

Relationship between Learning Styles and Satisfaction Among Students at Colleges of Education in the Ashanti Region, Ghana

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Abstract: The study aimed to find out the relationship between satisfaction and learning styles and satisfaction among students at Colleges of Education in the Ashanti Region, Ghana. Correlational study was adopted for the study. 287 level 200 students at the Colleges of Education in the 2019/2020 academic year were selected as samples. This was done through the sampling technique of purposive, convenient and stratified. Students' satisfaction was measured by using Scale from National Student Survey (NSS) in UK higher education while their learning style was assessed using Grasha-Riechmann Student Learning Styles Scale. Data collected were analysed using Structural Equation Modelling (SEM). The results obtained from analyzing the research hypothesis showed that positive relationship exists between all the six learning styles developed by Grasha and Riechmann (independent, collaborative, dependent, participant, avoidant, competitive) and students' satisfaction with the exception of collaborative learning style ($\beta_{uns} = -0.037$; $p\text{-value} = 0.591 > 0.05$). It was found that there was a significant and positive relationship between the learning styles "independent and avoidant" and students' satisfaction. Insignificant and positive relationship between the learning style "competitive, dependent and participant" and students' satisfaction was found among students. Insignificantly negative relationship between collaborative learning Style and satisfaction was also realised among students at selected Colleges of Education in Ashanti region of Ghana.

Keywords: Learning style, Students' satisfaction, College of education students

1. Introduction

Learning is a vital undertaking and is principal to the educational process. It is the primary asset to student life. Students at a school may exhibit different learning needs as a result of the different learning experiences each individual brings on board. Students are therefore expected to be familiar with their own learning styles so as to learn better without any hindrance (Sarvara and Komila, 2022). The learning process is enhanced when students' learning styles are identified and instructions designed to suit the learning preferences of the students (Pashler, McDaniel, Rohrer, & Bjork as cited by Baiden and Hanson (2020). According to Pashler, as discussed by Covington (2020), the term "learning style" refers to the concept that individuals differ in the mode of instruction or study through what is most effective for them. Identifying students' learning style gives information for their peculiar preferences. Comprehending learning styles can enhance easier creation, modification and designing of more effective curriculum for educational activities. It can also motivate learners' involvement in these educational activities and encourage them to obtain professional knowledge. Again, researching into students' learning style provides information on how learners learn and find solutions to their learning difficulties. (Ilcin et al., 2018). Several learning styles models are available for identifying students' learning style. This research made use of the Grasha-Riechmann student learning style model and the Grasha-Riechmann student learning style evaluation.

According to Riechmann and Grasha (1974), one of the most widely researched educational models is based on interviews with teachers and students (Ford, Robinson and Wise, 2016; Rojas-Jara et al., 2016). Because of this, they were able to define six different learning styles: Dependent, Independent, Participative, Avoidant, Competitive and Collaborative.

Independent students prefer to work on their own, at their own pace, and focus on the most important aspects of the course. They are known as self-directed learners. Such students prefer to study on their own rather than in a group. Self-determination is important to them, and they have faith in their abilities. The opposite of this category of students are those who are dependent on others to learn. As a result of this dependency, learners seek direction from both teachers and peers. They prefer to follow orders than to make their own decisions. Those students are just interested in learning what they need to know. Such students like having a teacher who guides and educates them throughout the course. Their knowledge is limited to what is required of

them, and they rely on the teacher to provide that clarity. They have no interest in learning new things. They look for lesson plans with specific goals, steps, and deadlines, as well as hands-on activities focused on the instructor.

The competitors' learning style category see the classroom as a win-lose situation. For them, praise and admiration are constantly on the top of their to-do list. The aim of such students is to outperform their peers. In order to achieve a passing grade, many believe that they must compete with other students. As a consequence, they like being the center of attention and having their academic accomplishments recognized.

Collaborative students refer to those students who do well by gaining collective wisdom from their peers' and instructors. Traditional lecture formats are being replaced by small group talks and group projects when dealing with such students. Avoidant students normally skip class and indicate that they are not interested in the material. Throughout the lesson, they behave in a polite and dignified manner. However, they do not pay attention in class when they are not interested in the lesson.

Another group of students are the participative learners. They take part in the learning activities, show initiative and a desire to learn. They enjoy both necessary and elective activities in the classroom. There is a definite sense of excitement among the students in the classroom. As a result, students eagerly anticipate going to class and engaging in extracurricular activities. Their favorite pastime is discussing intellectual issues and literary masterpieces.

According to Weerasinghe, Lalitha and Fernando (2017), Students' satisfaction is a multidimensional process which is influenced by different factors and identified two groups of influences on student satisfaction in higher education as personal and institutional factors. The factors of employment, age, learning styles choices, learners GPA and gender were linked to personal factors and instructional style, timeliness of educator's feedback, standard of instruction, lucidity of anticipation were connected to institutional factors. In addition to that, the authors reported that teaching ability, flexible curriculum, university status and prestige, independence, caring of faculty, student maturation and buildout, learner centeredness, school surroundings, efficacy of the institution and social situations have been recognized as the key considerations of student satisfaction in tertiary education.

Wilkins & Balakrishnan (2013), pinpoint standard of lecturers, standard of physical amenities and productive use of technology as key elements for students' satisfaction. Students' satisfaction is also affected by the relationship between instructor and learner, standard of response given by the lecturer, standard nature of the lecture room, availability of learning equipment and materials, the kind of interaction that goes on between learners and library resources.

Students' satisfaction may be linked to their learning styles preferences. Student success in College of Education may, therefore, depend on understanding their learning style and satisfaction. These areas need further investigation in Ghanaian context as college tutors, course designers, and the students need further knowledge of these areas in order to understand how learning styles influence students' satisfaction. Again, several research has been carried out on the relationship between students' learning style and satisfaction using different learning modes but little is known of the relationship between Grasha-Riechmann student learning styles and students' satisfaction. This study therefore steps in to fill the gap.

2. Literature Review

Eom et al., (as cited by Wu, 2014) assesses in his quantitative research, six independent variables with learning styles inclusive against the dependent variables of satisfaction and perceived learning results. The study was carried out in Turkey comprising 80,000 online respondents (students). Learning styles were established by VARK structure and satisfaction of course format was established from complex responses which dwell on Likert scale. Analysis of data was carried out using descriptive statistics. The study established that all the six independent variables with learning styles inclusive are significantly correlated to satisfaction. Drago and Wagner, as cited by Wu (2014), is another study that explains an interrelation between learning approach and satisfaction. They used a correlational design to establish if there is a relationship between learning method and satisfaction.

Likewise, Mohammad et al, (2015), carried out research on E-learning in University of Birmingham, United Kingdom to assess learning methods compatibility. It was an experimental design involving 60 participants. Data analysis was done with IBM SPSS (version 21). The researchers postulated that attempts which dwell on student learning style choices are often checked by an absence of experimental assessment of their ability in general and their satisfaction and as such, a high level of satisfaction can improve the motivation of learners, their involvement and encounter, and thus increase their studies. Their results showed that the learners were mostly content with their learning encounter and based on that, the authors concluded that adjustment of what is contained in learning according to learning method can increase learners' satisfaction and improve their encounter and motivation.

In addition, Jung, et al., (2017), conducted a study on students' satisfaction on their learning activities in active studying and traditional classroom in Seattle Pacific University in Washington. The respondents of the study were made up of 384 undergraduates and graduate students. Analysis of data was done with descriptive statistics and regression models. It was reported by the researchers that active studying methods processes are important factors that improve learners' contentment with their personalized and group studying activities and that active learning style processes affect students' satisfaction with their learning processes positively.

Moreover, Häkkinen et al. (2017), researched into preparing teacher-learners for twenty-first century studying exercises: a structure for improving collaborative problem solving and planned studying abilities in Finland. The cloud-based system was employed to evaluate and establish the present competencies level against studying developments. During the nine collaborative face-to-face studying meetings in their study, learners were content with their task engagements: preparation, composing, and advancing one unreal digital story. Their findings indicated that collaboration is an important skill for the 21st century. Therefore, collaboration significantly affects satisfaction among learners.

In Rodzalan and Saat (2015), research was conducted on the conception of critical thinking and problem-inquiring ability among Malaysian undergraduate learners. A sample of 2000 undergraduate students responded to the survey. Data analysis was done with t-test, analysis of variance, mean and standard deviation. The result discovered that students were satisfied with their critical thinking and problem-inquiring studying abilities. The findings revealed that students were satisfied and thought of themselves as having strong critical thinking and problem-inquiring studying abilities.

In the same way, Zarabian (2019), conducted research on correlative learning of learning methods amid learners in the electronic courses in Payam Noor University (PNU) and its interrelation with satisfaction in Iran. Significant interconnection was realised for both conventional and electronic categories of learners, between studying approaches and contentedness. The findings portray that in the conventional courses; converging, diverging, assimilating and accommodating approaches have the dominant interconnection with the school contentedness. Most relation to school contentedness is divergent approach, electronic courses, convergent approach and assimilator approach. The finding of the position of studying method in the electronic group portrays that the convergent studying approach with (14.57%) possess the least occurrence, with the highest occurrence being divergent with (30.79%). The accommodator had (26.49%) with assimilator approach having (28.14%) occurrence. Concerning the position of studying approaches in the conventional category, convergent and accommodator methods have the least occurrence and the assimilator studying style has the most occurrence. Regarding standard assessment, a lot of learners were not contentedness with the conventional courses and on the contrary, the electronic group had more school contentedness.

However, Al Shaikh et al. (2019), reported differently in their study on studying methods and contentedness with the educational process of Saudi Health Science University students in Saudi Arabia. The study adopted a cross-sectional descriptive study design. A total of 359 students took part in the study in Michigan. A modified Student Satisfaction Survey from Mott Community College and Kolb's LS was the instrument adopted for the study. SPSS version 23 was used for data analysis. The result revealed that there is no interrelation between a studying approach type and a degree of contentedness with instructional methods. Their research was in line with the results of Gurpinar et al. as cited by A. Al Shaikh et al (2019). These studies concluded that studying approaches do not predict students' satisfaction with altered teaching methods.

To add to it, Wang and Liu, (2019), carried out research on the connection of dental learners' studying approaches to their contentedness with conventional and reverse classroom models in the Republic of China. Respondents of 121 students were involved in the research work using Kolb studying method inventory and satisfaction questionnaire. Data statistical analysis was carried out using GraphPad Prism 6 software, SPSS version 23, one-way ANOVA and independent sample t-test. The overall findings of the research work found that learning approaches did not influence the learners' contentedness with each of the four constituents of the inverted classroom models (ICM), which further buttressed results that the interconnection between studying approaches and students' contentedness with varied instructional methods are minimal or insignificant.

3. Methodology

It was correlational research designed for investigating the relationship between learning styles and students' satisfaction. The population for this study was College of Education students in the Ashanti Region of Ghana. 287 level 200 students at the Colleges of Education in the 2019/2020 academic year were selected as samples. This was done through the sampling technique of purposive, convenience and stratified. 60-item Grasha-Riechmann Student Learning Style Scales Inventory was used to collect data. The instrument was pilot tested to 30 college students from outside the three colleges that were used in the study to determine the reliability of the instrument. Using the data, the instrument was tested for reliability and convergent validity which yielded a Cronbach Alpha coefficient of 0.8. and this was considered suitable based on the argument that a good reliability is indicated by a coefficient greater than or equal to 0.70 (Dörnyei & Taguchi, cited by Esia-Donkoh, K., & Benil, J., 2017). Data collected were edited, coded before analyzing them based on the research hypotheses. Students' satisfaction was measured by using Scale from National Student Survey (NSS) in UK higher education which has 5 items ("The classroom environment supports students learning", "My teachers have time to clarify issues to me", "My teachers provide me with notes and teaching aids for my study", "Innovative teaching methods such as the powerpoint presentation is good for my study", "My teachers are interested in my studies and always encourage me to study hard") on a 4-point Likert scale, from Not Satisfied (1), Somehow Satisfied (2), Satisfied (3) and Highly Satisfied (4). The hypotheses were tested through the lens of Structural Equation Modelling (SEM) after reliability, composite reliability and average variance extracted had been tested using Amos 21. SEM using Amos 21 application was employed by the researchers to link the independent variables (Students' learning style: independent, avoidant, collaborative, dependent, competitive and participant) and the dependent variable (students' satisfaction) to reveal the impact that the independent variable made on the dependent variable.

Hypothesis

There is no significant relationship between learning styles (independent, avoidant, collaborative, dependent, competitive, participant) and students' satisfaction at colleges of education in the Ashanti Region

4. Results

4.1 Demographic Characteristics

Although this section did not form part of the research objectives, they were used to describe the background of the respondents. The results are shown in Table 1.

Table 1. Socio-Demographic Characteristics of Respondents.

Variables	Category	Frequency	Percentages
Gender	Male	103	35.9
	Female	184	64.1
Age	18 - 22	98	34.1
	23 – 27	175	61.0
	28 – 32	13	4.5
	33 – 37	1	0.3
School Type	Male Only	102	35.5
	Female Only	127	44.3
	Mixed	58	20.2
College	COL A	102	35.5
	COL C	127	44.3
	COL H	58	20.2

Figure 1 shows the examination results of the relationship between students’ learning styles (independent, avoidant, collaborative, dependent, competitive and participant) and students’ satisfaction.

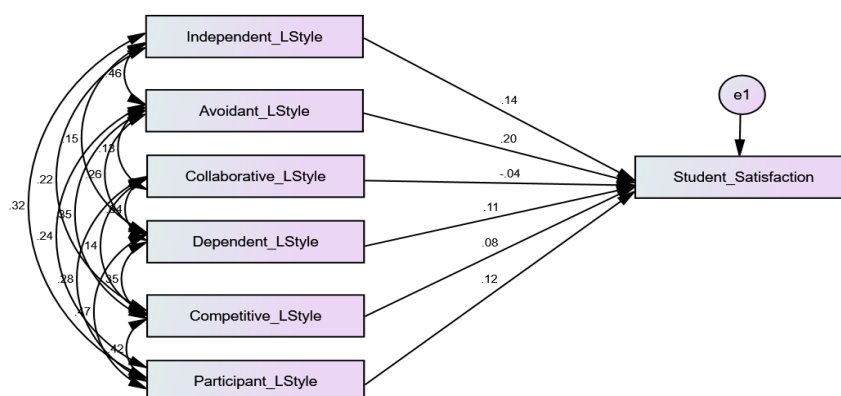


Figure 1. Structural Equation Model of Learning Styles and Students Satisfaction.

The Figure above shows a model that students’ learning style has an effect on students’ satisfaction. It was realised that there is extreme interconnection between the independent variables. These were adjusted as depicted in the figure above and the model fitting indices improved to [GFI = 0.959], [NFI = 0.923], [RFI = 0.843], [IFI = 0.924], [TLI = 0.957], [CFI = 0.922 and [RMSEA = 0.062] indicating model adequacy. According to Hair et al. (2014) no less than four of the above-named indices must be remarkable above 0.90 to indicate that structural models are very suited.

Table 2 explains the relationship between Learning Styles and Students Satisfaction.

Table 2. Relationships between Learning Styles and Students Satisfaction.

Construct	β_{uns}	β_s	SE	CR	p Value
Students Satisfaction < ---- Independent Style	0.144	0.144	0.060	2.312	0.021
Students Satisfaction< ---- Avoidant Style	0.199	0.205	0.061	3.252	0.001
Students Satisfaction < --- Collaborative Style	-0.037	-0.037	0.070	-0.538	0.591
Students Satisfaction < --- Dependent Style	0.128	0.110	0.090	1.426	0.154
Students Satisfaction < --- Competitive Style	0.076	0.080	0.059	1.288	0.198
Students Satisfaction < --- Participant Style	0.122	0.177	0.068	1.789	0.074

Mediating Variable: Students Satisfaction, **5% significance test (2-tailed test)

Results in Table 2 and the Figure show that Independent Learning Style has influence students’ satisfaction in the study area ($\beta_{uns} = 0.144$; p-value = 0.021 < 0.05) and is statistically significant at 5% significance level 2- tailed test [Direct effect], this shows that maintaining other elements fixed, a unit improvement in Independent Learning Style will generally lead to 0.144 direct increase in students’ satisfaction. Avoidant learning Style has a positive influence on students’ satisfaction in the study area ($\beta_{uns} = 0.199$; p-value = 0.001 < 0.05) and is statistically significant at 5% significance level 2- tailed test [Direct effect], this shows that maintaining other elements fixed, a unit improvement in Avoidant Learning Style will generally lead to 0.199 direct increase in students’ satisfaction.

Collaborative Learning Style has a negative influence on students’ satisfaction in the study area ($\beta_{uns} = -0.037$; p-value = 0.591 > 0.05) and it is not statistically significant at 5% significance level 2- tailed test [Direct effect], this shows that

maintaining other elements fixed, a unit improvement in Collaborative Learning Style will not generally lead to 0.037 drop in students' satisfaction. Dependent Learning Style has a positive influence on students' satisfaction in the study area ($\beta_{uns} = 0.128$; p -value = $0.154 > 0.05$) and it is not statistically significant at 5% significance level 2- tailed test [Direct effect], this shows that maintaining other elements fixed, a unit improvement in Dependent Learning Style will not generally lead to 0.128 direct increase in students' satisfaction.

Competitive learning Style has a positive influence on students' satisfaction in the study area ($\beta_{uns} = 0.076$; p -value = $0.198 > 0.05$) and it is not statistically significant at 5% significance level 2- tailed test [Direct effect], this shows that holding other factors constant, a unit improvement in competitive learning style will not generally lead to 0.198 increase in students' satisfaction. Participant Learning Style has a positive influence on students' satisfaction in the study area ($\beta_{uns} = 0.122$; p -value = $0.074 > 0.05$) and it is not statistically significant at 5% significance level 2- tailed test [Direct effect], this shows that maintaining other factors fixed, a unit improvement in participant learning style will not generally lead to 0.122 direct increase in students' satisfaction.

4.2 Discussion of Results

On the objective to examine the extent to which learning styles (independent, avoidant, collaborative, dependent, competitive and participant) relate to students' satisfaction in the colleges of education in Ashanti Region, the study hypothesized there is no significant relationship between learning styles and students' satisfaction. The results revealed that independent learning Style and Avoidant learning Style have a positive effect on students' satisfaction in the study area and are statistically significant at 5% significance level 2- tailed test (Direct effect) indicating that holding other factors constant a unit increase in such learning style will generally lead to increase in students' satisfaction. Hence, there was a rejection of the hypothesis "no significant relationship between the learning styles (independent and Avoidant) and satisfaction", since students were significantly satisfied with their learning styles. This is not different from studies which concluded that adaptation of learning content according to learning style can significantly improve student satisfaction and enhance their experience and motivation (Mohammad et. al, 2015; Darren, 2015; Rodzalan & Saat, 2015; Häkkinen et al., 2017).

Again, the results of the study revealed that competitive learning style, dependent learning style and participant learning style have a positive effect on students' satisfaction in the study area and are not statistically significant at 5% significance level 2- tailed test (Direct effect) indicating that holding other factors constant a unit increase in such learning styles will not generally lead to increase in academic performance. Hence, we fail to reject the hypothesis "no significant relationship between learning styles (competitive learning style, dependent learning Style and participant learning Style) satisfaction" due to the fact that students' learning styles did not enhance satisfaction. This can be seen in a work by Wang and Liu (2019), which reported that overall satisfaction of the study found that learning styles did not affect the students' satisfaction, which further supported the findings that the correlation between learning styles and students' satisfaction with different instruction approaches is small or insignificant. On the Other hand, these learning styles contrast with a study by Hyun et al., (2017) that asserted, active learning pedagogy activities are significant factors that increase students' satisfaction with their individual and group learning styles and that active learning pedagogical activities influence students' satisfaction with their learning processes positively.

However, collaborative learning style has a negative effect on students' satisfaction in the study area and is not statistically significant at 5% significance level 2- tailed test [Direct effect] indicating that holding other factors constant a unit increase in collaborative learning style will not generally lead to a drop in students' satisfaction. This indicates that we fail to reject the hypothesis. It contrasted with work by the authors: Mohammad et. al, (2015); Darren, (2015), Rodzalan and Saat, (2015), Häkkinen et al., (2017).

5. Conclusions

Positive relationship was realised between all the six learning styles under discussion and students' satisfaction with the exception of students' collaborative learning style. Independent and avoidant learning styles significantly affected students' satisfaction while competitive, dependent, collaborative and participant learning styles insignificantly affected students' satisfaction.

6. Recommendations

It is recommended for teachers at the Colleges of Education to use teaching strategies that are consistent with students' learning style since students' satisfaction relates to their learning styles. That is, the six levels of Grasha-Riechmann Learning styles can serve as a guideline for teachers in ensuring that their teaching and learning activities are in line with their students. This was confirmed by Abidin, et.al. as cited in Jamshed (2015), that students with one or two learning styles can enhance their learning when taught through different learning styles.

Tutors at the Colleges of Education should adapt their instruction delivery to students with different learning styles for effective learning. It is recommended that all the six types of Grasha-Riechmann Learning styles be employed by tutors at Colleges of Education, since satisfaction is a psychological phenomenon which differs from person to person. A person may be satisfied with one thing while another person might not be satisfied with the same thing.

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