EFFECTIVENESS OF BLENDED IAET MODEL IN PROMOTING HIGHER VOCATIONAL STUDENTS’ ENGLISH READING COMPREHENSION: A PARALLEL CLUSTER-RANDOMIZED CONTROLLED STUDY PROTOCOL

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ABSTRACT

Background: Increasing efforts have been focused on improving higher vocational students’ English reading comprehension with blended teaching model. There is limited literature focused on improving higher vocational students’ reading comprehension through the typically designed teaching model. Intercultural awareness experiential teaching (IAET) model is designed for higher vocational English reading classes by integrating three levels of intercultural awareness reflected in the reading materials of the textbook into the blended teaching process.

Aim: The main objective of this study is to evaluate the feasibility and acceptability of the IAET model and to assess the impact of this model on promoting higher vocational English learners’ reading comprehension.

Method: This study examines the improvement of higher vocational students reading comprehension using the intercultural awareness experiential teaching (IAET) model as an intervention. The intervention has been implemented for two months with two hours per week designed to improve higher vocational students’ reading comprehension in one higher vocational college of Henan province in China. 52 Students has been randomly assigned to the intervention group that will receive the IAET model and the control group with traditional teaching model. The feasibility was determined based on the effectiveness level of IAET model as measured by reading comprehension tests and semi-structured interviews. Independent sample T test and Welch t-test in SPSS 27 were used to compare the pretest and posttest reading comprehension scores in the control group and the experimental group.

Findings: The findings showed that the IAET model has a large impact on the improvements of reading comprehension scores obtained from pre-test and post-test of the control group and the experimental group.

Discussion: IAET model teaching method that can promote higher vocational English learners’ English reading comprehension systematically. During the implementation of IAET model, higher vocational English students have actively immersed themselves in cultural knowledge of reading materials and strive to comprehend them thoroughly. Moreover, the implementation of the online provision and practice tasks has also promoted students’ reading comprehension by utilizing their fragment time after classes.

Contribution: The findings of this study provided an effective method for higher vocational English teachers to improve students’ reading comprehension systematically which is the implementing of the IAET model in China.

Keywords: Reading Comprehension, IAET Model, Higher Vocational English, True Experiment.

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EFICÁCIA DO MODELO COMBINADO IAET NA PROMOÇÃO DA COMPREENSÃO DA LEITURA EM INGLÊS DE ESTUDANTES DO ENSINO SUPERIOR: UM PROTOCOLO DE ESTUDO CONTROLADO RANDOMIZADO POR CLUSTER PARALELO

RESUMO

Antecedentes: Esforços crescentes têm sido concentrados em melhorar a compreensão de leitura em inglês dos alunos do ensino profissional superior com o modelo de ensino misto. Há literatura limitada focada em melhorar a compreensão de leitura dos alunos do ensino profissional superior através do modelo de ensino tipicamente concebido. O modelo de ensino experiencial de consciência intercultural (IAET) é projetado para aulas de leitura profissionalizante de inglês, integrando três níveis de consciência intercultural refletidos nos materiais de leitura do livro didático no processo de ensino combinado.

Objetivo: O principal objetivo deste estudo é avaliar a viabilidade e aceitabilidade do modelo IAET e avaliar o impacto deste modelo na promoção da compreensão de leitura dos alunos de inglês profissionalizante superior.

Método: Este estudo examina a melhoria da compreensão de leitura de estudantes do ensino profissional superior usando o modelo de ensino experiencial de consciência intercultural (IAET) como intervenção. A intervenção foi implementada durante dois meses, com duas horas por semana, destinadas a melhorar a compreensão de leitura dos alunos do ensino profissional superior numa escola profissional superior da província de Henan, na China. 52 alunos foram distribuídos aleatoriamente no grupo intervenção que receberá o modelo IAET e no grupo controle com modelo de ensino tradicional. A viabilidade foi determinada com base no nível de eficácia do modelo IAET medido por testes de compreensão de leitura e entrevistas semiestruturadas. O teste T de amostra independente e o teste t de Welch no SPSS 27 foram utilizados para comparar os escores de compreensão de leitura pré e pós-teste no grupo controle e no grupo experimental.

Resultados: Os resultados mostraram que o modelo IAET tem um grande impacto nas melhorias dos escores de compreensão de leitura obtidos no pré-teste e pós-teste do grupo controle e do grupo experimental.

Discussão: Modelo de método de ensino da IAET que pode promover sistematicamente a compreensão da leitura em inglês dos alunos de inglês profissionalizante superior. Durante a implementação do modelo IAET, os estudantes de inglês profissionalizante superior mergulharam ativamente no conhecimento cultural dos materiais de leitura e se esforçaram para compreendê-los completamente. Além disso, a implementação do fornecimento on-line e das tarefas práticas também promoveu a compreensão da leitura dos alunos, utilizando seu tempo fragmentado após as aulas.

Contribuição: As conclusões deste estudo forneceram um método eficaz para professores de inglês profissionalizantes superiores melhorarem sistematicamente a compreensão de leitura dos alunos, que é a implementação do modelo IAET na China.

Método: Este estudio examina la mejora de la comprensión lectora de estudiantes de formación profesional superior utilizando el modelo de enseñanza experiencial de conciencia intercultural (IAET) como intervención. La intervención se implementó durante dos meses con dos horas por semana diseñada para mejorar la comprensión lectora de los estudiantes de formación profesional superior en una escuela de formación profesional superior de la provincia de Henan en China. 52 estudiantes han sido asignados aleatoriamente al grupo de intervención que recibirá el modelo IAET y al grupo de control con modelo de enseñanza tradicional. La viabilidad se determinó con base en el nivel de efectividad del modelo IAET medido mediante pruebas de comprensión lectora y entrevistas semiestructuradas. Se utilizaron la prueba T de muestra independiente y la prueba t de Welch en SPSS 27 para comparar las puntuaciones de comprensión lectora previa y posterior a la prueba en el grupo de control y el grupo experimental.

Hallazgos: Los hallazgos mostraron que el modelo IAET tiene un gran impacto en las mejoras de las puntuaciones de comprensión lectora obtenidas en la prueba previa y posterior del grupo de control y del grupo experimental. Discusión: Método de enseñanza modelo IAET que puede promover sistemáticamente la comprensión lectora en inglés de los estudiantes de inglés de mayor nivel vocacional. Durante la implementación del modelo IAET, los estudiantes de inglés de formación profesional superior se han sumergido activamente en el conocimiento cultural de los materiales de lectura y se esfuerzan por comprenderlos a fondo. Además, la implementación de tareas de práctica y provisión en línea también ha promovido la comprensión lectora de los estudiantes al utilizar su tiempo parcial después de clases.

Contribución: Los hallazgos de este estudio proporcionaron un método eficaz para que los profesores de inglés de formación profesional superior mejoren sistemáticamente la comprensión lectora de los estudiantes, que es la implementación del modelo IAET en China.

Palabras clave: Comprensión Lectora, Modelo IAET, Inglés Vocacional Superior, Experimento Verdadero.

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1 INTRODUCTION

Acquiring a foreign language entail attaining mastery in its four fundamental abilities, namely listening, speaking, reading and writing, in which reading affords students the chance to participate in the intellectual discourse of esteemed thinkers from other cultural backgrounds, so expanding their knowledge and enhancing their comprehension (Hussein, 2012; Mohammed & Sidek, 2016; 2015; and Mohammed et al., 2016). Higher vocational English learners in China have challenges in English reading comprehension which hinders their improvements of English proficiency and English education efficiency. Moreover, according to the findings of Chui and Mohammed (2023), there is evidence to suggest that Chinese cultural aphasia persists across all three levels of intercultural awareness as manifested in the reading materials of the representative higher vocational English textbook. This phenomenon also poses a hindrance to the enhancement of English reading comprehension among higher vocational students.

To improve higher vocational students’ English reading comprehension, an Intercultural Awareness Experiential Teaching (IAET) model has been constructed by integrating the three
levels of intercultural awareness in the reading materials of the textbook with the blended teaching model designed with the guidance of theory of foreign language and intercultural learning (Buttjes & Byram, 1991). As the IAET model is a blended teaching model, “Xuexitong” platform which is popular in higher vocational colleges in China has also been utilized for the implementation of this teaching model. Since the successful implementation of English teaching through Moodle is contingent upon the lecturer's proficiency in English pedagogy as well as their familiarity with the Moodle platform (Prasetya, 2021), this online teaching platform has been introduced in detail for students.

The primary objective of this research is to investigate the efficacy of the Intercultural Awareness Experiential Teaching (IAET) model in enhancing the reading comprehension of higher vocational students. Hence, it is essential to conduct a feasibility study to ascertain the suitability and reception of the IAET model intervention. This study delineates the procedural aspects associated with the execution of a feasibility study for a concise educational framework known as the 'Intercultural Awareness Experiential Teaching (IAET) model' within the context of higher vocational English reading courses. The IAET model was designed based on Baker's (2011) three levels of intercultural awareness theory and theory of foreign language and intercultural learning (Buttjes & Byram, 1991) to achieve the objective of the study.

2 LITERATURE REVIEW

2.1 DEFINITION OF READING COMPREHENSION

English language learners must have good reading skills to comprehend written materials and improve their language competence (Mohammed & Sidek, 2016). According to Pressley (2000), reading in the cognitive research of the reading process is characterized as purposeful and active. Pressley (2000) defined reading comprehension as the skill to extract significance from written content. To be more specific, reading comprehension involves deriving meaning from text through visual perception and subsequently processing it mentally to extract information (Maqbulin, 2022). In this research, reading comprehension has been defined as the ability of English learners to perceive the main idea and detailed information in the English reading materials cognitively.
2.2 INFLUENCE OF ICA ON READING COMPREHENSION

Aspects of a foreign language’s culture are an integral component of the process of the acquisition of the foreign language (Council of Europe, 2018). According to Huang (2023), it is inevitable that cultural differences and diversity will result in the misinterpretation of information in the reading materials. Additionally, it is essential for foreign language learners to actively immerse themselves in cultural knowledge of reading materials and strive to comprehend the values, cognitive processes, and life perspectives (Shen, 2019). Baker (2011) defined intercultural awareness as the deliberate comprehension of the influence that culturally rooted forms, practices, and frames of reference that can exert on intercultural communication. Moreover, a foreign language classroom is the most natural setting for teaching students about other cultures and fostering their intercultural awareness (Savić, 2022).

In essence, the acquisition and comprehension of vocabulary and grammar may be discerned and highlighted by instructional resources however, the development of intercultural knowledge necessitates a gradual and subtle cultivation over an extended duration (Jiang, 2016). Despite acquiring a certain degree of proficiency in the English language, individuals often struggle to develop a comprehensive understanding of foreign cultures and face challenges in effectively applying their English language knowledge and skills within specific contextual settings (Wu, 2014). In the context of cultural introduction, it is advisable for educators to prioritize the development of students’ intercultural awareness by providing explicit explanations of relevant cultural knowledge (Huang, 2023).

In summary, EFL learners’ intercultural awareness will influence their development of English language proficiency including their improvement of reading comprehension. At the same time, the improvement of students’ reading comprehension may be promoted by improving their intercultural awareness.

2.3 ASSESSMENTS OF READING COMPREHENSION WITH MULTIPLE CHOICE QUESTIONS (MCQ)

The sensitivity of multiple-choice questions is distinct from that of sentence recognition tests due to the requirement for participants to choose the correct answer from a set of three or more response options. While verbal responses are not obligatory, this particular form of evaluation imposes greater cognitive demands compared to a forced-choice test, as it necessitates the comparison of several response possibilities (Cain & Oakhill, 2006).
Based on the differing degrees of English proficiency among students in higher vocational colleges in China, the Basic Requirements for the Course of English for Higher Vocational College Students (Higher Education Department of the National Ministry of Education, 2000) have established two distinct levels: Level A, characterized by higher difficulty, and Level B. The Practical English Test for Colleges (PRETCO) is a comprehensive and standardized examination that aims to assess the English language competency of students enrolled in Higher Vocational Colleges in China (Zhang, 2016). PRETCO-A is an established English proficiency assessment designed to evaluate the students’ abilities to use the English language in higher vocational college settings (Han & Li, 2019). The PRETCO-A assessment is a rigorous examination that has the evaluation of an individual's English language competency as a reliable measure (Zhang, 2016).

2.4 BLENDED TEACHING MODEL FOR ENGLISH READING EDUCATION

Due to the importance of reading comprehension in foreign language context, English-language teachers are supposed to train their students to master English reading comprehension skills (Mohammed et al., 2016). Blended teaching model has been one of the research trends in the field of researches on teaching models in China (Chui & Mohammed, 2022). Furthermore, there exist studies that concentrate on the use of both online and offline teaching models in the context of English language reading instruction. In the study of Zhou (2021), it is aimed to investigate the application of the overall language teaching theory in the context of English education by integrating different skills of English learning to enhance students' reading competence. According to Prasetya (2021), the successful implementation of English teaching through Moodle is contingent upon the lecturer's proficiency in English pedagogy as well as their familiarity with the Moodle platform. The objective of Yulian's study in 2021 was to suggest enhancements in the development of critical thinking skills in reading among English as a Foreign Language (EFL) learners in higher education, utilizing the flipped classroom teaching model. Furthermore, in the realm of English education, Wang (2020) has introduced a novel pedagogical framework that centers around the concept of fragmented reading. This methodology promotes student engagement with English texts, both within and beyond the classroom. The enhancement of English learners' reading competence can be achieved by more exposure to the English language, both within and beyond the confines of the classroom.
3 MATERIALS AND METHOD

3.1 DESIGN

This research has applied the pretest-posttest control-group design which is a research methodology commonly used in true experimental studies. In this design, the IAET model was implemented as the treatment to the participants in the experimental group. Control group retained the currently used traditional teaching model. Pretest and posttest measures have been focused on English learners’ reading comprehension. As it is shown in Figure 1 the research design involves the administration of a posttest to two groups of participants who have been randomly allocated. Prior to the posttest, both groups undergo a pretest, and one of the groups receives the experimental treatment condition (Johnson, 2014).

Figure 1
*Pretest-posttest control-group design*

Note: The Arrow represents the treatment condition, XC represents the control or standard treatment condition, and O1 and O2 represent the pretest and posttest assessments of the dependent variable; XT represents the intervention or experimental treatment (Johnson, 2014, p. 465)

Moreover, the prevailing methodology for the analysis of the data obtained from this particular experimental design involves independent sample T test and two-tailed independent-samples Welch t-test with SPSS 27.
3.2 RESEARCH POPULATION

The research is limited to the higher-vocational English education in Henan province of China. Luoyang Polytechnique (LYPT) has been taken as an example in Henan province for this research. There are 23,000 students currently studying in LYPT to be analyzed for the research. As the students except freshmen will not be taught English in the third year, this research was focused on the freshmen in LYPT, and the number of which add up to about 7,666, which is the population size.

3.3 SELECTION CRITERIA (INCLUSION, EXCLUSION),

The sample of the study was selected based on the flowing criterion:
1) Students should be in the non-English majors;
2) Students don’t have the experience to be abroad;
3) The nationality of students is supposed to be Han nationality;
4) The admission form of students should be through the college entrance examination;
5) The English proficiency of students is supposed to be in the medium level.

Since the recommended sample size is 52 for the true experiment in this study, freshmen in this college have firstly been selected randomly to meet the requirement of the recommended sample size. The sampling process has been illustrated in Table 1.

Table 1

Characteristics of simple random sampling process for the experiment

<table>
<thead>
<tr>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1 Non-English major students</td>
</tr>
<tr>
<td>No.2 Experience of going abroad: Never been abroad</td>
</tr>
<tr>
<td>No.3 Nationality: Han nationality</td>
</tr>
<tr>
<td>No.4 Admission form: China’s National Entrance Examination</td>
</tr>
<tr>
<td>No.5 English score during the National Entrance Examination Medium level (from 60 to 110)</td>
</tr>
</tbody>
</table>

3.4 SAMPLE SIZE AND SAMPLE TECHNIQUE

Cohen et al. (2007, p.102) stipulate that experimental methodologies necessitate a minimum of 15 participants, while Gall et al. (1996) advocate for the inclusion of no fewer than 15 participants in both control and experimental groups for the purpose of comparison. Take students’ complex entering sources into this higher vocational college and their different...
English abilities into consideration, this research will choose two groups of students entering to this college through the China’s National University Entrance Examination and having medium English reading competences. Based on the sample size of the experiment in the previous relevant researches in Table 2, this research has implemented a true experimental study with 26 students in the experimental group and 26 students in the control group which means sample size of this research is 52 participants in all.

Table 1
Sample size for the experiment of Reading Intervention and intercultural English teaching model

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
<th>Title</th>
<th>Sample size</th>
<th>Experimental time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Margaret C. Bush</td>
<td>2014</td>
<td>An investigation of the effects of a computer-assisted reading program on the oral reading fluency and comprehension of elementary students</td>
<td>8</td>
<td>6weeks</td>
</tr>
<tr>
<td>Huang Yingxue</td>
<td>2018</td>
<td>Educational Ecology Based “3+2+4” Intercultural English Teaching Model -- A Case Study of AAA Vocational College</td>
<td>35 for experimental group, 37 for control group</td>
<td>6 weeks</td>
</tr>
</tbody>
</table>

Simple random sampling method has also been utilized in the quantitative research. The best way to control for extraneous variables in an experiment like is to randomly assign research participants to the groups to be compared. Random assignment helps ensure that the people in the groups to be compared are similar before the intervention or manipulation (Johnson & Christensen, 2019, p.94).

3.5 RANDOMIZATION AND BLINDING OF THE SAMPLE,

As for this research, 263 students meeting the inclusion criteria have been selected randomly from the 7666 students in Luoyang Polytechnic based on 7666 population size, 5% confidence interval and 90% confidence level (Cohen et al., 2018, p.206). The 263 students have been chosen based on the five inclusion criteria described above, which means they are Han nationality in the non-English majors with no experience to be abroad and their English scores of the college entrance examination is from 60 to 110 in the medium level.
Moreover, to ensure equitable distribution of participants across groups, this research has employed a technique known as block randomization. The utilization of this randomization strategy guarantees that each group will be assigned a participant in a sequential manner through a random process. The utilization of the block randomization computer technique (Research Randomizer) is more expedient to construct a sequence of circumstances that adhere to the specifications of block randomization (Johnson, 2014). Figure 2 below has illustrated the flowchart of quantitative sampling process for the true experiment in detail.

**Figure 2**

*Flowchart of quantitative sampling for the true experiment*

As is shown in Figure 2 above, the experimental group includes 26 students and the control group also includes 26 students whose codes are all different with each other by choosing randomly from 7666 freshmen.
3.6 IAET INTERVENTION

The design of the blended IAET teaching model has been instructed with the Analyze, Design, Develop, Implement, and Evaluate (ADDIE) instructional design model which has also been used in the development of Content and Language Integrated Learning (CLIL) method (Subaedah et al., 2023). The design of IAET model is also in accordance with the opinion of Cheng (2017) who suggests the construction of blended teaching mode by mixing traditional teaching mode with the new MOOC (online course) teaching mode. Furthermore, IAET model, as a blended teaching model designed for higher vocational English education in China, has utilized student’s spare time to finish fragmented reading tasks. Based on the ADDIE instructional design model, the IAET model has been generated through five periods which have been illustrated in Figure 3 below.

**Figure 3**
*Flowchart of quantitative sampling for the true experiment*

The online platform is “Xuexitong” illustrated in Figure 4 which is currently utilized by Luoyang Polytechnic and other colleges in Henan province of China. In Luoyang Polytechnic, “Xuexitong” has been utilized for all the teachers and students for their study online and offline which provide supportive evaluation of education effectiveness with quantitative data.
Based on the teaching procedures of the IAET model in Figure 5, the reading materials chosen from the higher vocational textbook have been designed. Students were required to finish the online and offline learning tasks accordingly. As for the implementing of IAET model on “Xuexitong” platform, Period one-Pre-class: output motivating requires students to fulfill the provision tasks about the cultural background of certain reading materials. In addition, Period three-After class: Output Assessing also require students to finish the practice tasks online.
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In order to analyze the effectiveness of IAET model on promoting higher vocational English learners’ reading comprehension, this research has implemented the blended IAET model both online and offline to the experimental classes with 26 participants from September 10th, 2023 to November 10th, 2023. The whole intervention period of implementing IAET model involves 8 classes with 120 minutes for every class.

3.7 READING COMPREHENSION TESTS

The researcher selected two PRETCO A reading comprehension examinations for students to complete. Both the pretest and posttest of reading comprehension are extracted from the PRETCO A examinations including two texts with five multiple choice questions individually. Questions for these tests include comprehending the overall meaning and consequences of statements, as well as to assess and draw conclusions from the details which are in accordance with the definition of Hildreth (1965). The duration allocated for the reading comprehension assessment in the study has been limited to a time frame of 20 minutes.
3.8 DATA COLLECTION

In order to analyze students’ reading comprehension, multiple choice reading tests of PRETCO A have been provided to students in the pretests and posttests. All the participants in the control group and the experimental group have finished these tests in 20 minutes with printed testing papers offline. The testing papers have been collected by the researcher to marking the final scores of reading comprehension. Then all the reading comprehension scores have been entered into the excel file for the further analyzing with SPSS 27.

4 RESEARCH FINDINGS

4.1 PRETESTS FOR READING COMPREHENSION

To assess the pretests for reading comprehension in both the control group and the experimental group, a homogeneity of variances analysis was performed. This analysis used Levene's test to see whether there was equality of variance between the two groups. The Levene's test, first proposed by Levene (1960), is used to assess the equality of variances among samples. The outcome of Levene's Test did not provide a significant result, with a F value of 0.091 and a p value of 0.764. This suggests that the assumption of homogeneity of variance was satisfied. Hence, the parametric independent-samples t-test in Table 3 was used for the study of primary data collected from the pretests for reading comprehension of control group and experimental group.

Table 3

Independent Samples t-test Results for Pretests Scores of Reading Comprehension (PSRC)

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
<td>df</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>0.091</td>
<td>0.764</td>
<td>0.053</td>
<td>50</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>0.053</td>
<td>0.958</td>
<td>0.385</td>
<td>87</td>
</tr>
</tbody>
</table>

According to the data analyzing results presented in Table 3, there was no statistically significant distinction observed in the pre-tests scores of reading comprehension between the
control group, which was exposed to a traditional teaching approach (mean=68.08, standard deviation=26.984), and the experimental group, which was exposed to the IAET model (mean=67.69, standard deviation=25.661). The t-test conducted on a sample size of 52 participants yielded a t-value of 0.053 and p-value of 0.958, indicating no significant difference between the two groups (p>0.05). Consequently, the data analyzing results indicate that there is no significant difference in the pretest scores for reading comprehension of students in the control group and experimental group.

4.2 POSTTESTS FOR READING COMPREHENSION

During the examination of parametric assumption, it was seen that the outcomes of Levene's test yielded significant findings, with an F-value of 9.067 and a p-value of .004, which suggests that the assumption of homogeneity of variance was not fulfilled. Due to the violation, it was determined that the parametric Welch t-test would be used. This test is known to possess more statistical power in cases when the two samples exhibit uneven variances and unequal sample sizes (Howell, 2010; Cross, 2023). The statistical analysis using the two-tailed independent-samples Welch t-test in Table 4 provides that the difference between posttests for reading comprehension of the control group and the experimental group is significant at a significance level of 0.039 (p<0.05).

Table Erro! Nenhum texto com o estilo especificado foi encontrado no documento.

<table>
<thead>
<tr>
<th>Welch t-test Results for Posttests Scores of Reading Comprehension (PoSRC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Levene’s Test</strong></td>
</tr>
<tr>
<td>P</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>9.067</td>
</tr>
</tbody>
</table>

According to the data analyzing results presented in Table 4 above, there was statistically significant difference observed in the pre-tests scores for reading comprehension between the control group, which was exposed to a traditional teaching model (mean=71.92 standard deviation=24.498), and the experimental group, which was exposed to the IAET model
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4.3 COMPARISON OF READING COMPREHENSION SCORES’ IMPROVEMENTS BETWEEN PRETESTS AND POST TESTS

During the analysis of parametric assumptions for the improvements of reading comprehension scores in the experimental group and the control group, it was seen that the results of the Levene test produced statistically significant findings, as shown by a p-value of 0.001 in Table 5 below. This implies that the assumption of homogeneity of variance was not satisfied. As a result of the transgression, the decision was made to use the parametric Welch t-test. The statistical analysis conducted involved the use of a two-tailed independent-samples Welch t-test. The results of this analysis indicate that there is a significant difference between the changes in reading comprehension scores observed in the control group and the experimental group, specifically when comparing the scores from the post-test and pre-test. This significance is particularly noteworthy, as it is observed at a very high significance level of 0.000 (p<0.001) which has been illustrated in Table 5.

Table 5

| Welch t-test Results for Improvements of Improvements of Reading Comprehension Scores (IRCS) |
|-----------------------------------------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|
| Levene’s Test | t-test for Equality of Means | | | | | |
| I V | F | Sig. | t | df | Sig. (2-tailed) | Mean Diff. | SE Diff. | 95% Confidence |
| Equal variances assumed | 13.79 | .001 | - | 50 | .000 | -12.308 | 3.096 | -18.526 | -6.089 |
| Equal variances not assumed | 3 | 3.975 | 36.4 | .000 | -12.308 | 3.096 | -18.584 | -6.031 |

Based on the data analysis findings presented in Table 5 above, a statistically significant difference was observed in the improvement of reading comprehension scores between the control group, which received traditional teaching (mean=3.85, standard deviation=6.972), and the experimental group, which was exposed to the IAET model (mean=16.15, standard deviation=14.164), as indicated by the post-test and pre-test comparisons. The findings suggest

(mean=83.85, standard deviation=14.444). The results indicate that the posttest scores for reading comprehension in the experimental group are superior to those of the control group.
that the experimental group outperformed the control group in terms of posttest scores for reading comprehension.

Moreover, as is shown in Table 6 below, the Cohen's d value with 11.163 (d>0.8) for this finding suggests that the instructional approach may have a large impact on the improvements of reading comprehension scores from pre-test and post-test of the control group and the experimental group obtained (Cohen, 1988). Similarly, Lakens (2013) posits that the Cohen d value serves as a measure of the standardized mean difference between two sets of independent observations within a certain sample.

**Table 6**

*Independent Samples Effect Sizes for the Improvements of Reading Comprehension Scores (IRCS)*

<table>
<thead>
<tr>
<th>Difference</th>
<th>Standardizera</th>
<th>Point Estimate</th>
<th>95% Confidence Interval</th>
<th>Lower</th>
<th>Upper</th>
</tr>
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<tr>
<td></td>
<td>Cohen's d</td>
<td>11.163</td>
<td>-1.103</td>
<td>-1.683</td>
<td>-.513</td>
</tr>
<tr>
<td></td>
<td>Hedges' correction</td>
<td>11.334</td>
<td>-1.086</td>
<td>-1.657</td>
<td>-.505</td>
</tr>
<tr>
<td></td>
<td>Glass's delta</td>
<td>14.164</td>
<td>-.869</td>
<td>-1.456</td>
<td>-.268</td>
</tr>
</tbody>
</table>

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control group.

**5 DISCUSSION AND CONCLUSION**

The major objective of this research is to analyze if Higher vocational EFL learners’ English reading comprehension will be improved by implementing the IAET model in Henan province of China. The data analysis for this research has been focused on the analysis of research participants’ reading comprehension from pretests to posttests both in the experimental group and the control group. Based on the data analyzing results, students’ reading comprehension has been enhanced by implementing the intercultural awareness experiential teaching (IAET) model.

Since the IAET model is centered on students’ intercultural awareness in the reading materials, higher vocational English students in this research have actively immersed themselves in cultural knowledge of reading materials in the textbook and strive to comprehend the values, cognitive processes, and life perspectives which has been emphasized by Shen (2019). Moreover, the implementation of IAET model by adding cultural elements in different countries also emphasized the opinion that a foreign language classroom is the most natural
setting for teaching students about other cultures (Savić, 2022). In addition, the implementation of the IAET model online tasks with “Xuexitong” platform has also promote students’ reading competence by utilizing their fragment time after classes which is enhancement of the research results on the use of Moodle in English education implemented by Prasetya (2021). As for the assessment of higher vocational English learners’ reading comprehension in China, the Practical English Test for Colleges (PRETCO) has been established as an reliable assessing method which is in accordance with the viewpoint of Han & Li (2019) and Zhang (2016).

In summary, this research has developed the IAET model for higher vocational English reading classes in China. Moreover, the experimental results indicate that the IAET model was effective to promote students’ reading comprehension which can be tested with the multiple-choice questions for reading in PRETCO-A tests in Henan province of China. Furthermore, the IAET model are also supposed to be effective to improving the reading competence of EFL (English as a Foreign Language) learners in other provinces of China and even in other countries of the world.

6 LIMITATIONS AND SUGGESTIONS FOR FURTHER STUDY

This research has been focused on the freshmen of one higher vocational college in Henan province of China due to the reason that higher vocational English is the compulsory course for freshmen. Since this is the official requirement, the research have to be focused on the freshmen which might be one limitation for this study. Accordingly, the further research might be expanded to higher vocational students from freshmen to sophomores and especially seniors who are going to enter the undergraduate upgrading examination.

Moreover, higher vocational colleges in other provinces of China have not been involved in this research because of the limitation of opportunities to implement the IAET model. This is another limitation for this research. In order to make up for this limitation, higher vocational English teachers in other provinces of China are suggested to implement the IAET model to promote students’ reading comprehension.
AUTHORS' CONTRIBUTIONS

Chui Runyuan have made substantial contributions to the conception and design and draft of the work; Dr. Lubna Ali Mohammed supported the acquisition, analysis and interpretation of data; Dr. Sahar Mohammed Taresh have substantively revised the manuscript. All the authors have approved the submitted version and to have agreed both to be personally accountable for the author's own contributions and to ensure that questions related to the accuracy or integrity of any part of the work.

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LIST OF ABBREVIATIONS

IAET: Intercultural Awareness Experiential Teaching Model
PRETCO: Practical English Test for Colleges

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