

Differences in Public Junior High School Pupils' Learning Style Preferences: The Controlling Effect of Gender in Studying Social Studies in East Mamprusi Municipality, Ghana

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ABSTRACT

The study sought to establish whether gender influences learning style preferences of pupils in public junior high school in East Mamprusi Municipality, relative to studying Social Studies. The study was guided by Grasha and Riechmann (1982) learning styles theory, which postulates six learning style preferences including Avoidant, Participant, Dependent, Independent, Competitive and Collaborative. Cross-sectional descriptive survey design within the positivists' quantitative methodology was used for the study. Structured questionnaire was used to collect data from 230 participants, selected through proportionate stratified random sampling technique for the study. With the aid of SPSS, data was analysed using independent samples t-test to compare the means of independent groups identified in the hypothesis of the study. The findings revealed that there were differences in the Social Studies learning style preferences of male and female pupils in relation to each learning style and gender. However, differences in independent learning style [$t(228)=0.570, p>0.05, 2\text{-tailed}$], avoidant learning style [$t(228)=0.398, p>0.05, 2\text{-tailed}$], collaborative learning style [$t(228)=-0.338, p>0.05, 2\text{-tailed}$], dependent learning style [$t(228)=1.226, p>0.05, 2\text{-tailed}$], competitive learning [$t(228)=-0.250, p>0.05, 2\text{-tailed}$], and participant learning style [$t(228)=1.387, p>0.05, 2\text{-tailed}$] based on gender were not statistically significant. Based on the findings, it was recommended that irrespective of gender, management of basic schools in the East Mamprusi Municipality should pay equal attention to all the pupils in an effort to enhance their learning styles in studying Social Studies.

Key words: Learning styles, Gender, Junior High School pupils, Social Studies.

INTRODUCTION

Learning styles, according to Zhou (2011) describe the manner and conditions under which learners most efficiently and effectively perceive, process, store and recall what they are attempting to learn. Learning styles are a part of an individual's personality. In other words, the preference for a particular learning style by a person indicates his/her desire for a special learning method in a certain condition (Farruxovna, & Qodirjonovna, 2021).

The term "learning styles" began appearing in educational literature in the 1970s and has been used interchangeably with similar terms, such as cognitive style and thinking style (Sadan, Berks & Sarah, 2011). According to Curry (1983) there are 21 models for learning styles. From a general standpoint, the Oxford American College Dictionary defines style as, "A way of behaving or approaching a situation that is characteristic of, or favored by a particular person."

Learning styles demonstrate the difference in the individual's preferences in the knowledge acquisition process (Kafadar, 2021). According to Kolb (1984) learning style is characterized by combining individual orientations that give differential emphasis to the four fundamental learning styles (Concrete experience, Reflective observation, Abstract conceptualization and Active experimentation) postulated in the theory of experiential learning, as a result of inherited equipment, past experience, and the requirements of the current environment.

Learning style may be defined as an individual's preferred way of learning (Grasha, 1996), or it may include "a range of constructs describing variations in the manner in which individuals learn" (Price, 2004, p. 681). An

understanding of students' learning styles can improve the selection of teaching strategies best suited to their learning (Zapalska & Dabb, 2002). Knowing the learning styles of their students, teachers can develop a variety of instructional methodologies to benefit all students (Williamson & Watson, 2007).

One of the popular learning style models is the model developed by Grasha-Riechmann in (1982). The model identifies six types of learning style preferences: avoidant, participative, competitive, collaborative, dependent and independent. Avoidant learners prefer to avoid attending class and show no interest in participation in class activities. Basically, they are passive learners. Participant learners are active and prefer to involve more in class activities. Competitive learners prefer to compete within a whole class in order to achieve success. Collaborative learners prefer to learn in collaboration with the teacher and other students. Dependent learners prefer to learn by relying on others. They (Dependent learners) treat teachers and peers as a support base in the learning process. Independent learners prefer to work on their own and are able to follow self-paced instruction.

Statement of the Problem

Gender has been identified as one of the factors which influence learning style preferences. In a research conducted by the department of physiology at Wayne State University School of Medicine to establish whether gender influences learning style preferences of students, the researchers administered the Visual, Auditory, Reading/Writing, Kinesthetic (VARK) questionnaire of learning preferences to first year medical students. Findings of the research revealed that there were no gender differences in the percentages of males and females who preferred multimodal or unimodal styles of information presentation. Contrary to the above findings, another research carried out by Wehrwein, Lujan and Dicarolo found that male and female students had significantly different learning style. Other researchers however, found gender as a factor influencing learning style preferences.

Findings from the above studies indicate a lack of consensus on whether gender is a factor that influences learning style preferences of learners. This, therefore, points to the need to investigate the learning style preferences of males and females so as to match their learning style preferences with teaching styles. The current study, therefore, sought to establish whether there were differences in learning style preferences of public junior high school pupils in East Mamprusi Municipality in relation to the study of Social Studies, using the Grasha-Riechmann (1982) learning styles model.

Hypothesis of the Study

The following hypothesis was tested in the study:

H₀₁: There is no statistically significant difference in learning style preference between male and female pupils in public Junior High Schools in the East Mamprusi Municipality in relation to learning Social Studies.

H₁: There is statistically significant difference in learning style preference between male and female pupils in public Junior High Schools in East Mamprusi Municipality in relation to learning Social Studies.

This hypothesis sought to compare the learning style preferences of male and female pupils to determine whether there were significant differences.

REVIEW OF RELATED LITERATURE

The Concept of Learning Styles

Learning styles are an integral and vital part of a student's learning process and have been constantly discussed in the field of education and pedagogy. Originally, it was developed from the field of psychology, psychological classification, and cognitive research (Hu, Peng, Chen & Yu, 2021). The term "learning style" is generally defined as the learner's innate and individualized preference for ways of participation in learning practice (Ehrman & Oxford, 1990). Theoretically, learning styles provide a window into pupils' learning processes (Moser & Zumbach, 2018), predict pupils' learning outcomes (Chen & Chen, 2018) and play a critical role in designing individualized instruction (Buckley & Doyle, 2017). Knowing a student's learning styles and

personalizing instruction to these learning styles could enhance the student's satisfaction, improve academic performance and reduce the amount of time spent on learning tasks (Kuo, Chu, & Huang, 2015). Kolb, cited in Ramayah et al. (2011) noted that the success of students in the learning environment depends on a variety of factors, including intellectual abilities, skills and talents of students, and learning style preferences.

Gender and learning style preferences

Gender refers to the array of socially constructed roles and relationships, personality traits, attitudes, behaviors, values, and relative power and influence that society ascribes to the two sexes on a differential basis. Gender is an acquired identity that is learned, changes over time, and varies widely within and across cultures. Gender is relational and refers not simply to women or men but to the relationship between them (Moser, 1993).

It has been established from research that gender is a factor, among others that influence learning style preferences of students (Slater, Lujan, & Stephene, 2007). In a study that investigated learning style preferences of students based on gender, Esewe and Ogunleye (2021) employed descriptive cross-sectional survey research design with the aid of a self-administered questionnaire to investigate 206 nursing students from 2 institutions in Edo State, Nigeria through the use of an adapted instrument by Kolb (1984). Chi-square statistical technique was used to analyse the non-parametric data at a significance level of 0.05. Findings of the study revealed that 52(36.1%) of the respondents were female convergers while 12(27.1%) were male divergers. There were 8(16.7%) male assimilators and 28(19.4%) female accommodators respectively. The study concluded that students have their own preferred way to recognize, retain and retrieve information irrespective of gender.

Contrary to the findings and conclusions made by Esewe and Ogunleye on the subject of gender and learning style preferences, other empirical studies that investigated the influence of gender on student's learning style preferences reported negative relationship between the two variables. For instance in a study, Ngala (2018) employed a descriptive survey design which used crosssectional approach to data collection. The population of the study consisted of all the 397 post-graduate students at Africa International University. A modified version of the Grasha-Riechmann (1982) Student Learning Style Scales (GRSLSS) was used to measure the learning style preferences of the respondents. The findings revealed that gender was not significantly related to the ways Post-graduate students at Africa International University preferred to learn.

In another research, Wehrwein, Lujan and Dicarolo (2007 p. 53) found that "male and female students had significantly different learning styles". Yet, other researchers (Honigsfield & Dunn, 2003) and Zelazek (1986) found gender as a factor influencing learning style preferences of students. The lack of concensus in the above studies show that there is the need to investigate the learning style preferences of males and females so as to match their learning preferences with teaching styles for enhanced academic performance.

METHODOLOGY

Research Design

Cross-sectional descriptive survey design was used in the study. The choice of this research design afforded the researcher an opportunity to collect numeric data from respondents on a single occasion, so as to examine relationships between the variables of study.

Population of the Study

A research population refers to all the elements that meet the criteria for inclusion in a study (Burns & Grove, 2011). The accessible population for the study included all pupils in public Junior High Schools in East Mamprusi Municipality who had studied in their respective schools for at least one academic year. This was made up of 662 girls and 900 boys, totalling 1,562 public Junior High School (JHS) pupils (East Mamprusi Education Statistics Unit, 2022). The accessible population was derived from all the nine (9) educational circuits in East Mamprusi Municipality.

Sample and Sampling Techniques

Sampling is the process of selecting a given number of subjects from a defined population as representative of

that population, such that any statements made about the sample should also be true of the population (Orodho, 2009). Stratified random sampling technique was used to select respondents for the study. In using this technique, the sampling frame was first determined. According to Kölln, et al. (2019) the sampling frame is an operationalised representation of the target population, which is the group of units from which the sample is recruited. The target population was categorised in terms of circuits and their respective gender composition. Then, the number of pupils from each circuit and gender was selected.

A sample is a representative part of a population, which when studied makes it possible for a researcher to know about the population without necessarily studying it entirely (Taherdoost, 2016). In this study, 234 public Junior High School pupils were selected from the nine educational circuits in the East Mamprusi Municipality to establish the sample. The sample size was deemed representative of the target population based on the suggestion by Gay and Airasian (2003) that at least 10-20% sample of the target population is adequate for a descriptive study. Therefore, the sample size of 234 was 15% of the target population of 1,562 pupils.

Instrumentation

Data collection instruments refer to the fact-finding strategies and tools for data collection (Munir, Annum, Reyes & Hassan, 2017). Denzin and Lincoln (2012) advance the argument that the questionnaire is arguably said to be the commonest research tool relatively well understood by respondents due to its merits on cost effectiveness and simplicity. The questionnaire was adapted from Grasha-Riechmann (1982) and consisted of four sections. Section 'A' gathered demographic information of the respondents such as gender, age and level/form. Section 'B' gathered data on the learning style preferences of the respondents based on Grasha-Riechmann (1982) learning style model. Section 'C' of the questionnaire sought to collect data on factors that influence the pupils' learning style preferences whilst Section D' gathered data on the academic performance of respondents in Social Studies.

Pre-testing of Data Collection Instrument

The pre-testing of the questionnaire was done in the West Mamprusi Municipality. The choice of this Municipality was in view of the researcher's observation that the West Mamprusi Municipality exhibits characteristics closely related to those of the East Mamprusi Municipality. A sample of thirty (30) pupils was selected from junior high schools in the West Mamprusi Municipality for the pre-testing exercise. The adequacy of the pre-testing sample size was based on Cooper and Schilder's (2011) suggestion that at least 10% of the sample is adequate in a pre-test.

Validity of Instrument

Validity describes the accuracy with which an instrument measures the anticipated construct within a study (Noble & Smith, 2015). Content validity of the instrument was ascertained by colleagues and experts who are knowledgeable in relation to the issues in the study.

Reliability of Instrument

The reliability of the research instrument was estimated using Cronbach's alpha reliability test which yielded a Cronbach alpha coefficient greater than 0.7 for each of the study variables. This agreed with the recommendation of George and Mallery (2012) that a Cronbach's alpha reliability coefficient greater than or equal to 0.70 is acceptable. Based on this result, it was concluded that the research instrument was reliable.

Data Collection Procedure

Data collection is the process of gathering and measuring information on variables of interest in an established, systematic fashion that enables the researcher to answer stated research questions, test hypotheses, and evaluate outcomes (Kabir, 2016). A letter of introduction was obtained to enable the researcher seek permission from the East Mamprusi Municipal Education Directorate to gain access to the public Junior High Schools in the nine circuits. The researcher then held brief interaction with the pupils who were selected for the study and explained to them how they would be involved in the study. Further, the researchers sought the consent of the participants,

distributed the questionnaires, and explained to them how to respond to the items.

Data Analysis Procedure

Data analysis is the process of collecting, modelling, and analysing data to extract insights that support decision-making (Creswell, 2015). Data was analysed using inferential statistics. Specifically, Independent Samples t-test was used to analyse the data in order to compare means of the two independent groups.

RESULTS AND DISCUSSION

Demographic Characteristics of the Respondents

The demographic characteristics of the respondents including form/class, gender, age, and parental level of education, were examined and the results are shown in Table 1. The data in Table 1 reveal that most of the pupils who participated in the study were in Form 2 (n=91, 39.6%) as compared with Form 1 pupils (n=76, 33.0%) and Form 3 pupils (n=63, 27.4%).

Table 1: Demographic Characteristics of Respondents

Variables	Categories	Frequency	Percent
Form			
	Form 1	76	33
	Form 2	91	39.6
	Form 3	63	27.4
Gender			
	Male	111	48.3
	Female	119	51.7
Age (in years)			
	15-Dec	39	17
	16-19	110	47.8
	20 and above	81	35.2
Parental level of education			
	Basic	88	38.3
	Secondary	61	26.5
	Tertiary	44	19.1
	No education	37	16.1

Source: Field Data, 2022

The data also reveal that more than half of the pupils were girls (n=119, 51.7%) whilst the rest were boys (n=111, 48.3%). In relation to age, the data show that majority of the pupils were in the 16-19 age bracket (n=110, 47.8%), followed by those who were 20 years or more (n=81, 35.2%) and 12-15 (n=39, 17.0%) respectively. Furthermore, the data indicate that a greater proportion of the pupils had parents who possessed basic education (n=88, 38.3%), followed by those whose parents had secondary (n=61, 26.5%), tertiary (n=44, 19.1%) and no education (n=37, 16.1%) respectively. The demographic compositions of the respondents were vital to the study for two reasons. Firstly, they confirmed that data were collected from a sample with diverse backgrounds. Secondly, the demographic characteristic in relation to gender was used as the basis of comparison of the pupils in relation to their preference for learning styles.

Data Presentation and Test of Research Hypothesis

H₀₁: There is no statistically significant difference in learning style preference between male and female pupils in public Junior High Schools in the East Mamprusi Municipality in relation to learning Social Studies.

H₁: There is statistically significant difference in learning style preference between male and female pupils in public Junior High Schools in the East Mamprusi Municipality in relation to learning Social Studies.

This hypothesis sought to compare the learning style preferences of male and female pupils to determine whether there were significant differences. Independent samples t-test was deployed to analyse the data, and the results are shown in Table 2.

Table 2: T-test Results for Gender and Learning Styles Preferences

	Gender	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
				F	Sig.	t	df	Sig. (2-tailed)
Independent	Male	3.84	0.573	0.483	0.488	0.57	228	0.569
	Female	3.8	0.516					
Avoidant	Male	3.808	0.549	0.21	0.647	0.398	228	0.691
	Female	3.779	0.558					
Collaborative	Male	3.753	0.651	1.89	0.171	-0.338	228	0.736
	Female	3.78	0.579					
Dependent	Male	3.812	0.576	0.89	0.346	1.226	228	0.221
	Female	3.717	0.602					
Competitive	Male	3.719	0.521	0.347	0.556	-0.25	228	0.803
	Female	3.736	0.477					
Participant	Male	3.831	0.534	0.657	0.418	1.387	228	0.167
	Female	3.727	0.597					

Source: Field Data, 2022; *p<0.05

Firstly, the Levene's statistic was examined to ascertain whether the assumption of homogeneity of variance was achieved, and the results showed that the Levene's statistic for each variable was not statistically significant ($p > 0.05$). Hence, the study concluded that the homogeneity of variance assumption was achieved. The data in Table 2 reveal that there were differences in the learning style preferences of male and female pupils as shown in the mean scores in relation to each learning style and gender.

However, the findings further reveal that the differences in independent learning style [$t(228) = 0.570$, $p > 0.05$, 2-tailed), avoidant learning style [$t(228) = 0.398$, $p > 0.05$, 2-tailed), collaborative learning style [$t(228) = -0.338$, $p > 0.05$, 2-tailed), dependent learning style [$t(228) = 1.226$, $p > 0.05$, 2-tailed), competitive learning [$t(228) = -0.250$, $p > 0.05$, 2-tailed), and participant learning style [$t(228) = 1.387$, $p > 0.05$, 2-tailed) based on gender were not statistically significant. These findings imply that gender did not account for differences in learning style preferences for Social Studies between male and female pupils in Junior High Schools in the East Mamprusi Municipality. Therefore, the null hypothesis that "there is no statistically significant difference between male and female pupils in relation to their Social Studies learning style preferences in public Junior High School in the East Mamprusi Municipality" was supported whilst the alternative hypothesis was not supported.

Discussion of Results

The finding in relation to the test of hypothesis indicated that both male and female pupils in public Junior High Schools in the East Mamprusi Municipality preferred similar learning styles. However, the study found no significant differences in learning preferences between boys and girls, which means gender didn't seem to matter much in how they prefer to learn. This finding was consistent with previous studies (Ngala, 2018) that gender does not account for differences in learning style preferences of learners. A multiplicity of factors may be responsible for the absence of gender differences in learning style preferences among boys and girls. For instance, the use of appropriate pedagogical exemplars or teaching strategies and general ethos of the school could collectively play a critical role in determining learning preferences of students. However, other studies (Wehrwein, Lujan & Dicarolo, 2007 p. 53, Slater, Lujan, & Stephene, 2007) provided evidence to show that significant differences existed between male and female pupils in terms of their learning style preferences. These contradictory findings call for studies in specific contexts to arrive at findings that are applicable in that context.

CONCLUSION AND RECOMMENDATION

Conclusion

The study concluded that the gender of the pupils does not matter in determining differences in their learning styles towards the study of Social Studies in public Junior High Schools in the East Mamprusi Municipality. This conclusion is based on the finding that there was no significant difference between males and females in their learning styles.

Recommendation

In line with the finding that both male and female pupils preferred similar learning styles, it is recommended that the management of the schools should equally focus on all the pupils in an effort to enhance their learning styles in studying Social Studies irrespective of gender.

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