 3.01 to 5.00=favors style).

As shown in Tables 3 and 4, both teachers and students (M=3.37; M=3.64) were uncomfortable with teaching and learning in a noisy environment. This meant that teachers and students mostly preferred quiet environments. This favored the style of '*teaching and learning in a quiet place.*' An assessment of the actual classroom teaching and learning by the teachers and students showed that Kiswahili lessons were conducted in quiet places. A total of 32(84.3%) of teachers and 263 (76.2%) of students disagreed with the statement that Kiswahili is taught and learnt in a noisy place. This denotes that the actual teaching and learning styles in terms of noise conformed to teachers' and students' teaching and learning style preferences. However, it is notable that almost one third of teachers 13(34.3%) and students 92(26.7%) preferred a noisy environment which favored the style of '*teaching and learning with sound.*' Being a minority, they are disadvantaged by the Kiswahili lessons taking place in a quiet environment.

This can be confirmed by results from the observation schedule whereby 12 (92.31%) of the classrooms visited conducted lessons in a quiet environment. The findings imply that the actual teaching and learning styles in Kiswahili classrooms greatly favour the preference to teach and learn in a cool and quiet environment. Those teachers and students who prefer some form of noise are therefore disadvantaged. The results contradict previous findings by Earthman (2004) and Schneider (2002) who viewed noise as an important factor in the teaching/learning environment in providing for learners' individual differences. Nevertheless, these studies lacked an assessment of the actual teaching and learning styles with regard to noise levels. In the current study, most Kiswahili classrooms were dominated by the style of '*teaching and learning in a quiet place.*'

Sonia (2014) conducted a similar study that involved Latino students at a Community College located in New York City and found that the students had the highest preference for noise. However, Sonia's study did not indicate how noise is incorporated in the teaching and learning process. In contrast, the present study indicates that teachers can make use of teaching aids like audio, video recordings and word-language games when teaching some of the Kiswahili concepts to provide for students who prefer to learn with noise.

Most Kiswahili teachers and students appeared ambivalent about room temperature conditions. Teachers 27(71.1%) and students 214(62%) disagreed with the statement that they do not teach or learn well when temperatures are too high or low. These findings signify preference for styles of teaching and learning in both *cool* and *warm temperatures*. On the other hand, regarding the actual teaching and learning styles, a greater number of students 180(52.2%) felt that Kiswahili was taught under cool temperatures while a paltry 9(24.3%) teachers indicated that they taught under cool conditions. The divergence in the mean scores of teachers ($M=2.87$) and students ($M=3.28$) could be due to the school timetable that dictates the time allocation for Kiswahili lessons. This implies that for these particular temperature situations, teachers can provide enclosures and allow students to wear sweaters and jackets when it is very cold. Ventilations and air fans can also be useful when temperatures are too high. In view of the findings, Kopsovich (2001) found Hispanic students in Texas, USA displaying a preference for warm temperatures in their learning environment. However, it emerged from the present study that Kiswahili students' learning is not significantly affected by temperature variations. This disparity could be related to the fact that in the Southern hemisphere, temperatures are known to be warm. Contrarily, the Kenyan context does not have adverse variations in temperature and students can easily adjust to them.

There were divergent responses between teachers and students on preference for light. This is evident in item No. 2, where teachers had the least preference for light (M=2.82) while students demonstrated the most preference (M=3.09). Evidently, 18(47.4%) of the teachers agreed with the statement that light did not interfere with their teaching of Kiswahili. This suggested that they did not prefer a certain amount of lighting. Notably, most of the classrooms were brightly-lit. A majority of teachers 31(84.2%) and students 273(79.1%) disagreed with the statement that Kiswahili is taught and learnt in dimly-lit classrooms. The mean scores of teachers (M= 4.11) and students (M= 4.13) favoured the style of '*learning with bright light*'. Whereas 167(48.4%) of students claimed that light interfered with their learning of Kiswahili, a significant number of students 147(42.6%) seemed comfortable with any intensity of light. Teachers and students can therefore easily adjust to any amount of light they find themselves in. The findings contrast with those by Bostrom and Hallin (2013) who found that a majority of nursing than teaching students in Sweden preferred bright light in their learning environment. Nonetheless, this particular study did not assess actual teaching and learning styles in terms of illumination, which are best described as '*teaching and learning with bright light*' for Kiswahili in the current study.

The actual teaching and learning styles in Kiswahili classrooms are geared towards teaching and learning with '*bright light*'. However, the findings on preference revealed a blend of teachers and students who prefer both dim and brightly lit classrooms. A significant number of teachers 18(47.4%) and students 147(42.6%) felt that light did not influence their teaching and learning of Kiswahili. This meant that teachers are capable of aligning their teaching styles to students who prefer to learn either with bright or dim lights as they are comfortable with any intensity of lighting when teaching. Teachers therefore need to assess learners' preferences in terms of light in order to provide for their needs. For instance, those who prefer bright light can sit in the front

rows or next to windows in the classrooms while those with preference for dim light can occupy the back seats or middle rows. With the assistance of the school management, teachers can modify the classroom environment to accommodate this blend of learners by having curtains which can be drawn when learners feel that the natural lighting is too bright. Electric lighting can also serve as a substitute when natural day light fails to be adequate for clear visibility within the classrooms.

The results further support views by Barrett and Zhang (2009) who acknowledged that good lighting not only helps to create a sense of physical and mental comfort, but also seems to have more far-reaching benefits than merely being an aid to sight. However, Barret and Zhang's findings do not clearly portray the actual teaching and learning styles of the participants in that study. The actual teaching and learning styles in Kiswahili in Kakamega North Sub-County favour bright illumination as observed and reported by teachers and students.

Almost an equal number of students were divided between the '*conventional style*' where learning is constrained in the classroom and the '*unconventional style*' where learning involves other outdoor activities relevant to the content at hand. A total of 160 (46.4%) preferred outdoor activities while 154(44.6%) preferred indoor activities when learning Kiswahili. On the other hand, more than a half of the teachers 21(55.3%) preferred to teach with the conventional style while only one third 13(34.2%) preferred the unconventional style. In a similar study that involved 90 students in Malaysia, Razawi et al. (2011) found that students learning English as a second language needed new experience instead of gaining knowledge and proficiency merely from their teachers in classrooms. Razawi et al. noted that the students felt that having contact with people outside the classroom would also help in their communicative learning. However,

these results differed from those by Bostrom (2011) who studied 53 teachers and 101 students in upper secondary schools in Sweden and found that student-teachers preferred formal design and routine learning. Kiswahili teachers therefore need to think through the content while planning for instruction to determine what other activities can enhance retention of the content within the environs of the school.

Notably, all the classrooms observed adopted the formal design which favored the ‘*conventional style*’ whereby the students were enclosed in classrooms and sat straight on their chairs facing their teachers. An example of this typical conventional classroom design is represented in Plate 1.



Plate 1: Classroom design for Kiswahili lesson at School X

Plate 1 shows the classroom design as observed in Kiswahili lessons in the sampled schools. All of the classrooms observed had students facing the teacher, enclosed in the environs of classroom walls. None of the lessons observed were conducted outside the classroom. The

findings imply that the actual teaching and learning of Kiswahili employ the conventional style. The findings do not demonstrate the view that instruction can be varied to incorporate outdoor activities. In a similar study, Tomlinson (2000) argued that to achieve the goal of mastery in learning, teachers should vary their instruction in relation to the learning environment. However, Tomlinson did not define the environment on which such variation should be based. The present study raises the possibility that some elements of the learning environment, such as light and temperature, may be beyond the teachers' control. It is however, possible to make alterations such as varying places where learning occurs so as to provide for learners who prefer the 'unconventional style' of learning. For instance, learners can be engaged in outdoor activities which are not currently practised in the teaching and learning of Kiswahili in the sampled schools.

4.1.2 Alignment between Environmental Dimension of Actual Teaching and Preferred Learning Styles in Kiswahili

After describing the teachers' and students' actual as well as preferred teaching and learning styles, it was considered imperative to establish whether the teachers' actual teaching styles matched the students' preferred learning styles. The findings are therefore presented in Table 5.

Table 5: Means, Standard Deviation and t values for Environmental Dimension of Teaching and Learning Styles in Kiswahili (Teacher, n= 38; Student, n= 345)

Teaching/Learning styles	Mean		Sd		df	t	P value
	T	S	T	S			
Environmental dimension	3.45	3.30	.58	.73	381	1.99	.04

** $P > .05$

KEY: T- Teacher S- Student Sd- Standard deviation df- degrees of freedom t- t value

There was a statistically significant difference in environmental-related teaching ($M=3.45$, $SD=.58$) and learning styles ($M=3.30$, $SD=.73$); $t(381) = 1.99$, $p=.04$ in Kiswahili. This implies that there was a mismatch in the teaching and learning styles as far as the environmental dimension (noise, light, temperature and design) is concerned. This mismatch in teaching and learning styles could be attributed to the fact that the actual teaching style did not adequately cater for students' preferences in relation to the environmental dimension.

For instance, it was observed that Kiswahili lessons were taught in calm and quiet, brightly-lit and formal classrooms. This set up may disadvantage the group of students who prefer to learn with some form of sound, dim light and unconventional design. Dunn and Dunn (1992) note that although many teachers believe that they have little control over these elements, it is possible for them to make adjustments in their teaching environment to provide for the varied learner preferences. However, teachers may not be in a position to make adjustments on the teaching and learning environment on their own as they highlighted factors such as uncooperative administration, lack of enough resources and class size as responsible for their choice of teaching styles (see Appendix H). Further, the teachers' typical responses on the open-ended question regarding factors responsible for the choice of teaching styles were as follows:

Teacher 6: Teaching and learning resources are limited in Kiswahili, I use mainly the textbooks recommended by the Ministry of Education as outlined in the orange book.

Teacher 23: The size of the class determines the kind of activities I engage my learners in. Because of the large Kiswahili class, my students are rarely involved in many activities.

Contextually, the large numbers of students in many Kenyan classrooms and the limited resources available may be an impediment to designing classrooms to cater for varied learning needs concerning the environmental dimension. Boyle (2005) regarded environmental-related

styles in form of noise, light, temperature and design to enhance student outcomes. However, Boyle did not ascertain whether the students' learning styles matched the teachers' teaching styles. In Kiswahili classrooms, there was a marked mismatch between the two.

Dunn and Dunn (1992) hypothesized that preferred pedagogical styles influence students' academic achievement and therefore postulated that actual teaching styles should cater for learners' preferences. It was therefore necessary to correlate the preferred pedagogical styles and students' academic achievement.

4.1.3 Correlation between Environmental Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili

After assessing the environmental dimension of teaching and learning styles in Kiswahili classrooms, it was necessary to establish the influence of preferred teaching and learning styles on students' academic achievement in Kiswahili. In order to establish the influence of environmental dimension of teaching and learning styles on students' academic achievement in Kiswahili, data on preferred environment-related teaching and learning styles as in Tables 3 and 4 and students' academic achievement (see Appendix F) were used. Bivariate correlations were therefore calculated using Pearson Product Moment Correlation as portrayed in Table 6.

Table 6: Bivariate Correlations between Environmental Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

		Academic achievement in Kiswahili	Environmental dimension of learning styles	Environmental dimension of teaching styles
Academic achievement	Pearson Correlation	1	.319**	.483**
	Sig. (2-tailed)		.000	.000
	N	383	383	383
Environmental dimension of learning styles	Pearson Correlation	.319**	1	.641**
	Sig. (2-tailed)	.000		.000
	N	383	383	383
Environmental dimension of teaching styles	Pearson Correlation	.483**	.641**	1
	Sig. (2-tailed)	.000	.000	
	N	383	383	383

** . Correlation is significant at the .01 level (2-tailed).

As shown in Table 6, the environmental dimension of teaching styles and students' academic achievement had a moderate positive significant correlation ($r=.483$, $p<.05$) while the environmental dimension of learning styles had low positive significant correlation ($r=.319$, $p<.05$). The findings imply that environment-related teaching and learning styles in form of noise, light, temperature and design influence academic achievement in Kiswahili. This means that when teachers' style of teaching is in congruence with the needs of the students who wish to learn in a quiet place or with sound, with dim or bright light, under cool or warm temperature, with the conventional or unconventional design, the academic achievement of these particular students is high.

On the other hand, when the teachers' style of teaching mismatches the needs of the students who wish to learn in similar conditions, their academic achievement becomes low. The low significant correlation between learning style and academic achievement could be because students have no control over their learning environment and are bound to cope with the environment in which they find themselves. However, teachers also claimed little control over the environment due to uncooperative school administration, lack of enough resources and large class sizes.

The findings contrast with those by Kadir (2013) who found a non significant relationship ($r=.006$, $p>.05$) between environmental learning style dimension and academic achievement. Kadir's study only focused on the relationship between learning style and academic achievement while the current study went further and established the influence of teaching style on students' academic achievement which was moderately significant. Kiswahili teachers can therefore organize the teaching and learning environment in line with their students' learning style preferences. They can, for instance, consider use of word-language games as well as audio and video games to cater for those who prefer to learn with sound. In the same breadth, they can offer a quiet environment for those who prefer to learn without any form of sound. Kiswahili lessons can be varied on the teaching timetable to occur at various times of the day to cater for students who prefer different amounts of temperature.

Finally, teachers can vary the use of both inside classroom and outdoor activities together with varied forms of classroom seating arrangements to cater for students who prefer both conventional and unconventional styles of learning. For instance, other than students sitting facing the teacher, they can face each other with the teacher in the middle. Similarly, they can sit

in small groups and circle format for group discussions, semi-circular way for audio-visual presentation or even have lessons outside the classroom setup. These practices may be challenging to the teachers when they are not aware of the students' preferred learning styles. Since light and temperature may be beyond the teachers' control, they may not do much to provide for students whose learning styles are geared towards them.

It was thus necessary to conduct a simple linear regression to find out the level of significance and the percentage of variance shared by the environmental dimension of teaching and learning styles and academic achievement in Kiswahili. The results are as shown in Tables 7 and 8.

Table 7: Coefficients for Environmental Dimension of Preferred Teaching and Learning Styles on Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.378	.242		5.699	.000
	Environmental dimension of teaching styles	.633	.078	.473	8.080	.000
	Environmental dimension of learning styles	.019	.071	.016	.267	.789

a. Dependent Variable: Academic achievement

The results indicate that the environmental dimension of teaching styles significantly influenced academic achievement in Kiswahili ($\beta = .473$, $p < .05$). Conversely, learning styles had a non significant influence on academic achievement in Kiswahili ($\beta = .016$, $p > .05$). These findings denote that academic achievement of students in Kiswahili is not greatly pegged on the learning environment. Students can excel in any form of environment in which they learn. Since the

environmental dimension of teaching styles significantly influenced academic achievement, teachers need to design the teaching and learning environment to suit their learners' needs.

In a similar study, Mugambi et al. (2015) observed that teaching and learning is effective when the learner is placed in a learning environment that is learner friendly, responsive and enabling. They further noted that teaching styles adopted by the teacher should focus on learners' needs in order to encourage inquiry and discovery. However, the authors did not focus on particular elements of the environment to which teaching and learning styles should be related. The present study found that the environmental dimension of teaching styles in form of noise, temperature, light and design influenced academic achievement in Kiswahili. However, there was a mismatch between the teaching and learning styles in this dimension.

A regression model is therefore presented in Table 8 to show the shared variance explained by the environmental dimension of teaching and learning styles on students' academic achievement in Kiswahili.

Table 8: Model Summary on Influence of Environmental Dimension of Preferred Teaching and Learning Styles on Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.483 ^a	.233	.229	.72158	.233	57.803	2	380	.000

a. Predictors: (Constant), Environmental dimension of learning styles, Environmental dimension of teaching styles

The overall model summary results indicate that the percentage change in achievement explained by teaching and learning styles regarding the environmental dimension was significant (Adjusted R Square=.229, $p < .05$). That is, teaching and learning styles in the environmental dimension explained 22.9% change in academic achievement in Kiswahili. This implies that approximately 22.9% of the variance in students' academic achievement in Kiswahili was accounted for by environment-related teaching and learning styles. The remaining 77.1% can be attributed to the other dimensions of teaching and learning styles such as sociological, emotional, physical, psychological and other related factors. The findings contrast those by Kadir (2013) who found that the environmental dimension did not contribute any percentage to students' academic achievement. The difference in the findings could be due to contextual factors since Kadir's study was conducted in Malaysian professional colleges which may have had better designed classrooms than the Kenyan context.

However, the ANOVA results of the current study contradicted the above findings. In order to establish mean differences between groups of students in academic achievement in the environmental dimension, data on actual learning styles (see Table 3) and students' academic achievement (see Appendix F) were used. The results of actual environmental dimension of learning styles indicated that the specific aspects which entailed noise, temperature, design and light did not have significant differences ($p > .05$) in achievement among the groups of learners. For instance, the means for noise were (learns in quiet place =5.66, learns with some form of noise = 5.40, learns with noise =5.54), for lighting the means were (learns with dim light =5.80, learns with both dim and bright light =5.82, learns with bright light =5.99), for temperature the means were (learns in cool temperature =4.77, learns in both cool and warm temperature =4.78, learns in warm temperature =4.05), and for design the means were (uses the unconventional style

=5.07, uses the conventional style =4.63, uses both the conventional and the unconventional style =4.90) as shown in Appendix J.

The results may explain earlier findings that revealed a low correlation between preferred learning styles and academic achievement in Kiswahili which was non significant. The findings imply that students' academic achievement in Kiswahili in Kakamega North Sub-County is not influenced by noise, light, temperature and classroom design. The findings are in disagreement with the Dunn and Dunn (1992) theory that the environmental dimension influences academic achievement. The implication here is that Kiswahili can be taught either in dimly or brightly-lit, noisy or quiet environments, under cool, warm or hot temperatures using conventional or unconventional designs, and learners would still perform well.

The findings underscore those by Kadir (2013) who established that environmental styles related to sound, light, temperature and furniture or seating design did not contribute to students' academic achievement. Kadir only examined the relationship using correlation and regression analysis, while the current study additionally conducted an analysis of variance which revealed non significant differences in achievement in Kiswahili between groups of students. The findings therefore contradict Dunn and Dunn's (1992) theory that learning styles in the environmental dimension influence academic achievement and therefore may be least considered in the teaching and learning of Kiswahili.

4.2 Influence of Sociological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

This study also established sociological-related teaching and learning styles and their influence on students' academic achievement in Kiswahili. According to Dunn and Dunn (1992),

sociological dimension involves the preference of students to working alone, with an authority, in a pair, in a small team or group, in a large team or group, or in other varied circumstances. Dunn and Dunn (1992) claim that teaching styles should therefore entail individual, group and other varied activities that can cater for learning styles in the sociological dimension.

4.2.1 Sociological Dimension of Teaching and Learning Styles in Kiswahili

The sociological-related teaching and learning styles in Kiswahili are presented in Tables 9 and 10.

Table 9: Sociological Dimension of Learning Styles (Student, n= 345)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Learning Styles						
1. When I am in a large group, I tend to keep silent and just listen.	38(11.0)	70(20.3)	25(7.2)	109(31.6)	103(29.9)	3.49
2. I expect my Kiswahili teacher to arrange my learning schedule.	46(13.3)	81(23.5)	33(9.6)	89(25.8)	96(27.8)	3.31
3. I learn more when I am given a chance to present a concept to my fellow students in class during Kiswahili lessons.	208(60.3)	103(29.9)	9(2.6)	11(3.2)	14(4.1)	4.39
4. When I learn Kiswahili alone, I remember things better.	50(14.5)	102(29.6)	51(14.8)	97(28.1)	45(13.0)	3.04
5. I prefer to work hard in Kiswahili in order to be rewarded by my teacher and parents.	48(13.9)	106(30.7)	42(12.2)	107(31.0)	42(12.2)	3.03
Overall mean score						3.45
Actual Learning Styles						
1. When learning Kiswahili, I often discuss course material with a group of students in my class.	101(29.3)	139(40.3)	33(9.6)	47(13.6)	25(7.2)	3.71
2. My Kiswahili teacher gives me instructions that guide my learning.	204(59.1)	109(31.6)	10(2.9)	12(3.5)	10(2.9)	4.41
3. When learning Kiswahili, I make up questions, simple charts, diagrams and tables and share with my fellow students.	108(31.3)	109(31.6)	42(12.2)	56(16.2)	30(8.7)	3.61
4. I am given individual attention by my Kiswahili teacher.	51(14.8)	54(15.7)	10(2.9)	75(21.7)	154(44.6)	2.34
5. I am always rewarded by my Kiswahili teacher.	251(72.8)	64(18.6)	7(2.0)	9(2.6)	13(3.8)	4.54
Overall mean score						3.72

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

Table 10: Sociological Dimension of Teaching Styles (Teacher, n= 38)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Teaching Styles						
1. I like encouraging students who don't like participating in group discussions to silently listen to what their colleagues say.	3(7.9)	5(13.2)	3(7.9)	14(36.8)	13(34.2)	3.76
2. I do not arrange for my learners their learning schedule for Kiswahili.	1(2.6)	8(21.1)	2(5.3)	15(39.5)	12(31.6)	3.76
3. I like to give my Kiswahili students a chance to present concepts to their fellow students in class.	17(44.7)	10(26.3)	2(5.3)	4(10.5)	4(10.5)	3.86
4. I prefer to teach individual students, as they remember Kiswahili concepts better than when they learn in groups.	12(31.6)	9(23.7)	7(18.4)	2(5.3)	8(21.1)	3.39
5. I like rewarding my Kiswahili students because rewards motivate them to work hard.	11(28.9)	12(31.6)	7(18.4)	4(10.5)	4(10.5)	3.58
Overall mean score						3.67
Actual Teaching Styles						
1. I allow my students to discuss course material in groups during Kiswahili lessons.	6(15.8)	19(50.0)	3(7.9)	9(23.7)	1(2.6)	3.53
2. I give my students instructions on what to do when teaching Kiswahili.	11(28.9)	18(47.4)	1(2.6)	3(7.9)	5(13.2)	3.71
3. I encourage my Kiswahili students to prepare questions, simple charts, diagrams, or tables and share with their fellow students.	14(36.8)	4(10.5)	0(0.0)	9(23.7)	11(28.9)	3.13
4. I give individual attention to students when teaching Kiswahili.	25(65.8)	3(7.9)	0(0.0)	3(7.9)	7(18.4)	3.95
5. I reward my Kiswahili students to motivate them to work hard.	24(63.2)	3(7.9)	1(2.6)	2(5.3)	8(21.1)	3.87
Overall mean score						3.64

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

The findings in Tables 9 and 10 show that students actively participated in group discussions (M=3.49) with the teachers encouraging students' participation (M=3.76). Similarly, in the assessment of the actual Kiswahili teaching and learning styles, majority of teachers 25(65.8%) and students 240(69.6%) agreed that Kiswahili course material was always discussed in groups. The teachers' (M=3.53) and students' (M=3.71) responses denoted the use of '*discussions and interactions*'. This implies the use of the '*group style*' of teaching and learning. To some extent, '*individual teaching and learning style*' was also seen to be important since 105(30.5%) of students felt that individual learning was practised while a greater number of teachers 28(73.7%) taught learners individually.

An observation of the actual Kiswahili classrooms showed that individual teaching and learning styles were evident in the use of individual class assignments that consisted of short exercises that tested the topic covered by the lesson. To effectively cater for this particular group, teachers should regularly permit students to work on their own especially when the learning task seems difficult. It was further evident from the classroom observations that whole-class discussions took the form of question-and-answer sessions led by the teachers in the teacher-dominated Kiswahili classrooms.

Student-led group discussions were rare 2(15.38%). There were two episodes out of 13 lessons observed whereby learners discussed in groups of three, the characterization in the short story *Damu Nyeusi* and role-played a dialogue between a seller and a buyer '*mazungumzo kati ya mwuzaji na mnunuzi*' in groups of two. Therefore, the actual Kiswahili classroom involved teaching through whole-class discussions and interactions which led to '*peer-oriented discussions and interactions*' style of teaching and learning. These discussions were mainly

characterized by question-and-answer sessions in the classroom. The style that requires '*learning alone and covert thinking*' could be taken care of during individual consultations, library reading assignments, and supervised or unsupervised personal revision.

The results contrast with Burke (2011) who found that student-led group work teaching style was commonly used in higher education classroom teaching and noted that students who participated in collaborative learning got better grades, were satisfied with their education and demonstrated high retention. Light (2001) argued that group work helped students develop a deeper understanding of topics covered in class and gain deep skills such as writing and communication. The teacher-dominated discussions in Kenyan secondary lessons may be as a result of teacher training and preparation as reported by Lugendo and Smith (2015). These authors suggested that student teachers were not exposed to using tasks and joint activity in groups during their training and that the lecture method was dominantly used for instruction during university training. This could have influenced their preferred teaching styles as they could be simply replicating how they were taught. The university teacher education curriculum should therefore enhance learner-centered approaches that can adequately prepare teacher trainees in employing the styles that focus on learners' needs.

In the open-ended questions, students preferred peer-oriented discussions where they mainly discussed concepts with their classmates. This implied their preference for the '*group style*' of learning. The students identified group discussion as the most preferred 97(24.01%) style that enhances academic achievement (see Appendix I). Some of the students' remarks were as follows:

Student 12: I am able to engage actively with my fellows and thus remember much.

Student 103: It is easy for me during examinations as I can relate what my fellow student said to the questions asked.

Student 334: Group discussions have helped me become confident in speaking Kiswahili.

These excerpts imply that the group style of teaching enhances student participation in learning activities which leads to retention of information and promotion of self-confidence. The findings contrast with those by Elgort et al. (2008) who found that many students felt that they could accomplish assignments better by themselves rather than in a group. Elgort et al. argued that group work helps the students apply knowledge acquired during lessons. They therefore concluded that an instructor must be cognizant of how best they can facilitate collaborative learning environments. However, their findings only relied on students' perceptions. The current study observed that Kiswahili students preferred learning in groups with most group activities involving discussions by the entire class.

Learners were also seen to practise self-management which was encouraged by teachers thereby tending towards the style of *'no need of guidance from authorities'*. This is evident in statement No. 2 whereby 27(71.1%) of teachers and 185(53.6%) of the students disagreed that learners preferred Kiswahili learning schedule to be arranged by the teacher. Regarding the actual teaching and learning styles, it was noted by 29(76.3%) of teachers and 313(90.7%) of students that Kiswahili teachers gave instructions that guided learning. The teachers' (M=3.71) and students' (M=4.41) responses thus favoured the style that involves the *'need for specific directions'*.

However, it was observed that the style of teachers *'giving instructions that guide learning'* seemed to be predominant in Kiswahili classrooms. In order to avoid teacher dominated

classrooms, teachers can blend these styles such that, other than facilitating classroom learning of Kiswahili, they can engage learners in research on some Kiswahili concepts where they do not need to direct and supervise the learners' investigations. In addition, the teachers can encourage the students to set their own learning objectives. This may include designing for them self-paced lessons. In contrast, Bostrom and Hallin (2013) found that nursing students always preferred to work in the presence of person in authority. This contrast may be because, in the nursing field, accuracy is very important hence the need to have an authority figure present to provide guidance.

Most students 311(90.2%) also seemed to understand concepts better when given a chance to present concepts to others while 27(71%) teachers preferred to give their learners a chance to present concepts to their fellow students during Kiswahili lessons. These preferences refer to the style of '*learning with a variety of activities*'. Regarding the actual teaching and learning styles, teachers 18(47.3%) and students 217(62.9%) felt that they focused on sample questions and made simple charts, diagrams, and summary tables as forms of varied activities when teaching and learning Kiswahili. In tandem with these results, Beck (2002) in his model of obtaining and retaining information, reported that students retain 90% of information when they use a variety of learning strategies and 5% when they learn through the lecture method. This finding implied that the use of varied activities in teaching will not only improve teaching and learning, but also increase the retention of the required knowledge.

The teachers also appeared knowledgeable about the varied ways in which they could engage the learners. This was evident in their responses to the open-ended questions (see Appendix H) where they named a number of teaching methods including: question-and-answer, whole-class

discussions, drama and role-play, reading, note-taking, demonstrations, group activities, singing, peer teaching, and debates among others. It was however observed that their practices in actual classroom settings contradicted their knowledge as there was lack of variety. The prevalent methods across the observed classrooms consisted of lecture, question-and-answer, note-taking, and individual learner assignments. These commonly-used strategies are characteristically teacher-dominated.

Further, the questions asked by the teachers were geared towards the lower levels of thinking characterized by 'why' and 'what' statements. These type of questions prompted learners to recall what they had learnt without further indulgence on application of the knowledge learnt. The findings resonate with those by Ipara (2003) who conducted a study on oral questioning in the pedagogy of Kiswahili grammar in secondary schools in Bungoma District, Kenya and found that majority of the questions asked by Kiswahili teachers were of the low order type. Ipara therefore recommended further research on questioning practices, learners' responses and learning styles. The current study focused on learning styles and found that Kiswahili students tend towards varied learning. Therefore, variation of questions on both lower and higher levels of thinking may be preferred by Kiswahili learners. This variation is rarely practised by Kiswahili teachers.

It was also noted by the researcher that some of the learner-centered activities and a variety of teaching and learning resources were enumerated in the schemes of work but never practised (see Appendix K). Many of the schemes of work were similar. This was an indication that the teachers seemed to rely on commercially-prepared ones. It is debatable whether the teachers actually made use of these documents since most of them followed the order of the text books

when teaching. This apparent lack of individual planning was further evident in the lack of lesson plans as none of the teachers observed had any. This observation could account for some of the reasons for the teacher-dominated strategies. The mismatch between what ought to be and what is practised could be attributed to whatever factors the teachers thought were responsible for their choice of teaching styles including size of class, the scope of the syllabus, the learning resources available, and inadequate teacher preparation due to heavy teaching load (see Appendix H). Some of the typical responses by the teachers on the scope of the syllabus were as follows:

Teacher 9: Kiswahili syllabus is too wide and therefore my style of teaching has to ensure that all that is in the curriculum has to be covered within the stipulated time.

Teacher 14: The scope of the syllabus influences my choice of teaching style because I need to find ways in which I can teach and complete the syllabus on time and embark on revision early.

Excerpts 9 and 14 denote that Kiswahili teachers employ styles that favor the completion of the syllabus and not learners' varied needs. In a similar study, Muthomi and Mbugua (2014) argue that varied instruction is an approach that assumes the diversity of learners in every classroom and that all learners can be reached when a variety of methods and activities are used. Their argument does not clearly distinguish between varied learning in terms of learner-centered or teacher-dominated activities. It seemed that the activities that suggested varied learning in Kiswahili classrooms were teacher-dominated. Instruction thus needs to be differentiated with more learner-centered activities.

Regarding learner motivation, both teachers (M=3.58) and students (M=3.03) preferred rewards from adults as a form of motivation which tended towards the style that '*need to please parents and teachers.*' These results imply that extrinsic learner motivation is valued in teaching and

learning of Kiswahili. Similarly, according to the actual teaching and learning styles, teachers' (M= 3.87) and students' (M=4.54) mean scores favored motivation. Bostrom and Hallin (2013) found nursing students to be highly motivated but fell short of distinguishing the types of motivation inherent in nursing and teacher education in Sweden. In the current study, Kiswahili teachers and students preferred extrinsic motivation when teaching and learning Kiswahili. Further, while teachers focus much on extrinsic motivation, Kiswahili students are intrinsically motivated.

During Kiswahili lessons, it was observed that 10(76.92%) teachers motivated student participation by encouraging them to clap for their peers when they gave correct answers to questions and by giving individual assignments and marking books in class. Verbal reinforcement was also evident where teachers verbally appreciated students' responses using statements like *vizuri* (good), *vizuri sana* (very good), *hongera* (well done) and *jaribio zuri* (good trial). The students who responded with wrong answers were corrected verbally by the teacher who gave them the correct answers. Written assignments were also marked and corrected. However, few teachers 3(23.08%) hardly reinforced learner participation. It was also observed that most students who completed assignments early just stared at the teacher, apparently passive. This seemed frustrating for fast learners who had to wait for their peers to be attended to. A possible implication of these findings is that, as much as teachers insist on extrinsic motivation, Kiswahili students also prefer teachers to help them focus on intrinsic motivation, for instance working at their own pace.

The findings thus support an argument by Lepper, Corpus and Lyengar (2005) that teachers need to focus on internal factors that promote motivation such as confidence, curiosity and satisfaction

in performing tasks. Similarly, Tomlinson (2005) and Wilson (2012) agreed that there exists a connection between motivation and learning styles in educational practice. Nevertheless, their studies did not assess the types of motivational techniques as used in actual classrooms. The results of the current study suggest that teaching styles in Kiswahili classrooms encourage extrinsic motivation while limiting avenues that can enhance intrinsic motivation.

4.2.2 Alignment between Sociological Dimension of Actual Teaching and Preferred Learning Styles in Kiswahili

It was necessary to establish the alignment between the sociological-related teaching and learning styles in order to find out whether learners' needs are considered. The results are presented in Table 11.

Table 11: Means, Standard Deviation and t values for Sociological Dimension of Teaching and Learning Styles in Kiswahili (Teacher, n= 38; Student, n= 345)

Teaching/Learning styles	Mean		Sd		df	t	P value
	T	S	T	S			
Sociological dimension	3.64	3.45	.64	.95	381	4.246	.00

** $P > .05$

KEY: T- Teacher S- Student Sd- Standard deviation df- degrees of freedom t- t value

Table 11 shows that there was a significant difference between the sociological dimension of teaching (M=3.64, SD=.64) and learning styles (M=3.45, SD= .95); $t(381) = 4.246, p = .00$. The findings implied a non alignment between sociological-related teaching and learning styles in Kiswahili. In other words, there is a mismatch in the teaching and learning as far as the sociological dimension (group work, guidance from authority, varied learning and motivation from adults) is concerned. The findings contrast with Dunn and Dunn's (1992) theory that the

sociological-related teaching and learning styles should match in order to realize optimum academic achievement by the students. Further, it is required by authors in educational psychology (Sternberg & Zhang, 2001; Omrod, 2008) that students and aspiring teachers ascertain the particular learning styles of the learners which should be accommodated using suitable instructional methods. It is therefore evident that teachers who are informed on learning styles practise differentiated instruction to cater for individual differences in classrooms (Tomlinson, 2000).

Omrod (2008), Tomlinson (2000) as well as Sternberg and Zhang (2001) did not establish the alignment between teaching and learning styles which was found to exhibit a mismatch in Kiswahili. The mismatch could be attributed to the fact that teachers majorly relied on teacher-dominated activities which may have limited avenues for group work, self-paced lessons, use of varied activities, and intrinsic learner motivation. On the other hand, students preferred group work in learning, learner-dominated activities and intrinsic motivation during Kiswahili lessons.

It was also necessary to establish whether the preferred sociological dimension of teaching and learning styles influenced academic achievement in Kiswahili hence correlations were computed.

4.2.3 Correlation between Sociological Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili

The correlation between the sociological dimension of teaching and learning styles and academic achievement was sought. In order to establish the influence of sociological dimension of teaching and learning styles on students' academic achievement in Kiswahili, data on preferred sociological-related teaching and learning styles (see Tables 9 and 10) and students' academic achievement (see Appendix F) were used. The results are presented in Table 12.

Table 12: Bivariate Correlations between Sociological Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

		Achievement in Kiswahili	Sociological dimension of teaching styles	Sociological dimension of learning styles
Achievement in Kiswahili	Pearson Correlation	1	.342**	.346**
	Sig. (2-tailed)		.000	.000
	N	383	383	383
Sociological dimension of teaching styles	Pearson Correlation	.342**	1	.333**
	Sig. (2-tailed)	.000		.000
	N	383	383	383
Sociological dimension of learning styles	Pearson Correlation	.346**	.333**	1
	Sig. (2-tailed)	.000	.000	
	N	383	383	383

** . Correlation is significant at the .01 level (2-tailed).

As shown in Table 12, the sociological dimension of teaching ($r=.342$, $p<.05$) and learning ($r=.346$, $p<.05$) styles had low positive significant correlation with students' academic achievement in Kiswahili. The findings imply that sociological-related teaching and learning styles in form of group work, guidance from authority, varied learning and motivation from adults influence academic achievement in Kiswahili to a small extent. When students are taught based on their preferences of group activities, varied learning and motivation academic achievement is improved to a certain extent. On the other hand, when there is a mismatch between the teaching style and students' preferences of group activities, varied learning and motivation, students perform dismally. The findings on the alignment between sociological-related teaching and learning styles in the current study revealed a mismatch between the styles.

The findings are coherent with a study by Kadir (2013) who found low significant influence of the sociological dimension of learning styles on academic achievement. From Kadir’s study, it was not clear whether teaching styles also influenced academic achievement in the sociological dimension which had a low significance in the present study.

Simple linear regression was conducted to find out the level of significance and the percentage of variance shared by the sociological dimension of teaching and learning styles and academic achievement in Kiswahili. The results are as shown in Tables 13 and 14.

Table 13: Coefficients for Sociological Dimension of Preferred Teaching and Learning Styles on Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.392	.275		5.058	.000
	Sociological dimension of teaching styles	.343	.066	.255	5.162	.000
	Sociological dimension of learning styles	.371	.070	.261	5.288	.000

a. Dependent Variable: Academic achievement

The results indicate that teaching styles had a significant influence on academic achievement in Kiswahili ($\beta=.255$, $p<.05$). Similarly, learning styles influenced academic achievement in Kiswahili ($\beta=.261$, $p<.05$) significantly. Since teaching and learning styles have a significant influence on students’ academic achievement, it is imperative for Kiswahili teachers to assess the learning styles of their learners in the sociological dimension. This assessment would help them ensure that their teaching techniques encourage both group and individual learning, encompass a

variety of teaching strategies, guide learners on task completion while still giving them individual projects to undertake on their own.

A regression model thus presents the shared variance explained by the sociological dimension of teaching and learning styles on academic achievement in Kiswahili.

Table 14: Model Summary on Influence of Sociological Dimension of Preferred Teaching and Learning Styles on Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.421 ^a	.177	.173	.74742	.177	40.962	2	380	.000

a. Predictors: (Constant), sociological dimension of learning styles, sociological dimension of teaching styles

The overall model summary results indicate that the percentage change in achievement explained by teaching and learning styles regarding the sociological dimension was significant (Adjusted R Square=.173, $p < .05$). This demonstrates that, teaching and learning styles in the sociological dimension explained 17.3% change in academic achievement in Kiswahili. The findings imply that 17.3% of variance in students' academic achievement in Kiswahili can be explained by the sociological dimension of teaching and learning styles. The remaining 82.7% can be attributed to the other dimensions of teaching and learning styles such as environmental, emotional, physical, psychological and other related factors. Kadir (2013) conducted a similar study and found that the sociological dimension of learning styles contributed 1.9% to students' achievement. The large difference in the percentage contribution could be related to the different levels of the

students in the two different studies. While Kadir's (2013) study was conducted in professional colleges, the current study focused on secondary schools. The social preferences of the two groups in terms of learning styles may be different.

An Analysis of Variance (ANOVA) was further conducted whereby motivation and learning with variety activities emerged significant. In order to establish mean differences between groups in academic achievement in the sociological dimension, data on actual learning styles (see Table 9) and students' academic achievement (see Appendix F) were used. The results are presented in Table 15.

Table 15: Mean Differences for Sociological Dimension of Actual Learning Styles and Academic Achievement in Kiswahili (Student, n= 345)

Categories	Means for Achievement		Mean Difference	Sig. for differences	F	Overall Sig
Motivation style						
Motivated by teacher	6.09	Sometimes motivated by teacher	-.46	.140	5.726	.004
		Not motivated by teacher	-1.49*	.011		
Sometimes motivated by teacher	5.63	Motivated by teacher	.46	.140		
		Not motivated by teacher	-1.03	.107		
Not motivated by teacher	4.60	Motivated by teacher	1.49*	.011		
		Sometimes motivated by teacher	1.03	.107		
Learning with a variety of activities style						
Varied learning	5.83	Some extent of varied learning	-1.41*	.049	4.29	.015
		No varied learning	-2.03*	.014		
Some extent of varied learning	4.42	No varied learning	1.02*	.049		
		Varied learning	1.41*	.456		
No varied learning	3.80	Varied learning	2.03*	.014		
		Some extent of varied learning	1.02*	.456		

The results indicate that under the sociological dimension of learning styles, motivation emerged to have significant differences among the different categories of learners. The results revealed that learners who were motivated had a higher mean as compared to learners who were sometimes motivated and those who were not motivated, (motivated mean=6.09, sometimes motivated mean=5.63, not motivated mean=4.60). Using test of between subject effects, there

were significant differences among the three categories of the results ($F(2, 343)=5.726, P<.05$). Further, Post hoc comparisons using Tukey's HSD revealed that the greatest significant difference occurred between the achievement of learners who were motivated and those who were not motivated (Mean difference =1.49, $p<.05$).

Learning with variety activities style emerged as well to have significant differences for the different categories of learners ($F(2, 343)=4.29, P<.05$). The means were; 5.83 for learners who used varied activities style, 4.42 for the achievement of those who sometimes practised varied learning style, and 3.80 for those who did not at all learn using varied activities. The Post hoc comparisons using Tukey's HSD revealed that the greatest significant difference occurred between those who did not practise varied learning and those who practised varied learning (Mean difference =2.03, $p<.05$). The findings demonstrate that the achievement of learners who learned under varied conditions was far much better than those of learners who did not. The other styles, which included learning in groups and presence of authority figures under sociological dimension did not have significant differences ($p>.05$) in students' achievement among the categories of students (see Appendix J). These findings agree with the theory by Dunn and Dunn (1992) that motivation and varied activities significantly influence academic achievement in Kiswahili. The findings, however, refute the authors' presumptions that group work and guidance from authority significantly influence students' academic achievement.

The findings further contrast those by Elgort et al. (2008) who found that effective student participation in group work improved academic achievement. However, the study does not show comparisons in students' achievement regarding the group style of learning. The findings of the current study revealed significant differences in students' achievement regarding motivation and

use of varied activities learning styles. The teachers, whose styles of teaching motivated and engaged learners in varied activities, realized good academic achievement of their students.

4.3 Influence of Emotional Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

Further, the emotional dimension of teaching and learning styles was established by the current study. The emotional dimension of teaching and learning styles include responsibility, motivation, persistence in performing tasks and need for structure while performing tasks (Dunn & Dunn, 1992).

4.3.1 Emotional Dimension of Teaching and Learning Styles in Kiswahili

The emotional-related teaching and learning styles in Kiswahili are presented in Tables 16 and 17.

Table 16: Emotional Dimension of Learning Styles (Student, n= 345)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Learning Styles						
1. Sometimes I fail to read Kiswahili books as asked by our Kiswahili teachers.	35(10.1)	106(30.7)	44(12.8)	102(29.6)	58(16.8)	3.12
2. I like taking breaks during Kiswahili lessons in order to relax my mind.	197(57.1)	82(23.8)	18(5.2)	26(7.5)	21(6.1)	4.19
3. I learn Kiswahili better in an organized class than during self-study.	93(27.0)	125(36.2)	37(10.7)	58(16.8)	32(9.3)	3.55
4. I do not like to design my own reading schedule for Kiswahili.	29(8.4)	34(9.9)	37(10.7)	119(34.5)	126(36.5)	3.81
Overall mean score						3.66
Actual Learning Styles						
1. I do my Kiswahili revision without my teacher's supervision.	136(39.4)	143(41.4)	20(5.8)	27(7.8)	19(5.5)	4.01
2. I take breaks in the middle of Kiswahili double lessons to rest.	37(10.7)	88(25.5)	11(3.2)	127(36.8)	82(23.8)	2.63
3. I do Kiswahili assignments on time.	102(29.6)	117(33.9)	34(9.9)	62(18.0)	29(8.4)	3.58
4. I search for answers to the questions I fail in classroom assignments even without the help of my Kiswahili teacher.	102(29.6)	158(45.8)	25(7.2)	37(10.7)	23(6.7)	3.81
5. I do not design my own reading schedule for Kiswahili.	191(55.6)	102(29.6)	9(2.6)	21(6.1)	22(6.4)	4.21
Overall mean score						3.65

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

Table 17: Emotional Dimension of Teaching Styles (Teacher, n= 38)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Teaching Styles						
1. I do not prefer to ask students to read Kiswahili texts on their own.	7(18.4)	5(13.2)	1(2.6)	14(36.8)	11(28.9)	3.45
2. I prefer to give breaks to students in the middle of Kiswahili double lessons to relax their minds.	10(26.3)	11(28.9)	6(15.8)	7(18.4)	4(10.5)	3.42
3. I like to teach Kiswahili in an organized classroom.	9(23.7)	14(36.8)	8(21.1)	5(13.2)	2(5.3)	3.61
4. I do not like letting Kiswahili students design their own reading schedule.	2(5.3)	4(10.5)	0(0)	22(57.9)	10(26.3)	3.89
Overall mean score						3.59
Actual Teaching Styles						
1. I supervise my Kiswahili students during their revision to ensure proper coverage of content.	5(13.2)	8(21.1)	4(10.5)	14(36.8)	7(18.4)	3.26
2. My students take resting breaks during Kiswahili double lessons.	5(13.2)	15(39.5)	0(0)	2(5.3)	16(42.1)	2.76
3. I ensure students do Kiswahili assignments given to them on time.	12(31.6)	15(39.5)	1(2.6)	4(10.5)	6(15.8)	3.61
4. I train my Kiswahili students on how to search for answers to questions they fail without my help.	5(13.2)	13(34.2)	5(13.2)	9(23.7)	6(15.8)	3.05
5. I do not design for my students their reading schedule for Kiswahili.	16(42.1)	11(28.9)	1(2.6)	4(10.5)	6(15.8)	3.71
Overall mean score						3.28

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

The findings in Tables 16 and 17 reveal that Kiswahili students (M=3.12) are responsible while their teachers (M=3.45) encourage responsibility in pursuing tasks. A considerable number of the teachers 25(65.7%) and the students 160(46.7%) preferred students reading Kiswahili set texts on their own which is the style of '*not doing something because someone asks*'. On the other hand, a significant number of teachers 12(31.6%) and students 141(40.8%) preferred students to be guided in the reading which is the style where someone '*follows through what is asked*'. In the actual classrooms, students normally had their Kiswahili assignments done on time as stated by 27(71.1%) of teachers and 219(63.5%) of the students. Since Kiswahili learners seem responsible, teachers can always give extra individual reading assignments. The findings matched those by Kopsovich (2001) who observed that Caucasian students displayed a strong preference for responsibility in completing difficult tasks.

A majority of the students in the classrooms observed were seen to be self-driven during lesson time. Most of them participated at will by readily taking up tasks and volunteering to answer questions, albeit at times upon being prompted by their teachers. The findings support previous research conducted in Canada by Klopfenstein (2003) who found that online learners were responsible for their own learning. The author further noted that, in order to provide opportunities for responsibility and self-direction in learners, the teacher must accept a change in his or her pedagogical role from an 'authority' to a 'facilitator'.

It was further noted that both Kiswahili teachers (M=3.42) and students (M=4.19) preferred the style that required them to have '*intermittent breaks*' in between the lessons. These findings are in contrast with those by Bostrom and Hallin (2013) who found that education students are highly persistent. The participants in Bostrom and Hallin's study were second and third year

students from a rural university in Sweden while the current study involved secondary school student participants. The difference in the two studies could be attributed to the age differences of the student participants hence the contrast in the findings.

To some extent, the actual classroom condition did not favour the taking of breaks as it encouraged inclination towards the completion of tasks while teaching and learning Kiswahili. It was observed that the students portrayed the '*persistent style*' in doing their tasks as they sat through the lesson persistently without any movements unless when asked by the teacher to write something on the chalkboard. This implied that the actual learning style in Kiswahili involved inclination and completion of tasks before breaking. The findings concur with those of Huntly and Donovan (2009), who established that first year undergraduate students, involved in a study conducted at Queensland University in Australia were persistent in completion of assigned tasks. They argued that student persistence can be developed and enhanced through teaching and learning strategies that promote reflection on learning, shared experiences and positive feedback. Their study, however, defined persistence as keeping goals in mind and identifying obstacles towards achieving the goals. Conversely, Kiswahili classrooms investigated in this study had students sticking to an activity and not giving up during teaching and learning.

In terms of structure, the majority of teachers 23(60.5%) and students 218(63.2%) preferred to teach or learn in organized classrooms that are teacher-guided as opposed to self-study or individualized instruction. This denotes that both teachers and students prefer conventional and formal ways of teaching and learning. However, the individual style of reading was apparent as 245(71%) of students preferred to design their own learning schedules while 32(84.2%) of teachers preferred to let learners design their learning schedules. These findings strongly suggest

that the teachers always prefer the style of '*forming structure,*' for students' learning and students are dependent of the teacher during classroom teaching and learning.

Based on the actual teaching and learning styles, only one third 13(34.3%) of teachers let students conduct Kiswahili revision on their own. A total of 18(47.4%) of the teachers challenged students to find answers to questions without their help. The teachers thus also provide avenues for individual reading and revision for what is taught in class. In a similar study, Bostrom and Hallin (2013) found that 75% of nursing and teaching students preferred structure as they felt that they performed best when given clear directives and guidelines on how to perform a task. This finding appears to negate the theory of constructivism which states that learners should structure their own learning and teachers need to encourage them by taking the role of facilitators in classroom teaching and learning (Kalpana, 2014).

In line with this, it was observed that Kiswahili classrooms had a specific form of structure whereby all the teachers gave learners directions on completion of tasks. These results are consistent with Velasco et al. (2015) who studied learning style of Marine Engineering students in a private Asian university in terms of emotional element of structure. Velasco et al. found that the students (M= 3.61) felt that they learned best when told exactly what is required of them and when they know precisely how to proceed before starting a task. Their findings were only based on opinions sought through the students' questionnaire. The observations conducted by the current study established that Kiswahili classrooms had a specific structure whereby teachers guided learners in every task assigned and students were rarely challenged to form their own structures of performing tasks in the classroom.

4.3.2 Alignment between Emotional Dimension of Actual Teaching and Preferred Learning Styles in Kiswahili

The alignment between the emotional-related teaching and learning styles was established to show whether the teachers' styles conformed to the learners' preferred styles.

Table 18: Means, Standard Deviation and t values for Emotional Dimension of Teaching and Learning Styles in Kiswahili (Teacher, n= 38; Student, n= 345)

Teaching/Learning styles	Mean		Sd		df	<i>t</i>	<i>P</i> value
	T	S	T	S			
Emotional dimension	3.28	3.66	.66	.71	381	5.346	.00

** *P* > .05

KEY: T- Teacher S- Student Sd- Standard deviation df- degrees of freedom *t*- t value

A statistically significant difference existed between teaching (M=3.28, SD= .66) and learning styles (M=3.66, SD=.71); $t(381) = 5.346, p=.00$ based on the emotional dimension. The findings suggested lack of consonance between teaching and learning styles based on the emotional-related teaching and learning styles. This implied that the emotional-related teaching and learning styles (motivation, responsibility, persistence and structure) mismatched. In other words, teachers rarely motivated learner participation in classroom activities, encouraged responsibility in performing the given tasks, involved learners in assignments that made them inclined to the lesson to the end, and formed structure in handling the content at hand. Chatterjee and Ramesh (2015) conducted a similar study where they examined the congruence of teaching and learning style as a measure of teacher-student fit among 260 management students and 16 faculties in India. The authors found that congruence in teaching and learning style was an effective predictor of teacher-student fit. Their study, however, did not show areas where

teaching and learning styles matched or mismatched. The difference is that the current study established a mismatch on the emotional dimension of teaching and learning styles.

4.3.3 Correlation between Emotional Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili

Further, the correlation between emotional dimension of teaching and learning styles and academic achievement was sought and the results are presented in Table 19. In order to establish the influence of emotional dimension of teaching and learning styles on students' academic achievement in Kiswahili, data on preferred emotional-related teaching and learning styles (see Tables 16 and 17) and students' academic achievement (see Appendix F) were analysed.

Table 19: Bivariate Correlations between Emotional Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

		Academic achievement in Kiswahili	Emotional dimension of teaching styles	Emotional dimension of learning styles
Academic achievement in Kiswahili	Pearson Correlation	1	.085	.201**
	Sig. (2-tailed)		.098	.000
	N	383	383	383
Emotional dimension of teaching styles	Pearson Correlation	.085	1	.130*
	Sig. (2-tailed)	.098		.011
	N	383	383	383
Emotional dimension of learning styles	Pearson Correlation	.201**	.130*	1
	Sig. (2-tailed)	.000	.011	
	N	383	383	383

** . Correlation is significant at the .01 level (2-tailed).

* . Correlation is significant at the .05 level (2-tailed).

Table 19 reveals that the influence of the emotional dimension of teaching styles on academic achievement in Kiswahili was non significant ($r=.085$, $p>.05$). On the other hand, learning styles had a low significant ($r=.201$, $p<.05$) influence on students' academic achievement in Kiswahili. The findings imply that the emotional dimension of learning styles in form of motivation, responsibility, persistence and structure influenced academic achievement in Kiswahili to a less significant extent.

The findings contradict those by Kadir (2013) who found that the emotional dimension of learning styles highly ($r=0.624$) influenced academic achievement. Kadir further recommended that teachers should lay greater focus on the students' level of motivation, responsibility, persistence and structure in order to enhance their academic achievement. However, Kadir's study did not focus on the teachers' styles related to the emotional dimension. The current study found that there was a mismatch between teaching and learning styles in this dimension. Further, the teaching styles did not influence academic achievement in Kiswahili significantly.

Table 20: Coefficients for Emotional Dimension of Preferred Teaching and Learning Styles on Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.850	.292		9.768	.000
1 Emotional dimension of teaching styles	.078	.066	.060	1.177	.240
Emotional dimension of learning styles	.212	.055	.194	3.828	.000

a. Dependent Variable: Academic achievement

The results indicate that emotional dimension of teaching styles had a non significant impact on academic achievement in Kiswahili ($\beta = .060$, $p > .05$). Conversely, learning styles influenced academic achievement in Kiswahili ($\beta = .194$, $p < .05$) significantly. The findings indicate that the teacher's style, with regard to emotional dimension, does not contribute significantly to academic achievement in Kiswahili. It emerged that learning styles in this dimension significantly influence academic achievement. Teachers therefore need to align their teaching techniques to the students' learning needs. Teachers also need to ensure that their teaching styles help motivate students both intrinsically and extrinsically. This would make learners become responsible and self-driven. There is also need to guide learners on inclining on tasks and taking breaks when necessary, form structure and engage them in forming their own structure when learning Kiswahili.

A regression model is further presented to show the shared variance explained by emotional dimension of teaching and learning styles on academic achievement in Kiswahili.

Table 21: Model Summary on Influence of Emotional Dimension of Preferred Teaching and Learning Styles on Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.210 ^a	.044	.039	.80571	.044	8.753	2	380	.000

a. Predictors: (Constant), emotional dimension of learning styles, emotional dimension of teaching styles

The overall model summary results indicate that the percentage change in achievement explained by teaching and learning styles regarding the emotional dimension was significant (Adjusted R Square=.039, $p<.05$). This means that, teaching and learning styles in the emotional dimension explained 3.9% change in academic achievement in Kiswahili. This finding implies that 3.9% of variance in students' academic achievement in Kiswahili can be explained by emotional-related teaching and learning styles. The remaining 96.1% can be attributed to the other dimensions of teaching and learning styles such as environmental, sociological, physical, psychological and other related factors.

In a similar study, Kadir (2013) found that emotional-related learning styles contributed highly (28.3%) to academic achievement. In contrast, the current study established a very low contribution of emotional-related teaching and learning styles to academic achievement in Kiswahili. The low influence in the current study may be attributed to the fact that learning styles had a low influence while teaching styles did not influence academic achievement in Kiswahili. Despite the minimal contribution, teaching and learning styles did not match with regard to the emotional dimension.

In order to establish mean differences between groups in academic achievement in the emotional dimension, data on actual learning styles (see Table 16) and students' academic achievement (see Appendix F) were used. The Analysis of Variance (ANOVA) revealed significant differences in achievement in the responsibility element of learning style. The results are presented in Table 22.

Table 22: Mean Differences for Emotional Dimension of Actual Learning Styles and Academic Achievement in Kiswahili (Student, n= 345)

Categories	Means for Achievement		Mean Difference	Sig. for differences	F	Overall Sig
Responsibility in learning style						
Not responsible	4.99	Somewhat responsible	-.97*	.020	4.72	.01
		Responsible	-2.17*	.007		
Somewhat responsible	5.96	Not responsible	.97*	.020		
		Responsible	-1.20	.627		
Responsible	7.16	Not responsible	2.17*	.007		
		Somewhat responsible	1.20	.627		

The results show that the highest mean performance was 7.16. This was for learners who were responsible. The second was 5.96, for learners who sometimes practised responsible learning and sometimes did not at all, and the lowest mean performance was in the category of learners who did not practise the style that involves responsibility in activities at all, with a mean of 4.99. Tests of between subject effects revealed that there were significant differences among the three categories of learners, $F(2, 343) = 4.72, p < .05$. The Post hoc comparisons using Tukey's HSD revealed that the greatest difference occurred between the achievement of learners who were responsible and those who were not responsible (mean difference = 2.17) and was significant at .05. The second difference in performance, which was also significant at .05, occurred between the achievement of learners who were sometimes responsible and those not responsible at all (mean difference = 0.97, $p < .05$). This implies that responsibility learning style has a significant influence on students' achievement, such that learners who practise the responsibility learning styles achieve higher than those who are not responsible at all. The other styles under emotional dimension namely persistence and need for structure did not have significant differences ($p > .05$) in their categories hence did not affect the achievement of the learners (see Appendix J).

The findings are similar to those by Velasco et al. (2015) who found that the styles of persistence and responsibility in completing the tasks as well as enjoying working on several tasks simultaneously influenced the academic achievement of students. Similarly, these learning styles were seen to influence academic achievement in Kiswahili. Nevertheless, significant differences in achievement in Kiswahili among students were realized in the responsibility-oriented style.

4.4 Influence of Physical Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The influence of physical dimension of teaching and learning styles on academic achievement was further examined.

4.4.1 Physical Dimension of Teaching and Learning Styles in Kiswahili

According to Dunn and Dunn (1992), the physical dimension of teaching and learning styles includes aspects of perceptual modality (auditory, visual, tactile and kinesthetic). It also entails food intake, time of day and mobility. The teachers' and students' responses on the physical-related styles are summarised in Tables 23 and 24.

Table 23: Physical Dimension of Learning Styles (Student, n= 345)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Learning Styles						
1. I like to eat something during Kiswahili class time.	164(47.5)	97(28.1)	17(4.9)	20(5.8)	47(13.6)	3.90
2. When the teacher gives me instructions when learning Kiswahili I understand better.	151(43.8)	151(43.8)	14(4.1)	16(4.6)	13(3.8)	4.19
3. I prefer to sit still until the end of Kiswahili lessons.	61(17.7)	101(29.3)	65(18.8)	92(26.7)	26(7.5)	3.23
4. I prefer to read what the teacher writes on the chalkboard and when he allows me to write on it.	56(16.2)	98(28.4)	55(15.9)	97(28.1)	39(11.3)	3.10
5. I learn Kiswahili better when I make drawings as I learn or when I make a model of something.	66(19.1)	91(26.4)	42(12.2)	90(26.1)	56(16.2)	3.06
6. I understand better during Kiswahili lessons when I participate in role-playing and short skits.	92(26.7)	108(31.3)	41(11.9)	57(16.5)	47(13.6)	3.41
7. I prefer to see images of what I am taught.	70(20.3)	131(38.0)	32(9.3)	84(24.3)	28(8.1)	3.38
Overall mean score						3.46
Actual Learning Styles						
1. I chew or eat something when learning Kiswahili.	32(9.3)	39(11.3)	40(11.6)	131(38.0)	103(29.9)	2.32
2. I am always given instructions on task completion by my Kiswahili teacher.	30(8.7)	102(29.6)	100(29.0)	68(19.7)	45(13.0)	3.01
3. I sit and concentrate in the Kiswahili classroom till the end of the lesson without moving around.	151(43.8)	108(31.3)	23(6.7)	31(9.0)	32(9.3)	3.91
4. My Kiswahili teacher asks me to write on the chalkboard during Kiswahili lessons.	52(15.1)	136(39.4)	57(16.5)	62(18.0)	38(11.0)	3.30
5. I conceptualize what I learn in Kiswahili in drawings and models.	205(59.4)	68(19.7)	16(4.6)	31(9.0)	25(7.2)	4.15
6. Acting and role-playing are part of my activities during Kiswahili lessons.	159(46.1)	120(34.8)	9(2.6)	27(7.8)	30(8.7)	4.02
7. I learn Kiswahili by relating concepts to visual aids used by my teacher.	263(76.2)	37(10.7)	11(3.2)	21(6.1)	13(3.8)	4.50
Overall Mean score						3.60

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

Table 24: Physical Dimension of Teaching Styles (Teacher, n= 38)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Teaching Styles						
1. I like giving learners chance to eat something during my Kiswahili lessons.	1(2.6)	0(0.0)	1(2.6)	8(21.1)	28(73.7)	1.37
2. I like to give students instructions when teaching Kiswahili as they understand better.	7(18.4)	16(42.1)	4(10.5)	6(15.8)	5(13.2)	3.37
3. I prefer students to sit still until the end of Kiswahili lessons.	10(26.3)	15(39.5)	4(10.5)	5(13.2)	4(10.5)	3.58
4. I like writing Kiswahili concepts on the chalkboard for students to read and allow them to write on it.	8(21.1)	14(36.8)	3(7.9)	8(21.1)	5(13.2)	3.32
5. I like asking my Kiswahili students to make drawings and models of concepts as they study.	6(15.8)	11(28.9)	11(28.9)	6(15.8)	3(7.9)	3.30
6. I like involving my Kiswahili students in role-playing and short skits during lessons to enhance their understanding.	7(18.4)	15(39.5)	6(15.8)	7(18.4)	3(7.9)	3.42
7. I prefer to present concepts visually as I teach Kiswahili.	28(73.7)	5(13.2)	2(5.3)	1(2.6)	2(5.3)	4.47
Overall mean score						3.26
Actual Teaching Styles						
1. My students chew or eat something during Kiswahili lessons.	7(18.4)	9(23.7)	2(5.3)	15(39.5)	5(13.2)	2.95
2. I give instructions to students on task completion while teaching Kiswahili.	6(15.8)	12(31.6)	11(28.9)	5(13.2)	4(10.5)	3.29
3. I discourage students from moving around in the Kiswahili classroom until the end of the lesson.	12(31.6)	11(28.9)	6(15.8)	6(15.8)	3(7.9)	3.61
4. I ask students to write on the chalkboard when I am teaching Kiswahili.	11(28.9)	14(36.8)	3(7.9)	4(10.5)	6(15.8)	3.53
5. I help students conceptualize Kiswahili concepts in drawing and models.	30(78.9)	5(13.2)	1(2.6)	1(2.6)	1(2.6)	4.63
6. I engage my Kiswahili students in acting and role-playing when teaching Kiswahili.	7(18.4)	8(21.1)	1(2.6)	7(18.4)	15(39.5)	2.61
7. I teach Kiswahili concepts with help of visual aids.	4(10.5)	12(31.6)	0(0)	14(36.8)	8(21.1)	2.74
Overall mean score						3.33

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

As demonstrated in Tables 23 and 24, students showed a high preference (M=3.90) for the need to eat something while learning which is the style where one needs to ‘*eat, drink, chew or bite while studying*’. This was in sharp contrast to the teachers’ low preference (M=1.37) for giving their students a chance to eat something when learning Kiswahili. Regarding the actual Kiswahili classroom, both teachers 20(52.7%) and students 234(67.9%) indicated that learners do not chew or nibble at something during Kiswahili lessons. The teachers’ (M=2.95) and students’ (M=2.32) responses did not agree with the style of ‘*eating, drinking or chewing while concentrating*’. Instead, the findings match those reported by Bostrom and Hallin (2013) that most education students preferred food intake as compared to nursing students. The study by Bostrom and Hallin did not assess whether the students’ preference for eating something was catered for, a factor which was not provided for Kiswahili students who similarly preferred to eat as they learned.

None of the lessons observed witnessed students eating, chewing or nibbling at anything as they learnt Kiswahili. In relation to the present findings, Kopsovich (2001) found that mathematics students in Texas, USA expressed the need for food intake while learning. Kopsovich did not ascertain whether the learners’ needs were fulfilled by the actual classroom teaching and learning styles. In this study, it was observed that students in Kiswahili classrooms did not eat while learning.

In terms of mobility, many teachers’ and students’ preferences were seemingly skewed towards mobility, the ‘*need to move style*’. The teachers (M=3.42) and the students (M=3.41) agreed that students learnt better when they participated in role-plays and short skits. However, in the actual teaching and learning statements, teachers 23(60.5%) and students 259(75.1%) felt that learners listened attentively up to the end of the lessons and rarely moved around in Kiswahili

classrooms. The teachers' (M=3.61) and students' (M=3.91) responses favoured the style of *'being able to sit still'*. The actual teaching and learning styles contrasted the teachers' and students' preferences. Abante et al. (2014) observed that kinesthetic learners become frustrated when they must sit for long periods of time. Movement could be in the form of involving the learners in demonstrating concepts to others, role-playing or writing something on the chalkboard. Abante et al. attested that kinesthetic learners learn best through moving, doing, acting out and touching. However, the study by Abante et al. did not ascertain whether the learners' preferences were catered for in engineering classrooms in the Philippines. In the current study, Kiswahili classrooms encouraged students to sit still and learn from their teachers despite most teachers' 22(57.9%) and students' 200(58%) preferences for the kinesthetic mode of learning.

It was noted from the lesson observations that 10(76.92%) of the classrooms had students who sat still to the end of the lesson while in 3(23.08%) students moved around at some point. These were instances when students were involved in role-playing and writing sentences on the chalkboard. These practices are represented in Plate 2.



(a)



(b)

Plate 2a: A student writing on the chalkboard in a Kiswahili lesson at School Q

Plate 2b: Students role-playing in a Kiswahili lesson at School M

Plate 2 shows the common kinesthetic forms of learning in Kiswahili classrooms as writing on the chalkboard and role-playing. Kinesthetic learning styles include playing games, movement activities, making models, setting up experiments, engaging in role-playing and skits (Safaa, 2012). There was only one episode where students were engaged in role-playing. The findings therefore imply that the most common form of kinesthetic learning style in Kiswahili classrooms is to write sentences on the chalkboard. These findings indicate that teachers do not give learners adequate chance to fully engage in kinesthetic learning activities. On the contrary, previous research (Kia et al. 2009; Reese & Dunn, 2008) has established that kinesthetic style is the most dominant learning style for high school students. This did not appear to be the case in Kiswahili classrooms as most of the time, the students sat still and rarely engaged in activities that involved movement.

In terms of modality preferences, the ‘*auditory, visual, tactile and kinesthetic learning styles*’ were highly preferred by teachers and students. For instance, the teachers (M=3.37) and the

students (M=4.19) both observed that learners understand concepts better when given verbal instructions by their teachers. Beck (2002) argued that students retain 5% of what they hear and 10% of what they read. In agreement with Beck, reading should be encouraged by Kiswahili teachers in order to minimize the listening episodes thereby enhancing retention.

Both the teachers (M=4.47) and the students (M=3.38) preferred to present and relate images with concepts taught which is the '*visual learning style*' of the modality preferences. However, the teachers rarely used visual aids during lessons (M=2.74). These findings are consistent with those by Abante et al. (2014) who established that engineering students were visual learners. Similarly, Kapadia (2008) observed that most engineering classes were routinely conducted using verbal or oral instruction. This usually entailed the lecture method, which is very well suited for students who prefer an auditory learning style. However, many engineering students favoured a visual learning style, thus leading to a mismatch in teaching and learning (Kapadia, 2008). However, neither the study by Abante et al. (2014) nor that by Kapadia (2008) sought to assess the teachers' preferences of visual aids. In the current study, although the Kiswahili teachers preferred visual presentation of concepts, they rarely incorporated a variety of them during teaching and learning.

The visual aids that were seen to be used in Kiswahili classrooms were the chalkboard and Kiswahili course books which included *Kiswahili Kitukuzwe*, *Chemichemi za Kiswahili*, *Kiswahili Fasaha*, *Mstahiki Meya*, *Damu Nyeusi* and *Kidagaa Kimemuozea*. Other visual aids such as charts, models, pictures, videos, computer simulations and animations were not used. Teachers seemed not to bother much with incorporating the use of any other visual aids in their teaching. This scenario purported that learners who desired a visual presentation of the concepts

were disadvantaged. These results are in agreement with those of Kapadia (2008) who found that most engineering classes in USA did not facilitate visual learning since most professors presented new information and concepts verbally.

According to a majority of the teachers (M=3.30) and students (M=3.06), students can learn Kiswahili better when they draw or model Kiswahili concepts. Similarly, both teachers (M=3.42) and students (M=3.41) noted that students can learn better when they participate in role-plays and short skits. These findings indicate high preferences for both tactile and kinesthetic forms of learning. Nevertheless, Kiswahili teachers rarely created opportunities for students to act and role-play (M=2.61). This result contrasts those by Abante et al. (2014) who found engineering male students to be less tactile and kinesthetic. They noted that a kinesthetic and tactile learner learns best by experiencing, moving and doing, acting out, touching, modeling, drawing or being active in some manner. However, Abante et al. (2014) did not assess the actual learning styles of the engineering students. Kiswahili classrooms employed note-taking and writing on the chalkboard as the only tactile and kinesthetic forms of learning. This activity may count as a good practice for tactile learners who would, most often, wish to use their hands in underlining points and taking down notes when learning Kiswahili.

As evidenced by observed lessons in the study, learners constantly took down notes as the teacher developed concepts in the classrooms. Plate 3 shows students taking down notes in a Kiswahili lesson.



Plate 3: Students taking down notes in a Kiswahili lesson at School C

As shown in Plate 3, note-taking was the most common form of tactile learning style in Kiswahili classrooms. The results corroborated those of Sabeh et al. (2011) who found that a majority of Lebanese students (n=103) fell between tactile (77.1%) and kinesthetic (79.2%) learning styles. According to Safaa (2012) and Xu (2011), tactile learning activities include writing and drawing, playing board games, and making models. In the present study, it emerged that Kiswahili classes employed note-taking as the only form of tactile learning style.

4.4.2 Alignment between Physical Dimension of Actual Teaching and Preferred Learning Styles in Kiswahili

An alignment between the physical dimension of actual teaching and preferred learning styles was further established.

Table 25: Means, Standard Deviation and t values for Physical Dimension of Teaching and Learning Styles in Kiswahili (Teacher, n= 38; Student, n= 345)

Teaching/Learning styles	Mean		Sd		df	<i>t</i>	<i>P</i> value
	T	S	T	S			
Physical dimension	3.33	3.46	.58	.71	381	4.27	.00

** $P > .05$

KEY: T- Teacher S- Student Sd- Standard deviation df- degrees of freedom *t*- t value

A statistically significant difference was revealed between teaching ($M=3.33$, $SD=.58$) and learning styles ($M=3.46$, $SD=.71$); $t(381) = 4.27$, $p=.00$ with respect to the physical dimension. The findings suggested that the teachers and students did not share the same preferences regarding the physical dimension of teaching and learning styles. Thus, there was a mismatch in the teaching and learning styles as far as the physical dimension is concerned. The findings are comparable to those by Sabeh et al. (2011) who found that there was a mismatch between teaching and learning styles based on kinesthetic and auditory styles. The current study further revealed a general mismatch between teaching and learning styles with regard to auditory, visual, tactile, kinesthetic, food intake, time of day and mobility. The mismatch could be attributed to the teachers' teaching styles that rarely employed the use of visual aids, and activities that did not engage the learner in motion and manipulation of objects.

4.4.3 Correlation between Physical Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili

It was further necessary to ascertain the correlation between physical-related teaching and learning styles vis-a-vis academic achievement. In order to establish the influence of physical dimension of teaching and learning styles on students' academic achievement in Kiswahili, data

on preferred physical-related teaching and learning styles (see Tables 23 and 24) and students' academic achievement (see Appendix F) were used. The results are presented in Table 26.

Table 26: Bivariate Correlations between Physical Dimension of Teaching and Learning Styles and Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

		Academic achievement in Kiswahili	Physical dimension of teaching styles	Physical dimension of learning styles
Academic achievement in Kiswahili	Pearson Correlation	1	.344**	.476**
	Sig. (2-tailed)		.000	.000
	N	383	383	383
Physical dimension of teaching styles	Pearson Correlation	.344**	1	.257**
	Sig. (2-tailed)	.000		.000
	N	383	383	383
Physical dimension of learning styles	Pearson Correlation	.476**	.257**	1
	Sig. (2-tailed)	.000	.000	
	N	383	383	383

** . Correlation is significant at the .01 level (2-tailed).

Table 26 reveals that the influence of physical dimension of teaching styles had a low significant correlation ($r=.344$, $p<.05$) with academic achievement in Kiswahili. In contrast, physical-related learning styles had a moderate significant ($r=.476$, $p<.05$) influence on students' academic achievement in Kiswahili. The findings imply that the physical dimension (auditory, visual, tactile, kinesthetic, food intake, time of day and mobility) of teaching and learning styles is one of the important factors that influence academic achievement in Kiswahili. In order to improve academic achievement in Kiswahili, teaching techniques may include verbalizing where learners need to discuss, having instructions read aloud, and using other audio teaching resources in order

to cater for auditory learners. For visual learners, materials such as charts, pictures, videos and drawings may suffice. Boyle (2005) contends that students with visual strength recall new information better when they create mental images of what they see. Teachers may also use hands-on activities such as projects, assignments, and outdoor learning activities that are preferable to passive classroom learning.

Further, mobility in the classrooms with activities such as role-plays and skits would cater for kinesthetic learners. For food intake, teachers could permit students when they may feel like taking something, for instance drinking water which may help them concentrate on their tasks. Teachers could vary the lesson time on the timetable so as to cater for those students who prefer to learn either in the morning, mid-morning, afternoon or evening. These techniques may be challenging to the teachers regarding the factors responsible for their choice of teaching styles including class size, limited resources, time available and scope of the syllabus, time of the day of Kiswahili lessons and work load.

The findings corroborate those by Sabeh et al. (2011) who indicated that the majority of Lebanese students had major preferences for four learning styles namely visual, tactile, kinesthetic, and auditory. Similarly, Fu (2009) found that pupils were characterized as visual, auditory and kinesthetic learners. Fu felt that these results reflected learners' interest in the use of images, graphs and other structures to support their learning. Moreover, the participants who considered themselves as auditory learners suggested that the pupils preferred lectures, tutorials, group discussions and presentation of tasks. Consequently, the participants who characterized themselves as kinesthetic learners described their desire to experience and do things in order to learn. Sabeh et al. (2011) and Fu (2009) did not correlate these styles with academic achievement

of the students. The current study found a positive significant relationship between the physical dimension of teaching and learning styles and academic achievement in Kiswahili.

Table 27: Coefficients for Physical Dimension of Preferred Teaching and Learning Styles on Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.704	.264		2.664	.008
1 Physical dimension of teaching styles	.291	.055	.237	5.265	.000
Physical dimension of learning styles	.550	.060	.415	9.220	.000

a. Dependent Variable: Academic achievement

The results indicate that the physical dimension of teaching styles contributed significantly to academic achievement in Kiswahili ($\beta = .237$, $p > .05$). Similarly, learning styles were found to influence academic achievement in Kiswahili ($\beta = .415$, $p < .05$) significantly. The findings imply that teachers need to align their teaching styles to auditory, visual, tactile, kinesthetic, time of learning, food intake and mobility needs of Kiswahili students in order to improve academic achievement. Nonetheless, this study established a mismatch regarding the physical dimension of teaching and learning styles. The current study findings indicate that this could be a contributing factor to the consistent dismal academic achievement in Kiswahili in the sampled schools.

Further, a regression model is presented to show the shared variance explained by the physical dimension of teaching and learning styles on academic achievement in Kiswahili.

Table 28: Model Summary on Influence of Physical Dimension of Preferred Teaching and Learning Styles on Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.529 ^a	.279	.276	.69952	.279	73.678	2	380	.000

a. Predictors: (Constant), physical dimension of learning styles, physical dimension of teaching styles

The overall model summary results indicate that the percentage change in achievement explained by teaching and learning styles regarding the physical dimension was significant (Adjusted R Square=.276, $p < .05$). This means that, teaching and learning styles in the physical dimension explained 27.6% change in academic achievement in Kiswahili. The remaining 72.4% can be attributed to the other dimensions of teaching and learning styles such as environmental, sociological, emotional, psychological and other related factors. The findings contrast those by Kadir (2013) who established that the physical dimension of learning styles contributed 1% to academic achievement. However, Kadir did not establish teachers' teaching styles with regard to the emotional dimension. In contrast, the current study established that teaching styles together with learning styles had the largest significant shared variance (27.6%) with academic achievement in Kiswahili which calls for greater focus when teachers plan for instruction. In spite of the foregoing, teaching styles mismatched learning styles in this category.

In order to establish mean differences between groups in academic achievement in the physical dimension, data on actual learning styles (see Table 23) and students' academic achievement (see Appendix F) were analysed. Under the physical dimension, the styles that emerged as significant using ANOVA were kinesthetic and visual learning styles. The rest of the styles: auditory,

tactile, food intake, time of day and mobility did not have any significant difference ($p > .05$) among the categories of students and academic achievement (see Appendix J). Table 29 shows the results of the two styles.

Table 29: Mean Differences for Physical Dimension of Actual Learning Styles and Academic Achievement in Kiswahili (Student, n= 345)

Categories	Means for Achievement		Mean Difference	Sig. for differences	F	Overall Sig
Kinesthetic learning style						
Does not use kinesthetic style	4.89	Sometimes uses kinesthetic style	-1.56*	.000	79.84	.000
Sometimes uses kinesthetic style	6.45	Use kinesthetic style	-2.02*	.000		
Uses kinesthetic style		2.91	Does not use kinesthetic style	1.56*		
		Use kinesthetic style	-0.46*	.000		
		Does not use kinesthetic style	2.02*	.000		
		Sometimes use kinesthetic style	0.46*	.000		
Visual learning style						
Does not use visual style	4.45	Sometimes uses visual style	-1.28*	.000	30.25	.000
Sometimes uses visual style	5.73	Use visual style	-2.30*	.000		
Uses visual style		6.20	Does not use visual style	1.28*		
		Use visual style	-1.02*	.000		
		Does not use visual style	2.30*	.000		
		Sometimes uses visual style	1.02*	.000		

The results indicate that both use of kinesthetic and visual learning styles had significant differences among the various categories of students. For the use of the kinesthetic style, the

highest mean mark was for those who used the style, (M=6.91) followed by those who sometimes used the style (M=6.45) and finally those who did not use the style at all (M=4.89). There were significant differences in achievement for all the three categories; those who used kinesthetic style and those who did not use kinesthetic style (mean difference=2.02, $p<.01$); those who sometimes used the style and those who did not use the style (mean difference=1.56, $p<.01$); and finally those who sometimes used the style and those who used the style (mean difference =0.46, $p<.01$).

The findings are comparable to those of Abante et al. (2014) who found that kinesthetic learning style influenced students' academic achievement. Abante et al. observed that kinesthetic learners become frustrated when they are required to sit for long periods of time. Abante et al. attested that kinesthetic learners learn best through moving, doing, acting out, and touching. However, the study by Abante et al. did not ascertain significant differences in students' achievement regarding the kinesthetic learning style. The current study established significant differences in the academic achievement of students in the sense that those who used the kinesthetic style performed better than those who did not. Nevertheless, the style was rarely practised since it was observed that most Kiswahili classrooms encouraged students to sit still and learn by observing their teachers.

On the other hand, achievement of the students who used visual learning style was highest (M=6.75) followed by those who sometimes used the style (M=5.73) and finally those who did not use the style (M=4.45). Significant differences were also noted among all the three categories. Difference between those who used the style and those who did not use it was 2.30 and was significant at .01, those who sometimes used and those who did not use it had a

difference of 1.28 significant at .01. Finally, the difference between those who used the style and those who sometimes used it was 1.02 which was significant at .01. These results indicate that the visual learning style determined the achievement of students to a great extent.

In a similar study, Alade and Ogbo (2014) found that visual learning style was a predominant preference among Chemistry students in secondary schools in Lagos, Nigeria. The findings showed a significant relationship between the learning style preferences of the students and their academic achievement. The study concluded that an alignment between teaching and learning styles would improve the learning and achievement of students. However, Alade and Ogbo did not ascertain the actual teaching style used by the teachers. As reported earlier in section 4.4.1, the commonly used visual aids in Kiswahili classrooms were the chalkboard and course books. Other visual aids such as charts, models, pictures, videos, computer simulations and animations were rarely used. Since the students who used the visual style of learning achieved higher than those who did not, it is important for Kiswahili teachers to consider the use of visual aids in their teaching. This is because students seem to remember best what they see than what they simply hear.

4.5 Influence of Psychological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The study finally established the psychological dimension of teaching and learning styles. The psychological dimension is categorized into global, analytical, impulsive and reflective styles (Dunn & Dunn, 1992). Global teaching and learning styles tend towards getting the whole meaning and the end results of concepts whereas analytical styles involve teaching and learning details in a meaningful sequence. Impulsive styles involve drawing conclusions and making

decisions quickly while reflective styles are where evaluation and various alternatives are thought of before making decisions. The first part of this section describes teaching and learning styles in the psychological dimension while the second part presents correlations between the styles and students' academic achievement in Kiswahili.

4.5.1 Psychological Dimension of Teaching and Learning Styles in Kiswahili

Tables 30 and 31 summarize teachers' and students' actual and preferred teaching and learning styles based on the psychological dimension. These preferences are confirmed by results from the observation schedule.

Table 30: Psychological Dimension of Learning Styles (Student, n= 345)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Learning Styles						
1. I prefer to make connections of new Kiswahili concepts with other subjects.	56(16.2)	131(38.0)	48(13.9)	81(23.5)	29(8.4)	3.30
2. I prefer to borrow ideas from other subjects as I learn Kiswahili.	28(8.1)	81(23.5)	12(3.5)	133(38.6)	91(26.4)	2.48
3. Following Kiswahili concepts in a step-by-step way tires me.	18(5.2)	37(10.7)	25(7.2)	128(37.1)	136(39.4)	3.95
4. I prefer to move from one paragraph to the next systematically when reading Kiswahili texts.	147(42.6)	136(39.4)	24(7.0)	31(9.0)	7(2.0)	4.12
5. I prefer to ignore details that I deem irrelevant in Kiswahili passages.	101(29.3)	89(25.8)	28(8.1)	67(19.4)	60(17.4)	3.30
6. I prefer to avoid essay questions derived from Kiswahili proverbs as they are hard.	90(26.1)	103(29.9)	22(6.4)	79(22.9)	51(14.8)	2.70
7. I prefer to think of options before I respond to Kiswahili questions.	212(61.4)	59(17.1)	14(4.1)	23(6.7)	37(10.7)	4.12
Overall mean score						3.42
Actual Learning Styles						
1. When I am learning a new topic in Kiswahili, I try to make connections between it and related subjects.	95(27.5)	155(44.9)	40(11.6)	42(12.2)	13(3.8)	3.80
2. I usually find the meaning of a sentence in Kiswahili by dividing it into parts that I understand.	104(30.1)	151(43.8)	33(9.6)	43(12.5)	14(4.1)	3.83
3. In order to understand unfamiliar words in Kiswahili I make guesses.	36(10.4)	75(21.7)	47(13.6)	89(25.8)	98(28.4)	2.60
4. I avoid using words that I am not sure of when writing essays in Kiswahili.	146(42.3)	128(37.1)	9(2.6)	30(8.7)	32(9.3)	3.94
5. I avoid attempting essay questions derived from Kiswahili proverbs as they are hard.	39(11.3)	69(20.0)	51(14.8)	112(32.5)	74(21.4)	2.67
6. I think through concepts when learning Kiswahili.	132(38.3)	153(44.3)	24(7.0)	24(7.0)	12(3.5)	4.07
Overall mean score						3.49

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

Table 31: Psychological Dimension of Teaching Styles (Teacher, n= 38)

Statement	DT F (%)	T F (%)	ST F (%)	NT F (%)	DNT F (%)	MS
Preferred Teaching Styles						
1. I prefer to help students to make connections of new Kiswahili concepts with other subjects.	9(23.7)	15(39.5)	3(7.9)	9(23.7)	2(5.3)	3.53
2. I prefer to use examples from other subjects as I teach Kiswahili.	6(15.8)	16(42.1)	0(0)	8(21.1)	8(21.1)	3.11
3. I get tired presenting Kiswahili concepts to students step by step.	0(0)	3(7.9)	5(13.2)	20(52.6)	10(26.3)	3.97
4. I prefer moving Kiswahili students from one paragraph to another systematically when teaching.	7(18.4)	15(39.5)	5(13.2)	6(15.8)	5(13.2)	3.34
5. I prefer when students ignore irrelevant details when I am teaching Kiswahili.	7(18.4)	9(23.7)	8(21.1)	9(23.7)	5(13.2)	3.11
6. I like discouraging my students from attempting essay questions derived from Kiswahili proverbs.	0(0)	0(0)	6(15.8)	4(10.5)	28(73.7)	4.58
7. I like triggering my learners to think of options before responding to Kiswahili questions.	17(44.7)	16(42.1)	2(5.3)	2(5.3)	1(2.6)	4.21
						3.69
Overall mean score						
Actual Teaching Styles						
1. When teaching a new topic in Kiswahili, I encourage students to make connections between it and related subjects.	15(39.5)	9(23.7)	5(13.2)	5(13.2)	4(10.5)	3.68
2. I break complex Kiswahili sentences into smaller parts for students to understand better.	9(23.7)	17(44.7)	3(7.9)	6(15.8)	3(7.9)	3.61
3. I encourage students to make guesses when they encounter unfamiliar words Kiswahili.	3(7.9)	12(31.6)	8(21.1)	9(23.7)	6(15.8)	2.92
4. I advise students to avoid using Kiswahili words that they are not sure of.	9(23.7)	16(42.1)	4(10.5)	7(18.4)	2(5.3)	3.61
5. I discourage students from attempting essay questions derived from Kiswahili proverbs.	6(15.8)	8(21.1)	7(18.4)	10(26.3)	7(18.4)	2.89
6. I instruct students to think through Kiswahili concepts in order to understand them better.	5(13.2)	22(57.9)	2(5.3)	3(7.9)	6(15.8)	3.45
						3.36
Overall mean score						

KEY:

Preferred: T- Teacher S- Student DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=least preferred; 3.00=preferred to a small extent; 3.01 to 5.00=most preferred).

Actual: DT- Definitely True T- True ST- Somewhat True NT- Not True DNT- Definitely Not True F- Frequency MS- Mean Score (1.00 to 2.99=does not favor style; 3.00=somewhat does not or favors style; 3.01 to 5.00=favors style).

The psychological dimension of teaching and learning styles refers to the way a student absorbs and processes new concepts and the way a teacher imparts these concepts. Concerning the ‘*global style*’, the teachers had a high preference (M=3.11) while the students had low preference with a mean score of 2.48. The findings seemed to suggest that students did not prefer borrowing ideas and using examples from other subjects. However, in the actual teaching and learning styles, 24(63.2%) teachers and 250(72.4%) students felt that learners are always encouraged to make connections between Kiswahili and the other subjects. The teachers’ (M= 3.68) and students’ (M= 3.80) viewpoints related to the ‘*global teaching and learning style*’.

As evident in Part 2 of the questionnaire, almost one third of students 96(27.83%) preferred to relate what they learned to other subjects while 23(29.49%) teachers engaged learners in relating what they learned with content from other subjects. In a similar study, Razawi et al. (2011) argued that global learners learn more effectively through concrete experience and by interacting with people. Further, Narayani (2014) noted that global learners need to grasp the big picture before they have any chance to understand the details of the subject. In the same vein, it was observed that 9(69.23%) teachers attempted to give whole meaning of concepts in classrooms before narrowing down to specific contents of the lesson. The findings are supported by Bhat (2014) who observed that global learners learn better when they focus on the overall topic.

Most students (M=4.12) and teachers (M=3.34) preferred that Kiswahili content be presented systematically. This result revealed the presence of preference for the ‘*analytic teaching and learning style*’ of the psychological dimension. In view of the actual analytic teaching and learning styles, teachers 26(68.4%) and students 255(73.9%) responded that complex sentences are always broken into smaller parts when teaching and learning Kiswahili. The findings

conform to those by Kapadia (2008) who asserted that most engineering students prefer the analytic form of learning. However, Kapadia did not establish whether engineering contents were presented sequentially during teaching; a practice which featured in Kiswahili classrooms.

Observations made by the researcher confirmed that all of the teachers presented concepts in a systematic order in Kiswahili classrooms. The students followed through systematically by listening keenly and attempting all the activities as directed by their teachers. Some of these activities were answering teachers' questions, taking down notes and, attempting the short exercises given by the teacher in their books. These activities emerged systematically in the process of analyzing the topic of the day. The findings agree with the study by Bhat (2014) on understanding the learning style and its influence on the teaching-learning process. The author claimed that analytic students learn by bringing little pieces together to form a whole.

Kiswahili students are '*impulsive*' learners as a majority 193(56%) tended to avoid essay questions drawn from proverbs. On the other hand, none of their teachers 0(0%) reported discouraging their students from attempting such types of questions. In the actual teaching and learning styles, teachers' (M=2.92) and students' (M=2.60) viewpoints did not agree with impulsive teaching and learning. This meant that Kiswahili teachers and students are keen on precision and accuracy of facts. The findings imply that impulsive teaching and learning is less valued in Kiswahili classrooms. In view of the findings, Razawi et al. (2011) stated that impulsive learners are able to respond immediately and take risks.

Correspondingly, in Part 2 of the students' questionnaire, very few, 7(2.03%) learners felt that they made guesses when they encountered new words. The findings demonstrate that Kiswahili students are not impulsive. Therefore, a possible explanation for these results is that Kiswahili

teaching and learning styles do not favor impulsive learning. The findings contrast those by Shi (2011) who found English language learners in China to be impulsive as they would react quickly in acting or speaking without thinking of the situation thoroughly. Shi noted that it is inevitable for impulsive learners to make mistakes.

The '*reflective style*' of teaching and learning was favourably practiced in Kiswahili. For instance, teachers 27(71.1%) and students 285(82.6%) felt that learners thought through Kiswahili concepts in order to understand them better. The teachers' (M= 3.45) and students' (M= 4.07) viewpoints confirmed the style of '*reflective teaching and learning*'. Further, both teachers (M=4.21) and students (M=4.12) had high preference for reflective learning as demonstrated by statement No. 7 that 'students think of options before responding to Kiswahili questions'. The findings are consistent with studies such as by Lesmes-Anel et al. (2001) as well as Rassool and Rawaf (2008) who found the reflective learning style to be dominant among undergraduate nursing students in Britain and the United Kingdom respectively. With regard to the psychological aspect of teaching and learning styles, Kiswahili learners were analytical, global, impulsive and reflective. Similarly, the teachers provided for analytical, global and reflective learners while they tended to discourage the impulsive way of learning new information.

4.5.2 Alignment between Psychological Dimension of Actual Teaching and Preferred Learning Styles in Kiswahili

An alignment between teaching and learning styles in the psychological dimension was established and the results presented in Table 32.

Table 32: Means, Standard Deviation and t values for Psychological Dimension of Teaching and Learning Styles in Kiswahili (Teacher, n= 38; Student, n= 345)

Teaching/Learning styles	Mean		Sd		df	<i>t</i>	<i>P</i> value
	T	S	T	S			
Psychological dimension	3.36	3.42	.58	.80	381	1.05	.16

** $P > .05$

KEY: T- Teacher S- Student Sd- Standard deviation df- degrees of freedom *t*- t value

A non statistically significant difference emerged between teaching ($M=3.36$, $SD=.58$) and learning styles ($M=3.42$, $SD=.80$); $t(381) = 1.05$, $p=.16$ on the basis of the psychological dimension. The results implied a match between teaching and learning styles with regard to psychological-related styles (global, analytic, impulsive and reflective). The findings are in line with the theory by Dunn and Dunn (1992) which holds that the psychological dimension of teaching and learning styles should match in order to realize optimum academic achievement of students. Similarly, Doolan and Honigsfeld (2000) explain that when students are taught with methods that are dissonant from their learning style preferences, they do not succeed in mastering the subject matter as quickly as they could have. However, Doolan and Honigsfeld do not show the areas of dissonance between teaching and learning styles. In contrast, the current study reveals a match between psychological-related teaching and learning styles in Kiswahili.

4.5.3 Correlation between Psychological Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili

Further, the correlation between psychological dimension of teaching and learning styles and academic achievement was sought. In order to establish the influence of psychological dimension of teaching and learning styles on students' academic achievement in Kiswahili, data on preferred psychological-related teaching and learning styles (see Tables 30 and 31) and

students' academic achievement (see Appendix F) were analysed. The results are presented in Table 33.

Table 33: Bivariate Correlations between Psychological Dimension of Preferred Teaching and Learning Styles and Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

		Academic achievement	Psychological dimension of teaching styles	Psychological dimension of learning styles
Academic achievement	Pearson Correlation	1	.480**	.275**
	Sig. (2-tailed)		.000	.000
	N	383	383	383
Psychological dimension of teaching styles	Pearson Correlation	.480**	1	.249**
	Sig. (2-tailed)	.000		.000
	N	383	383	383
Psychological dimension of learning styles	Pearson Correlation	.275**	.249**	1
	Sig. (2-tailed)	.000	.000	
	N	383	383	383

** . Correlation is significant at the .01 level (2-tailed).

Table 33 reveals that the influence of psychological dimension of teaching styles had a moderate significant correlation ($r=.480$, $p<.05$) with academic achievement in Kiswahili. In contrast, psychological dimension of learning styles had a low significant ($r=.275$, $p<.05$) influence on students' academic achievement in Kiswahili. The findings imply that the psychological dimension (global, analytic, impulsive and reflective) of teaching and learning styles is an important factor that influences academic achievement in Kiswahili. In a similar study, Razawi et al. (2011) found that students' learning styles could be categorised as global, impulsive and reflective. The authors recommended the need to improve teachers' lesson planning to cater for the students' diverse learning styles. They asserted that this would improve academic

achievement of students. However, Razawi et al. (2011) did not ascertain the influence of the psychological-related styles on academic achievement which were found significant by the current study.

Table 34: Coefficients for Psychological Dimension of Preferred Teaching and Learning Styles on Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.178	.249		4.724	.000
1 Psychological dimension of teaching styles	.501	.052	.439	9.608	.000
Psychological dimension of learning styles	.201	.056	.165	3.623	.000

a. Dependent Variable: Academic achievement

The results indicate that psychological dimension of teaching styles had a significant contribution on academic achievement in Kiswahili ($\beta = .439$, $p > .05$). Similarly, learning styles influenced academic achievement in Kiswahili ($\beta = .165$, $p < .05$). It was construed that the relationship was significant. The findings imply that teachers need to help learners visualize concepts while relating information to real life experiences and application in order to accommodate global learners. Since analytic learners learn sequentially with facts following each other, teachers need to present information in steps, following a sequence that succeeds in building a conceptual understanding. Reflective learners may be involved in learning facts and discovering the possibilities of relationships between concepts. Since these types of learners are

innovative and practical, they need challenging tasks (Naimie et al., 2010). Finally, impulsive learners may be engaged in reflective thinking as they like making guesses that may impact negatively on their outcomes.

A regression model is therefore presented to show the shared variance explained by psychological dimension of teaching and learning styles on academic achievement in Kiswahili.

Table 35: Model Summary on Influence of Psychological Dimension of Preferred Teaching and Learning Styles on Academic Achievement in Kiswahili (Teacher, n= 38; Student, n= 345)

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.506 ^a	.256	.252	.71073	.256	65.427	2	380	.000

a. Predictors: (Constant), psychological dimension of learning styles, psychological dimension of teaching styles

The overall model summary results indicate that the percentage change in achievement explained by teaching and learning styles regarding the psychological dimension was significant (Adjusted R Square=.252, $p < .05$). This means that, teaching and learning styles in the psychological dimension explained 25.2% change in academic achievement in Kiswahili. This finding implies that 25.2% of variance in students' academic achievement in Kiswahili can be explained by psychological-related teaching and learning styles. The remaining 74.8% can be attributed to the other dimensions of teaching and learning styles such as environmental, sociological, physical, emotional and other related factors. In a similar study, Kadir (2013) found that psychological-related learning styles contributed 9.4% to students' academic achievement. Kadir's study only

focused on learning styles in this dimension. The current study went further to establish teaching styles which, together with learning styles, shared a variance of 25.2% in academic achievement in Kiswahili. Teachers can therefore adopt strategies that favor global, analytical and reflective learning preferences when planning for instruction.

Analysis of Variance (ANOVA) was further computed. In order to establish mean differences between groups in academic achievement in the psychological dimension, data on actual learning styles (see Table 30) and students' academic achievement (see Appendix F) were used. For psychological learning styles, two styles emerged to have significant differences in students' achievement among their categories. These were analytic and reflective learning styles. The other styles under psychological learning styles namely global and impulsive did not have significant differences ($p > .05$) in students' achievement (see Appendix J). The results for the analytic and reflective learning styles are presented as shown in Table 36.

Table 36: Mean Differences for Psychological Dimension of Actual Learning Styles and Academic Achievement in Kiswahili (Student, n= 345)

Categories	Means for Achievement		Mean Difference	Sig. for differences	F	Overall Sig
Analytic learning style						
Does not use analytic style	4.35	Sometimes uses analytic style	-.66	.000	21.96	.000
		Uses analytic style	-2.35*	.000		
Sometimes uses analytic style	5.01	Does not use analytic style	.66	.000		
		Uses analytic style	-1.69	.000		
Uses analytic style	6.70	Does not use analytic style	2.35*	.000		
		Sometimes uses analytic style	1.69*	.000		
Reflective learning style						
Does not use reflective style	4.45	Sometimes uses reflective style	-2.28*	.049	4.29	.015
		Uses reflective style	-2.47*	.014		
Sometimes uses reflective style	6.73	Does not use reflective style	2.28*	.049		
		Uses reflective style	-.19	.456		
Uses reflective style	6.92	Does not use reflective style	2.47*	.014		
		Sometimes uses reflective style	-.19	.456		

Results in Table 36 indicate that both the two styles of learning; analytic and reflective had significant differences in students' academic achievement. For analytic learning style, the means for achievement for the three categories were; 4.35 for those who did not use analytic learning style, 5.01 for those who sometimes used the style, and 6.70 for those who used the style. Tests

of between subject effects revealed that all the three categories had significant differences, $F(2, 343)=21.96$, $p<.05$. The mean difference in achievement between students who did not use the analytic learning styles and those who sometimes used the styles was 0.66 and was significant at .01, mean difference between the achievement of the students who did not use the analytic style and those who used the style was 2.35 and was significant at .01, mean difference in achievement between students who sometimes used the styles and those who used the style was 1.69 and was significant at .01. The highest achievement was for the students who used the analytic learning style with a mean mark of 6.70, implying that students who used analytic learning styles achieved higher than the rest. The findings are comparable to those of Drysdale et al. (2001) who found that analytic learning styles influenced achievement in liberal arts and social science subjects. Drysdale et al. however did not examine the differences in students' achievement regarding the analytic style. In contrast, the present study found significant differences in students' academic achievement in Kiswahili whereby those who used the analytic style achieved higher than those who did not.

On the other hand, reflective learning style also indicated significant difference among the categories of students, $F(2, 343)=4.29$, $P<.05$. The main difference in achievement occurred between students who used reflective learning styles and those who did not use it (mean difference=2.47, $p<.05$) and also between the achievement of students who did not use reflective learning style and those who sometimes used it (mean difference=2.28, $p<.05$). The means for achievement for the three categories of students were: 4.45 for those who did not use reflective learning style, 6.73 for those who sometimes used the style, and 6.92 for those who used the style. This implies that reflective learning style had an influence on students' academic achievement such that those who used the style achieved higher than those who did not use it. In

a similar study, Damrongpanit (2014) noted that mathematics students were categorized in the reflector style. However, Damrongpanit did not establish the influence of the reflector style on students' academic achievement. The current study found significant differences among students' academic achievement in the reflector style.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter gives an overview of the study based on its findings as discussed in Chapter Four. This chapter provides a summary of findings in this thesis based on the research objectives and draws conclusions from the discussion of the results. The chapter also makes recommendations and suggestions for future research based on the findings and limitations of the current study.

5.1 Summary of the Findings

5.1.1 Influence of Environmental Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The environmental dimension of teaching styles and the students' achievement in Kiswahili had a moderate positive significant correlation ($r=.483$, $p<.05$). Conversely, the environmental dimension of learning styles and the students' achievement in Kiswahili had a low positive significant correlation ($r=.319$, $p<.05$). The teaching and learning styles in the environmental dimension explained 22.9% change in academic achievement in Kiswahili. Further, there was a statistically significant difference in the environmental dimension of teaching ($M=3.45$, $SD=.58$) and learning styles ($M=3.30$, $SD=.73$); $t(381) = 1.99$, $p= .04$ in Kiswahili. However, the environmental dimension of learning styles indicated that the specific aspects which entailed noise, temperature, design and light did not have significant differences ($p>.05$) among the groups of students. For instance, the means for noise were (learns in quiet place =5.66, learns with some form of noise = 5.40, learns with noise =5.54), for lighting the means were (learns with dim light =5.80, learns with both dim and bright light =5.82, learns with bright light =5.99), for temperature the means were (learns in cool temperature =4.77, learns in both cool and warm

temperature =4.78, learns in warm temperature =4.05), for design the means were (uses the unconventional style =5.07, uses the conventional style =4.63, uses both the conventional and the unconventional style =4.90).

5.1.2 Influence of Sociological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The sociological dimension of teaching ($r=.342$, $p<.05$) and learning ($r=.346$, $p<.05$) styles had low positive significant correlation with the students' academic achievement in Kiswahili. The teaching and learning styles in the sociological dimension explained 17.3% change in academic achievement in Kiswahili. However, there was a significant difference between sociological-related teaching ($M=3.64$, $SD=.64$) and learning styles ($M=3.45$, $SD=.95$); $t(381) = 4.246$, $p=.00$. There were also significant differences ($F(2, 341)=5.726$, $P<.05$) in achievement among the categories of students under the motivation style. The mean score for students who were motivated to learn Kiswahili was 6.09, those who were sometimes motivated was 5.63, and those who were not motivated at all was 4.60. Similarly, learning with variety of activities also exhibited significant differences for the different categories of students ($F(2, 345)=4.29$, $P<.05$). The means were; 5.83 for students who used varied activities style, 4.42 for the achievement of those who sometimes practised varied learning style, and 3.80 for those who did not learn using varied activities at all. The other styles, which included learning in groups and presence of figures in authority under sociological dimension did not have significant differences ($p>.05$) in students' achievement among the various categories of students.

Nevertheless, it was noted that teachers were aware of the various ways they needed to differentiate learning but they rarely used them. For instance, they mentioned the use of question-and-answer, whole-class discussions, drama and role-play, reading, note-taking,

demonstrations, group activities, singing, peer teaching, and debates as the possible ways for varying Kiswahili instruction. In contrast, the evidence from the lesson observation schedule indicated that teaching involved the use of lecture, question-and-answer, and individual learner assignments. The learning activities were therefore typically teacher-dominated.

5.1.3 Influence of Emotional Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The influence of emotional dimension of teaching styles on the students' academic achievement in Kiswahili was non significant ($r=.085$, $p>.05$). On the other hand, the learning styles had a low significant ($r=.201$, $p<.05$) influence on the students' academic achievement in Kiswahili. The teaching and learning styles in the emotional dimension explained 3.9% change in the students' academic achievement in Kiswahili. However, a statistically significant difference existed between the teaching ($M=3.28$, $SD=.66$) and learning styles ($M=3.66$, $SD=.71$); $t(381) = 5.346$, $p=.00$ based on the emotional dimension. The ANOVA revealed significant differences in achievement in the responsibility element of learning style. Tests of between subject effects revealed that there were significant differences among the three categories of students, $F(2, 343) = 4.72$, $p<.05$. The highest mean achievement was 7.16, which was for the students who were responsible. The second was 5.96, for the students who sometimes practised responsible learning, and the final lowest mean achievement was in the category of the students who did not practise the style that involves responsibility in learning activities at all, with a mean of 4.99. The other styles under the emotional dimension namely persistence and the learners' need for structure did not have significant differences ($p>.05$) in their categories and also did not influence the achievement of the students.

5.1.4 Influence of Physical Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The influence of physical dimension of teaching styles had a low significant correlation ($r=.344$, $p<.05$) with the students' academic achievement in Kiswahili. In contrast, the physical-related learning styles had a moderate significant ($r=.476$, $p<.05$) influence on the students' academic achievement in Kiswahili. The teaching and learning styles in the physical dimension explained 27.6% change in the students' academic achievement in Kiswahili. A statistically significant difference was revealed between teaching ($M=3.33$, $SD=.58$) and learning styles ($M=3.46$, $SD=.71$); $t(381) = 4.27$, $p=.00$ with respect to the physical dimension of teaching and learning styles. The kinesthetic style had significant differences in the achievement of students of Kiswahili. The highest mean mark was for those students who used the style, ($M=6.91$) followed by those who sometimes used the style ($M=6.45$) and finally those who did not use the style ($M=4.89$). On the other hand, the achievement of the students who used visual learning style was highest ($M=6.75$) followed by those who sometimes used the style ($M=5.73$). Finally, those who did not use the style recorded a result of ($M=4.45$). The rest of the styles: auditory, tactile, food intake, time of day and mobility did not have any significant differences ($p>.05$) among the categories of students and their academic achievement in Kiswahili.

Moreover, it was observed that subject teachers did not give the students adequate chance to fully engage in kinesthetic learning activities as most of the time, the students sat still and rarely engaged in activities that involved motion. Similarly, the teachers rarely incorporated a variety of visual aids in the teaching and learning of Kiswahili. The commonly used visual aids were the Kiswahili course books and the chalkboard.

5.1.5 Influence of Psychological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The influence of the psychological dimension of teaching styles had a moderate significant correlation ($r=.480$, $p<.05$) with the students' academic achievement in Kiswahili. In contrast, the psychological dimension of learning styles had a low significant influence on the students' academic achievement in Kiswahili ($r=.275$, $p<.05$). The teaching and learning styles in the psychological dimension explained 25.2% change in the students' academic achievement in Kiswahili. Further, a non statistically significant difference emerged between teaching ($M=3.36$, $SD=.58$) and learning styles ($M=3.42$, $SD=.80$); $t(381) = 1.05$, $p=.16$ on the basis of the psychological dimension. The analytic and reflective learning styles had significant differences in the students' academic achievement. The means for achievement for the three categories were: 4.35 for those who did not use analytic learning style, 5.01 for those who sometimes used this style, and 6.70 for those who used the analytic learning style. Tests of between subject effects revealed that all the three categories had significant differences, $F(2, 343)=21.96$, $p<.05$. On the other hand, the reflective learning style also indicated significant difference among the categories, $F(2, 343)=4.29$, $P<.05$. The means for achievement for the three categories were: 4.45 for those who did not use reflective learning style, 6.73 for those who sometimes used this style, and 6.92 for those who used the reflective learning style. The other styles under psychological dimension: global and impulsive did not have significant differences ($p>.05$) in students' academic achievement in Kiswahili.

5.2 Conclusions

5.2.1 Influence of Environmental Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The environmental dimension of teaching and learning styles in form of noise, light, temperature and design has a positive influence on the students' academic achievement in Kiswahili. Nevertheless, there was a mismatch between the teaching and learning styles in the environmental dimension. Since there were no significant differences in achievement regarding the environmental dimension of learning styles, the findings imply that the students' academic achievement in Kiswahili in Kakamega North Sub-County is not influenced by noise, light, temperature and design. This finding signifies that the students can adapt to either quiet or noisy, conventional or unconventional, warm or cool, brightly-lit or dimly-lit environments.

5.2.2 Influence of Sociological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The sociological dimension of teaching and learning styles influence the students' academic achievement in Kiswahili to a small extent. However, there was a mismatch between the teaching and learning styles in this dimension. Further, the findings denote that the achievement of the students motivated by their teachers and those who learned under varied conditions was far much better than those students who lacked motivation and did not learn under these varied conditions. Moreover, the teachers' styles contradicted their knowledge of the possible varied activities relevant in differentiating Kiswahili instruction. This lack of variation may be attributed to the factors that teachers highlighted to influence their choice of teaching styles such as lack of resources, uncooperative administration, scope of syllabus, and large class sizes. The other learning styles which included learning in groups, and the presence of authority figures

under the sociological dimension did not influence academic achievement in Kiswahili since there were no significant differences in the students' achievement in Kiswahili among the various categories of students.

5.2.3 Influence of Emotional Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The emotional dimension of teaching styles does not influence the students' academic achievement in Kiswahili while the emotional dimension of learning styles influence academic achievement in Kiswahili albeit to a small extent. However, there was a mismatch between teaching and learning styles in this dimension. Responsibility learning style has a significant influence on students' achievement. As a result, students who practise the responsibility learning styles achieve better than those who are not responsible at all. The other styles under emotional dimension, persistence and need for structure did not influence students' academic achievement in Kiswahili since they did not exhibit significant differences in their categories.

5.2.4 Influence of Physical Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The physical dimension of teaching and learning styles is one of the important factors that influence students' academic achievement in Kiswahili. However, there was a mismatch between teaching and learning styles in this dimension. The use of kinesthetic and visual learning styles influence academic achievement in Kiswahili since they had significant differences among the categories of students. The findings imply that students who learn using the kinesthetic and visual styles achieve better than those who do not. Moreover, teachers rarely employed these styles in the classroom teaching and learning. The rest of the styles namely auditory, tactile, food intake, time of day and mobility did not influence academic achievement in Kiswahili since they

did not have any significant differences among the categories of students and academic achievement.

5.2.5 Influence of Psychological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

The psychological dimension of teaching and learning styles has a significant influence on academic achievement in Kiswahili. Teaching and learning styles in this dimension matched. Analytic and reflective learning styles influence academic achievement in Kiswahili. The findings imply that the students who use the analytic and reflective styles achieve better than those who do not use the styles. The other styles under psychological learning styles that is, global and impulsive did not influence academic achievement in Kiswahili since they did not realize significant differences in students' achievement.

5.3 Recommendations

5.3.1 Influence of Environmental Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

Since there were no significant differences in the achievement of students regarding the styles under the environmental dimension, little attention should be paid to the environmental-related styles. This category seems not to impact much on academic achievement in Kiswahili. Students can therefore adapt their learning styles to match the different teaching and learning conditions. Moreover, contextually the elements of light, noise, temperature and design may be beyond the teachers' control given the large class sizes, limited resources, and uncooperative administrations as experienced by a number of teachers.

5.3.2 Influence of Sociological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

Teachers need to match Kiswahili instruction to students' learning styles in the sociological dimension. For instance, teachers need to motivate their students both intrinsically and extrinsically while employing the use of varied learning activities in order to improve academic achievement in Kiswahili. This is because significant differences in academic achievement were realized in the sociological styles of motivation and learning by use of varied activities. In addition, measures need to be put in place to ensure that teachers really actualize their knowledge. This is because they expressed knowledge of varied activities to be used in Kiswahili teaching but rarely practised them in actual teaching. However, teachers may not be in a position to vary teaching styles with regard to preferred learning styles because they highlighted reasons such as lack of resources and large class sizes as factors responsible for their choice of teaching styles. The large numbers of students in classrooms and the limited resources available may thus be an impediment to providing for varied learning needs using activities that cater for varied learning styles.

5.3.3 Influence of Emotional Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

Teachers need to train Kiswahili students to become responsible learners. This is because responsibility as a learning style had significant differences in achievement among student categories. Responsibility of learners in pursuing tasks influences their academic achievement. Therefore, teachers can always give extra individual reading assignments in order to provide for this style.

5.3.4 Influence of Physical Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

Teachers need to align their teaching styles to students' learning styles in the physical dimension. For instance, teachers can engage learners in activities that involve playing word-language games, movement activities, making models, and engaging in role-playing and skits when teaching Kiswahili. This will help involve students in kinesthetic style of learning which was found to influence academic achievement in Kiswahili positively. Further, teachers need to use visual aids such as charts, models, pictures, videos, computer simulations and animations when teaching Kiswahili. This will help cater for the visual style of learning in order to enhance academic achievement in Kiswahili.

5.3.5 Influence of Psychological Dimension of Pedagogical Styles on Students' Academic Achievement in Kiswahili

Analytic and reflective styles need to be practised in Kiswahili in order to improve academic achievement. Teachers need to present information in a step by step cumulative and sequential pattern that builds towards a conceptual understanding. Teachers should also help learners discover the possibilities of relationships, guiding them into innovative and practical activities in order to provide for the analytic and reflective styles.

5.4 Theoretical and Pedagogic Implications

The current study attempted to contribute to theory by inductively and deductively investigating teaching and learning styles of Kiswahili. The study found that motivation, use of varied activities, responsibility, kinesthetic, visual, analytic and reflective learning styles influenced academic achievement in Kiswahili. The study thus underscores the need to match teaching styles to learning styles because the resulting mismatch may contribute to students' dismal

achievement. In classroom practice, there is need to focus on teacher commitment to investing in strategies that promote a match between teaching and learning styles so that the teacher delivers content in a tailor-made fashion. Teachers could therefore benefit from assessing their own teaching and their students' learning styles in order to avoid possible biases. There is great need, therefore, for the learning style approach to teaching to be incorporated in the teacher education curriculum. The current study also identified reasons that influence the choice of teaching and learning styles which could inform theory and practice in Kiswahili pedagogy in secondary schools. These include class size, time available and scope of the syllabus, time of day of teaching, discussion group method, teacher presentation and motivation. The findings of this study may therefore help:

1. Kiswahili teachers to adjust or match their teaching styles to the identified learning styles that significantly influence students' academic achievement.
2. Identify the major impediments that hinder the use of teaching and learning style approach in Kiswahili instruction.
3. Curriculum developers to give attention to the learning styles of students in the process of designing the Kiswahili curriculum.
4. Initiate policy makers to suggest improvement of Kiswahili instruction so as to meet the preferences of students in order to improve learning outcomes.
5. Propose further research in improving Kiswahili instruction that copes with understanding of the students' learning needs.

5.5 Suggestions for Further Research

Based on the limitations, findings and conclusions of this study, the following are the suggested areas for further research:

1. The current study was a correlational study which established a significant relationship between teaching and learning styles and academic achievement in Kiswahili. There is need for a causal comparative study to determine the causal effect of teaching and learning styles on academic achievement.
2. The current study identified factors responsible for the choice of teaching and learning styles in Kiswahili. There is need for an empirical study to determine the influence of these factors on teaching and learning styles in relation to academic achievement.
3. The current study established the influence of teaching and learning styles on students' academic achievement in one cohort. A multilevel approach may thus be necessary in order to establish the influence of teaching and learning styles on academic achievement with regard to high, moderate and low achievers.
4. The current study used a structured observation schedule as one of the methods of data collection for teaching and learning styles. This might be limited as it may be difficult for the researcher to make concrete deductions of the teacher and learner behaviours as they are. For more robust evidence, future research may follow up observations with interviews for teachers and focus group discussions for learners.
5. The current study focused on face-to-face classroom teaching and learning. Future research can focus on teaching and learning styles in on-line environments.

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APPENDICES

APPENDIX A: STUDENTS' QUESTIONNAIRE

PART 1

The purpose of this questionnaire is to gather information on Form IV students' learning styles in Kiswahili. All your responses and information will be treated with utmost confidentiality. Please answer the questions as honestly as possible. This is not a test; every answer you give is correct. Give your answers by filling the blank spaces or ticking (√) the boxes.

SECTION A: GENERAL INFORMATION

a. What is your gender? Boy Girl

b. How old are you? _____

SECTION B: INFORMATION ON ACTUAL CLASSROOM LEARNING STYLES IN KISWAHILI

c. Below are statements about learning conditions in Kiswahili classrooms. Give your answers basing on the actual classroom conditions. Kindly tick (√) where appropriate.

**KEY: DT- Definitely True, T- True, ST- Somewhat True, NT- Not True
DNT- Definitely Not True.**

NO.	STATEMENT	DT	T	ST	NT	DNT
	ENVIRONMENTAL DIMENSION					
1.	I learn Kiswahili in a noisy environment.					
2.	I learn Kiswahili in a dimly lit classroom.					
3.	I learn Kiswahili under cool temperatures.					
4.	I go for field excursions to learn Kiswahili.					
	SOCIOLOGICAL DIMENSION					
5.	When learning Kiswahili, I often discuss course material with a group of students in my class.					
6.	My Kiswahili teacher gives me instructions that guide my learning.					
7.	When learning Kiswahili, I make up questions, simple charts, diagrams and tables and share with my fellow students.					
8.	I am given individual attention by my Kiswahili teacher.					
9.	I am always rewarded by my Kiswahili teacher.					

	EMOTIONAL DIMENSION					
10.	I do my Kiswahili revision without my teacher's supervision.					
11.	I take breaks in the middle of Kiswahili double lessons to rest.					
12.	I do Kiswahili assignments on time.					
13.	I search for answers to the questions I fail in classroom assignments even without the help of my Kiswahili teacher.					
14.	I do not design my own reading schedule for Kiswahili.					
	PHYSICAL DIMENSION					
15.	I chew or eat something when learning Kiswahili					
16.	I am always given instructions on task completion by my Kiswahili teacher.					
17.	I sit and concentrate in the Kiswahili classroom till the end of the lesson without moving around.					
18.	My Kiswahili teacher asks me to write on the chalkboard during Kiswahili lessons.					
19.	I conceptualize what I learn in Kiswahili in drawings and models.					
20.	Acting and role playing are part of my activities during Kiswahili lessons.					
21.	I learn Kiswahili by relating concepts to visual aids used by my teacher.					
	PSYCHOLOGICAL DIMENSION					
22.	When I am learning a new topic in Kiswahili, I try to make connections between it and related subjects.					
23.	I usually find the meaning of a sentence in Kiswahili by dividing it into parts that I understand.					
24.	In order to understand unfamiliar words in Kiswahili I make guesses.					
25.	I avoid using words that I am not sure of when writing essays in Kiswahili.					
26.	I avoid attempting essay questions derived from Kiswahili proverbs as they are hard.					
27.	I think through concepts when learning Kiswahili.					

SECTION C: INFORMATION ON STUDENTS' PREFERRED LEARNING STYLES BASED ON ENVIRONMENTAL, SOCIOLOGICAL, EMOTIONAL, PHYSICAL AND PSYCHOLOGICAL DIMENSIONS

Below are statements about learning style. Give your answers basing on how best you learn Kiswahili. Kindly tick (√) where appropriate.

**KEY: DT- Definitely True, T- True, ST- Somewhat True, NT- Not True
DNT- Definitely Not True.**

NO.	STATEMENT	DT	T	ST	NT	DNT
	ENVIRONMENTAL DIMENSION					
1.	Any form of noise disrupts my learning of Kiswahili.					
2.	Light does not interfere with my learning of Kiswahili; I am comfortable with any form of lighting.					
3.	I do not learn Kiswahili well when the temperatures are extremely high or low.					
4.	I prefer to engage in outdoor activities when learning Kiswahili.					
	SOCIOLOGICAL DIMENSION					
5.	When I am in a large group, I tend to keep silent and just listen.					
6.	I expect my Kiswahili teacher to arrange my learning schedule.					
7.	I learn more when I am given a chance to present a concept to my fellow students in class during Kiswahili lessons.					
8.	When I learn Kiswahili alone, I remember things better.					
9.	I prefer to work hard in Kiswahili in order to be rewarded by my teacher and parents.					
	EMOTIONAL DIMENSION					
10.	Sometimes I fail to read Kiswahili books as asked by our Kiswahili teachers.					
11.	I like taking breaks during Kiswahili lessons in order to relax my mind.					
12.	I learn Kiswahili better in an organized class than during self-study.					
13.	I do not like to design my own reading schedule for Kiswahili.					
	PHYSICAL DIMENSION					
14.	I like to eat something during Kiswahili class time.					
15.	When the teacher gives me instructions when learning Kiswahili I understand better.					

16.	I prefer to sit still until the end of Kiswahili lessons.					
17.	I prefer to read what the teacher writes on the chalkboard and when he allows me to write on it.					
18.	I learn Kiswahili better when I make drawings as I learn or when I make a model of something.					
19.	I understand better during Kiswahili lessons when I participate in role-playing and short skits.					
20.	I prefer to see images of what I am taught.					
PSYCHOLOGICAL DIMENSION						
21.	I prefer to make connections of new Kiswahili concepts with other subjects.					
22.	I prefer to borrow ideas from other subjects as I learn Kiswahili.					
23.	Following Kiswahili concepts in a step-by-step way tires me.					
24.	I prefer to move from one paragraph to the next systematically when reading Kiswahili texts.					
25.	I prefer to ignore details that I deem irrelevant in Kiswahili passages.					
26.	I prefer to avoid essay questions derived from Kiswahili proverbs as they are hard.					
27.	I prefer to think of options before I respond to Kiswahili questions.					

PART 2

Freely respond to the questions focusing on how you learn in relation to your academic achievement in Kiswahili.

1. Do you know your preferred learning style? Yes No

2. What factors are responsible for your choice of the preferred learning style?

3. Freely describe your preferred learning style that enhances your academic achievement in Kiswahili and state why?

4. Is your preferred learning style different from that of other students? Yes No
Explain your answer above.

5. Do you think your teachers' teaching style influences your learning style in Kiswahili?
Yes No
Explain your choice above.

6. Do you think there is a match between your learning style and your Kiswahili teacher's teaching style? Yes No
Explain your answer above.

7. If your answer is YES in 6 above, what will you do in case of mismatches between your learning style and your Kiswahili teacher's teaching style? (Choose one)

- a) Stick to your own learning style.
b) Make adjustments to adapt to your teacher's teaching style.

Please give reasons for your answer above.

8. Do you like your learning environment in Kiswahili classrooms? Yes No
Please give reasons for your choice above.

9. Which of the following best describes how you learn Kiswahili? (Choose one)

- a) When you are told.
b) When you see what you have been told.

- c) When you write what you are told.
- d) When you practice what you are told.
- e) When you eat something while learning.
- f) When you sit still at the same point while learning.

Give reasons for your answer above.

10. At what time of the day are most of your Kiswahili lessons taught?

- a) Morning
- b) Midday
- c) Afternoon
- d) Evening

Are you comfortable with the time? Yes No

Give reasons for your choice above.

At what time would you prefer them to be taught?

- a) Morning
- b) Midday
- c) Afternoon
- d) Evening

Give reasons for your choice above.

11. Which of the following best describes how you understand what is taught? (Choose one)

- a) When the Kiswahili teacher assigns me to a group for discussion.
- b) When the Kiswahili teacher explains all the concepts in class.
- c) When the Kiswahili teacher engages me in a variety of activities.
- d) When the Kiswahili teacher motivates me in class.

Please give reasons for your choice above.

12. When learning Kiswahili, I prefer to: (Choose one)

- a) Follow through what the teacher teaches.
- b) Complete all assignments before I break.
- c) Be directed by the teacher on how to complete tasks.

Please give reasons for your answer above.

13. When learning Kiswahili I prefer to: (Choose one)

- a) Relate what I learn to other subjects.
- b) Use a dictionary to learn vocabulary in passages.
- c) Guess meanings of unfamiliar words.
- d) Think of possible answers before I make a guess.

Please give reasons for your choice above.

APPENDIX B: TEACHERS' QUESTIONNAIRE

PART 1

The purpose of this questionnaire is to gather information on Kiswahili teachers' teaching style. All your responses and information will be treated with utmost confidentiality. Please answer the questions as honestly as possible. Give your answer by filling the blank spaces or ticking (✓) the boxes.

SECTION A: GENERAL INFORMATION

a. What is your gender? Male Female

SECTION B: INFORMATION ON ACTUAL CLASSROOM TEACHING STYLES IN KISWAHILI

Below are statements about teaching conditions in Kiswahili classrooms. Give your answers basing on the actual classroom conditions. Kindly tick (✓) where appropriate.

**KEY: DT- Definitely True, T- True, ST- Somewhat True, NT- Not True
DNT- Definitely Not True.**

NO.	STATEMENT	DT	T	ST	NT	DNT
	ENVIRONMENTAL DIMENSION					
1.	I teach Kiswahili in a noisy environment.					
2.	I teach Kiswahili in a dimly lit classroom.					
3.	I teach my Kiswahili students under cool temperatures.					
4.	I take students on field excursions to learn Kiswahili concepts.					
	SOCIOLOGICAL DIMENSION					
5.	I allow my students to discuss course material in groups during Kiswahili lessons.					
6.	I give my students instructions on what to do when teaching Kiswahili.					
7.	I encourage my Kiswahili students to prepare questions, simple charts, diagrams, or tables and share with their fellow students.					
8.	I give individual attention to students when teaching Kiswahili.					
9.	I reward my Kiswahili students to motivate them to work hard.					
	EMOTIONAL DIMENSION					
10.	I supervise my Kiswahili students during their revision to ensure proper coverage of content.					
11.	My students take resting breaks during Kiswahili double lessons.					
12.	I ensure students do Kiswahili assignments given to					

	them on time.					
13.	I train my Kiswahili students on how to search for answers to questions they fail without my help.					
14.	I do not design for my students their reading schedule for Kiswahili.					
	PHYSICAL DIMENSION					
15.	My students chew or eat something during Kiswahili lessons					
16.	I give instructions to students on task completion while teaching Kiswahili.					
17.	I discourage students from moving around in the Kiswahili classroom until the end of the lesson.					
18.	I ask students to write on the chalkboard when I am teaching Kiswahili.					
19.	I help students conceptualize Kiswahili concepts in drawing and models.					
20.	I engage my Kiswahili students in acting and role-playing when teaching Kiswahili.					
21.	I teach Kiswahili concepts with help of visual aids.					
	PSYCHOLOGICAL DIMENSION					
22.	When teaching a new topic in Kiswahili, I encourage students to make connections between it and related subjects.					
23.	I break complex Kiswahili sentences into smaller parts for students to understand better.					
24.	I encourage students to make guesses when they encounter unfamiliar words Kiswahili.					
25.	I advise students to avoid using Kiswahili words that they are not sure of.					
26.	I discourage students from attempting essay questions derived from Kiswahili proverbs.					
27.	I instruct students to think through Kiswahili concepts in order to understand them better.					

SECTION C: INFORMATION ON TEACHERS' PREFERRED TEACHING STYLES BASED ON ENVIRONMENTAL, SOCIOLOGICAL, EMOTIONAL, PHYSICAL AND PSYCHOLOGICAL DIMENSIONS

D. Below are statements about teaching style. Give your answers basing on how best you teach Kiswahili. Kindly tick (√) where appropriate.

**KEY: DT- Definitely True, T- True, ST- Somewhat True, NT- Not True
DNT- Definitely Not True.**

NO.	STATEMENT	DT	T	ST	NT	DNT
	ENVIRONMENTAL DIMENSION					
1.	Any form of noise disrupts my teaching of Kiswahili.					
2.	Light does not interfere with my teaching of Kiswahili; I am comfortable with any form of lighting.					
3.	I do not teach Kiswahili well when temperatures are extremely high or low.					
4.	I prefer to teach Kiswahili using outdoor activities.					
	SOCIOLOGICAL DIMENSION					
5.	I like encouraging students who don't like participating in group discussions to silently listen to what their colleagues say.					
6.	I do not arrange for my learners their learning schedule for Kiswahili.					
7.	I like to give my Kiswahili students a chance to present concepts to their fellow students in class.					
8.	I prefer to teach individual students, as they remember Kiswahili concepts better than when they learn in groups.					
9.	I like rewarding my Kiswahili students because rewards motivate them to work hard.					
	EMOTIONAL DIMENSION					
10.	I do not prefer to ask students to read Kiswahili texts on their own.					
11.	I prefer to give breaks to students in the middle of Kiswahili double lessons to relax their minds.					
12.	I like to teach Kiswahili in an organized classroom.					
13.	I do not like letting Kiswahili students design their own reading schedule.					
	PHYSICAL DIMENSION					
14.	I like giving learners chance to eat something during my Kiswahili lessons.					
15.	I like to give students instructions when teaching Kiswahili as they understand better.					
16.	I prefer students to sit still until the end of Kiswahili lessons.					

17.	I like writing Kiswahili concepts on the chalkboard for students to read and allow them to write on it.					
18.	I like asking my Kiswahili students to make drawings and models of concepts as they study.					
19.	I like involving my Kiswahili students in role-playing and short skits during lessons to enhance their understanding.					
20.	I prefer to present concepts visually as I teach Kiswahili.					
PSYCHOLOGICAL DIMENSION						
21.	I prefer to help students to make connections of new Kiswahili concepts with other subjects.					
22.	I prefer to use examples from other subjects as I teach Kiswahili.					
23.	I get tired presenting Kiswahili concepts to students step by step.					
24.	I prefer moving Kiswahili students from one paragraph to another systematically when teaching.					
25.	I prefer when students ignore irrelevant details when I am teaching Kiswahili.					
26.	I like discouraging my students from attempting essay questions derived from Kiswahili proverbs.					
27.	I like triggering my learners to think of options before responding to Kiswahili questions.					

PART 2

Freely respond to the questions focusing on how you teach in relation to your learners’ academic achievement in Kiswahili.

1. Do you know your learners’ learning styles? Yes No

2. What factors are responsible for your choice of the preferred teaching style?

3. What activities do you engage your students in while teaching Kiswahili and why?

4. Freely describe your preferred teaching styles that you think enhances your students' academic achievement in Kiswahili.

5. Does your teaching style match your students' learning styles in Kiswahili?

Yes No

Explain your answer above.

6. If there are mismatches between your teaching style and your Kiswahili students' learning styles, what do you do? (Choose one)

a) Stick to your own teaching style.

b) Make adjustments to adapt to your learners' preferred learning styles.

Please give reasons for your answer above.

7. How do you ensure that individual differences are catered for in your Kiswahili classroom?

8. How do you find your teaching environment in Kiswahili classrooms?

9. Which of the following best describes how you teach Kiswahili? (Please select as it may apply to you)

a) Telling learners most of the things.

b) Allowing learners time to see what you tell them.

c) Writing what you tell the learners on the chalkboard.

- d) Letting learners practice what you tell them.
- e) Letting learners eat something while learning.
- f) Telling learners to sit still at the same point while learning.

Give reasons for your choice above.

10. At what time of the day are most of your Kiswahili lessons?

- a) Morning
- b) Midday
- c) Afternoon
- d) Evening

Are you comfortable with the time? Yes No

Give reasons for your answer above.

At what time would you prefer to teach?

- a) Morning
- b) Midday
- c) Afternoon
- d) Evening

Give reasons for your choice above

11. Which of the following methods do you use to enhance learners' understanding of content during Kiswahili lessons? (Please select as it may apply to you)

- a) Assign them into groups for discussions.
- b) Explain all the concepts in class.
- c) Engage them in a variety of activities.
- d) Motivate learners while teaching.

Give reasons for your choice above.

12. When teaching Kiswahili, you prefer: (Please select as it may apply to you)

- a) Your learners to follow through what you teach.
- b) Your learners to complete all assignments before they break.

c) To direct your learners on how to complete tasks.
Give reasons for your choice above.

13. When teaching Kiswahili you tell your learners: (Please select as it may apply to you)

- a) To relate what they learn to other subjects.
 - b) To use a dictionary to learn vocabulary in passages.
 - c) To guess meaning of unfamiliar words.
 - d) To think of possible answers before they make a guess.
- Give reasons for your choice above.

APPENDIX C: DOCUMENT ANALYSIS GUIDE

1. What is the students' performance in the 2014 Kiswahili KCSE examination in Kakamega North Sub-county?

School	Student	Grade	Points
1 to 38	1	_____	_____
	2	_____	_____
	3	_____	_____
	↓		
	345	_____	_____

2. What is the distribution of students per grade in the examination?

Grade	Number of Students
A	
B	
C	
D	
E	

3. What is the mean score of Form IV students in the 2014 Kiswahili KCSE examination?
4. How do teachers focus on learning style preferences in the scheme of work and the lesson plan?

APPENDIX D: LESSON OBSERVATION SCHEDULE

Dimension	Observation	Remarks
Environmental dimension		
1. The classroom surrounding is	Quiet <input type="checkbox"/>	Noisy <input type="checkbox"/>
2. Lighting is	Bright <input type="checkbox"/>	Dim <input type="checkbox"/>
3. Class design is	Formal <input type="checkbox"/>	Informal <input type="checkbox"/>
Sociological dimension		
4. Group work is	Used <input type="checkbox"/>	Not used <input type="checkbox"/>
5. Teacher is	Present <input type="checkbox"/>	Not present <input type="checkbox"/>
6. Varied learning is	Used <input type="checkbox"/>	Not used <input type="checkbox"/>
7. Teacher motivates learner participation	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Physical dimension		
8. Audio teaching aids are	Used <input type="checkbox"/>	Not used <input type="checkbox"/>
9. Visual teaching aids are	Used <input type="checkbox"/>	Not used <input type="checkbox"/>
10. Tactile learning is	Practiced <input type="checkbox"/>	Not practiced <input type="checkbox"/>
11. Kinesthetic learning is	Practiced <input type="checkbox"/>	Not practiced <input type="checkbox"/>
12. Eating and drinking in class is	Done <input type="checkbox"/>	Not done <input type="checkbox"/>
13. Class time is	Morning <input type="checkbox"/> Afternoon <input type="checkbox"/>	Mid morning <input type="checkbox"/> Evening <input type="checkbox"/>
14. Learners	Move in class <input type="checkbox"/>	Sit still in class <input type="checkbox"/>
Psychological dimension		
15. Teacher gives whole meaning	Yes <input type="checkbox"/>	No <input type="checkbox"/>

of concepts to
students
16. Teacher Yes No
systematically
develops

concepts for
students
17. Teacher guides Yes No
learners in
thinking of
alternatives while
making decisions

**Emotional
dimension**

18. Learners are Yes No
active and
motivated to take
up tasks in class

19. Learners At will When asked by
participate teacher

20. Learners Complete tasks in Do not complete task
persistently class in class

21. Learners are Given direction on Not given direction on
task completion task completion

APPENDIX E: ANALYSIS OF OBSERVATION SCHEDULE

1. The classroom is

	Frequency	Percentage
Quiet	12	92.31
Noisy	01	7.69
Total	13	100

2. Lighting is

	Frequency	Percentage
Bright	13	100
Dim	00	0.0
Total	13	100

3. Class design is

	Frequency	Percentage
Formal	13	100
Informal	00	0.0
Total	13	100

4. Group work is

	Frequency	Percentage
Used	02	15.38
Not used	11	84.62
Total	13	100

Forms of group work activities:

- Role plays (mazungumzo sokoni- Isimu jamii)
- Analysis of character traits in short stories (Damu Nyeusi) in groups of three

5. Teacher is

	Frequency	Percentage
Present	13	100
Not present	00	0.0
Total	13	100

6. Varied learning is

	Frequency	Percentage
Used	13	100
Not used	00	0.0
Total	13	100

Forms of varied learning used:

- Lecture
- Question and answer
- Note taking
- Role play

- Individual class assignment

7. Teacher motivates learner participation

	Frequency	Percentage
Yes	10	76.92
No	03	23.08
Total	13	100

Motivation strategies used:

- Clapping for correct responses
- Verbal reinforcement i.e. vizuri, hongera, jaribio zuri, vyema
- Individual assignments that are marked in class

8. Audio teaching aids are

	Frequency	Percentage
Used	00	0.0
Not used	13	100
Total	13	100

9. Visual teaching aids are

	Frequency	Percentage
Used	12	92.31
Not used	01	7.69
Total	13	100

Forms of visual aids used:

- Chalk board
- Text books- Kiswahili Kitukuzwe, Chemichemi za Kiswahili, Kiswahili Fasaha, Mstahiki Meya, Damu Nyeusi

10. Tactile learning is

	Frequency	Percentage
Practiced	09	69.23
Not practiced	04	30.77
Total	13	100

Forms of tactile learning practices observed:

- Taking notes
- Constructing sentences on the chalkboard

11. Kinesthetic learning is

	Frequency	Percentage
Practiced	02	7.69
Not practiced	11	92.31
Total	13	100

Forms of kinesthetic learning practices observed:

- Role-playing
- Writing sentences on the chalkboard

12. Eating and drinking in class is

	Frequency	Percentage
Done	00	0.0
Not done	13	100
Total	13	100

13. Class time is

	Frequency	Percentage
Morning	02	15.38
Mid morning	06	46.15
Afternoon	05	38.46
Evening	00	0.0
Total	13	100

14. Learners

	Frequency	Percentage
Move in class	03	23.08
Sit still in class	10	76.92
Total	13	100

Instances of movement in class:

- Role-playing
- Writing sentences on the chalkboard

15. Teacher gives whole meaning of concepts to students

	Frequency	Percentage
Yes	09	69.23
No	04	30.77
Total	13	100

16. Teacher systematically develops concepts to students

	Frequency	Percentage
Yes	13	100
No	00	0.0
Total	13	100

17. Teacher guides learners in thinking of alternatives while making decisions

	Frequency	Percentage
Yes	05	38.46
No	08	61.54
Total	13	100

18. Learners are active and motivated to take up tasks in class

	Frequency	Percentage
Yes	11	84.62
No	02	15.38
Total	13	100

19. Learners participated

	Frequency	Percentage
At will	10	76.92
When asked by the teacher	03	23.08
Total	13	100

20. Learners persistently

	Frequency	Percentage
Completed tasks in class	09	69.23
Did not complete tasks in class	04	30.77
Total	13	100

21. Learners were

	Frequency	Percentage
Given direction on task completion	13	100
Not given direction on task completion	00	0.0
Total	13	100

APPENDIX F: RAW SCORES FOR STUDENTS' ACADEMIC ACHIEVEMENT IN KISWAHILI

a.

School	Student	Points	Grade
1	1.	9	B
	2.	4	D+
	3.	10	B+
	4.	4	D+
	5.	5	C-
	6.	9	B
	7.	3	D
	8.	6	C
	9.	5	C-
2	10.	5	C-
	11.	4	D+
	12.	3	D
	13.	8	B-
	14.	2	D-
	15.	4	D+
	16.	3	D
	17.	7	C+
	18.	9	B
3	19.	8	B-
	20.	10	B+
	21.	2	D-
	22.	7	C+
	23.	3	D
	24.	6	C
	25.	6	C
	26.	10	B+
	27.	5	C-
4	28.	11	A-
	29.	9	B
	30.	5	C-
	31.	6	C
	32.	8	B-
	33.	7	C+
	34.	7	C+
	35.	3	D
	36.	7	C+
5	37.	9	B
	38.	9	B
	39.	7	C+

	40.	6	C
	41.	9	B
	42.	7	C+
	43.	9	B
	44.	7	C+
	45.	11	A-
	46.	2	D-
	47.	6	C
6	48.	8	B-
	49.	5	C-
	50.	7	C+
	51.	9	B
	52.	5	C-
	53.	3	D
	54.	5	C-
	55.	4	D+
7	56.	2	D-
	57.	4	D+
	58.	8	B-
	59.	3	D
	60.	5	C-
	61.	3	D
	62.	2	D-
	63.	7	C+
	64.	3	D
8	65.	3	D
	66.	7	C+
	67.	4	D+
	68.	5	C-
	69.	3	D
	70.	6	C
	71.	5	C-
	72.	4	D+
	73.	2	D-
9	74.	6	C
	75.	7	C+
	76.	7	C+
	77.	5	C-
	78.	8	B-
	79.	7	C+
	80.	3	D
	81.	8	B-
	82.	3	D
10	83.	3	D
	84.	3	D

	85.	3	D
	86.	6	C
	87.	8	B-
	88.	7	C+
	89.	7	C+
	90.	5	C-
	91.	6	C
11	92.	4	D+
	93.	5	C-
	94.	6	C
	95.	2	D-
	96.	3	D
	97.	5	C-
	98.	4	D+
	99.	5	C-
	100.	6	C
12	101.	2	D-
	102.	5	C-
	103.	4	D+
	104.	5	C-
	105.	6	C
	106.	4	D+
	107.	4	D+
	108.	5	C-
	109.	3	D
13	110.	7	C+
	111.	5	C-
	112.	4	D+
	113.	6	C
	114.	5	C-
	115.	4	D+
	116.	5	C-
	117.	3	D
	118.	3	D
14	119.	2	D-
	120.	2	D-
	121.	9	B
	122.	7	C+
	123.	3	D
	124.	9	B
	125.	8	B-
	126.	10	B+
	127.	5	C-
15	128.	5	C-
	129.	3	D

	130.	6	C
	131.	8	B-
	132.	5	C-
	133.	7	C+
	134.	5	C-
	135.	4	D+
	136.	6	C
16	137.	7	C+
	138.	5	C-
	139.	8	B-
	140.	4	D+
	141.	4	D+
	142.	2	D-
	143.	4	D+
	144.	6	C
	145.	5	C-
17	146.	3	D
	147.	7	C+
	148.	4	D+
	149.	3	D
	150.	7	C+
	151.	1	E
	152.	8	B-
	153.	6	C
	154.	7	C+
18	155.	2	D-
	156.	7	C+
	157.	6	C
	158.	5	C-
	159.	3	D
	160.	3	D
	161.	3	D
	162.	2	D-
	163.	5	C-
19	164.	7	C+
	165.	6	C
	166.	6	C
	167.	5	C-
	168.	7	C+
	169.	6	C
	170.	7	C+
	171.	1	E
	172.	6	C
20	173.	5	C-
	174.	5	C-

	175.	6	C
	176.	5	C-
	177.	6	C
	178.	4	D+
	179.	3	D
	180.	5	C-
	181.	3	D
21	182.	3	D
	183.	2	D-
	184.	2	D-
	185.	3	D
	186.	3	D
	187.	3	D
	189.	4	D+
	190.	2	D-
	191.	2	D-
22	192.	2	D-
	193.	1	E
	194.	5	C-
	195.	6	C
	196.	4	D+
	197.	5	C-
	198.	3	D
	199.	5	C-
	200.	4	D+
	201.	2	D-
23	202.	2	D-
	203.	2	D-
	204.	2	D-
	205.	1	E
	206.	6	C
	207.	4	D+
	208.	3	D
	209.	6	C
	210.	3	D
24	211.	5	C-
	212.	4	D+
	213.	5	C-
	214.	5	C-
	215.	6	C
	216.	4	D+
	217.	3	D
	218.	8	B-
	219.	3	D
25	220.	7	C+

	221.	6	C
	222.	5	C-
	223.	8	B-
	224.	5	C-
	225.	4	D+
	226.	4	D+
	227.	2	D-
	228.	3	D
26	229.	4	D+
	230.	5	C-
	231.	3	D
	232.	9	B
	233.	1	E
	234.	2	D-
	235.	5	C-
	236.	2	D-
	237.	2	D-
27	238.	1	E
	239.	5	C-
	240.	2	D-
	241.	5	C-
	242.	5	C-
	243.	4	D+
	244.	5	C-
	245.	6	C
	246.	5	C-
28	247.	2	D-
	248.	2	D-
	249.	4	D+
	250.	3	D
	251.	4	D+
	252.	4	D+
	253.	3	D
	254.	6	C
	255.	7	C+
29	256.	3	D
	257.	7	C+
	258.	3	D
	259.	4	D+
	260.	3	D
	261.	4	D+
	262.	4	D+
	263.	3	D
	264.	3	D
30	265.	5	C-

	266.	7	C+
	267.	5	C-
	268.	3	D
	269.	5	C-
	270.	7	C+
	271.	9	B
	272.	6	C
	273.	9	B
31	274.	6	C
	275.	5	C-
	276.	7	C+
	277.	3	D
	278.	6	C
	279.	7	C+
	280.	9	B
	281.	7	C+
	282.	6	C
32	283.	10	B+
	284.	5	C-
	285.	11	A-
	286.	5	C-
	287.	4	D+
	288.	3	D
	289.	3	D
	290.	10	B+
	291.	8	B-
33	292.	9	B
	293.	7	C+
	294.	5	C-
	295.	7	C+
	296.	4	D+
	297.	7	C+
	298.	6	C
	299.	7	C+
	300.	6	C
34	301.	5	C-
	302.	6	C
	303.	4	D+
	304.	4	D+
	305.	3	D
	306.	3	D
	307.	5	C-
	308.	4	D+
	309.	3	D
35	310.	5	C-

	311.	4	D+
	312.	4	D+
	313.	3	D
	314.	3	D
	315.	3	D
	316.	5	C-
	317.	5	C-
	318.	4	D+
36	319.	5	C-
	320.	4	D+
	321.	3	D
	322.	5	C-
	323.	4	D+
	324.	3	D
	325.	4	D+
	326.	4	D+
	327.	3	D
37	328.	4	D+
	329.	2	D-
	330.	4	D+
	331.	3	D
	332.	5	C-
	333.	5	C-
	334.	4	D+
	335.	7	C+
38	336.	5	C-
	337.	5	C-
	338.	6	C
	339.	5	C-
	340.	2	D-
	341.	7	C+
	342.	3	D
	343.	3	D
	344.	4	D+
	345.	4	D+
	Mean score	4.94	C-

b.

SUMMARY OF STUDENTS' ACADEMIC ACHIEVEMENT IN KISWAHILI IN KCSE EXAMINATION OF 2014

Grade	Mean score	Number of Students	Percentage (%)
A	12	00	0.0
A-	11	03	0.87
B+	10	06	1.74
B	9	16	4.64
B-	8	15	4.35
C+	7	41	11.88
C	6	40	11.59
C-	5	69	20
D+	4	54	15.65
D	3	63	18.26
D-	2	31	8.99
E	1	06	1.74
Total		345	99.71

**APPENDIX G: TOP PERFORMING COUNTIES IN KISWAHILI IN KENYA
CERTIFICATE OF SECONDARY EDUCATION (KCSE), 2008-2012**

	COUNTY	2008	2009	2010	2011	2012	AVERAGE
1.	*Kakamega	5.61	5.93	6.14	6.39	5.48	5.91
2.	Vihiga	5.64	5.98	6.13	6.35	5.37	5.89
3.	Busia	5.45	5.61	5.95	6.63	5.45	5.81
4.	Siaya	5.43	5.26	5.85	6.41	5.20	5.63
5.	Nandi	5.22	5.22	5.53	6.22	5.43	5.52
6.	Bungoma	5.15	5.59	5.69	5.84	5.22	5.50
7.	Transzoia	4.78	5.35	5.65	6.09	5.44	5.46
8.	Migori	5.22	5.08	5.44	6.20	5.12	5.41
9.	Kisumu	5.17	4.87	5.55	6.15	5.11	5.37
10.	Taita	5.47	5.29	5.62	5.59	4.83	5.36

(Source: Kenya National Examinations Council (KNEC) Educational Statistics, 2008-2012)

APPENDIX H: RESULTS OF PART II OF TEACHERS' QUESTIONNAIRE

1. Do you know your students' preferred learning styles?

	Frequency	Percentage
Yes	5	13.16
No	33	86.84
Total	38	100

2. What are the factors responsible for your choice of teaching style?

Factor	Frequency (F)	Percentage (%)
1. Class size	17	20.99
2. Time available and scope of the syllabus	13	16.05
3. Time of day	11	13.58
4. Learning resources	10	12.35
5. Uncooperative administration	09	11.11
6. Work load	06	7.40
7. Nature of learners	06	7.40
8. Teacher and student relationship	06	7.40
9. Teacher preparation	03	3.70

3. What activities do you engage your students in while teaching Kiswahili?

S/No.	Activities	Frequency	Percentage
1.	Question/answer	23	25.27
2.	Class discussions	17	18.68
3.	Reading	15	16.48
4.	Drama and role-play	09	9.89
5.	Note-taking	05	5.49
6.	Demonstrations	04	4.40
7.	Group activities	03	3.30
8.	Individual activities	03	3.30
9.	Sentence construction on chalkboard	02	2.20
10.	Listening	02	2.20
11.	Class presentations	02	2.20
12.	Singing	02	2.20
13.	Assignments	02	2.20
14.	Peer teaching	01	1.10
15.	Debates	01	1.10
	Total	91	100

4. Freely describe your preferred teaching styles that you think enhance your students' academic achievement in Kiswahili

S/No.	Preferred Teaching Styles	Frequency	Percentage
1.	Questioning	13	29.55
2.	Class discussions and note taking	12	27.27
3.	Individual attention	07	15.91
4.	Supervised group activities and class presentations	06	13.64
5.	Lecture	03	6.82
6.	Demonstration	02	4.55
7.	Role-play	01	2.27
	Total	44	100

5. Does your teaching style match your students' learning styles in Kiswahili?

	Frequency	Percentage
Yes	9	23.7
No	29	76.3
Total	38	100

6. If there are mismatches between your teaching style and your Kiswahili students' learning styles, what would you do?

	Frequency	Percentage
Stick to your own teaching style	32	84.21
Make adjustments to adapt to your learners' preferred learning styles	06	15.79
Total	38	100

7. How do you ensure that individual differences are catered for in your classroom?

S/No.		Frequency	Percentage
1.	Use of group discussions	07	18.42
2.	Individual attention	07	18.42
3.	Question/answer	06	15.79
4.	Simple activities for low achievers and challenging ones for high achievers	05	13.16
5.	Encouraging consultations	04	10.53
6.	Individual assignments	03	7.89
7.	Encouraging class participation	02	5.26
8.	Follow up activities	02	5.26
9.	Use of student-centered methods	01	2.63
10.	Remediation	01	2.63
	Total	38	100

8. How do you find your teaching environment in Kiswahili classrooms?

S/No.		Frequency	Percentage
1.	It is spacious, well lit and ventilated	12	31.56
2.	It is conducive for teaching and learning	08	21.05
3.	It has good sitting arrangement	05	13.16
4.	It is noisy due to closeness to a busy road	03	7.89
5.	Learners are many compared to the size of the room	10	26.32
	Total	38	99.98

9. Which of the following best describes how you teach Kiswahili?

S/No.		Frequency	Percentage
1.	Telling learners most of the things	26	25.24
2.	Writing what you tell the learners on the chalkboard	24	23.30
3.	Letting learners practice what you tell them	24	23.30
4.	Allowing learners time to see what you tell them	18	17.48
5.	Telling learners to sit still at the same point while teaching	10	9.71
6.	Letting learners eat something while learning	01	0.97
	Total	103	100

10i) At what time of the day are most of your Kiswahili lessons?

	Frequency	Percentage
Midday	18	47.37
Morning	14	36.84
Afternoon	06	15.79
Evening	00	0.00
Total	38	100

ii) Are you comfortable with the time?

	Frequency	Percentage
Yes	26	68.42
No	12	31.58
Total	38	100

iii) At what time do you prefer to teach?

	Frequency	Percentage
Morning	32	84.21
Midday	06	15.79
Afternoon	00	0.00
Evening	00	0.00
Total	38	100

11. Which of the following methods do you use to enhance learners' understanding of content during Kiswahili lessons?

S/No		Frequency	Percentage
1.	Engage them in a variety of activities	31	30.39
2.	Assign them into groups for discussions	28	27.45
3.	Motivate learners while teaching	27	26.47
4.	Explain all the concepts in class	16	15.69
	Total	102	100

12. When teaching Kiswahili, you prefer:

S/No		Frequency	Percentage
1.	Your learners to follow through what you teach	26	38.24
2.	To direct your learners on how to complete tasks	24	35.29
3.	Your learners to complete all assignments before they break	18	26.47
	Total	68	100

13. When teaching Kiswahili you tell your learners:

S/No		Frequency	Percentage
1.	To use a dictionary to learn vocabulary in passages	25	32.05
2.	To relate what they learn to other subjects	23	29.49
3.	To think of possible answers before they make a guess	22	28.21
4.	To guess meaning of unfamiliar words	08	10.26
	Total	78	100

APPENDIX I: RESULTS OF PART II OF STUDENTS' QUESTIONNAIRE

1. Do you know your preferred learning style?

	Frequency	Percentage
Yes	121	35.07
No	224	64.93
Total	345	100

2. What are the factors responsible for your choice of learning style?

	Factor	Frequency (F)	Percentage (%)
1.	Discussion groups	112	22.86
2.	Teacher presentation	91	18.57
3.	Motivation	80	16.33
4.	Learning resources	75	15.31
5.	Attitude towards Kiswahili	46	9.39
6.	Kiswahili content	31	6.33
7.	Note-taking	23	4.69
8.	Class assignments	19	3.88
9.	Mode of revision	13	2.65

3. Freely describe your preferred learning style that enhances your academic achievement in Kiswahili?

S/No.	Activities	Frequency	Percentage
1.	Group discussions	97	24.01
2.	Individual reading	57	14.11
3.	Question and answer	43	10.64
4.	Note-taking	38	9.41
5.	Learning in a cool and quiet environment	28	6.93
6.	Consulting teachers	26	6.44
7.	Instructions from teachers	25	6.19
8.	Taking assignments	22	5.45
9.	Listening	17	4.21
10.	Taking part in classroom activities	15	3.71
11.	Learning by seeing	12	2.97
12.	Class presentations	08	1.98
13.	Learning in the morning	07	1.73
14.	Practicing what is taught	06	1.49
15.	Supervised class discussions	03	0.74
	Total	404	100

4. Is your preferred learning style different from that of other students?

	Frequency	Percentage
Yes	210	60.87
No	135	39.13
Total	345	100

5. Do you think your teachers' teaching style influences your learning style in Kiswahili?

	Frequency	Percentage
Yes	223	64.64
No	122	35.36
Total	345	100

6. Do you think there is a match between your learning style and your Kiswahili teacher's teaching style?

	Frequency	Percentage
Yes	136	39.4
No	209	60.6
Total	345	100

7. If there are mismatches between your learning style and your Kiswahili teachers' teaching style, what would you do?

	Frequency	Percentage
Stick to your own teaching style	48	13.91
Make adjustments to adapt to your learners' preferred learning styles	297	86.09
Total	345	100

8. Do you like your learning environment in Kiswahili classrooms?

	Frequency	Percentage
Yes	330	95.65
No	15	4.35
Total	345	100

9. Which of the following best describes how you learn Kiswahili?

S/No.		Frequency	Percentage
1.	Practicing what is taught	242	70.55
2.	Writing what you are told	63	18.37
3.	Sitting still at the same point while learning	18	5.25
4.	When told	12	3.30
5.	Seeing what you are told	08	2.33
6.	Eating something while learning	00	0.0
	Total	343	100

10 i) At what time of the day are most of your Kiswahili lessons?

	Frequency	Percentage
Midday	135	39.13
Afternoon	120	34.78
Morning	85	24.64
Evening	05	1.45
Total	345	100

ii) Are you comfortable with the time?

	Frequency	Percentage
Yes	210	60.87
No	135	39.13
Total	345	100

iii) At what time do you prefer to learn?

	Frequency	Percentage
Morning	280	81.16
Midday	65	18.84
Afternoon	00	0.00
Evening	00	0.00
Total	345	100

11. Which of the following best describes how you understand what is taught?

S/No		Frequency	Percentage
1.	When assigned to a group for discussion	142	41.28
2.	When the teacher engages me in a variety of activities	79	22.97
3.	When teacher explains all the concepts in class	71	20.64
4.	When motivated by the teacher	52	15.12
	Total	344	100

12. When learning Kiswahili, you prefer to:

S/No		Frequency	Percentage
1.	Follow through what is taught	250	72.46
2.	Complete assignments before I break	74	21.45
3.	Be directed by the teacher on how to complete tasks	21	6.09
	Total	345	100

13. When learning Kiswahili, you prefer to:

S/No		Frequency	Percentage
1.	Think of possible answers before making a guess	129	37.39
2.	Use a dictionary to learn vocabulary in passages	113	32.75
3.	Relate what you learn to other subjects	96	27.83
4.	Guess meaning of unfamiliar words	07	2.03
	Total	345	100

APPENDIX J: MEAN DIFFERENCES BETWEEN PEDAGOGICAL STYLES AND ACADEMIC ACHIEVEMENT IN KISWAHILI

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Noise level	8.872	2	4.436	1.285	.278
Lighting	1.599	2	.800	.232	.793
Temperature	5.935	2	2.967	.860	.424
Design	4.412	2	2.206	.639	.528
Persistence	1.555	2	.778	.225	.798
Learning groups	8.048	2	4.024	1.166	.313
Presence of authority figures	6.878	2	3.439	.996	.370
Auditory	1.332	2	.666	.193	.825
Tactile	1.509	2	.755	.219	.804
Food intake	.818	2	.409	.118	.888
Time of day	2.527	2	1.264	.366	.694
Mobility	4.908	2	2.454	.711	.492
Global	6.933	2	3.467	1.004	.367
Impulsive	4.065	2	2.033	.589	.556
Error	1066.603	309	3.452		
Total	22666.320	342			
Corrected Total	1141.600	341			

Estimated Marginal Means				
1. Noise				
Dependent Variable: Recorded performance				
			95% Confidence Interval	
Noise	Mean	Std. Error	Lower Bound	Upper Bound
Quiet	5.660	.435	6.804	8.516
Some form of noise	5.401	.613	7.194	9.608
Noise	5.541	.390	6.774	8.308
2. Lighting				
Dependent Variable: Recorded performance				
			95% Confidence Interval	
Lighting	Mean	Std. Error	Lower Bound	Upper Bound
Dim light	5.800	.483	6.849	8.751
Both dim and bright light	5.816	.498	6.837	8.795
Bright light	5.987	.392	7.215	8.758

3. Temperature				
Dependent Variable: Recorded performance				
Temperature	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Cool temperature	4.774	.437	6.915	8.633
Both cool and warm temperature	4.776	.459	6.873	8.679
Warm temperature	4.052	.403	7.259	8.845
4. Design				
Dependent Variable: Recorded performance				
Design	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Unconventional design	5.071	.445	7.195	8.948
Conventional design	4.634	.494	6.663	8.606
Both conventional and unconventional design	4.897	.396	7.117	8.676
5. Persistence				
Dependent Variable: Recorded performance				
Persistence	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Persistent	5.974	.417	7.153	8.795
Not persistent	5.705	.492	6.737	8.673
Somehow persistent	5.923	.438	7.061	8.785
6. Need for structure				
Dependent Variable: Recorded performance				
Need for structure	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Does not need structure	6.115	.430	7.268	8.961
Somehow needs structure	6.431	.513	6.421	8.441
Needs structure	7.056	.426	7.217	8.895
7. Learning groups				
Dependent Variable: Recorded performance				
Learning groups	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Does not use group work	7.793	.439	6.930	8.657
Sometimes uses group work	8.160	.482	7.211	9.108
Uses group work	8.649	.409	6.845	8.454

8. Presence of authority figures				
Dependent Variable: Recorded performance				
Presence of authority figures	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Presence of authority figures	7.902	.425	7.065	8.739
Sometimes presence of authority figures	7.854	.478	6.913	8.795
No presence of authority figures	7.847	.418	7.024	8.669
9. Auditory				
Dependent Variable: Recorded performance				
Auditory	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Does not use auditory style	4.718	.458	6.816	8.619
Sometimes uses auditory style	4.984	.510	6.980	8.987
Uses auditory style	4.901	.431	7.053	8.749
10. Tactile				
Dependent Variable: Recorded performance				
Tactile	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Does not use tactile style	5.745	.459	6.841	8.649
Sometime uses tactile style	5.991	.570	6.870	9.113
Uses tactile style	5.866	.391	7.096	8.636
11. Food intake				
Dependent Variable: Recorded performance				
Food intake	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
No food intake	6.623	.442	6.754	8.493
Sometime takes food	6.079	.714	6.674	9.484
Food intake	5.899	.372	7.168	8.631
12. Time of the day				
Dependent Variable: Recorded performance				
Time of the day	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Afternoon	6.970	.431	7.122	8.819

Mid-day	6.600	.500	6.617	8.584
Morning	7.031	.399	7.247	8.816

13. Mobility

Dependent Variable: Recorded performance

Mobility	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Do not move around	7.780	.454	6.886	8.674
Sometimes moves around	8.161	.478	7.220	9.101
Moves around	7.661	.416	6.842	8.480

14. Global

Dependent Variable: Recorded performance

Global	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Does not use the global style	7.067	.422	7.236	8.898
Sometimes uses the global style	6.510	.596	6.337	8.684
Uses the global style	7.025	.379	7.280	8.770

15. Impulsive

Dependent Variable: Recorded performance

Impulsive	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Does not learn impulsively	5.795	.439	6.932	8.659
Sometimes learn impulsively	6.046	.409	7.240	8.851
Learns impulsively	5.761	.437	6.901	8.621

APPENDIX K: SAMPLE OF SCHEME OF WORK

JUMIA	KIPINDI	SOMO	SHABAHA	MBINU	VIFAA	ASILIA	MAONI
1	3-6	KUFUNGUA					
2	1	Kusoma kwa Mapana	Kufika mwisho wa funzo mwanafunzi aweze; Kusoma kwa ufasaha na kueleza nafasi ya Kiswahili katika utandawazi	Majadiliano Kauliza na kujibu maswali Kufanya zoezi	Ramani ya dunia Makala yanayohusu utandawazi	KLB BK 2 UK 121-123 Makala magazetini Tuki: Kamusi sanifu	
	2	Kuandika Utungaji wa kuamilifu	Kufika mwisho wa funzo mwanafunzi aweze; Kutambua sehemu muhimu za hotuba na kuweza kutunga insha kwa kuzizingatia	Kuhotubia Kujadiliana Kufanya zoezi	Nakala za hotuba Vinasa sauti	KLB BK4 UK 123-124 Mwongozo wa mwalimu	
	3	Sarufi Mwingiliano wa maneno	Kufika mwisho wa funzo mwanafunzi aweze; Kutambua istilahi ziundazo sentensi na kutambua nafasi zake katika sentensi pia kuzitumia kwa ufasaha	Kutunga sentensi Kauliza na kujibu maswali	Chati na michoro	KLB BK4 UK 76-77 Chem BK4 UK 76-77	
	4	Kusikiliza na kuzungumza Miriga	Kufika mwisho wa funzo mwanafunzi aweze; Kuzingatia matamshi bora ya lugha, kutaja miriga, umuhimu wake na mafunzo katika jamii	Kusikiliza Kauliza maswali na kufanya zoezi	Vifaa halisi Picha na michoro	I. Ikarabati KLB BK4 UK 80	
	5	Isimu Jamii Mazungumzo ya kawaida nay a biashara	Kufika mwisho wa funzo mwanafunzi aweze; Kuelewa sifa, lugha na matumizi ya sajili ya mazungumzo ya kawaida nay a biashara	Majadiliano Kauliza na kujibu maswali	Vifaa halisi Picha na michoro	Odeo I I na Mama C. Fani ya Isimu Jamii UK I. Ikarabati UK 77-82	
	6	Fasihi simulizi Utani	Kufika mwisho wa funzo mwanafunzi aweze; Kwa kuzingatia matamshi bora kueleza ain za utani na kuweza kuzitumia ipasavyo katika mazungumzo	Kusimilia visa Kuigiza na kufanya zoezi	Kinasa sauti	KLB BK4 UK 158-160 Hellenistic Publishers Mwongozo wa fasihi simulizi	
3	1	Isimu Jamii Kusoma kwa mapana	Kufika mwisho wa funzo mwanafunzi aweze; Kuelewa na kueleza sifa na sajili ya lugha ya madukani nay a sokoni Kubainisha tofauti ya sajili hizo	Majadiliano Kauliza na kujibu maswali	Vifaa halisi Picha na michoro	Odeo I I na Mama C. Fani ya Isimu Jamii UK I. Ikarabati UK 82-86	

APPENDIX L: PARTICIPANTS' CONSENT LETTERS

School Head's Consent letter

Your school has been selected to participate in a research study on 'Influence of Pedagogical Styles on Students' Academic Achievement in Kiswahili.' Your teachers and students are a valuable resource that could greatly assist in the completion of this study. All Form IV Kiswahili teachers and students are requested to participate. If you approve the participation of your school and agree to the school's cooperation in the data collection process, I will proceed to contact the appropriate teachers and students to request their involvement. You are free to ask any questions before agreeing to take part.

I consent to the participation of Form IV Kiswahili teachers and students in the above study.

Signature

Name of School

Date

Teacher's Consent letter

You and your class are invited to participate in a research study on 'Influence of Pedagogical Styles on Students' Academic Achievement in Kiswahili.' Your class was chosen as potential participants. Your school principal has approved your participation and has pledged the full cooperation of the school in providing me with the participants' demographic, pedagogical styles and achievement data necessary to complete the study. You are free to ask any questions before agreeing to take part.

I consent to participate in the above study.

Signature

Date

Student's Consent letter (Signed for by class teachers)

You are requested to participate in a research study on 'Influence of Pedagogical Styles on Students' Academic Achievement in Kiswahili.' All your responses and information will be treated with utmost confidentiality and your identity remain anonymous.

I have been briefed on what the study is about. I also understand that my participation is completely voluntary and that if I feel it necessary, then I may discontinue my participation at any time. I am assured that the information I give is confidential, I therefore agree to participate in the above study.

Signature

Date

APPENDIX M: ETHICAL APPROVAL LETTER



MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

Tel: +254 057 351 622 Ext: 3050
Fax: +254 057 351 221

Private Bag – 40105, Maseno, Kenya
Email: muerc-secretariate@maseno.ac.ke

FROM: Secretary - MUERC

DATE: 7th April, 2015

TO: Maureen Kang'ahi
PG/PHD/00138/2012
Department of Educational Communication
Technology and Curriculum Studies
School of Education
Maseno University, P. O. Box, 333, Maseno, Kenya

REF: MSU/DRPI/MUERC/00140/15

RE: Pedagogical Styles in Relation to Students Academic Achievements in Kiswahili Language in Secondary Schools in Kakamega North Sub County, Kenya. Proposal Reference No.: MSU/DRPI/MUERC/00140/15

This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that ethics issues were adequately addressed in the proposal presented for review. Consequently, the study is granted approval for implementation effective this 7th day of April, 2015 for a period of one (1) year.

Please note that authorization to conduct this study will automatically expire on 6th April, 2016. If you plan to continue with the study beyond this date, please submit an application for continuation approval to MUERC Secretariat by 4th March, 2016.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach MUERC Secretariat by 4th March, 2016.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advise MUERC when the study is completed or discontinued.

Thank you.

Yours faithfully,

Dr. Bonuke Anyona,
Secretary,
Maseno University Ethics Review Committee.



Cc: Chairman,
Maseno University Ethics Review Committee.

MASENO UNIVERSITY IS ISO 9001:2008 CERTIFIED

APPENDIX N: RESEARCH PERMIT

TEACHERS SERVICE COMMISSION.

Telegrams:
Telephone: 0208003893
Fax:
Email address: malavatsc@yahoo.com
When replying quote our Ref



TSC County Director,
Kakamega County,
Kakamega North District,
P.O. Box 34-50103
MALAVA

Ref: TSC/KKN/GEN COR/VOL: 1 /5

Date: 12/05/2014.

TO WHOM IT MAY CONCERN,

RE: PERMISSION TO CARRY OUT RESEARCH.
MAUREEN KANG' AHI.

Reference is made to this persons letter Ref: PG/PHD/0138/2012 of 6/5/2014 authored by the chairman of department of educational communication, Technology and Curriculum studies- Maseno University.

As such, she has been granted permission to access our secondary school in Kakamega North District between May and August to carry out her research work on TOPIC 'pedagogical styles in relation to students' Academic in Kiswahili language.

Our office will appreciate and assistance granted to the student in the course of her research work.

MUDACHI H. M.
DISTRICT HUMAN RESOURCE OFFICER,
KAKAMEGA NORTH DISTRICT,
FOR: COUNTY DIRECTOR
KAKAMEGA COUNTY.

FOR: TSC COUNTY DIRECTOR
KAKAMEGA COUNTY

APPENDIX O: MAP OF KAKAMEGA NORTH SUB-COUNTY

