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# The Impact of Multimodal Teaching on FLSA and Online English Classroom Reticence from the Perspective of Multimodal Interaction Analysis

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***Abstract:*** *Based on multimodal interaction analysis theory, this paper examines the impact of multimodal interactive teaching on students' speaking anxiety and classroom reticence. Reticence is more severe in the online classroom than in the offline classroom, and it is made more difficult by the fact that teachers cannot judge student' knowledge based on their expressions and body language. This paper shows that the six factors of the speaking anxiety self-schema can explain online classroom reticence to a certain extent and multimodal teaching can help reduce speaking anxiety and alleviate reticence in students' classrooms. This paper shows that the six factors of the speaking anxiety self-schema can explain the phenomenon of online classroom reticence to a certain extent; multimodal teaching can help reduce speaking anxiety and alleviate reticence in students' classrooms.*

***Keywords:*** *multimodal interactive teaching, college English, speaking anxiety, classroom reticence*

## 1. Introduction

Traditional teaching methods are gradually being replaced by multimedia-based offline classroom teaching and Internet-based remote learning online as science and technology advance. Multimodal teaching is important in online education because it emphasizes the development of various abilities in learners and uses numerous channels and teaching methods such as the Internet, visuals, and role plays to engage learners' senses and make them work together in language learning (Zeng, 2011) [1]. With the rise of multimodal teaching in China, Hu Zhuanglin (2007) [2] distinguishes between the concepts of modality and media, explains the concept of multimodal literacy and its connotations, and kicks off the research on multimodal foreign language teaching in China. The new teaching model requires teachers to mobilize as many senses and resources of images, movements and color symbols as possible in the classroom to fulfil the teaching objectives, thus achieving effective classroom interactions, and a large number of effective classroom interactions will better help students to master the foreign language (Boche, 2015) [3]. However, compared to the traditional offline classroom, the online classroom is more 'silent' because the teacher is in a space of authority for longer periods of time. Yang & Fell-Eisenkraft (2003) [4] suggest that students' reticence in the classroom is mainly related to anxiety caused by a lack of speaking skills.

Although most of the previous studies have concluded that foreign language learning anxiety as an affective factor is an important factor in causing reticence, the learning environments discussed in these studies are relatively homogeneous and mostly involve offline university English teaching, while there is relatively little research on foreign language anxiety and reticence in online multimodal environments, and even less research exploring interventions for online foreign language learning anxiety. Based on the contributions and shortcomings of previous studies and the new standards of contemporary university English teaching reform, this paper intends to verify the effects of multimodal interactive teaching models on online learners' speaking anxiety and classroom reticence from the perspective of multimodal interaction analysis and propose corresponding coping strategies, so as to help university students reduce their speaking anxiety to break the silent atmosphere in online English classes and better accomplish efficient learning in class.

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## 2. Research Design

### *2.1 Research purpose and content*

The purpose of this study is to explore how colleges and universities can better solve the phenomenon of classroom reticence in online English classes based on the theory of multimodal interactive teaching and realize flipped classroom teaching of college English. This study tested the following hypothesis: from the perspective of multimodal interaction analysis, it was verified that multimodal interactive teaching mode can reduce the speaking anxiety and classroom reticence of online English learners, thus improving teaching outcomes.

The subjects of this study were a total of 64 non-English major undergraduate students at the university, of whom 21 were male and 43 were female. The study participants all had a continuous online English classroom learning experience of at least three months from September 2022 to February 2023.

### *2.2 Research methods*

The wireless sensor network consisting of sensor nodes is an equality network with no strict control centre, and the status of all nodes is equal. Based on the moving target tracking in wireless sensor networks, due to the sensor node energy, computing capacity and other constraints, a single sensor node cannot effectively track the target. It requires a number of sensor nodes for collaborative detection, and processes all available data. As a result, self-organization and routing problem of sensor nodes of wireless sensor network exists in the tracking process of moving target.

The first questionnaire consists of two parts, one based on the Self-Patterned Anxiety Inventory for Foreign Language Speaking published by Wu Wensheng (2014) [5], which is divided into three dimensions and six factor, as shown in Table 1, and the other part based on the Reticence in the Classroom Questionnaire for College Students.

*Table 1: Foreign Language Speaking Anxiety self-schema*

| Three dimensions | Six factors | Meaning |
|---|---|---|
| Self-awareness assessment | Low self-efficacy | Low belief in one's speaking ability to achieve a particular outcome |
| | Low self-esteem | Low opinion of one's speaking ability |
| Self-emotional experience | Fear of negative evaluation | Expectations of bad evaluation from others |
| | Social anxiety | Anxiety about using spoken language for practical communication |
| Self-behavioral tendencies | Low proactive behavioral tendencies | Lack of positive behaviour for oral learning |
| | Tendency to avoid behavior | Negative approach to oral learning |

The second questionnaire related to multimodal teaching and consisted of three specific sections: the impact of multimodal interactive teaching models on students' speaking anxiety in online English classes, the impact of multimodal interactive teaching models on students' reticence in online English classes, and the impact of multimodal interactive teaching models on teachers' teaching effectiveness.

## 3. Research analysis

Statistical analysis of the questionnaire data was carried out using SPSS26.0 and Excel. First, the data from the two parts of questionnaire one was collated and imported, with the six factors included in speaking anxiety as the independent variables (X1-X6) and the value of online English silence among university students as the dependent variable (Y), and finally a multiple linear regression analysis was conducted. The aim was to investigate whether online classroom silence is influenced by the six factors in speaking anxiety in the English online classroom. The data from questionnaire one was then imported into SPSS26.0 software for descriptive analysis, to investigate the impact of the multimodal interactive teaching model on speaking anxiety, classroom reticence, and teaching effectiveness in online English classrooms for university students.

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### *3.1 The impact of FLSA on online English classroom reticence*

The Unwillingness-to-Communicate Scale (UCS), designed by Burgoon (1976) [6], was used to measure the reticence values of the students. Using a five-point Likert scale, each participant's scores on the 18 questions were summed to give their respective reticence value. A total score of more than 70 indicates a high level of reticence, while a score of 50-70 indicates a moderate level of reticence and a score of less than 50 indicates a low level of willingness to participate in classroom activities.

To investigate whether reticence in the classroom is influenced by the six factors of speaking anxiety, regression analyses were conducted on the two parts of the questionnaire, the results of which are shown in Table 2 below.

*Table 2: Model Summary*

| Model | R | R squared | Adjusted R squared | Standard error of estimate |
|---|---|---|---|---|
| 1 | .889[a] | .790 | .650 | 4.18073 |
| a. Predicated variable: (Constants) Avoidance behavior tendency , Low self-efficacy, Low self-esteem, Social anxiety, Lo w proactive behavioral tendencies, Fear of negative evaluation. | | | | |

The regression results from the graph above show that the adjusted R-squared in this study was 0.650, meaning that the six factors included in speaking anxiety, namely "low self-efficacy", "low self-esteem", "fear of negative evaluation", "communicative fear", "low proactive behavioral tendencies" and "avoidance behavioral tendencies", which together explain to some extent 65% of the of the variation in reticence in the classroom. Therefore, to break the reticence in online English classes, measures to alleviate speaking anxiety are essential.

*Table 3: ANOVA[a]*

| | | Sum Sq | Df | Mean Sq | F Value | Sig |
|---|---|---|---|---|---|---|
| | x | 592.444 | 6 | 98.741 | 5.649 | .011[b] |
| | residual | 157.306 | 9 | 17.478 | | |
| | total | 749.750 | 15 | | | |
| a. Dependent variable:Reticence value | | | | | | |
| b. Predictor variables:(Constants) Avoidance behavior tendency, Low self-efficacy, Low self-esteem, Social anxiety, Low proactive behavioral tendencies, Fear of negative evaluation | | | | | | |

*Table 4: Coefficients[a]*

| Module | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinear Statistic | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 14.246 | 9.725 | | 1.465 | .177 | | |
| | Low self-efficacy | .774 | .427 | .396 | 2.311 | .047* | .488 | 2.049 |
| | Low self-esteem | -.200 | .464 | -.076 | -.431 | .677 | .750 | 1.333 |
| | Fear of negative evaluation | .864 | .624 | .345 | 2.884 | .020* | .376 | 2.660 |
| | Social anxiety | .224 | .752 | .069 | .297 | .773 | .435 | 2.298 |
| | Low proactive behavioral tendency | .079 | .655 | .025 | 1.121 | .090 | .559 | 1.790 |
| | Avoidance behavior tendency | 1.252 | .514 | .469 | 2.435 | .038* | .630 | 1.588 |
| a. Dependent variable:Reticence value<br>The above t-test was used to determine whether the variables in the regression equation were significant or not. Table 4 shows that all three of the predictor variables, with the exception of "low self-esteem", "social anxiety" and "low proactive behavioral tendencies", were good predictors of reticence in the classroom. Because the regression coefficients of the three variables "low self-esteem", " social anxiety" and "low proactive behavioural tendencies" did not reach a significant level, they were not valid predictors, but because the regression coefficients were used forced regression analysis, they were retained in the regression equation. The standardised regression equation was: classroom reticence = low self-efficacy × 0.396 + low self-esteem × (-0.076) + fear of negative evaluation × 0.345 + social anxiety × 0.069 + low proactive behaviour tendency × 0.025 + avoidance behaviour tendency × 0.469. Among the six predictor variables, the top two standardised regression coefficients were "avoidance behavior tendency" (0.469) and "low self-efficacy" (0.396). This shows that students with lower self-efficacy and more avoidant psychological tendency will be more silent in class. It can be seen that in online college English courses, teachers should let every student participate in the class and have more online interaction to encourage students, so as to improve students' confidence and sense of mission in class. Teachers should design multimodal classes so that students can participate and reduce their avoidance. | | | | | | | | |

The calculation in the Excel formula shows that Fa(k,n-k-1)=2.263, and the analysis of Table 3

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shows that F=5.649>2.263,then the original hypothesis (H0=no effect of speaking anxiety on the phenomenon of silence in the classroom) is rejected, that is, the six factors of speaking anxiety ("low self-efficacy", "low self-esteem", "fear of negative evaluation", "social anxiety", "low proactive behavioral tendencies", "tendency to avoid behavior") combined to have a significant effect on the reticence value. And the F-value corresponds to Sig=0.011<0.05, which shows that the whole regression equation has value for use.

### *3.2 The impact of multimodal teaching models on teaching effectiveness*

The data on the impact of multimodal teaching modes on teaching effectiveness are shown in Table 5, where the majority of students were accustomed to the traditional 'teacher speaks and students listen' approach (M=3.98) and therefore needed to incorporate multimodal teaching formats to achieve a flipped classroom. Although the majority of students agreed that language modalities dominate language learning (M = 4.16), other modalities such as sounds and pictures contribute to language learning, and teachers' appropriate expressions and body language help to deepen the understanding of the text (M=3.16). Multi-modal interactive activities such as teacher-student interaction and group interaction helped to deepen understanding of the content, but many students felt that too many modalities (M=3.79) and frequent changes in modality (M=3.96) distracted them from the class. Therefore, teachers need to pay attention to modality selection and modal structure configuration in multimodal interactive teaching models.

*Table 5: Impact of multimodal teaching models on teaching effectiveness*

| Questions | M (Mean) | SD (Standard Deviation) |
|---|---|---|
| I am used to the traditional "teacher speaks, students listen" model, so I have not formed the habit of participating in class discussions and presentations. | 3.98 | 1.04 |
| Language modality dominates the English language | 4.16 | 1.23 |
| In the online English classroom, the teacher's appropriate expressions and gestures help me to deepen my understanding of the content of the text. | 3.16 | 1.22 |
| Multimodal interactive English activities help me to understand the content I am learning. | 4.16 | 0.98 |
| Too much modality in online English lessons distracts me. | 3.79 | 1.47 |
| Frequent modal changes in online English lessons distract me. | 3.96 | 0.93 |

## 4. Conclusions

By setting offline tasks in advance and designing diverse classroom activities, teachers can enable students to fully engage multiple modalities such as auditory, visual and tactile senses in the online classroom, thereby reducing students' anxiety and thus breaking classroom reticence to form effective classroom interactions. This study began with a forced regression analysis of the data from Questionnaire 1, which was designed to investigate whether classroom reticence and the six factors of the Speaking Anxiety Self-Pattern were related. A descriptive analysis of the data from Questionnaire 2 was conducted to investigate whether multimodal interaction could reduce students' anxiety and motivate the classroom. The findings of the study for this paper are as follows. First, improving "avoidance behavior tendencies" and "low self-efficacy" in students' classroom anxiety. Secondly, using a task-based approach, students are given tasks to complete offline before class, so that they can prepare themselves and build up their background language knowledge so that they are well prepared to speak in class. Thirdly, moderate intervention by teachers to alleviate students' anxiety. Last but not least, for the more difficult teaching content, language explanation found difficult to understand students, then you can adjust the use of drawing and other means for students to reference, so as to improve the teaching effect.

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