The Impact of Audio on Enhancing Teacher-Student Interaction in Online Communication Education

Mei Zhang[1,a,*]

[1]*Dongshin University, Naju, South Jeolla, 58245, South Korea*
[a]*zm839932188@163.com*
[*]*Corresponding author*

Abstract: This study aims to explore the impact of audio on improving teacher-student interaction in online communication education. With the rapid development of online education, audio, as an important teaching tool, is widely used in the field of education. However, the role and effect of audio in teacher-student interaction has not been fully researched and understood. Therefore, by adopting various research methods, including questionnaire survey, interview, field observation and data analysis, we will conduct an in-depth discussion on three research questions. This paper will describe the research method, data analysis process and research results in detail, with a view to providing empirical support and guidance for online communication education practice and audio application. The research results will help to deepen the understanding of audio in online communication education, and provide valuable guidance and suggestions for educational practice and curriculum design. By systematically exploring the impact of audio on teacher-student interaction, we are expected to provide more effective teaching strategies and methods for online education, and promote the improvement of student learning effectiveness and engagement.

1. Literature Review

1.1. Online Communication Education

Online communication education is a specific field of online education that focuses on the use of online media and communication tools to deliver educational content and knowledge. Online dissemination of education usually involves radio, television, webcasting, social media, etc., through which educational resources and teaching content are disseminated to students. It emphasizes the use of communication channels and platforms to expand the coverage and communication effects of education, and promote the popularization and accessibility of education [1]. In this field of study, audio is introduced as a teaching resource and communication tool to enhance the learning experience and facilitate interaction among students. The research objects of this paper are teachers and students in online communication education, and the scope of research objects may include teachers and students of different age groups, different subject areas, and different educational backgrounds [2].

1.2. Teacher-student Interaction

"Teacher-student interaction" refers to the interaction and communication between teachers and students. It includes verbal communication, question answering, discussion, feedback and interactive activities between teachers and students. Teacher-student interaction plays an important role in education, which facilitates the transfer, understanding and application of knowledge, and contributes to the learning and development of students. Through teacher-student interaction, teachers can understand students' learning needs and difficulties, and provide targeted guidance and support; students can ask questions, share opinions, and gain a deeper learning experience from the interaction between teachers and classmates [3]. Teacher-student interaction can not only improve the learning effect, but also establish a good teacher-student relationship and enhance students' participation and learning motivation. In online communication education, the interaction between teachers and students is also one of the key elements. As a teaching tool, audio may have an impact on the interaction between teachers and students, and then on the learning effect. Therefore, it is of great significance to study the impact of audio on teacher-student interaction.

1.3. Research Purposes

1) This paper discusses the specific influence and function of audio on the interaction between teachers and students in online communication education, so as to provide empirical support and guidance, and promote the interaction and learning effect of online education [4].

2) This paper discusses students' feelings and preferences on different types of audio, and further discusses students' evaluations on the effectiveness and quality improvement of audio in teacher-student interaction, so as to provide references for the forms and strategies of audio and further optimize the application of online educational audio.

3) This paper discusses the strategies and considerations of teachers in designing and using audio, explores in depth the theoretical framework and teaching experience used by teachers in selecting audio content and strategies, and provides guidance and guidance for teachers to optimize the application of audio in online communication education support [5].

2. Research Problem

1) How to reflect the specific impact and effect of audio on teacher-student interaction in online communication education? 2) What are the differences in students' feelings and preferences for different types of audio? How do they rate the audio's improvement in the quality of the interaction? 3) How can teachers design and use audio to facilitate teacher-student interaction? What are their considerations when selecting audio content and strategy?

Research question: How to reflect the specific influence and effect of audio on teacher-student interaction in online communication education?

2.1. Questionnaire Survey

This paper designs a questionnaire for students and teachers to collect their perception and experience of audio in teacher-student interactions. This includes evaluating the impact of audio on the frequency and quality of interactions, observing how well audio communicates and understands information between teachers and students, and assessing the impact of audio on learning motivation and engagement.

2.2. Interviews

The researchers conducted individual interviews with some students and teachers to understand their views, experiences and opinions on audio interaction [6]. The function mechanism, existing problems and future development direction of audio in teacher-student interaction are discussed.

2.3. Field Observation

By observing the actual situation of the online communication education classroom, record the specific application of audio in the interaction between teachers and students[7]. Pay attention to how teachers use audio, how students respond and interact, and how audio affects classroom atmosphere and learning outcomes.

2.4. Data Analysis

Key themes and perspectives are extracted through quantitative and qualitative analysis of questionnaire and interview data. Use statistical methods, such as frequency analysis and correlation analysis, to explore the extent to which audio affects the frequency and quality of teacher-student interactions. Conduct content analysis on interview and observation data, summarize and sort out the specific influence and effect of audio in teacher-student interaction.

3. Research Result

The results show that audio has obvious influence and effect on teacher-student interaction in online communication education. Students and teachers generally agree that audio increases the frequency and quality of interactions, improving motivation and engagement. The application of audio facilitates the exchange of information and understanding between teachers and students, and stimulates students' thinking and discussion [8]. In addition, audio creates a positive classroom atmosphere, improving learning effectiveness and satisfaction [9].

Research question: What are the differences in students' feelings and preferences for different types of audio? How do they rate the audio's improvement in the quality of the interaction?

3.1. Audio Perception Survey

This paper designs a questionnaire for students to understand their feelings and preferences for different types of audio. This includes assessing the effectiveness and adaptability of different types of audio in teacher-student interactions, as well as observing students' emotional responses to and engagement with audio [10].

3.2. Interviews and Focus Group Discussions

This paper conducts interviews or focus group discussions with a certain number of students to gain insight into their evaluations and opinions on different types of audio. Explore student preferences, acceptance, and perceptions of improved interaction quality in various audio formats.

3.3. Data Analysis

Through quantitative and qualitative analysis of questionnaire and interview data, the popularity and effect evaluation of different types of audio are compared[11]. Use statistical methods, such as mean and standard deviation analysis, to determine differences in student perception and preference

for various audio types. Through content analysis of interview and focus group discussion data, students' evaluations and opinions on the improvement of the quality of interaction by audio are obtained.

3.4. Research Result

The results showed that there were differences in students' feelings and preferences for different types of audio. Certain types of audio, such as narration and conversational audio, were more popular with students and were found to improve the quality of interaction more than others[12]. Students generally found these audio formats to be easier to understand and engage, increasing their motivation and motivation.

Research Question Three: How do teachers design and use audio to facilitate teacher-student interaction? What are their considerations when selecting audio content and strategy?

4. Research Methods

4.1 Teacher Interviews and Observations

This article interviewed some teachers about their strategies and considerations when designing and using audio. Observe the audio application of teachers in practical teaching, including the selection of audio content, the arrangement of sound length and rhythm.

4.2 Course Design Analysis

This paper analyzes the curriculum design documents and teaching materials of teachers, and discusses the corresponding relationship between the integration of audio in the curriculum and the teaching objectives. This paper studies the theoretical framework and teaching experience of teachers' selection of audio content and strategies [13].

Based on the content analysis of teacher interviews and observation data, this paper summarizes the strategies and precautions for teachers to design and use audio. Analyze course design documents and teaching materials to understand how audio is integrated into the course and its impact on user engagement goals.

4.3 Research Result

The results revealed that teachers employ a variety of strategies when designing and using audio [14]. They choose the appropriate audio form according to the course content and student characteristics, and carry out targeted design in combination with teaching objectives and teaching methods. Considerations include relevance of audio content, increased student engagement, and optimization of interactions.

To sum up, this study uses research methods such as questionnaires, interviews, field observations, and data analysis to deeply explore the specific impact and effect of audio on teacher-student interaction in online communication education, and students' feelings and preferences for different types of audio. , along with strategies and considerations for teachers in designing and using audio. The research results provide important empirical support and guidance for online communication education practice and audio application, and provide valuable reference and inspiration for educators[15].

References

[1] Anderson, T., Rourke, L., Garrison, D. R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context. Journal of Asynchronous Learning Networks, 5(2), 1-17.

[2] Baran, E., Correia, A.-P., & Thompson, A. (2011). Transforming online teaching practice: Critical analysis of the literature on the roles and competencies of online teachers. Distance Education, 32(3), 421-439. doi: 10. 1080/ 01587919. 2011.610293

[3] Dennen, V. P., Darabi, A. A., & Smith, L. J. (2007). Instructor–learner interaction in online courses: The relative perceived importance of particular instructor actions on performance and satisfaction. Distance Education, 28(1), 65-79. doi: 10.1080/01587910701305419

[4] Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. The Internet and Higher Education, 2(2-3), 87-105. doi: 10.1016/ S1096-7516(00)00016-6

[5] Hew, K. F., & Cheung, W. S. (2013). Students' and instructors' use of massive open online courses (MOOCs): Motivations and challenges. Educational Research Review, 9, 45-65. doi: 10.1016/j.edurev.2012.08.001

[6] Xiao, M., Tian, Z. & Xu, W. Impact of teacher-student interaction on students' classroom well-being under online education environment. Educ Inf Technol (2023). https://doi.org/10.1007/s10639-023-11681-0

[7] Ong, S.G.T., Quek, G.C.L. Enhancing teacher–student interactions and student online engagement in an online learning environment. Learning Environ Res (2023). https://doi.org/10.1007/s10984-022-09447-5

[8] Sugden, N., Brunton, R., MacDonald, J., Yeo, M., & Hicks, B. (2021). Evaluating student engagement and deep learning in interactive online psychology learning activities. Australasian Journal of Educational Technology, 37(2), 45–65. https://doi.org/10.14742/ajet.6632

[9] Knoop-van Campen, C. A. N., Segers, E., & Verhoeven, L. (2020). Effects of audio support on multimedia learning processes and outcomes in students with dyslexia. Computers & Education, 150, 103858. https://doi.org/ 10.1016/j. compedu. 2020.103858

[10] Xie, Y., Huang, Y., Luo, W. et al. Design and effects of the teacher-student interaction model in the online learning spaces. J Comput High Educ 35, 69–90 (2023). https://doi.org/10.1007/s12528-022-09348-9

[11] Chang, C. Y., & Hsu, C. K. (2018). Effects of integrating audio and video communication into online English language learning. Educational Technology & Society, 21(4), 111-122.

[12] Lim, C. P., & Hang, D. (2003). Chat-based synchronous discussion groups: Effects on students' knowledge construction in online learning. Journal of the American Society for Information Science and Technology, 54(10), 945-959.

[13] Liu, S. H., Liao, H. L., & Pratt, J. A. (2009). Impact of media richness and flow on e-learning technology acceptance. Computers & Education, 52(3), 599-607.

[14] Stodel, E. J., Thompson, T. L., & MacDonald, C. J. (2006). Learners' perspectives on what is missing from online learning: Interpretations through the community of inquiry framework. International Review of Research in Open and Distributed Learning, 7(3), 1-21.

[15] Wang, Y. S., Wu, M. C., & Wang, H. Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. British Journal of Educational Technology, 40(1), 92-118.