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A Study on the Classroom Engagement of Visually Impaired Students Based on the CIPP Evaluation Model: A Case Study of College English Classes in an Inclusive Education Context

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Abstract: *This study, employing the CIPP evaluation model, delves into the learning experiences of visually impaired students within integrated college English classes, focusing on an in-depth analysis of critical dimensions like learning focus, classroom interest, teacher-student, and peer interactions. The findings reveal that although visually impaired students exhibit positive attitudes in certain areas, existing teaching environments and methodologies fall short in catering to their specific needs. Consequently, the study proposes a series of comprehensive improvement strategies, encompassing the development of multi-sensory learning materials, the implementation of personalized learning approaches, the establishment of a Class-Wide Peer Tutoring system, and the enhancement of professional teacher training. These strategies are designed to elevate the learning outcomes and satisfaction levels of visually impaired students, whilst simultaneously creating a more enriched and inclusive environment for all students. A principal limitation of the study is the restricted number and scope of its sample, suggesting the need for future research to be conducted on a broader basis, with a more extensive and long-term evaluation of the proposed pedagogical improvements.*

Keywords: *CIPP evaluation model, visually impaired students, classroom engagement, inclusive education, integrated college English classes, educational improvement strategies*

1. Introduction

Inclusive education is designed to provide equal educational opportunities for all students. As society advances and educational perspectives evolve, inclusive education has emerged as a key topic in the global educational reform agenda. In China, the policy of "inclusive education for students with special needs" mandates schools to admit students with special needs into regular classes, allowing them to receive education alongside their peers. This approach grants students with special needs the opportunity to access a wider array of knowledge and skills, experience feelings of acceptance and inclusion, and bolster their sense of ability. A diverse learning experience can stimulate their interest in learning and potential, laying a foundation for their future professional and social engagement [3]. Classroom engagement, defined as the extent to which students actively participate in classroom activities, significantly impacts learning outcomes and the development of language skills. Visually impaired students, as a specific student group, encounter challenges in perception and communication. They depend on other senses, such as hearing and touch, to learn and acquire information. Active classroom engagement is crucial for enhancing their auditory, speaking, and communicative abilities, thereby improving their language proficiency and overall linguistic competence [8]. The issue of classroom engagement among visually impaired students requires attention, and appropriate measures should be implemented to increase their participation in the classroom.

This study primarily investigates and analyzes the extent of participation, modes of engagement, and existing barriers encountered by visually impaired students in university English classrooms to gain an in-depth understanding of the current state of their engagement in such educational settings. Based on the outcomes of this evaluation, specific strategies for improvement will be proposed, aimed at enhancing the participation of visually impaired students in these classes and advancing their language learning and development. This research is intended to provide a scientific theoretical foundation and practical guidance for augmenting the engagement of visually impaired students in college English courses. Additionally, it endeavors to contribute nuanced perspectives and substantive reference points that are poised to influence educational practices and policy formulations within the

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realm of inclusive education, particularly in the context of language learning and development for visually impaired students.

Classroom engagement, in a general classroom setting, refers to the psychological and behavioral efforts of individual students in participating or actively engaging in teaching activities [7]. Reviewing existing research on students with special needs, the studies can be broadly categorized into two aspects. The first is research primarily based on qualitative analysis of individual cases, tracking the classroom engagement of students with special needs through observation, interviews, questionnaires, etc. For instance, Gao Liyang explored the impact of language teaching adjustments on the classroom engagement of students with special needs using a case-study approach [1]. The second aspect involves quantitatively presenting the specifics of classroom engagement. Scholars both domestically and internationally differ in their research direction and methods for measuring classroom engagement but share the common goal of developing an accurate, effective, and operational tool for this purpose. Domestic scholars mainly focus on observation-based and survey-based measurement methods, such as teacher observation, student self-reports, group discussions, and self-assessment scales. Among these, self-assessment scales are widely used due to their ability to comprehensively showcase students' engagement and emotional responses, as the subjects are the students themselves. In 2003, Professor Kong Qiping developed a questionnaire tool for evaluating students' mathematical learning engagement, categorizing classroom engagement into three aspects: behavioral, cognitive, and emotional [6]. This scale provided a solid foundation for domestic scholars in developing classroom engagement tools.

In contrast, international scholars place more emphasis on technology-based measurement methods, such as examining student behaviors in using laptops, tablets, teaching management systems, and other electronic devices in the classroom, and assessing their engagement and contributions through software analysis. In 2000, the “National Survey of Student Engagement” (NSSE) was introduced abroad, and this self-assessment scale has been widely applied in universities in the United States and Canada, covering various aspects of university life, including students' capability development and personal socialization. Building on this, Handelsman et al. later developed the “Student Course Engagement Questionnaire” (SCEQ), a more specific tool for measuring university students' course engagement, supporting a multi-dimensional construction of student engagement [5]. Zhao Fuchun and others, combining domestic and international classroom engagement measurement tools, developed a measure for student classroom engagement in flipped classroom teaching models. This measure comprised six dimensions: attention concentration, teacher-student interaction, peer interaction, classroom interest, critical thinking, and classroom satisfaction, leading to the development of the “Student Classroom Learning Engagement Scale” consisting of 21 questions [11]. The reliability and validity of this scale were further verified.

Considering the model and teaching components of college English courses in inclusive education, such as review, inquiry, questioning, answering, discussion, reporting, and homework practice, Zhao’s “Student Classroom Learning Engagement Scale” aligns well with the applicable classroom model. Its dimensions of student engagement measurement can objectively cover the classroom participation performance of visually impaired students in college English courses. Therefore, this study will select this scale as the measurement tool.

The Context, Input, Process, Product (CIPP) evaluation model, a comprehensive and multifaceted assessment framework, was initially proposed in 1966 by Daniel Stufflebeam, a renowned American educationalist specializing in education policy and management. This model has found widespread application within the educational sphere, notably in the evaluation of the efficacy and value of initiatives in teaching reforms, educational policies, and school administration. Additionally, it serves as a tool to appraise the effectiveness of curricular designs and pedagogical approaches, whilst providing insights into student responses and levels of engagement with educational activities. The CIPP model encapsulates four pivotal dimensions: Context, Input, Process, and Product [10], enabling an exhaustive evaluation of various aspects related to the teaching environment, content, and methodologies in university English classes for visually impaired students.

In this study, the CIPP model is employed as the foundational framework for the pedagogical evaluation. The Context assessment delves into aspects of learning focus and classroom interest, scrutinizing whether the environment and conditions of inclusive classrooms are conducive to fostering an optimal learning milieu for visually impaired students. The Input dimension focuses on the dynamics of interactions between teachers and students, as well as peer-to-peer engagements, to ascertain whether these interactions facilitate equitable learning opportunities for visually impaired students. The Process aspect evaluates the efficacy of instructional strategies and methodologies in augmenting the learning outcomes for these students. Finally, the Product dimension concentrates on

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assessing the tangible learning achievements and overall satisfaction of visually impaired students within the milieu of inclusive college English classrooms, thus gauging the overall effectiveness of such educational settings.

2. Research design and implementation

2.1 Research subjects

This study primarily targets a specific cohort: visually impaired students with special needs in a university setting, who are integrated into regular classes for their college English courses. Given the generally small population of this group in universities, the research has selected 22 visually impaired students participating in inclusive college English classrooms (i.e., integrated into regular student classes for joint classroom learning) as its subjects. These students hail from various majors and academic years, all of whom are currently or have previously been involved in inclusive college English classes.

2.2 Research implementation

Table 1: Participation Scale and Measurement Dimensions for Visually Impaired Students in Integrated College English Classes

Dimension	Question	Connotation
Learning Focus	1: I am fully concentrated during the class.	Measurement of the breadth and stability of student attention during classroom learning.
	2: I think seriously during classroom learning.	
	3: I am very focused when completing classroom learning tasks.	
	4: I seriously ponder the questions raised by the teacher.	
Teacher-Student Interaction	5: I am willing to actively answer the teacher's questions.	Measurement of the interaction between student inquiries, teacher responses, teacher questions, student answers, and teacher evaluations.
	6: I will ask questions to the teacher if I have doubts.	
	7: I enjoy debating (arguing) with the teacher.	
Peer Interaction	8: I listen attentively when others speak.	Measurement of student performance during classroom discussions and the learning processes posed by pre-class learning and teacher's questions.
	9: I listen attentively when discussing with classmates.	
	10: I am willing to participate in discussions among classmates.	
In-class Interest	11: I feel a sense of satisfaction when completing classroom tasks (homework, group discussions, etc.).	Measurement of student learning motivation and alignment with classroom teaching content.
	12: I am deeply inspired by discussions among classmates.	
	13: I am curious about new content in the classroom.	
	4: I feel excited when starting to learn new knowledge in the class.	
Critical Thinking	15: When I disagree with the teacher's views, I do not readily accept them.	Measurement of the quality of classroom thinking and depth of learning.
	16: I use facts or examples to support my views.	
	17: Sometimes I have different ideas in the class.	
Classroom Satisfaction	18: The existing model of classroom teaching captures my interest.	Measurement of student self-learning performance, teacher performance, and the teaching model.
	19: I like the teaching method where students ask questions and teachers answer.	
	20: Compared to teacher-centered classes, I prefer the current classroom model.	
	21: Compared to teacher-centered classes, I find the current classroom model more rewarding.	
	22: The teacher's teaching model meets my special needs.	
	23: Compared to regular classes, integrated classes are more rewarding for me.	

The study employs the "Student Classroom Learning Engagement Scale" developed by Zhao Fuchun and colleagues, which encompasses six dimensions: learning focus, teacher-student interaction, peer interaction, classroom interest, critical thinking, and classroom satisfaction. This scale includes 21 self-assessment questions [11]. The dimension of "classroom satisfaction" has been specifically modified to reflect the layered teaching characteristics of inclusive college English classes, incorporating a fundamental survey of satisfaction with the inclusive classroom setting, as detailed in

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Table 1: Participation Scale for Visually Impaired Students in Integrated College English Classes. Students are required to choose the option that best fits their situation based on the Likert scale, ranging from 1, indicating “never do this”, to 5, signifying “always do this”.

2.3 Data collection

In accordance with the special needs of visually impaired students, the questionnaire was distributed in an electronic format, facilitating the completion of the survey using screen readers and other assistive technologies. To gain a more comprehensive understanding of the classroom engagement of visually impaired students, an unmodified version of the "Student Classroom Learning Engagement Scale" was also administered to an equivalent number of non-visually impaired students from the same classes. The data collected were meticulously organized and analyzed, as illustrated in Tables 2 and Table 3.

Table 2: Participation statistics in integrated college English classes for visually impaired students

Dimension	Score Range	Average Score	Highest Score (Number of Participants)	Lowest Score (Number of Participants)	Variance
Learning Focus	4-20	15.2	18 (2 Participants)	9 (1 Participant)	8.25
Teacher-Student Interaction	3-15	12.6	14 (3 Participants)	8 (1 Participant)	4.00
Peer Interaction	3-15	10.8	12 (2 Participants)	7 (1 Participant)	2.92
Critical Thinking	3-15	11.2	13 (2 Participants)	9 (3 Participants)	2.00
In-class Interest	4-20	16.4	19 (2 Participants)	12 (1 Participant)	5.25
Classroom Satisfaction	6-30	24.8	29 (4 Participants)	18 (1 Participant)	11.92

Table 3: Participation statistics in integrated college English classes for non-visually impaired students

Dimension	Score Range	Average Score	Highest Score (Number of Participants)	Lowest Score (Number of Participants)	Variance
Learning Focus	4-20	13.42	18 (1 Participants)	9 (1 Participant)	8.63
Teacher-Student Interaction	3-15	14.5	15 (5 Participants)	12 (1 Participant)	1.5
Peer Interaction	3-15	13.0	15 (2 Participants)	11 (2 Participant)	1.8
Critical Thinking	3-15	10.53	14 (1 Participants)	8 (1 Participants)	5.06
In-class Interest	4-20	13.05	18 (1 Participants)	10 (1 Participant)	8.40
Classroom Satisfaction	4-20	13.35	17 (1 Participants)	9 (1 Participant)	7.76

3. Data analysis and discussion

3.1 Context evaluation

Within the CIPP evaluation model's context, this study focuses on learning concentration and classroom interest among visually impaired students in inclusive college English courses. The collected data indicate high levels of engagement, with average scores of 15.2 for learning concentration and 16.4 for classroom interest, nearing the maximum possible scores. However, variances of 8.25 and 5.25 in these respective areas reveal notable individual differences, suggesting varying levels of participation among students. This disparity is likely due to unevenly adaptive classroom environments, such as inadequate layout and accessibility facilities. Contrastingly, non-visually impaired students in the same educational setting may encounter fewer obstacles, reflected in more balanced and consistent levels of learning concentration and classroom interest. This comparison underscores the impact of the teaching environment on the participation of visually impaired students, especially in terms of providing adaptive resources and accessibility facilities.

In language-focused college English courses, it is crucial to create an inclusive and supportive learning environment for visually impaired students, such as offering adaptive teaching resources and accessible tools. This includes converting textbooks and reading materials into Braille or electronic

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formats [2], enabling easy access to English texts for visually impaired students. Additionally, ensuring a classroom layout that is conducive to the free movement and involvement of visually impaired students, while maintaining good lighting and ventilation, is essential for creating a comfortable and functional learning environment. To enhance visually impaired students' interest in college English courses, teachers can design diverse and interactive teaching activities. By aligning with the interests and needs of visually impaired students, teachers should create learning scenarios closely related to real-life, such as discussing real-life topics and improving oral skills through role-playing and simulated dialogues. The passion and deep understanding of teachers towards the subject matter can significantly ignite students' enthusiasm for learning English, encouraging them to participate fully in classroom learning alongside non-visually impaired students. This not only helps to bridge the participation gap between visually impaired and non-visually impaired students but also fosters a more equal and inclusive teaching environment.

3.2 Input evaluation

The Input evaluation in the CIPP model focuses on teacher-student and peer interactions, assessing whether these interactions provide visually impaired students with equal learning opportunities. The data indicates that the average score for visually impaired students in teacher-student interaction is 12.6, and 10.8 in peer interaction, reflecting a moderate level of engagement. However, the variances of 4.00 in teacher-student and 2.92 in peer interactions suggest inconsistent interaction quality, particularly in peer interactions. This inconsistency highlights the challenges visually impaired students face in inclusive college English classes, especially in language application, such as limited participation or inadequate peer understanding of their needs. In contrast, non-visually impaired students generally encounter fewer challenges in interactions, with an average score of 14.5 in teacher-student interaction and a variance of 1.5, indicating a more consistent and balanced experience. In peer interactions, they scored an average of 13.0 with a variance of 1.8, suggesting smoother and more widespread engagement.

For educators, key to enhancing the participation of visually impaired students in inclusive classroom interactions is implementing targeted measures to improve their interaction quality and classroom experience. Providing training in communication skills to enhance the understanding and support of both teachers and non-visually impaired students towards the needs of visually impaired students is crucial. Such training should include various modes of accessible communication, encompassing verbal exchanges, written feedback, and tactile feedback, catering to the diverse needs of visually impaired students [2]. Furthermore, organizing special activities and discussions can foster empathy and understanding among peers about the challenges faced by visually impaired students, creating a more inclusive and understanding classroom environment. Additionally, creating more inclusive interaction opportunities, such as group collaboration and classroom discussions, and regularly assessing and adjusting teaching strategies are essential to ensure a positive learning experience for all students, including both visually impaired and non-visually impaired. These comprehensive measures are instrumental in narrowing the interaction gap between visually impaired and non-visually impaired students, fostering a classroom atmosphere that values diversity, mutual respect, and understanding.

3.3 Process evaluation

The Process evaluation within the CIPP framework primarily focuses on cultivating critical thinking in inclusive college English courses. As a fundamental element in English teaching, critical thinking demands not just an understanding of the language but also an analysis and evaluation of the learned content, posing a distinct challenge for visually impaired students. As shown in Table 2, visually impaired students have an average score of 11.2 in critical thinking, with the number of students scoring the lowest in this aspect being highest compared to other dimensions. Despite the variance of 2.00 indicating some consistency, this also indirectly suggests that teaching content and methods may not fully consider the special needs of visually impaired students, particularly in providing tactile and auditory assistance materials. The cultivation of critical thinking, involving deep understanding, analysis, and evaluation of texts, can be more challenging for students reliant on non-visual senses. In comparison, non-visually impaired students scored an average of 10.53 in critical thinking, with a variance of 5.06, indicating greater differences in the development of this ability. This disparity may be due to their ability to directly access and utilize visual materials, facing different challenges in in-depth analysis and evaluation.

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To foster critical thinking in visually impaired students and improve the quality and interactivity of college English classes, it's essential to use multi-sensory learning materials and develop resources that can be touched and heard. Additionally, implementing personalized learning methods catering to their specific needs is vital. This includes using audio materials for in-depth critical discussions and assessing their thinking and analytical skills through oral reports and audio assignments, thus more accurately evaluating and promoting their learning outcomes. Encouraging interaction and collaboration between visually impaired and non-visually impaired students fosters intellectual exchange and mutual learning among students from diverse backgrounds, enriching the academic experience. Moreover, strengthening professional training for teachers in visual impairment education is a key step in supporting the learning of visually impaired students, enabling teachers to better understand their learning challenges and develop effective teaching strategies to address these challenges.

3.4 Product evaluation

The Product evaluation in the CIPP model primarily assesses the learning outcomes and satisfaction of visually impaired and non-visually impaired students in inclusive college English classes. As shown in Table 2, visually impaired students have a high average satisfaction score, yet the significant variance indicates notable differences in classroom experiences, suggesting that the classroom environment and teaching methods might not fully cater to their unique needs. In contrast, non-visually impaired students generally benefit more directly from existing teaching content and methods, experiencing more consistent classroom satisfaction without facing the same obstacles as their visually impaired peers.

Teachers can use creative, inclusive methods like project-based learning and discussions to engage visually impaired students, tailor assessments to their needs, and establish feedback mechanisms for continuous teaching improvement. Moreover, the establishment of a Class-Wide Peer Tutoring (CWPT) system [9] fosters mutual assistance and understanding between visually impaired and non-visually impaired students, providing tailored support for specific English learning needs. In this system, non-visually impaired students, as learning partners, can assist visually impaired students in various aspects of language learning. For instance, they can help with understanding and analyzing English texts, provide oral descriptions of reading materials, and even participate in role-playing and simulated dialogues, which are vital for improving oral communication skills. They can also assist visually impaired students in accessing electronic learning resources, such as specialized software or websites, ensuring full utilization of these resources. Class-Wide Peer Tutoring could extends beyond the classroom, with activities like English corners or clubs, enabling visually impaired students to practice and enhance their English skills in a more relaxed and friendly environment. In this process, non-visually impaired students not only act as facilitators but also as interactive partners, fostering learning confidence in disabled students, enhancing their academic performance, and improving understanding and acceptance of diversity, ultimately leading to improved communication and social skills [4]. This system transcends academic achievement, focusing on establishing a supportive, collaborative, and inclusive learning community.

4. Conclusion

In this study, the CIPP evaluation model played a pivotal role, offering a comprehensive and systematic framework to analyze the learning experiences of visually impaired students in integrated college English classes. By analyzing key dimensions such as learning focus, classroom interest, teacher-student interaction, and peer interaction, the study highlighted the experiential differences between visually impaired and non-visually impaired students. Notably, visually impaired students demonstrated a positive approach towards learning focus and classroom interest, but significant individual variances suggest that current teaching environments and methods are insufficient in meeting their specific needs.

The holistic application of the CIPP model enabled the identification of learning challenges faced by visually impaired students in integrated English classes and guided the development of targeted teaching strategies. Based on data analysis, the study proposed several improvement strategies focused on enhancing the classroom experience of visually impaired students. These include developing multi-sensory learning materials, implementing personalized learning methods, establishing a Class-Wide Peer Tutoring system, strengthening professional teacher training, and creating accessible

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learning environments. These measures aim not only to enhance the learning outcomes and satisfaction of visually impaired students but also to create a richer, more inclusive environment for all students. Such pedagogical improvements serve not just the specific needs of visually impaired students but also foster diversity and inclusivity within the entire educational setting, providing a higher quality educational experience for all.

However, the study has its limitations. Due to the limited number and scope of the research sample, the conclusions may not fully represent the experiences of all visually impaired students. Additionally, the effectiveness of the proposed teaching improvements needs further practical validation and assessment. Future research could explore a broader sample base, delving into the learning experiences of various types of visual impairments and other special-needs students. Moreover, long-term tracking and evaluation of the proposed teaching improvements are crucial to verify their effectiveness and to further optimize and adjust these strategies to better meet the learning needs of visually impaired students and all students alike. Through these efforts, the teaching quality and student learning experience in integrated college English classes can be further enhanced.

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