

A Sentiment Analysis of College Students' Feedback on their Teacher's Teaching Performance During Online Classes


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A SENTIMENT ANALYSIS OF COLLEGE STUDENTS' FEEDBACK ON THEIR TEACHER'S TEACHING PERFORMANCE DURING ONLINE CLASSES

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ABSTRACT

This study aimed to unveil the sentiments of college students' feedback on their teacher's teaching performance during online classes. The research utilized a qualitative approach, explicitly employing text mining. Orange software determined the most frequently used words illustrating teachers' teaching performance during online courses. Moreover, Latent Semantic Indexing (LSI) was utilized to reveal how those frequently used words were structured. Meanwhile, the study showed that the words "teacher," "class," "us," "student," "online," "teaching," "happy," "learning," "understand," and "good" were most frequently used in college students' sentiments regarding their teacher's performance during online classes. The study also indicated that most students have positive feedback on their teachers' teaching performance in online courses. Therefore, the findings suggest that teachers have the abilities and knowledge to successfully impart lessons to their students despite the enormous dilemma the pandemic has brought about in every sector, especially in education.

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INTRODUCTION

The global COVID-19 epidemic has had a profound effect on various industries across the globe, with the education sector being notably affected. UNESCO emphasizes the need to prioritize education recovery and assist nations in limiting the impact of school closures, repairing learning losses, and modifying education systems (UNESCO, 2021). Governments and other interested parties are encouraged to look into policy measures like stopping the spread of viruses and making sure schools are ready to open again; keeping education funding and working together to get the best results; creating resilient education systems for equitable and sustainable development; and reinventing education and speeding up change in teaching and learning (United Nations, 2020). For continuing education, shifting from traditional face-to-face classrooms to online learning is now regarded as the most excellent solution (Chiu et al., 2021; Condino, 2021; Hoang & Le, 2021; Mahyoob, 2020; Widayanti & Suarnajaya, 2021; Ying et al., 2021).

The development of e-learning helps spread education around the world in a fair way. E-learning is a way to share skills that lets you choose when and where to do them. So, people can learn anywhere and at any time. E-learning is a supplementary or complementary approach to traditional classroom



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instruction rather than a mere substitute. This has spurred private and public higher education institutions (HEIs) in the Philippines to implement flexible learning modalities in compliance with the Commission on Higher Education (CHED) 2020 recommendations, commencing with the academic year 2020-21. The implementing guidelines are expected to be continued in the school year 2021 and after that (CHED, 2020). During pandemics, the change from traditional learning methods to more flexible methods has become the latest trend. The modifications implemented in education encompassed many delivery forms, including online, offline, or a combination.

Feedback during the learning process has been shown to increase learning results significantly. According to Brennan and Williams (2010), almost all educational institutions gather numerous forms of feedback to enhance the quality of education, such as teaching and learning methods, teaching materials, and evaluations. The feedback results can be leveraged to improve the quality of the existing learning process, hence facilitating the achievement of learning objectives. According to Balahadia (2022), students' views and opinions on online learning will provide a clear image of their experiences, whether good, neutral, or negative, throughout online class delivery.

Feedback is not a recent phenomenon, yet its effectiveness, particularly among e-learning users, has yet to be fully optimized, especially when employing qualitative open-ended questions as a feedback style. Manual handling of qualitative data analysis for feedback is a viable option when the volume of acquired data is relatively limited. However, if the volume of data is high enough, a problem will occur. As a result, we require a suitable strategy for analyzing the open-ended question data. Text mining is one way to assess student feedback from open-ended questions (King & He, 2005). The field of text mining, particularly with the utilization of qualitative feedback in educational contexts, remains relatively nascent in terms of academic advancements. Moreover, the researcher has yet to encounter a study using orange mining software in our locality.

Through this study, students' feedback will be better understood, and the consequences for the efficacy of teachers' teaching performance will be considered and handled by the stakeholders of educational institutions (El et al., 2007). Moreover, the implementation of research endeavors aimed at analyzing the sentiment expressed by college students in their feedback regarding the teaching performance of their teachers in online classes can have a substantial impact on enhancing the policies, pedagogical approaches, modalities, and services offered by educational institutions in the current era of remote learning.

Research Questions

1. What frequently used words illustrate teachers' teaching performance during online classes?
2. How are these frequently used words structured in LSI?
3. What are the sentiments of college students on their teachers' teaching performance during online classes?



RESEARCH METHODOLOGY

Research Design

The present study employed a descriptive qualitative approach, explicitly utilizing text mining, often called text analysis. Text mining is converting unstructured text into a structured format to discover meaningful patterns and new insights (IBM Cloud Foundation, 2020). It identifies facts, relationships, and assertions that would otherwise be submerged in the vast quantity of textual big data (Linguamatics, 2020). According to Imlakiyah (2016), qualitative research produces conclusions that cannot be obtained using statistical techniques or other means. It is comprehensive and frequently entails a rich collection of data from numerous sources to acquire a more profound knowledge of individuals. It collects data qualitatively, and the analytical approach is also qualitative. The qualitative approach sometimes entails an inductive study of the data to uncover repeating themes, patterns, or concepts and then characterizing and interpreting those categories (Nassaji, 2015).

Research Respondents

The data was obtained from a student evaluation survey assessing faculty members of the College of Education at Sultan Kudarat State University during the second semester of the academic year 2021 – 2022. The data has been officially documented and may be accessed at the Program Chairperson's Office.

Data Analysis

The researcher used the Word Cloud in Orange software to determine the most frequently used words in the sentiments of college students' feedback on their teacher's teaching performance during online classes. The word cloud displays the most commonly used terms in an appealing visual presentation that distinguishes essential words in various sizes and colors based on frequency (DePaolo & Wilkinson, 2014). Latent Semantic Indexing (LSI) was utilized to reveal how frequently used words were structured. According to Montti (2021), the frequently used words were arranged in LSI using their generated topics (1–10) and keywords to identify the frequency and the relevant word co-occurrences, thereby revealing the themes of the words and documents. Sentiment analysis was done to analyze the sentiments of college students' feedback on their teacher's teaching performance during online classes. Sentiment analysis is a computational technique used to categorize textual data that pertains to subjective remarks. This field of study is commonly referred to as opinion mining, as it involves the analysis of opinions to get insights into public sentiment. Khan et al. (2016) employ natural language processing (NLP) techniques to gather and analyze phrases expressing opinions or sentiments.

RESULTS AND DISCUSSION

Frequently Used Words That Illustrate The Teachers' Teaching Performance During Online Classes.

Table 1 shows the ten most occurring words, their frequency/weight, and sample feedback from student – participants. The Word Cloud feature in Orange determines the frequency of these words. Some of the listed feedback is grammatically incorrect to show the truthfulness of the students' sentiments.

The most frequently used word is "teacher," which is mentioned 342 times. Second is the word "class," which is used 220 times. Then, it was followed by the words "us" and "student," which were used 188 times. The words "online," "teaching," and "happy" are mentioned in the feedback of the students 166, 117, and 92 times, respectively. After that, "learning" and "understanding" were repeated 85 times. Lastly, the tenth most frequently mentioned word is "good," repeated 84 times.

Table 1. The most frequently used words with their frequency.



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students that were gathered are primarily positive, which means that teachers have succeeded in delivering instruction effectively online. In addition, these frequently used words imply that students are happy or satisfied with their teachers' performance in teaching them online. The students stated in their feedback that their teachers had exerted extra effort to prepare them to grasp and understand the lessons being imparted.

During COVID-19, Sharma (2020) listed efficiency, no boundaries, cost and time effectiveness, ease of learning, and meeting different needs, among others, as positive effects of online learning. Additionally, students stated that despite the pandemic, the teachers have shown exemplary performance in using modern technology, significantly affecting how they understand their topics. Due to the significant shift in how instruction is delivered, students and teachers should have a better knowledge of technology. As Martin (2021) stated, the amount of understanding could be given by those who have a significant amount of technical expertise in the areas they are teaching.

The way frequently used words are structured in LSI.

Table 2 illustrates the ten critical topics extracted from Orange's Topic Modelling feature, where Latent Semantic Indexing (LSI) can be found and provides both positive and negative weights for each issue. A positive weight indicates that the term is highly representative of a topic. In contrast, a negative weight suggests that the word is highly unrepresentative of a topic (the less it occurs in a text, the more likely the topic). Positive words are colored green, while negative terms are colored red.

Table 2. Table showing LSI Topic with keywords

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	Topic 7	Topic 8	Topic 9	Topic 10
1	teacher	good	understand	Us	Us	Class	Teacher	online	English	student
2	Class	happy	teacher	Grade	Student	us	Teaching	English	like	give
3	student	teacher	student	Learning	Teacher	student	Use	one	really	make
4	Us	class	learning	Might	Give	like	English	teaching	topic	activity
5	Good	student	Online	Learner	Grade	topic	Student	whole	teaching	time
6	Happy	us	Class	professor	Class	online	Modality	time	speak	class
7	Online	online	teaching	Have	professor	give	Make	speak	discuss	online
8	teaching	teaching	Use	Class	Really	time	Everyone	really	give	learning
9	learning	learning	Time	Year	Learner	better	Say	us	make	us
10	Give	give	Still	Yet	teaching	connection	Still	topic	whole	teach

The frequently used words were arranged in LSI using their generated topics 1 to 10 and keywords. According to Montti (2021), frequently used words are set to identify the frequency of the relevant word co-occurrences, thereby revealing the themes of the words and documents.

The repeated words highlighted explicitly in green are those that students commonly used to express their positive reactions to their teachers' performance in teaching them online. The negative words were colored red, which means explicitly that these are the repetitive terms used by the students to respond negatively about the teaching performance of their instructors in their online class. These words used are the product of the emotions of the students, and these emotions consist of motivation, feelings, behavior, and psychological changes that are related to everyday speech, conscious experiences, and the relationships that exist between emotions, such as having a positive or negative influence (Imran, 2018).



Sentiments of college students on their teachers' teaching performance during online classes

Table 3 shows that most of the feedback collected from the students was positive, garnering 83%. Positive feedback means the students are satisfied with their teachers' teaching performance during online classes. Aside from that, there were also negative sentiments about the teachers' teaching performance, which garnered 14%. Also, there were some neutral sentiments, which accounted for 3% of the total collected responses.

Table 3: Sentiments of college students towards their teachers' teaching performance during online classes.

Sentiment	Percentage
Positive	83%
Negative	14%
Neutral	3%
Total	100%

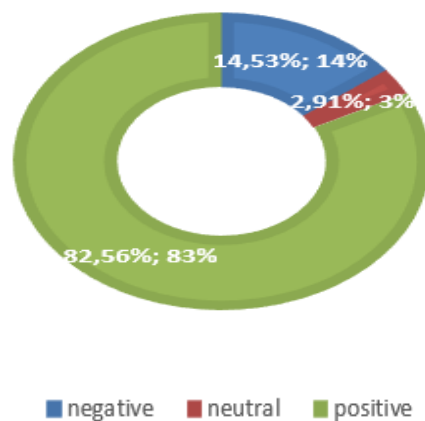


Figure 2. Sentiment Analysis Chart

Positive sentiments of college students toward their teacher's teaching performance during online classes

The results indicate that the majority of students' feedback on their teachers' teaching performance in online classes is positive. This result also means that despite the vast dilemma brought by the pandemic in every sector, especially in the education sector, teachers still have the skills and knowledge to deliver lessons to their students successfully. Sharma (2020) listed efficiency, no boundaries, cost and time effectiveness, ease of learning, and meeting different needs, among others, as positive effects of online learning during COVID-19. This finding supports one of the students' feedback items to their teachers, stating, "Our teachers are very understanding and considerate in our situations, especially when it comes to late submission of quizzes or activities because of poor connection." Due to the pandemic, classes are held on online platforms. Therefore, teachers' performance is considerably adjusted to cater to the needs of their students. Moreover, it can be seen in the reactions and feedback of the students that their



teachers have taken an enormous step and have earnestly adjusted to this new normal despite the massive change in everything, especially in the way of instruction delivery.

In higher education, the teacher's standard refers to the instructor's specific individual characteristics before entering the class (Gopal et al., 2021; Darling-Hammond, 2010). These traits encompass various elements, such as the instructor's level of material understanding, pedagogical competence, aptitude toward teaching, and prior experience. More significantly, Martin (2021) stated that at that level, the amount of understanding could be given by those with a significant amount of technical expertise in their teaching areas.

Numerous online platforms such as Google Classroom, Moodle, YouTube, and others were utilized to continue teaching and learning. Teachers have put much effort into making their instruction more comprehensive and innovative to provide students with a quality education. In return, their students appreciate their efforts, which can be vividly read and understood in the feedback, which is almost always positive. This feedback can immensely affect the institution as a whole, especially in its performance, and based on the given opinions, it can be perceived as above average.

Further, the findings are supported by Appraisal theory, which emphasizes the extracted emotions of the students as a response to the perceived performance of their teachers in teaching during their online classes. The findings explicitly highlight the satisfaction and happiness of the students after the positive and effective performance or attitude shown by their teacher in virtual meetings. As quoted above, students show appreciation for how their teachers responded to their concerns, especially in the academic challenges they are facing during this pandemic, and it implicates the optimistic reactions of the students expressed in their feedback.

Negative sentiments of college students toward their teacher's teaching performance during online classes

According to the collected students' feedback about their teachers' ways of teaching, there are still existing negative comments that teachers need to consider. Based on Appraisal Theory, a person's subjective assessment of the personal significance of a circumstance, an object, or an event serves as the basis for eliciting and differentiating emotions (Scherer, 1999). The results are likely to need to accurately reflect the situation in the classroom (Carlucci et al., 2019). Sometimes, students perceive the teachers' performance negatively because they see it as less effective, and the consensus is that more effective teachers have a more decisive influence on favorable student outcomes than ineffective ones (Hattie, 2012). Teachers must provide quality education to their students, offer multiple approaches to address their learning needs, and suit their learning style and pace to achieve a more desirable academic performance. Thus, students' responses are valuable and a sign to improve teaching strategies and instructional materials.

Students' feedback is indeed almost positive; however, some still react negatively to their teachers' teaching performance in online classes. Feedback like "*Teachers are not considerate if we are late to attend the class because we had a hard time logging in due to a prolonged internet connection*" and "*Teachers who seldom conduct classes are those who like to bombard us with many requirements*" are some of the

negative feedbacks given by the students. However, it is still essential to consider these to respond to the concerns of the students. Most likely, the teachers addressed by the students in their adverse reactions are those who still lack the skills and knowledge to navigate technology (Meng et al., 2022). Becta (2004) stated that teachers sometimes struggle to effectively utilize technology because they do not have the time to thoroughly prepare and research instructional materials, especially when such materials incorporate online or multimedia content. Teachers must also devote time to learning how to use technology.

Teachers and their pedagogy may need help understanding the lesson and more learning resources to suit the learners' needs (Santiago, 2022). Valentine (2002) emphasized that the quality of instruction in



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distance learning is one of the challenges because it depends on the attitude of the administration and the instructor, while Bayyat, Muaili, & Aldabbas (2021) suggested that instructional materials in online learning have to be engaging, interactive, and should complement face-to-face classes. Hence, it is quite a challenge for all teachers of different generations to acquire the skills and knowledge needed to perfectly navigate technology in order to devise learning strategies to deliver quality education, especially when it is done through online classes. Further, it is undeniable that just like ordinary people, not all teachers can quickly grasp the details of how to use the different gadgets, which results in poor performance in attending and interacting with students during online classes.

Therefore, the negative feedback of students about their teachers' teaching performance in online classes is reasonable and should still be considered in enhancing instruction in a particular institution (Meng & Wang, 2022).

Neutral sentiments of college students toward their teacher's teaching performance during online classes

It is visible in the results that there is numerous positive feedback and a few negative ones. However, there is countable neutral feedback as well. This means that students neither have positive nor negative feedback on their teachers' teaching performance in online classes. They are satisfied and not disappointed in the teaching and learning process in their online interaction with their teachers. They don't encounter problems with the ways their teachers teach in their online classes, and they don't complain when their teachers give them numerous requirements. In other words, these students are neutral because they are passive in what they are asked to do, and they don't have any problems with their connection or joining online classes. If there's any, they don't complain, or they don't blame their teachers for not being considerate in their situations.

According to the study *Teaching Sentiment in Emergency Online Learning—A Conceptual Model* conducted by Martinho, Sobreiro, & Vardasca (2021), they found out that there are at least 21% have neutral sentiments about the impact of online learning not just in elementary and secondary schools but even in higher education institutions. It shows that educators were able to fill in the gaps created by distance learning, like when they have to cancel some days of the online class due to essential matters, but they will try to schedule a make-up class to ensure that the students are well-guided with their lessons. According to Pillai et al. (2021), despite lacking technological proficiency, specific instructors tried to enhance their skills to confront unforeseen circumstances. Therefore, this intervention assists students in mitigating the adverse consequences of the pandemic within the educational framework.

CONCLUSION

The overall sentiments of college students toward their teacher's teaching performance during online classes will serve as a starting point for faculty and administrators at other HEIs to examine how online teaching strategies, approaches, and methods might be adapted to meet the demands of the learners.



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