ISSN No:-2456-2165

Teachers' Instructional Practices and Students'Academic Achievement in aVirtual Learning Environment

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Abstract:-The emergence of COVID-19 pandemic forced colleges and universities to adapt online class setups. These phenomenal experience challenges teachers compelling to develop new instructional strategies and practices that can offer excellent assistance while teaching in a virtual learning environment. Thus, the present study tried to determine the level of teachers' instructional practices for online classes and its association with the academic achievement of the college education students. The study utilized a quantitative, non-experimental design using descriptive-correlational technique. Using experts validated and standardized questionnaire, the researchers surveyed 132 education students using simple random sampling technique. Based on the results, the level of instructional practices implemented by the teachers was found to be very high. Concurrently, the students' academic achievement demonstrated a very good level. However, upon conducting a correlation test, the analysis revealed that there is no statistically significant relationship between the instructional practices employed by the teachers and the academic achievement of the students. The finding suggests that students do not rely on their teachers' instructional practices in an online classes. This new educational system leads students to study at their own pace, they rely on their determination, motivation, and study habits to pass their exam and attain good academic achievement.

Keywords:*-Instructional Practices; Academic Achievement; Virtual Learning; Correlation.*

I. INTRODUCTION

College education has become academically challenging during pandemic. The existence of COVID-19 affects not only the lifestyle of the students but also their academic interaction and engagement due to isolation brought by extended lockdowns and barred meetups [1] [2]. At the same time, it forced colleges and universities to adapt online class setups to ensure the continuity of learning during pandemic [3][4]. However, numerous students were unable to adapt the online classes because they felt that sudden transition led them to anxiety and grapple with social isolation [5]. As a result, they were demotivated in their academic engagement, which produced poor academic productivity and resulted low academic achievement [6]and tendencies to leave the colleges and universities [7]. Therefore, it is crucial for the teachers to develop new instructional strategies and practices that contribute in maintaining the quality of education and supporting students' academic and holistic development amidst the challenging circumstances brought about by the pandemic [8] [9] [10].

Instructional practices encompass a wide range of strategies, methods, techniques, and approaches employed by educators to facilitate effective teaching and learning experiences [11] [12]. These practices are synonymous with instructional strategies, teaching practices, teaching strategies, educational practices and teaching methods [13] [14] [15]. These practices involve various activities and decisions made by teachers to enhance student engagement, understanding, and achievement in both traditional classroom and online environments [14] [16]. Instructional practices include planning and organizing lessons, selecting appropriate learning materials, designing and implementing learning activities, delivering instructions, providing feedback, and assessing student progress. They are based on educational theories, research, and best practices aimed at improving the teaching and learning process [11] [16]. Effective instructional practices consider the diverse needs and abilities of students, promote active learning, encourage critical thinking and problem-solving, and foster a supportive and inclusive learning environment [16]. While these practices may vary depending on the subject matter, grade level, and teaching context, they often involve elements such as clear communication, scaffolding of learning, differentiation of instruction, use of technology, formative assessment, and ongoing reflection and adjustment based on student needs and outcomes [15]. Instructional practices play a crucial role in creating engaging, meaningful, and impactful learning experiences for students, helping them acquire knowledge, develop skills, and achieve academic success [9]. By employing effective instructional practices, educators can optimize the teaching and learning process and support students' cognitive, social, and emotional growth [8].

However, online classes differ significantly from face-to-face (F2F) teaching setups. As Yang [16] states, the knowledge and skills established in F2F settings are insufficient preparation for online classes, which pose even greater challenges, particularly for courses that require hands-on activities and live demonstrations. In an online

ISSN No:-2456-2165

class, teachers must design instructional practices that ensure effective instruction and support student achievement [17]. These practices in online classes encompass various elements, including communication strategies, content delivery methods, interactive learning activities, assessment approaches, and the establishment of a supportive virtual learning community [8] [10]. They also involve practices such as multimedia integration, interactive tools and technologies, collaborative online learning strategies, and effective online assessment methods, with a focus on their impact on student engagement and achievement [17]. These practices are specifically tailored to the unique characteristics and requirements of online education, considering factors such as flexibility, accessibility, and the use of digital technologies. Effective instructional practices in online classes provide students with meaningful learning experiences, foster active participation, and optimize learning outcomes in the virtual learning environment [18] [19].

As previously mentioned that well-designed and implemented instructional practices play a crucial role in promoting student engagement, understanding, and academic performance in the online learning environment [8] [10] [17]. For example, the study of Jepketer [20] revealed that teachers encounter challenges in implementing quality instructional strategies to realize optimal improvement of students' performance. Upon conducting correlation and regression analyses, the findings indicated a noteworthy and positive association between the employed teaching approaches and the academic achievement of the students.

Nevertheless, these results contradicted the findings of Orong, Alcantara, Asok, Jr., Baguasan, G., Evangelio, and Galimba [21]. Their study sought to assess the link between instructional strategies and the academic performance of radiologic technology students. Their finding showed, the instruction strategies employed by the educators did not exhibit a statistically significant association with the academic performance of the students.

In recent years, the paper of Augustine and Elizabeth [22], stipulated that modelling good instructional strategies is an effective tool for student academic achievement. Further, the teacher preparation and knowledge of teaching and learning, experience, subject matter knowledge, and certification all establish teacher effectiveness. Teacher preparation is important to their effectiveness in a classroom. Good quality teacher preparation is important to student academic achievement.

Meanwhile, the objective of the study conducted by Francisco and Celon [8] was to determine the impact of teachers' instructional approaches on student academic achievement. Based on the findings, there is no statistically significant correlation between teachers' instructional strategies and students' academic achievement. The study suggests that planning, teaching, and evaluation strategies employed by instructors did not yield significant improvements in students' academic performance across the five content areas of the curriculum. As a recommendation, the study proposed that school principals should regularly assess teachers' performance and conduct training needs assessments to identify areas where teachers may require professional development. Further the above mentioned result was paralleled the study of Ziaei, Shaveisi, Janatolmakan, Bahramani, and Khatony [23]. Their study revealed that there is no significant relationship between learning approaches and academic performance. Thus, they further explain that academic performance cannot be measured by just one factor. Therefore, they suggest to the future researchers to conduct more studies to compare the result or otherwise.

II. METHODS

A. Research Design

This study employed a quantitative, non-experimental research design utilizing the descriptive-correlational technique. This particular approach emphasizes the use of targeted estimations and statistical, mathematical, or numerical analyses through a survey methodology. It involves the measurement of a phenomenon through statistical analysis [24]. The researchers deemed this design suitable for their study as they sought to investigate college students' perceptions of teachers' instructional practices and their potential influence on academic achievement within the context of San Agustin Institute of Technology.

B. Research Locale and Participant

As the objective of the present study was to identify the instructional strategies employed by teachers and assess their impact on academic performance, the researchers selected education students from San Agustin Institute of Technology as the respondents. To ensure a representative sample, probability sampling was employed. The researchers utilized the "random sampling" method, which provides an equal opportunity for every item in the population to be included in the sample [25]. Out of the total population of 201 second-year education students, the researchers randomly selected 132 respondents using Raosoft, an online sample size calculator.

C. Research Instruments

In this research, an adapted survey questionnaire from the study of Francisco and Celon [8] entitled, *"Teachers' Instructional Practices and Its Effect on Students' Academic Performance."* was administered to qualified respondents. The researchers had their questionnaire validated and tested for its reliability with a Cronbach's alpha of 0.961, which can be described as reliable. The instrument was contextualized in order to fit to the objectives of the study under the criteria of appropriateness, objectivity, and adequacy.

D. Ethical Consent

The researchers took necessary measures to adhere to ethical protocols during the research. Before commencing the study, the researchers obtained permission from the Dean of the College and the chairperson of education students. Additionally, informed consent was acquired from all respondents. The respondents were provided with comprehensive information regarding the study's objectives

ISSN No:-2456-2165

and the potential risks associated with their participation. While the respondents were encouraged to take part, they were assured that they had the right to decline participation without any obligation. Therefore, all participants who completed the questionnaires did so voluntarily. To safeguard the privacy and confidentiality of the respondents, the researchers ensured that no personal information was disclosed. There was no falsification or fabrication of data, and the researchers avoided any form of deceit. Furthermore, in order to ensure the originality of their work, the researchers had their manuscript examined using plagiarism detection software. These ethical considerations were meticulously addressed, demonstrating the commitment of the researchers to conduct a high-quality and ethically sound study.

III. RESULTS

A. *Level of Teachers' Instructional Practices*

Table 1 presents the level of teachers' instructional practices with a total mean of 4.24 and a standard deviation of 0.38 described as "always" which means always observed. This means that the level of teachers' instructional practices is always observed. Notably, the item that states, "*Creates social interaction among students that enhances learning by requiring students to work as a team with both individual and group responsibilities,*" got the highest mean of 4.55 with a standard deviation of 0.58 described as "always" which means always observed. Meanwhile, the item which states, "*Prepares lessons with high expectations designed to challenge and stimulate all students*," got the lowest mean of 4.12 with a standard deviation of 0.62 described as "frequently" which means frequently observed.

Table 1: Level of Teachers' Instructional Practices

Item Statements	Mean	SD	Interpretation
1. Creates social interaction among students that enhances learning by requiring students to work as a team with both individual and group responsibilities.	4.55	0.58	Always Observed
2. Discusses with the students the importance of courtesy and respect and consciously model for students the types of personal behaviors that promote responsibility and social development among early adolescents.	4.35	0.59	Always Observed
3. Selects methods and strategies that accommodate individual needs and interest of specific students.	4.31	0.58	Always Observed
4. Creates social interaction among students that enhances learning by requiring students to work as a team with both individual and group responsibilities.	4.29	0.58	Always Observed
5. Considers how to create cooperative learning experiences for my students.	4.27	0.60	Always Observed
6. Consciously implements two or more learning activities.	4.26	0.61	Always Observed
7. Moves among the students, engaging individually and collectively with them during the learning experiences.	4.25	0.56	Always Observed
8. Designs lessons that require integration of content from more than one content area.	4.25	0.52	Always Observed
9. Consciously implements a teaching strategy that stimulates higher-order thinking skills.	4.24	0.59	Always Observed
10. Considers how to build upon student's existing knowledge and experiences.	4.24	0.53	Always Observed
11. Consciously implements a learning activity that requires students to read or write in our content area.	4.22	0.50	Always Observed
12. Selects instructions materials based upon the knowledge of the student's development needs and learning styles.	4.20	0.57	Frequently Observed
13. Considers how to create active learning experiences for the students.	4.18	0.59	Frequently Observed
14. Uses rubrics when and where applicable.	4.18	0.62	Frequently Observed
15. Uses written work, performance tasks, and adequate assessment.	4.18	0.52	Frequently Observed
16. Evaluates learning outcomes through varied means.	4.18	0.54	Frequently Observed
17. Conducts pre-test/diagnostic test.	4.14	0.53	Frequently Observed
18. Prepares lessons with high expectations designed to challenge and stimulate all students.	4.12	0.62	Frequently Observed
Category Mean	**4.24**	**0.38**	**Always**

Legend:

Scale	Limits	Verbal Description	Verbal Interpretation
5	4.21-5.00	Always	Always Observed
4	3.41-4.20	Frequently	Frequently Observed
3	2.61-3.40	Sometimes	Sometimes Observed
2	1.81-2.60	Seldom	Seldom Observed
1	1.00-1.80	Never	Never Observed

ISSN No:-2456-2165

B. Level of Students' Academic Achievement

Table 2 presents the level of academic achievement of second year education students of San Agustin Institute of Technology. The result shows the overall mean of academic achievement is 1.51. This means that the students have very good grades. Furthermore, 34 or 67% of the students have a grade of 1.1 to 1.5 which means very good. On the other hand, 17 or 33% of the students attains a grade of 1.6 to 2.0 which means good. Lastly, the result likewise reveals that no student got excellent grades nor failing grades.

C. Correlation Analysis between Teachers' Instructional Practices and Students' Academic Achievement.

Table 3 presents the correlation analysis conducted to examine the relationship between teachers' instructional practices and students' academic achievement among second-year education students at San Agustin Institute of Technology. The results indicate that the test of correlation between teachers' instructional practices and students' academic achievement yielded a coefficient value of 0.050 and a p-value of 0.727, which exceeds the predetermined significance level of 0.05 (2-tailed). Therefore, the analysis reveals that there is no statistically significant relationship between teachers' instructional practices and academic achievement among second-year education students.

Table 2: Level of Students' Academic Achievement

Grading Range	F	%	Description	Interpretation
1.0	0	0	Excellent	Excellent
1.1-1.5	34	67	Very Good	Very Good
1.6-2.0	17	33	Good	Good
2.1-2.5	0		Satisfactory	Satisfactory
2.6-3.0	0		Passing	Passing
3.1-3.5	0		Failure	Failure
Total	51	100		
Mean = 1.51	SD = 0.24		Very Good	Very Good

Table 3: Correlation Analysis between Teachers' Instructional Practices and Student' Academic Achievement

Independent Variable	Dependent Variable: Students' Academic Achievement		
	Correlation Coefficient	p-value	Interpretation
Teachers' Instructional Practices	0.050	0.727	Not Significant

IV. DISCUSSION AND PRACTICAL IMPLICATION

A. Teachers' Instructional Practices

Overall, the results revealed that the students perceived the teachers' instructional practices as always observed. The results denote that students always observed their teacher providing interaction such as teamwork or group activities to enhance their learning and promote responsibility and social development. Moreover, their teacher creates accommodating instructional methods and strategies to cater their needs and discover their specific interest individually. Lastly, the students expressed that their teacher implements a teaching-learning strategy that stimulates higher order thinking skills, builds good cognitive development, and helps student engage in individual and collective learning experience. Thus, these manifestations indeed corroborated with the study of several authors [8][11][13] who posited that effective instructional practices relate to how teachers established a meaningful learning experience that allows students to become motivated, inspired, interested, and actively involved in the teaching-learning process. Therefore, teachers should develop teaching practices that embrace successful and effective learning that highlights the good quality of teaching [26]. These include how teacher motivates and helps their students more focus and attentive in the discussion, as well as organizes, monitors, and assesses their learning until they effectively accomplish the task either in independent study or cooperative learning [27].

The findings indicate that the students at San Augustin Institute of Technology have achieved a very good level of academic achievement. The results suggest that the majority of second-year education students have demonstrated a remarkable dedication, persistence, and ambition in their pursuit of high grades, resulting to a high level of academic achievement. Such traits are essential for achieving academic success, as affirmed by several experts [22] [23]. Academic achievement is defined as the knowledge and learning gained by students over a given period, as assessed by teachers' marks/scores and educational goals set by teachers and students. Moreover, students' ability to attain

ISSN No:-2456-2165

high academic scores can be attributed to their focus on the learning environment, motivation, and interest [9] [13]. Similarly, some authors emphasized that academic scores reflect the outcomes of education, which measure students' ability and success in various academic subjects. The definitions underscore the meaning of academic grades as indicators of students' academic ability and performance [8] [22].

B. Correlation Analysis between Teachers' Instructional Practices and Students' Academic Achievement

One of the primary objectives of this study is to determine the existence of a significant relationship between teachers' instructional practices and academic achievement. Upon conducting the analysis, the results revealed that there is no statistically significant relationship between instructional practices and academic achievement. These findings suggest that among second-year education students, the instructional practices implemented by teachers do not demonstrate a significant association with academic achievement. The finding was supported by the current study of Francisco and Celon [8], Jepketer [20], Orong et al. [21] and Ziaei, Shaveisi, Janatolmakan, Bahramani, and Khatony [23]. Their study revealed that there is no significant relationship between instructional strategies and academic performance. Thus, they further explained that academic performance cannot be measured by just one factor.

The academic performance of the student may be influenced by other internal and external factors. The internal factors may include student competence, study habit, resources in the classroom (books & course materials), learning facilities, homework, class environment, teacher instructions, and others. Moreover, the external factors may include extracurricular activities, family problems, work and financial, social, and other problems [8][19][23].

Probably in this context of the study, students' academic performance does not rely on the teachers' instructional practices. This could possibly happen because of the drastic change in the educational system where students and teachers are forced to implement online classes to continue academic activities amidst COVID-19 pandemic [25]. According to the study of Aristeido and Cross [2], Kakuchi [7], and UNESCO [29], billions of students around the globe have been affected by the existence of the COVID-19 pandemic. Precisely, several authors reveal that in the pandemic times, students are affected due to financial struggles, inability to adapt to online classes due to lack of technological resources such as computers, laptop, and internet connection, as well as loss of interest, motivation and bad study habit because of the social isolation due to lockdowns and strict social distancing brought by COVID-19 pandemic [25] [28].

Although the students perceived the teachers' instructional practices as good or always observed, it does not mean as a factor that can affect their academic performance. In the first place, students at the present time study at their own pace due to lockdown and strict social distancing [19]. They are dependent on their own way since they are isolated and could not mingle with peers, classmates, and teachers physically [9]. Regardless of how well teachers employ effective instructional strategies in the classroom, they often struggle to monitor student behavior and attitude during virtual learning sessions [11] [13]. Furthermore, the delivery of teaching sessions is frequently disrupted by internet connection issues [2]. Consequently, the motivation, persistence, and determination of students become paramount. This phenomenon could explain why there is no association between teachers' instructional practices and the academic achievement of the respondents. Students rely more on their personal determination, motivation, and study habits to succeed in exams and attain favorable academic outcomes [9] [13] [19].

V. CONCLUSION AND RECOMMENDATION

Based on the study's findings, the following conclusions can be drawn. The results indicate that teachers' instructional practices were consistently perceived as being effectively implemented. This implies that the teachers successfully fostered productive learning activities that encouraged higher-order thinking skills, facilitated cognitive development, and promoted both individual and collective learning experiences. Additionally, the level of academic achievement among the students was notably high, suggesting that they exhibited exceptional performance, along with traits such as perseverance, diligence, and a drive for attaining high grades.

The correlation analysis revealed that there is no positive relationship between teachers' instructional practices and the academic achievement of the students. The results occur probably because students do not rely on teachers' instructional practices due to the online/distance learning setup brought by lockdowns as a result of the existence of the COVID-19 pandemic. The new educational system leads students to study at their own pace, and probably rely on their determination, motivation, and study habits to pass the exam and attain good academic achievement.

Thus, the findings of the study indeed invalidate social constructivism theory of Lev Vygotsky, 1978 as cited by Hofmann and Asmundson [30]. This theory believes that knowledge is collaborative and situated. Social constructivism suggests that successful teaching and learning are heavily dependent on interpersonal interaction and discussion, with the primary focus on the students' understanding of the discussion. In this study, the theory is utilized by examining how students learn, gain and achieve good cognitive development that could be related to academic achievement through interactions with teachers in a way the teachers stimulate and facilitate conversation through harnessing the natural flow of conversation in the classroom which relates to teachers' instructional practices. However, the finding of the study showed insignificant correlation between teachers' instructional practices and students' academic achievement. Therefore, the study does not support the theory.

Similarly, the findings of this study are inconsistent with Walberg's theory of educational productivity [31]. The overarching objective of the theory is to identify the factors that impact students' academic performance. The theory posits that various factors such as grades, motivation, age, prior achievement, home environment, peer support, classroom environment, quality of instruction, and quantity of instruction are influential in determining students' academic achievement. According to this theory, academic achievement may be contingent upon the quality and quantity of instruction, which directly relates to teachers' instructional practices. However, the results of this study indicate that there is no significant relationship between teachers' instructional practices and students' academic achievement. Consequently, the present study does not align with the proposition set forth by the theory.

The present researchers would recommend regarding the impact of the level of teachers' instructional practices towards students' academic achievement of second year education students at San Agustin Institute of Technology.

For the administrators, they should implement faculty development program like seminars and trainings for the teachers to continually improve and increase their learning and teaching practices.

For the teachers, they should keenly observe the performance of their students. If their students' grades tend to drop, they should inform, and advise them to balance their studies and social life.

For the students, they should maintain proper time management in order to have good academic performance.

For the future researchers, it is highly recommended that they must gather data from a larger scope of respondents and consider other variables not included in this study.

ACKNOWLEDGEMENT

The researcher would like to acknowledge the following person who made this study successful. Dean of College, Education Program Head, and Research Directorfor continuous support, inspiration, and encouragement as well as to the respondents who actively participate in the survey.

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