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The implementation of differentiated instruction in English reading comprehension for upper primary students at rural schools in Chengdu

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Abstract
This study focused on sixth-grade students in rural primary schools in Chengdu. The main purposes were: (1) to examine the current state of differentiated instruction in English reading comprehension for upper primary students in rural schools in Chengdu; (2) to compare the English reading comprehension performance between the experimental group and the control group; (3) to examine the level of satisfaction among students in the experimental group with the use of differentiated instruction in English reading comprehension. The subjects were 79 sixth-grade students from Xihe Primary School, with 40 in the experimental group (DI intervention) and 39 in the control group (traditional teaching). Using quantitative methods and SPSS, the study found that: (1) The main characteristics of insufficient DI implementation in rural schools were less teaching frequency, inconsistent use, insufficient teacher training, and insufficient understanding of teachers; (2) After eight weeks' intervention, the total English reading score of the experimental group was significantly higher than that of the control group ($P < 0.01$), with B-level students making the greatest progress, and the experimental group's score dispersion was smaller and more stable; (3) DI significantly improved students' satisfaction with English reading teaching, with the experimental group scoring highly in adaptability of teaching objectives, participation, perceived learning effect, and effectiveness of teachers' guidance. The study concluded that differentiated instruction can effectively improve English reading comprehension ability of upper primary students in rural schools. However, limitations such as small sample size and short research time suggest future research should expand the scope and sample size for further validation.

Keywords:
Differentiated Instruction, English Reading Comprehension, Rural Primary Schools, Upper Primary Students, Teaching Implementation

A. INTRODUCTION

Tai China has tried hard to improve English teaching in cities and villages in recent years. Nevertheless, big gaps still exist between urban and rural schools in teaching resources, teacher ability, and students' basic skills. Rural upper primary students around Chengdu have poor English reading skills. They have limited vocabulary, weak learning skills, and little family learning support. These factors pull down their exam grades. The 2022 curriculum reform raised primary English vocabulary targets and stressed reading ability. Still, fixed, unified teaching cannot fit different students' learning needs well.

Differentiated instruction (DI) suits students' varied backgrounds by adjusting teaching content, activities, evaluation, and classroom arrangement (Tomlinson, 2014). It boosts students' participation, grades, and reading skills in English teaching (Subban, 2006; Hall,

Strongman, & Meyer, 2003). However, rural Chinese schools barely carry out DI well. Rural teachers lack relevant training (Liu & Qi, 2021; Tomlinson, 2014), teaching resources are scarce, big multi-level classes bring operational troubles, and local practical research is inadequate (Subban et al., 2006; Hall, 2003; Liu & Qi, 2021).

This study has a clear research focus. Its aim is to identify how to implement differentiated instruction for reading comprehension in English for upper primary school students in rural schools in Chengdu. It explores the challenges faced by teachers in this process and examines the impact of this teaching approach on students' learning outcomes.

RESEARCH OBJECTIVES

The specific research objectives of this study are presented as follows:

1. To examine the current state of differentiated instruction in English reading comprehension for upper primary students in rural schools in Chengdu.
2. To compare the English reading comprehension performance between the experimental group and the control group.
3. To examine the level of satisfaction among students in the experimental group with the use of differentiated instruction in English reading comprehension.

RESEARCH HYPOTHESES

The hypotheses of this investigation are as follows:

H1: Differentiated instruction in English reading comprehension for upper primary students in rural schools in Chengdu is currently implemented at a low level.

H2: There is a statistically significant difference in English reading comprehension performance between the experimental group and the control group.

H3: Students in the experimental group report a high level of satisfaction with the use of differentiated instruction in English reading comprehension.

LITERATURE REVIEW

Related Theories

Hierarchical teaching theory

Differentiated instruction has solid theoretical roots and adapts to the development of primary school English reading teaching. Its core is teaching based on student individuality, known as teaching students in accordance with their aptitude. Ancient Chinese educator Confucius created this educational thought (Zhang, 2007), matching personalized demands in current English reading lessons. Western educator Socrates adopted conversational questioning to inspire students, just like modern inquiry-based teaching.

Harris (1868) created flexible graded grouping in the Industrial Revolution. Washburne (1919) and Parkhurst's (1920) Dalton Plan focused on independent reading learning. Tomlinson (2003) built a mature three-dimensional differentiated instruction framework covering content, process, and outcome for tiered reading classes. Teachers can use matched reading resources, varied activities, and differentiated assessment to cater to learners at different levels. Practical tests prove this method boosts children's reading motivation and skills and narrows individual learning gaps.

Zone of proximal development theory

Vygotsky's zone of proximal development (ZPD) offers psychological support for the research (Vygotsky, 1978). It covers three key points: cognition grows via social interaction, teaching leads to student development, ZPD lies between independent ability and assisted potential, and cooperative scaffolding builds independent skills (Wood et al., 1976).

Differentiated instruction matches ZPD closely. It uses pre-test grading, tiered learning goals, and targeted scaffolding for students at different levels (Tomlinson, 2017). Upper primary English learners have obvious ability gaps and metacognition features (Flavell, 1979). Combining ZPD and differentiated instruction guides assessment, goal design, and teaching intervention clearly.

Related Studies

Differentiated Instruction (DI)

Differentiated instruction adjusts teaching materials, steps, and evaluation for students' learning readiness, interests, and habits (Tomlinson, 2014). It suits English reading classes with uneven learner abilities (Subban, 2006).

It originates from Confucius's aptitude teaching, grounded in Vygotsky's ZPD (Vygotsky, 1978) and Gardner's multiple intelligences theory (Gardner, 1999). Tomlinson's three-layer model designs tiered reading lessons on content, process, and outcomes (Tomlinson, 2014).

Many studies prove its effectiveness with obvious test score advantages and large effect sizes (Potot, 2023; Magableh & Abdullah, 2020; Saleh, 2021). These findings guide layered English reading teaching for rural primary schools by adapting teaching strategies and resources.

English Reading Instruction at the Primary Level

The elementary school stage is a pivotal time for the cultivation of English reading skills. Studies have shown that there are significant individual differences in students' English reading abilities, mainly reflected in the quality of reading strategy usage. Research on fourth- to sixth-grade students in Singapore disclosed that students with stronger language ability are better at employing "meaning-construction" strategies (such as reasoning, predicting, and connecting with background knowledge) for text comprehension. In contrast, those with weaker ability depend more on basic skills like vocabulary decoding (Zhang et al., 2008). Experiments conducted by Thai scholars further verified the effectiveness of hierarchical strategy teaching. Through the IIERI model integrating intensive reading (IR) and extensive reading (ER), students' vocabulary knowledge and reading comprehension ability have been significantly improved ($P < 0.01$) (Maipoka & Soontornwipast, 2021). The development of educational technology has given new tools for hierarchical teaching. A study found that American English learners (ELS) greatly reduced the reading distance with the help of blended learning and personalized learning approaches (Kazakoff et al., 2018). Domestic studies in China indicate that upper-grade students still encounter the problem of over-relying on "rote memorization" and grammar for exam preparation (Hu, 2009). In conclusion, existing studies have provided a theoretical foundation for hierarchical English reading teaching in the upper grades of rural primary schools, with the core lying in respecting ability differences through "strategy stratification, model innovation, and resource adaptation."

Differentiated Instruction in English Reading

Differentiated English reading teaching matches teaching goals with students' reading ability. Singapore's study supports layered content design for learners with different reading strategies (Zhang et al., 2008). Thailand's IIERI teaching model verifies the value of layered teaching procedures (Maipoka & Soontornwipast, 2021).

Content differentiation uses easy texts for poor readers and difficult reading materials for advanced learners (Baecher, 2011; Kamarulzaman et al., 2017). Process differentiation arranges varied group tasks and blended learning for diverse learners (Arianto et al., 2023; Kazakoff et al., 2018). Product differentiation allows students to show reading gains through drawing, speeches, or articles to ease study pressure (Marcell, 2023; Baecher, 2011).

Many studies confirm its positive effects on reading scores, learning enthusiasm, and confidence (Azimah & Sujannah, 2024; Marcell, 2023). Even so, differentiated instruction faces troubles such as heavy teacher workload, vague evaluation standards, and insufficient rural educational resources (Baecher, 2011; Kazakoff et al., 2018).

Teaching English in Rural Primary Schools in China

Large gaps in hardware facilities and reading resources exist between urban and rural primary English classrooms (Chen & Wang, 2021). Most rural teachers still teach English

reading merely by explaining words and grammar. They only prepare students for exams and fail to cultivate reading strategies, thinking skills, and cross-cultural awareness, which reduces students' reading motivation.

Rural teachers differ greatly in cognition and practice of culturally responsive teaching (Kong, 2022). Low salaries and insufficient training trigger frequent teacher resignations and unstable teaching teams. For students, older rural pupils lose active learning motivation. Many left-behind children lack family tutoring and language surroundings. Parents neglect English learning or cannot afford extra study resources (Liu, 2023; Kong, 2022).

Besides, exam-oriented single-score evaluation and insufficient funding restrict rural teaching. Schools lack multimedia devices and high-quality textbooks (Chen & Wang, 2021). Overall, studies propose better resource allocation, updated teaching concepts, and diversified assessment systems to boost balanced English development for rural students of different academic levels.

METHOD

This study mainly uses quantitative research methods to investigate the sixth-grade students of Xihe Primary School in Longquanyi District, Chengdu. The research cycle includes four stages: preparation stage, implementation and data collection stage, data analysis stage, and summary stage, with a total teaching intervention period of eight weeks.

The study employed two sampling procedures. In the first procedure, five rural primary schools in Chengdu were selected using a multi-stage sampling method: Xihe Primary School, Huanglongxi School, Central Primary School of Tangyuan Town, Qingliu School, and Central Primary School of Shou'an Town. From these, Xihe Primary School was randomly selected for in-depth research, with 350 sixth-grade students as the research population. In the second procedure, a cluster random sampling method was used to select two classes from seven sixth-grade classes, which were respectively set as the experimental group (40 students) and the control group (39 students).

This study adopts three research tools. Two verified questionnaires target teachers and students with good reliability and validity. Parallel pre-test and post-test papers test learners' vocabulary and reading skills. Eight-week tiered lesson plans matched Grade Six textbooks guide differentiated reading teaching implementation.

FINDINGS

The research conclusions are as follows after the eight-week study. The first finding is related to the implementation situation of differentiated instruction in English reading comprehension in rural primary schools in Chengdu

Table 1: The Implementation Situation of Differentiated Instruction

Name	Options	Frequency	Percentage (%)
The number of class hours I conduct differentiate reading comprehension teaching each week	Sections 1-2	37	69.81
	Sections 3-4	4	7.55
	Not fixed	12	22.64
Students in my class are divided into several read levels	2	9	16.98
	3	37	69.81
	4 or more	1	1.89
	Not stratified	6	11.32
How well I understand the concept of diff instruction	Do not quite under	4	7.55
	So - so	15	28.30
	Understand	29	54.72
	Fully understand	5	9.43
. I think the effect of differentiated instruction on i students' English reading ability	Very unsatisfactory	1	1.89
	Unsatisfactory	5	9.43
	So - so	18	33.96

Name	Options	Frequency	Percentage (%)
	Satisfactory	16	30.19
	Very satisfactory	13	24.53
The frequency of training for English tea differentiated instruction in our school	once a semester	14	26.42
	occasionally	36	67.92
	never	3	5.66
amount to		53	100.0

A survey of 53 rural primary English teachers uncovered obvious problems in differentiated instruction. Most teachers ran DI lessons merely 1–2 times weekly or without fixed plans. Most grouped learners by ability, yet a few did not. Very few teachers fully understood DI theory. Most got occasional DI training, and a small number had no training. Rural DI practice lacks systematic training and standardized operation.

The second finding is related to the impact of differentiated instruction on English reading comprehension ability

Table 2: Independent Samples t-Test of Post-English Reading Comprehension Test Results

Dimension	Class	N	Mean	Std. Deviation	*t*	*p*
Level A	The control group	10	65.40	7.95	4.084	0.001**
	The experimental group	10	80.00	8.04		
Level B	The control group	20	44.10	12.27	8.554	0.000**
	The experimental group	20	73.40	9.17		
Level C	The control group	9	36.89	14.80	3.090	0.007**
	The experimental group	10	54.40	9.62		
Total	The control group	39	47.90	15.91	6.843	0.000**
	The experimental group	40	70.30	13.08		

* p < 0.05 ** p < 0.01

The post-test results demonstrated statistically significant differences across all levels (P < 0.01). The experimental group's total mean score (70.30) was significantly higher than that of the control group (47.90, t = 6.843, p = 0.000). Among the three levels, Level B showed the most substantial improvement (73.40 vs. 44.10, t = 8.554, p = 0.000).

The t-test further confirmed that the experimental group demonstrated remarkable improvement at every level, while the control group showed no significant change (p > 0.05). Notably, the standard deviation of the experimental group decreased from 13.62 to 13.08, indicating more consistent performance, while the control group's standard deviation increased from 14.16 to 15.91. This shows that differentiated instruction is beneficial to improve both students' English reading performance and the consistency of their achievement.

The third is to find the influence of differentiated instruction on students' reading interest and satisfaction

Table 3: The Survey of Students' Reading Interest and Satisfaction

Item	Mean	Std. Deviation	Remarks
Adaptability of Teaching Objectives	4.006	0.274	high
1. The difficulty of hierarchical tasks matches my level	3.9	0.304	high
2. I am clear about the reading goals I should acl Differentiated Instruction	3.925	0.267	high
3. The reading tasks assigned by the teacher match my ability	3.975	0.423	high
4. I can feel my progress in reading	4.225	0.48	high
Participation in Teaching Activities	4.04	0.34	high
1. I can actively participate in hierarchical group discussions	3.9	0.496	high

Item	Mean	Std. Deviation	Remarks
2. The activities in Differentiated Instruction make n interested in English reading	4.325	0.526	high
3. I like the hierarchical reading activities designed by the tea us	4.075	0.417	high
4. In Differentiated Instruction, I have more opportunities myself	4	0.453	high
5. I am willing to take the initiative to complete hierarchica tasks	3.9	0.496	high
Perception of Learning Effects	4.17	0.391	high
1. Differentiated Instruction has helped me improve my in reading	4.3	0.564	high
2. My English reading comprehension ability has improv Differentiated Instruction	4.325	0.572	high
3. I now have more confidence in facing English reading tasks	4.25	0.543	high
4. I can better use reading strategies to understand articles	3.925	0.35	high
5. Differentiated Instruction has helped me develop better habits	4.05	0.45	high
Effectiveness of Teacher Guidance	4.081	0.296	high
1. The teacher can provide effective reading guidance base characteristics of my level	3.95	0.316	high
2. The teacher pays attention to the learning situation of stu each level	4	0.226	high
3. The feedback provided by the teacher helps me imp reading ability	4.2	0.608	high
4. I can feel the teacher's care for students at all levels	4.175	0.446	high

satisfaction survey of 40 experimental students showed positive feedback in four aspects. All dimension average scores were above 4.0. Students scored highest on reading interest growth and reading ability improvement. Learners recognized clear progress, active class participation, effective teacher guidance, and stronger learning confidence. Overall, students were highly satisfied with differentiated English reading teaching.

Differentiated instruction boosts rural upper graders' English reading, especially Level B learners. Students are satisfied with this teaching method. Rural schools face weak practice, unstable lessons, and inadequate teacher training, needing systematic solutions.

DISCUSSION

This research studied how tiered differentiated instruction affects primary students' English reading ability at different levels. Before the teaching intervention, the two groups had similar reading scores ($p > 0.05$). After the experiment, the experimental group got an average score of 70.30, far higher than the control group's 47.90 ($t = 6.843$, $p = 0.000$). The experimental group made obvious progress at all academic levels ($p < 0.01$), while the control group had little improvement.

Subgroup data showed great score gaps in Grade A and Grade C students between the two groups. The outcome matches former research results (McCullough, 2011; Ocampo, 2018; Subban et al., 2020). It proves that differentiated instruction meets diverse learning demands and lifts primary school students' English reading performance notably.

CONCLUSION

The result of the study reveals the implementation of differentiated instruction in rural primary schools is still insufficient. Most teachers deliver differentiated lessons just once or twice weekly or arrange lessons randomly. A few teachers fail to grade students by reading ability. Only a small number of teachers fully understand differentiated instruction concepts. Most teachers get sporadic training, and some receive no professional training at all. Rural schools need better implementation, teacher training, and recognition for this teaching mode.

Additionally, differentiated instruction significantly improves students' English reading

comprehension ability across all levels. The two groups had equal reading levels before the experiment ($p > 0.05$). The experimental group gained much higher overall and tiered scores after the intervention ($p < 0.01$). Middle-level learners achieved the biggest progress. The control group had no obvious academic improvement.

Finally, students in the experimental group report a high level of satisfaction with differentiated instruction. Four evaluation dimensions all earned high average scores. Students praised upgraded reading interest, reading ability, learning confidence and targeted teacher guidance. Such teaching optimizes students' learning experience and academic performance.

RECOMMENDATIONS

Future research should expand the scope to include urban and rural schools across different academic levels and disciplines, creating a more global teaching framework. Long-term follow-up studies are needed to comprehensively evaluate DI's effects on students' overall English level, academic performance, and long-term development. Additionally, diversified teaching should not be regarded as an isolated technology, but as a supplementary strategy to improve educational effects together with various educational methods.

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