

Factors Influencing Learning Style Preferences of Students in Public Colleges of Education in the Central-Western Zone of Ghana

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Abstract

Studies into learning styles for the past three decades have brought about an increasing attention and awareness to the diverse ways through which students prefer to learn. Researchers in education indicate that individuals have different learning styles which are influenced by different factors. This study investigated the factors influencing learning style preferences of students in public Colleges of Education (CoEs) in the Central-Western Zone of Ghana. The study adopted quantitative approach of the cross-sectional survey design. Through random sampling, 1396 respondents were used for the study. The adapted instrument used for the study was pre-tested and its analysis yielded a Cronbach Alpha Co-efficient of 0.87 which was deemed appropriate. The students agreed that instructional factors influenced their learning style preferences but disagreed that their learning style preferences were influenced by personal factors, and environmental factors. There were statistically significant differences in the perception of students on factors that influence their learning style preferences based on sex (male or female), level (Level 100 or Level 200), and nature of College (single-sex or co-educational). It was concluded that students' learning style preferences are affected by different factors which in turn affect their study habits. As such, it was recommended among others that tutors of public CoEs in the Central-Western Zone of Ghana should regularly provide an enabling classroom environment and adopt appropriate and varied teaching methods, techniques and strategies to enhance students' learning style preferences.

Keywords: Learning style, preference, environmental, personal, instructional, factors

Introduction

Learning is considered as a crucial phenomenon for one's aspirations to be developed and achieved. As a result, many lecturers spend a lot of time and effort to design their instruction and learning to attain the maximum value of a product of interactions which include interactions with instructors and students, as well as with content and or with other people (Tanya, 2011). It is therefore intriguing, and one wonders why some students perform better than others when they are taught by the same lecturer in a particular course, or some students performing better under the instruction of one lecturer than another lecturer in the same subject. The reason for this could be the way the lecturer presents the information, and the type of learning style preferred and adopted by students to meet their needs. It is argued by educational researchers that every student has a different learning style (Felder & Brent, 2005). Hence, tutors' understanding of learning styles preferences of their students could help in adopting strategies that will motivate the students and improve on their ability to adopt and practice good learning styles.

The concept of learning style is not a new phenomenon because various studies have been conducted on the concept for many decades, and it is one of the topics widely considered within the framework of learning (Brown, Zogni, Williams & Sim, 2009). Learning style has been defined in many ways by different experts based on their assessments in different orientations. As a result of this, there are different definitions and classifications of learning styles. James, D'Armour and Thomas (2011) define learning style as the characteristic method of gaining knowledge, skill, or attitudes through study or experiences. They further indicate that learning style addresses the approach to learning and the ways through which individuals learn best. The definitions of learning style show that it is the unique or special method through which individuals interact with the environment. Hence, learning styles and chosen learning methods are assumed to influence approaches students adopt to learning. This suggests that the main source of learning is the way through which the learner processes and reflects on experiences.

Statement of the Problem

Several studies have been conducted on factors that influence learning style preferences of students but findings from such studies are not conclusive on the nature of factors that influence learning style preferences of students. Whereas most of these studies have considered gender as a factor in influencing learning style preferences of students, few of such studies have considered other factors. A study by Ramayah, Nasrijal, Leong, Sivanandan and Letchumanan (2011) on factors influencing the learning style preferences among business students of selected universities in Australia looked at peer influence, cultural background, and technology as factors affecting learning style preferences of students. The question likely to be asked is, "are these the only factors that account for learning style preferences of students?"

A cursory observation of some of the public Colleges of Education (CoEs) in the Central-Western Zone of Ghana reveals that some of the colleges have libraries but these libraries are not stocked with adequate and current books and journals that will help the tutors and students to conduct researches into what they teach and learn. Again, some of the tutors adopt tutor-centred methods of teaching which may not suit the learning needs of every student. These are factors that influence the learning style preferences of students. In Ghana, there seems to be few studies conducted on factors influencing learning style preferences of students. For instance, Esia-Donkoh, Eshun, Acquaye and Amponsah's (2017) study on learning style preferences of male and female sandwich students in the Department of Basic Education, University of Education, Winneba, revealed that teaching and learning factors influenced the students' learning style preferences more than physical and environmental factors, and personal factors. The same study found out that there were no statistically significant differences in the perception of male and female sandwich students on physical and environmental factors, teacher and learning factors, and personal factors that influence their learning style preferences. In the context of public CoEs in Ghana however, there seems to be no such study. This informed this study to investigate the factors that influence learning style preferences of students in public CoEs in the Central-Western Zone of Ghana, and also explore the perceptions of the students on factors that influence their learning style preferences based on their sex, level of study, and nature of college as demographic variables.

Purpose of the Study

The study was to investigate the factors that influence learning style preferences of students of public CoEs in the Central-Western Zone of Ghana, and to explore their perceptions on the factors that affect their learning style preferences considering sex, level of study, and nature of college.

Research Question

What factors influence the learning style preference of students in public colleges of education?

Hypotheses

H₀₁: There is no statistically significant difference in the perception of male and female students in public CoEs on the factors that influence their learning style preference.

H₀₂: There is no statistically significant difference in the perception of students in single-sex and co-educational mixed-sex public CoEs on the factors that influence their learning style preference.

H₀₃: There is no statistically significant difference in the perception of students in Level 100 and Level 200 of public CoEs on factors that influence their learning style preference.

Significance of Study

The findings of the study will make tutors aware of the various factors that influence the learning style preferences of their students, and also plan their teaching and learning activities to cater for the different learning styles of the students. Hence, the findings of the study will assist tutors to identify and address the learning difficulties of their students to achieve good teaching and learning outcomes. The findings will educate students to see the need to adopt good and varied learning styles, and practice effective study habits to be successful in their academic pursuits. Last, but not least, the findings of the study will form the basis for further research on the topic of students' learning style preferences.

Literature Review

A plethora of literature show that the success of students in the classroom depends not only on the intellectual abilities, skills and talents of students, but also on the students' learning style (Kolb, in Ramayah et al., 2011). Hence, a better understanding of learning styles will be of great benefit to both tutors and students. Research findings indicate that students with a good understanding of their learning styles can improve their learning effectiveness in and outside the lecture room (Nolting, in Dembo & Howard, 2007). It could therefore be deduced that when tutors consider their students' preferred learning styles in the teaching and learning process, they may perform well in their studies (Dembo & Howard in Ramayah et al., 2011). For tutors, a good knowledge and understanding of learning styles of their students may be helpful in identifying and addressing learning problems of students to make them become effective learners (Cooper, 2007). Additionally, tutors may become more concerned about individual differences among students and this may guide tutors to carefully and systematically design learning experiences that suit the learning styles of the students based on the objectives of the tutor (Acharya, 2002).

Several factors account for the difficulty every student faces in learning, and according to Abucay (2009), these factors include intellectual factors (special intellectual abilities and disabilities), instructional factors (appropriate and inappropriate teaching and learning methods), and physical factors (health, visual and physical defects, nutrition and physical development). Others are environmental factors (classrooms, textbooks, equipment, school supplied and other instructional materials), teacher's personality (the vital tasks of the teacher to have the power to lead and to inspire pupils through the influence of his personality and example), and emotional and social factors (kind of pupil-teacher relationships in the classroom, the social interaction of relationships among pupils, the relationships among members of the school staff, the physical characteristic of a classroom, social readiness, co-operation versus competition and students' attitudes towards lecturers). Some studies on factors that influence students' learning style preferences have been conducted. For instance, Esia-Donkoh, Eshun, Acquaye and Amponsah (2017) conducted a study on learning style preferences of male and female sandwich students in the Department of Basic Education, University of Education, Winneba. It was found out that teaching and learning factors greatly influenced the learning style preferences of male and female sandwich students as compared to physical and environmental factors, and personal factors. In a similar study, Abante *et al.* (2014) established that physical and environmental factors greatly influenced the learning style preference of first and second year General Engineering students as compared to teacher and learning, and personal factors.

The study by Esia-Donkoh, Eshun, Acquaye and Amponsah (2017) showed that there were no statistically significant differences in the perception of male and female sandwich students of the Department of Basic Education, University of Education, Winneba on factors (physical and environmental factors; personal factors; and teacher and learning factors) that influenced their learning style preferences. AlHamdani (2014) found out that there was no significant difference of gender impact on learning styles. Again, Nair, and Lee's (2016) study

indicated no significant association between students' age, gender, and high school education in relation to their learning style preferences. Similarly, Baykan and Nacar (2007) concluded from their study that learning style did not differ between male and female students. On the other hand, the study by Lu and Chiou (2010) revealed a direct and a positive relationship between gender and learning styles. Similar findings were established by Hamidon (2015), Beyza cited in Hamidon (2015), Kia, Aliapour and Ghaderi (2009), and Hlawaty (2008).

Methodology

Quantitative approach of the cross-sectional survey design was used for the study. Data were collected at a point in time from two different levels of students from six different public CoEs (made up of single-sex and co-educational colleges) in the Central-Western Zone of Ghana. All students in public CoEs in Ghana formed the theoretical population but the target population was all students in public CoEs in the Central-Western Zone of Ghana. The accessible population was all Levels 100 and 200 students in public CoEs in the Central-Western Zone of Ghana because at the time of the study in the colleges, Level 300 students were on teaching practice for the 'OUT' segment of their programme. The Central-Western Zone is made up of two single-sex and four co-educational colleges. However, five of the colleges (including the two co-educational colleges) were used for the main study. In each of the five colleges, the random sampling technique was used, and in total, 1396 respondents were obtained for the study. The stratification was done based on the level of study, and sex of the students in each of the colleges. A questionnaire adapted from Abante, Almendral, Manansala and Mañibo (2014) was used to collect data. The questionnaire was divided into four sections. The first section dealt with the bio-data of the respondents while the remaining three sections which had five items each were based on the three factors that affect learning style preferences of the respondents (environmental; personal; and instructional factors). The items in the second, third, and fourth sections of the questionnaire were based on a four-point Likert scale. The questionnaire was pre-tested in one of the public CoEs in the Central-Western Zone. This helped in improving the items in the questionnaire, and also assessing the reliability. A Cronbach Alpha coefficient of 0.87 was obtained, and this was considered appropriate based on the argument that a good reliability is indicated by a coefficient greater than or equal to 0.70 (Dörnyei & Taguchi, 2010). In the main study however, the college used for the pre-test was not part of the study.

Results

The analysis of the bio-data showed that 376 (26.9%) of the respondents were males while 1020 (73.1%) were females. It was also revealed that 703 (50.4%) of the respondents were Level 100 students while 693 (49.6%) were Level 200 students. Again, 712 (51.0%) of the respondents were in single-sex (female) College while 684 (49.0%) were in mixed-sex College. The analysis of the demographic factors was important since it helped in determining the perception of the students on the various factors that influence their learning style preferences. Hence, they helped in testing and providing answers to the hypotheses framed for the study.

Factors Influencing Learning Style Preference of Students

The research question was to determine the factors that influence the learning style preferences of the students. The determination of the factors that influence learning style preferences of the students was based on mean values and their interpretations: 0.1-1.0 (strongly disagree); 1.1-2.0 (disagree); 2.1-3.0 (agree); and 3.1-4.0 (strongly agree). Data in Table 1 explains the factors that influence the learning styles preferred by the students of public CoEs in the Central-Western Zone of Ghana.

Table 1: Results on Factors Influencing Learning Style Preference

Variables	Minimum	Maximum	Mean	Std. Deviation
Environmental Factors	1	4	2.90	0.51
Personal Factors	1	4	2.91	0.52
Instructional Factors	1	4	3.07	0.47

Source: Survey Data, 2016

The results in Table 1 show that the students disagreed that environmental factors (M=2.90, SD=0.51), and personal factors (M=2.91, SD=0.52) influenced their preferences for learning style. However, they agreed that instructional factors (M=3.07, SD=0.47) influenced their learning style preferences. Thus, it could be said that instructional factors influenced the students' learning style preferences as compared to personal factors and environmental factors. This finding is similar to what Esia-Donkoh, Eshun, Acquaye and Amponsah (2017) established that teacher and learning factors greatly affected the learning style preferences of male and female sandwich students in the Department of Basic Education, University of Education, Winneba, as compared to physical and environmental factors, and personal factors. However, it contradicts the finding of Abante *et al.* (2014) that physical and environmental factors greatly affect the learning style preference of first and second year General Engineering students more than teacher and learning, and personal factors.

Perception of Male and Female Students in Public CoEs on Factors Influencing their Learning Style Preference

The first hypothesis was to test to determine if there were statistical significant differences in the perception of the male and female students in terms of the factors that affected their learning style preferences. The results of the independent samples t-test used for the hypothesis are shown in Table 2.

Table 2: Independent Samples T-test Results by Sex on Factors Influencing Learning Styles

Variables/Factors	Sex	Mean	Std. Deviation	t	df	p-value
Environmental	Male	2.74	0.49	-7.273	1394	0.000
	Female	2.96	0.51			
Personal	Male	2.83	0.51	-3.687	1394	0.000
	Female	2.94	0.50			
Instructional	Male	3.02	0.50	-2.132	1394	0.033
	Female	3.08	0.46			
Overall	Male	2.86	0.36	-5.887	1394	0.000
	Female	2.99	0.37			

*Significance = 0.05

It is seen from the data in the table that there were statistically significant differences in the perceptions of male (M=2.74, SD=0.49) and female (M=2.96, SD=0.51) students for environmental factors [t (1394) = -7.273, p=0.000] at 0.05. There were also statistically significant differences in the perceptions of male (M=2.83, SD=0.51) and female (M=2.94, SD=0.50) students for personal factors [t (1394) = -3.687, p=0.000] at 0.05. Similarly, the results showed statistically significant differences in the perception of male (M=3.02, SD=0.50) and female (M=3.08, SD=0.46) students for instructional factors [t (1394) = -2.132, p=0.033] at 0.05.

Data in Table 2 showed that generally, there were no statistically significant differences in the perception of male (M=2.86, SD=0.36) and female (M=2.99, SD=0.37) students for the overall factors [t (1394) = -5.887, p=0.000] at 0.05. As a result, we failed to accept the null hypothesis that there is no statistically significant difference in the perception of male and female students on the factors that influence their learning style preference. This implies that sex is an important variable in the discussion of the factors that influence learning style preference of students in public CoEs in the Central-Western Zone in Ghana. This deviates from the finding of Esia-Donkoh, Eshun, Acquaye and Amponsah (2017) that there were no statistically significant differences in the perception of male and female sandwich students of the Department of Basic Education, University of Education, Winneba on physical and environmental factors, personal factors, and teaching and learning factors that influence their learning style preferences.

Perception of Students in Single-Sex and Co-educational Public CoEs on the Factors that Influence their Learning Style Preference

The second hypothesis was tested to determine if any differences existed in the perception of students in single-sex and co-educational public CoEs. The independent samples t-test results are shown in Table 3.

Table 3: Independent Samples T-test Results by Nature of College on Factors Influencing Learning Styles

Variables/Factors	Nature of College	Mean	Std.	t	df	p-value
			Deviation			
Environmental	Single Sex	3.07	0.46	13.606	1394	0.000
	Co-educational	2.72	0.51			
Personal	Single Sex	2.98	0.50	5.164	1394	0.000
	Co-educational	2.84	0.50			
Instructional	Single Sex	3.14	0.42	6.025	1394	0.000
	Co-educational	2.99	0.51			
Overall	Single Sex	3.06	0.34	11.103	1394	0.000
	Co-educational	2.85	0.38			

*Significance = 0.05

From the results in Table 3, it is established that there were statistically significant differences in the perception of students in single-sex (M=3.07, SD=0.46) and co-educational (M=2.72, SD=0.51) public CoEs for environmental factors [t (1394) = 13.606, p=0.000] at 0.05. There were also statistically significant differences in the perception of students in single-sex (M=2.98, SD=0.50) and co-educational (M=2.84, SD=0.50) public CoEs in terms of personal factors [t (1394) = 5.164, p=0.000] at 0.05. Again, the results showed statistically significant differences in the perception of students in single-sex (M=3.14, SD=0.42) and co-educational (M=2.99, SD=0.51) public CoEs in the zone in terms of instructional factors [t (1394) = 6.025, p=0.000, 2-tailed]. Generally, there were no statistically significant differences in the perception of students in single-sex (M=3.06, SD=0.34) and co-educational (M=2.85, SD=0.38) students for the overall factors [t (1394) = 6.511, p=0.000] at 0.05. Considering the results, we failed to accept the null hypothesis that there is no statistically significant difference in the perception of students in single-sex and co-educational colleges on the factors that influence their learning style preference. Thus, the nature of college (whether single-sex or co-educational) is essential in the discussion of factors that influence learning style preferences of students in public CoEs in the Central-Western Zone of Ghana.

Perception of Level 100 and 200 Students of Public CoEs on Factors that Influence their Learning Style Preference

The third hypothesis aimed at testing to find out if statistically significant differences existed in the perceptions of Level 100 and Level 200 students on the factors that influence their learning style preferences. The results of the independent samples t-test is shown in Table 4.

Table 4: Independent Samples T-test Results by Levels on Factors Affecting Learning Style Preference

Variables/Factors	Level	Mean	Std.	t	df	p-value
			Deviation			
Physical and Environmental	100	2.98	0.49	5.792	1394	0.000
	200	2.82	0.53			
Personal	100	2.98	0.48	5.083	1394	0.000
	200	2.84	0.52			
Teacher and Learning	100	3.11	0.46	3.685	1394	0.000
	200	3.02	0.48			
Overall	100	3.02	0.36	6.511	1394	0.000
	200	2.89	0.38			

Significance = 0.05

The independent samples t-test results in Table 4 reveal that there were statistically significant differences in the perception of Level 100 (M=2.98, SD=0.49) and Level 200 students (M=2.82, SD=0.53) for physical and environmental factors [t (1394) = 5.792, p=0.000, 2-tailed], and there was statistically significant difference in the perception of Level 100 (M=2.98, SD=0.48) and Level 200 students (M=2.84, SD=0.52) for personal factors

[$t(1394) = 5.083, p=0.000, 2\text{-tailed}$]. Also, the results showed that the differences in the perception of 100 (M=3.11, SD=0.46) and level 200 (M=3.02, SD=0.48) for teacher and learning factors [$t(1394) = 3.685, p=0.000, 2\text{-tailed}$], as well as level 100 (M=3.02, SD=0.36) and level 200 students (M=2.89, SD=0.38) for the overall factors [$t(1394) = 6.511, p=0.000, 2\text{-tailed}$], were statistically significant. Based on the results, we failed to accept the null hypothesis that there is no statistically significant difference in the perception of students in Level 100 and Level 200 on factors that influence their learning style preference. Thus, it could be said that the level of the students matters in the discussion of factors that influence learning style preference of students in public CoEs in the Central and Western Region of Ghana. This finding contradicts that of Abante et al. (2014) who found out that there were no major differences in the views of students in General Engineering 1A and 2A of University of Philippines on physical and environmental factors, personal factors, and teaching and learning factors that influence their learning style preferences.

Conclusions

The study revealed that the students agreed that their learning style preferences were influenced by instructional factors, but disagreed that personal factors and environmental factors influenced their learning style preferences. Thus, it could be concluded that students' learning style preferences are influenced by different factors which in turn influence their study habits. The finding that instructional factors influenced the learning style preferences of the students should be of great concern to the tutors of these Colleges. This implies that the tutors must have good interpersonal relationship with students, be enthusiastic, cheerful, motivating, and inspiring. Again, tutors need to adopt appropriate and varied teaching and learning methods, techniques and strategies to suit the varied learning needs of the students, and generally provide a conducive teaching and learning environment for the students to enjoy and understand what they are taught. These will encourage the students to adopt effective learning styles and good study habits which may go a long way to help the students become successful in their academic pursuits.

It was also realized from the study that there were statistically significant differences in perception of students on factors that affect their learning style preference in terms of their sex (male or female), level (Level 100 or Level 200), and the nature of College (single-sex or mixed-sex). This implies that the factors that affect learning style preferences of students in public CoEs in the Central-Western Zone of Ghana vary based on their sex, level and the nature of their College. Thus, tutors of these Colleges need to critically consider these variables and encourage the students to adopt good learning styles and study habits that suit their personal characteristics. It is worthy to note that students differ in many respects and as such they have different learning style preferences. Hence, the awareness of such individual differences and different learning style preferences by both students and tutors of public CoEs in the Central-Western Zone of Ghana is essential and crucial for the appropriate and effective use of methods and pedagogical techniques by the tutors in enhancing learning achievements of the students.

Recommendations

1. Tutors of public CoEs in the Central-Western Zone of Ghana should make use of appropriate and varied teaching methods, techniques and strategies during lectures to suit the various learning needs of the students. Tutors should actively involve students in teaching and learning to ensure good understanding of what students are taught. Tutors should also provide an enabling teaching and learning environment for the students by adopting different motivational strategies, being enthusiastic, cheerful, inspiring, and exhibiting good interpersonal relationship to enable the feel free to ask questions and seek clarifications on things they might not have understood during lectures.
2. The Council and Administration of public CoEs in the Central-Western Zone of Ghana should ensure that facilities and equipment needed for effective teaching and learning in the Colleges are provided and improved. For instance, the libraries of these Colleges should be well stocked with relevant and current books on programmes offered so that students may find it easy to research and get more information on what they are taught at lectures.

3. The Student Affairs Unit of public CoEs in the Central-Western Zone of Ghana should collaborate with the Counselling Unit and tutors to organize periodic seminars for the students to enable them identify and understand their learning styles so that they could adopt effective study habits. Such seminars must also be used to encourage the students to adopt and use varied learning styles and study habits to enhance their academic achievements.
4. Further studies should be conducted in the public CoEs in Central-Western Zone to explore how other factors such as peer influence, cultural background, and technology affect the learning style preferences of the students. Similar studies could also be conducted in public CoEs in the other four Zones of Ghana (Northern, Volta, Eastern-Greater, and Ashanti-Brong Ahafo) to give a holistic picture of the factors that affect learning style preferences of the students for policy decisions on teaching and learning in these Colleges.

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