[IJSE] Review request for the International Journal of Special Education

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Małgorzata Sekułowicz malgorzata.sekulowicz@awf.wroc.pl via server311687.nazwa.pl Thu, Oct 5, 2023, 11:58 PM

to me

- Dear Imam Safi'i,

  I am writing on behalf of the International Journal of Special Education (IJSE) to invite you to conduct the review of the following manuscript: "Unravelling the Efficacy of Digital Game-Based Pedagogy in Augmenting Language Abilities among Language-Delayed Six-Year-Olds: A Mixed-Methods Investigation".

  We believe that your research interest and expertise would add valuable insight to our blind and impartial peer review process. We allow 21 days to conduct the review and provide us with your review outcomes on the attached review form. Please let us know no later than a week from the date of this e-mail if you are interested and able to conduct the review. The submission's abstract is inserted below.

  Please log into the journal website by 2023-10-12 to indicate whether you will undertake the review or not, as well as to access the submission and record your review and recommendation. The website is http://internationalsped.com/ijse.

  The review itself is due 2023-10-26.

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We appreciate your help and hope that you are able to conduct this review and start collaborating with us in the future.

Yours sincerely,

IJSE Editorial Office

International Journal of Special Education (IJSE) (internationalsped.com)

Submission details:

Title: "Unravelling the Efficacy of Digital Game-Based Pedagogy in Augmenting Language Abilities among Language-Delayed Six-Year-Olds: A Mixed-Methods Investigation"

Abstract:

This mixed-method study investigates the impact of digital game-based pedagogy on the language development of six-year-old children with language delays in China. Sixty participants were divided into an experimental group (n=30) employing game-based teaching strategies and a control group (n=30) using conventional methods. The experimental group engaged with a 12-lesson game-based curriculum over a semester, while the control group continued with regular instruction. Linguistic competencies were measured using an adapted Preschool Language Scale-5, with quantitative test score data analyzed via t-test. Additionally, structured observations and interviews with teachers and parents provided qualitative data. Results indicated a statistically significant improvement in the language skills of the experimental group ($p<0.05$) and positive views towards game-based teaching from teachers and parents. These findings suggest that game-based teaching may effectively enhance language abilities in children with language delays, warranting further research on long-term implementation and implications.

Review:Unravelling the Efficacy of Digital Game-Based Pedagogy in Augmenting Language Abilities among Language-Delayed Six-Year-Olds: A Mixed-Methods Investigation

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IJSE Team

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- ( ) Short Communication
- ( ) Letter to the Editor
- ( ) Other

2. Overall Recommendation *

- ( ) Accept in present form
- ( ) Accept after minor revision

3. Is the aim of the paper clear? *

- (●) yes
- ( ) no
- ( ) partly

4. Is the research introduction/background clear and consistent? *

- ( ) not at all satisfied
- ( ) slightly satisfied
- (●) moderately satisfied
- ( ) very satisfied
- ( ) completely satisfied

5. In what extent the work includes important earlier studies? *

- ( ) very poor
- ( ) poor
- ( ) fair
- (●) good

6. In what extent the choice of statistical methods is appropriate? *

- ( ) very poor
- ( ) poor
- ( ) fair
- (●) good
- ( ) excellent

7. Are the methods sufficiently described to allow the study to be repeated? *

- ( ) yes
- ( ) no
- (●) partly

8. Are the results of the study clear? *

- (●) yes
- ( ) no
- ( ) partly

9. Is the study design appropriate to answer the research question? *

- (●) yes
- ( ) no
- ( ) partly

10. In what extent conclusions are clearly presented and adequately supported by the evidence adduced? *

- ( ) very poor
- ( ) poor
- ( ) fair
- (●) good
- ( ) excellent

11. What is the quality of the presentation? *

- ( ) very poor
- ( ) poor
- ( ) fair
- (●) good

12. What is the overall merit rating? *

- ( ) very poor
- ( ) poor
- ( ) fair
- (●) good
- ( ) excellent

13. What is English language and style quality? *

- ( ) Extensive editing of English language and style required
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- (●) I don't feel qualified to judge about the English language and style

14. Did you detect plagiarism? *

- ( ) yes
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15. Did you detect inappropriate self-citations by authors? *

- yes
- no

16. Did you detect inappropriate self-citations by authors? *

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- no

17. Do references adheres to APA 7th guidelines? *

- yes
- no
- partly

18. Comments and Suggestions for Authors (will be shown to authors) *

The writing logic is quite good, but the introduction and discussion sections still need to be strengthened

19. Comments for Editors (will not be shown to authors) *

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[IJSE] Thank you for submitting your review for the International Journal of Special Education

External Inbox ×

Aleksandra Górecka <a.gorecka@speceducat.com> Thu, Nov 2, 2023, 11:22 PM

to me

Dear Imam Safi'i,

Thank you for reviewing manuscript entitled "Unravelling the Efficacy of Digital Game-Based Pedagogy in Augmenting Language Abilities among Language-Delayed Six-Year-Olds: A Mixed-Methods Investigation" for the International Journal of Special Education (IJSE).

On behalf of the Editors of the International Journal of Special Education (IJSE), we appreciate the voluntary contribution that each reviewer gives to the Journal. We thank you for your participation in the online review process and hope that we may call upon you again to review future manuscripts.

Yours sincerely,

IJSE Editorial Office

International Journal of Special Education (IJSE) (internationalsped.com)

Imam Safii <imamsafii2077@uhamka.ac.id> Fri, Nov 3, 2023, 11:17 AM

Unraveling the Efficacy of Digital Game-Based Pedagogy in Augmenting Language Abilities among Language-Delayed Six-Year-Olds: A Mixed-Methods Investigation

Abstract

This mixed-method study investigates the impact of digital game-based pedagogy on the language development of six-year-old children with language delays in China. Sixty participants were divided into an experimental group (n=30) employing game-based teaching strategies and a control group (n=30) using conventional methods. The experimental group engaged with a 12-lesson game-based curriculum over a semester, while the control group continued with regular instruction. Linguistic competencies were measured using an adapted Preschool Language Scale-5, with quantitative test score data analyzed via t-test. Additionally, structured observations and interviews with teachers and parents provided qualitative data. Results indicated a statistically significant improvement in the language skills of the experimental group ($p<0.05$) and positive views toward game-based teaching from teachers and parents. These findings suggest that game-based teaching may effectively enhance language abilities in children with language delays, warranting further research on long-term implementation and implications.

Keywords: Digital Game-based Teaching, Language Delays, Six-Year-Old Children, Language Abilities, Mixed-Methods Study

1. Introduction

Language delay, which significantly affects a child's development across social, emotional, and academic spheres (Aram & Nation, 2016), can potentially be alleviated through effective intervention strategies. Digital game-based teaching, an innovative approach stemming from the evolution of educational technology, is one such promising tool. By harnessing children's innate interest in games, this method provides an engaging learning environment, thereby stimulating active learning and cognitive development (Hwang & Wu, 2012). Research indicates its effectiveness in enhancing key aspects of language development such as vocabulary, grammar, and

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syntax (Papastergiou, 2009). This study aims to investigate the impact and effectiveness of digital game-based teaching on language abilities among six-year-old Chinese children with language delays. Despite the policy efforts made towards supporting language-delayed children in China (Craft, 2016), research examining the efficacy of game-based teaching in this specific context remains sparse (Wu et al.,2014).

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Commented [dd3]: Also add that this research also aims to explore the perceptions of parents whose children experience language delays

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1.1 Research Questions and Hypotheses

1. Is there a significant difference in the language abilities of six-year-old language-delayed children who receive digital game-based teaching compared to those who receive traditional teaching methods?
2. What are the perceptions of the effectiveness of digital game-based teaching among parents and teachers of six-year-old language-delayed children?

Null Hypothesis (H0)

There is no significant difference in the language abilities of six-year-old language-delayed children who receive digital game-based teaching compared to those who receive traditional teaching methods.

1.2 Literature Review and Gaps

This literature review critically analyses pivotal studies on language delay and digital game-based teaching, particularly their intersection. It scrutinizes the consequences of language delay, game-based pedagogical interventions, and the unique affordances of digital games in education. Crucial research gaps, especially in employing digital game-based teaching for language-delayed children, are underscored. Table 1, organized chronologically, synthesizes these studies, delineating their focus and associated gaps, thereby offering a comprehensive panorama of the research trajectory.

Table 1 Literature Review

Year	Author(s)	Main Findings	Identified Gaps

Year	Author(s)	Main Findings	Identified Gaps
1978	Vygotsky	Presented non-digital game-based teaching as beneficial for promoting social interaction	Did not focus on digital game-based teaching
2001	Prensky	Highlighted the role of game-based teaching in increasing student engagement and motivation	Did not specifically study language-delayed children
2001	Kress & Van Leeuwen	Focused on the multimodal aspects of digital games and their impact on comprehension	No specific focus on language-delayed children
2003	Gee	Discussed the advantages of digital game-based teaching	Limited research on their application for children with language delays
2009	Papastergiou	Provided evidence on the effectiveness of game-based learning in general	Did not compare digital game-based teaching with traditional teaching methods
2012	Conti-Ramsden & Durkin	Explored the nature and symptoms of language delay in children	Did not specifically investigate digital game-based teaching strategies
2012	Fisher & Frey	Discussed traditional teaching methods and their limitations for children with language delays	Research did not explore potential benefits of game-based teaching
2012	Hwang & Wu	Noted the lack of research contrasting digital game-based teaching with traditional methods	Did not provide a study that directly addresses this gap

Year	Author(s)	Main Findings	Identified Gaps
2016	Hainey et al.	Provided evidence on the effectiveness of game-based learning in general	Did not compare digital game-based teaching with traditional teaching methods
2016	Martin & Jardine	Explored the causes and impacts of language delay	Lack of focus on digital teaching methods for improving language abilities
2017	Dichev & Dicheva	Provided evidence on the effectiveness of game-based learning in general	Did not compare digital game-based teaching with traditional teaching methods
2018	Lieberman et al.	Discussed the advantages of digital game-based teaching	Limited research on their application for children with language delays

Table 1 synthesizes research spanning four decades, revealing a consistent gap in the investigation of digital game-based teaching as a specific intervention for language-delayed children. Early studies, such as Vygotsky (1978) and Prensky (2001), broadly outlined the advantages of game-based teaching but did not specifically target language-delayed children or digital game-based approaches. Subsequent research on language delay, including Conti-Ramsden & Durkin (2012) and Martin & Jardine (2016), did not extend into the realm of digital game-based interventions. Similarly, investigations into traditional teaching methods, like Fisher & Frey (2012), omitted consideration of game-based alternatives.

Numerous studies underscored the general efficacy of game-based learning (e.g., Papastergiou, 2009; Hainey et al., 2016; Dichev & Dicheva, 2017), but did not draw comparisons with traditional methods or focus on children with language delays. This gap, noted by Hwang & Wu (2012), remains open. Lieberman et al. (2018) emphasized the benefits of digital game-based teaching, but research specific to language-delayed children is limited.

Therefore, this study aims to bridge these identified gaps, rigorously examining the impact of digital game-based teaching on language abilities among language-delayed children and comparing it to traditional methods, thereby providing specific, much-needed insights into this area.

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2.Study Design and Participant Overview

This research incorporated a mixed-method study design, employing a pre-test/post-test control group arrangement for quantitatively assessing the impact of digital game-based teaching and traditional teaching methods. Observations and interviews were used for qualitative insights.

The participant pool consisted of 60 kindergarten students from a school in China, all diagnosed with language delays. For robust comparison, students were equally divided into an experimental group (engaged with digital game-based teaching) and a control group (utilized traditional teaching methods).

In addition to the students, teachers and parents were also incorporated into the research design to provide insights from varied perspectives. An assigned teacher for each group offered firsthand insights on the teaching strategies and student progress. Parents from each group contributed by observing their children's development outside the formal educational setting.

Further, to ensure the study's credibility, two external observers with eight years of field experience independently assessed each lesson's outcomes. This independent appraisal aimed to provide an unbiased viewpoint and validate the data collected from the teachers and parents (see Table 2).

Table 2 Participant Overview

Participant Type	Group	Count
Students	Experimental (Digital Game-based Teaching)	30
Students	Control (Traditional Teaching)	30
Teachers	Experimental (Digital Game-based	1

Participant Type	Group	Count
	Teaching)	
Teachers	Control (Traditional Teaching)	1
Parents	Experimental (Digital Game-based Teaching)	5
Parents	Control (Traditional Teaching)	5
External Observers (Each with 8 Years of Experience)	Both Groups	2

2.1 Instruments and Interventions

The main instrument employed in this study was the culturally adapted Preschool Language Scale-5 (PLS-5) (see Appendix A in Supplementary Material) (Aram & Nation, 2016). The PLS-5, encompassing 20 items across ten critical language domains, uses a specific scoring protocol (Table 3) that assigns scores based on children's responses, delivering a direct measure of language skills. This tool manifested substantial internal consistency with a Cronbach's Alpha coefficient of 0.854 (Table 4), bolstering the credibility of the findings (Coan & Gottman, 2017). Additionally, the PLS-5 scores were correlated with various levels of language abilities, thereby creating a holistic representation of a child's linguistic proficiency (Table 5).

Table 3. Response-based Scoring Protocol for the Assessment Tool

Points	Response Condition
5	The child correctly responds to the prompt without any assistance.
4	The child correctly responds to the prompt with minimal assistance.
3	The child partially responds correctly to the prompt, or responds correctly with moderate assistance.
2	The child struggles to respond to the prompt correctly, even with assistance.

Points	Response Condition
1	The child does not respond correctly to the prompt, even with assistance.
0	The child does not respond to the prompt.

Table 4. Internal Consistency of the Language Abilities Measure

Measure	Cronbach's Alpha	N of Items
Language Abilities	0.854	20

Table 5. Assessment Score-based Classification of Language Abilities

Score Range	Language Ability Level	Description
81-100	Excellent	The child demonstrates strong abilities across all language domains.
66-80	Good	The child shows proficiency in most language domains but may need some additional support.
51-65	Moderate	The child has developed some language skills but needs substantial support in multiple areas.
36-50	Limited	The child shows limited language skills and requires significant intervention and support.
0-35	Very Limited/No	The child shows minimal or no language skills and requires intensive and individualized intervention.

Observational checklists (see APPENDIX B in Supplementary Material) were utilized alongside the PLS-5 to critically evaluate teaching strategies and classroom dynamics. These checklists, systematically employed during classroom observations, facilitated the comparison of digital game-based teaching methodologies with traditional pedagogical strategies. As validated in the studies by Hainey et al. (2016) and Sandall et al. (2017), observational checklists are an effective, reliable tool for evaluating pedagogical strategies and classroom dynamics.

Post-intervention interviews with teachers and parents (see APPENDIX C for Interview Questions in Supplementary Material) served as a qualitative counterpoint to the quantitative data obtained from the language assessments and observational checklists. These interviews offered an in-depth understanding of individual experiences and perceptions of the implemented teaching strategies (Fisher and Frey, 2012).

The study featured a 12-week intervention period wherein the experimental group participated in digital game-based pedagogical activities, whereas the control group experienced traditional teaching methods (see APPENDIX D for Lesson Plan in Supplementary Material). With both approaches targeting identical language development objectives, an objective comparison was facilitated, aligning with the methodologies suggested by Conti-Ramsden & Durkin (2012).

The data collection process commenced with pre-intervention language assessments to set a language proficiency baseline. This was followed by in-class observations during the intervention to discern immediate impacts. Post-intervention assessments were then conducted to track progress. The process culminated with semi-structured interviews with teachers and parents to gather qualitative data, consistent with the methodologies of Hoff (2013) and Fisher and Frey (2012), providing a holistic view of the intervention's effects.

Data analysis employed both quantitative methods including t-tests for language assessments, and qualitative methods such as content and thematic analyses for observational and interview data. This mixed-method strategy facilitated a comprehensive understanding of teaching strategies' impact on language development, bolstering the findings' reliability and validity, consistent with research by Conti-Ramsden & Durkin (2012) and Kress & Van Leeuwen (2001).

3. Results

The study emphasizes the positive impact of digital game-based teaching on the language development of kindergarten students with language delays. The outcomes, encompassing both quantitative and qualitative data, highlight the efficacy of

game-based teaching strategies in language learning and engagement.

3.1 Quantitative Findings

Table 6 demonstrates the results of independent and paired samples t-tests conducted on pre- and post-test data from both the experimental (game-based teaching) and control (traditional teaching) groups.

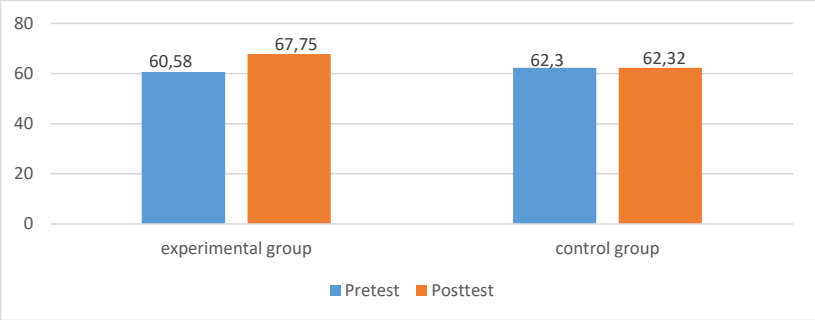
Table 6 Language Abilities - Pre/Post-Intervention Analysis

T-Test				
Group (M±SD)	Pretest	Posttest	*T*（paired sample）	*P*
Experimental Group (*n*=30)	60.58 ± 7.94	67.75 ± 9.12	-8.744	0.000
Control Group (*n*=30)	62.30 ± 7.72	62.32 ± 8.07	-0.223	0.825
T-value（Independent Sample）	-0.851	2.441		
P-value	0.398	0.018*		
P < 0.05				

The independent samples t-test showed no significant pre-test score difference between groups, thus confirming their homogeneity at the study's start. However, a significant post-test score difference was found ($p = 0.018$), indicating that game-based teaching led to greater language ability improvements. The paired samples t-test underscored these findings. The experimental group saw a significant increase in language abilities ($p < 0.001$), whereas the control group showed no notable change.

In essence, these quantitative results substantiate the effectiveness of digital game-based teaching in enhancing language abilities in kindergarten students with language delays.

Figure 1 Language Abilities: Game-Based vs. Traditional Teaching



Following this summary, Figure 1, represents the contrast between pre-and post-intervention language abilities of the experimental and control groups. The figure 1 provides a clear visual depiction of the significant advancement in language abilities in the game-based teaching group compared to the negligible change observed in the traditional teaching group.

3.2 Qualitative Findings

The study's qualitative findings, summarized in Table 7, offered rich insights into the effectiveness of digital game-based teaching. Observations and interviews from the classroom revealed enhanced engagement and language skills in the experimental group, corroborating the quantitative findings and supporting game-based teaching for language-delayed students.

Table 7: Comparative Observation Field Notes

Lesson	Experimental Group (Digital Game-Based Teaching Strategy)	Control Group (Traditional Teaching Strategy)
Vocabulary Building	High engagement with "Pictionary" game on Lingokids leading to rapid vocabulary acquisition and use.	Lower participation using audio-lingual method, requiring frequent teacher prompting.

Lesson	Experimental Group (Digital Game-Based Teaching Strategy)	Control Group (Traditional Teaching Strategy)
Expanding Vocabulary	Quick vocabulary acquisition and use with the "Flashcard Match" game on Quizlet.	Slower pace associating complex vocabulary with images using the Direct method.
Sentence Formation	"Sentence Scramble" game on Lingokids significantly improved sentence formation skills and made learning enjoyable.	PPP model was somewhat effective, but less engaging.
Comprehension & Storytelling	Enhanced interest and understanding of stories via Lingokids' "Story Time" feature.	Traditional storytelling method was less effective in accurate story retelling.
Listening Skills	The "Listen and Choose" game on ABCmouse significantly improved listening skills.	The Audio-lingual method enhanced skills but required additional prompting.
Speaking Skills	"Speak and Record" game on Quizlet improved speaking skills and pronunciation accuracy.	The Direct method improved speaking skills but with less clear pronunciation.
Pronunciation	Pronunciation skills improved using "Phonics Games" on Lingokids and ABCmouse.	Audio-lingual method yielded modest improvements.
Comprehension	"Quiz Mode" on Quizlet proved effective in gauging comprehension.	PPP model yielded varied effectiveness in comprehension.
Sentence Formation	"Word Order Games" on ABCmouse promoted effective sentence formation.	PPP model yielded mixed results.

Lesson	Experimental Group (Digital Game-Based Teaching Strategy)	Control Group (Traditional Teaching Strategy)
Vocabulary Reinforcement	"Flashcard Review Games" on Quizlet effectively reinforced vocabulary.	Direct method yielded less robust vocabulary reinforcement.
Review	"Vocabulary Review Game" on Lingokids, Quizlet, and ABCmouse resulted in solid comprehension of vocabulary and sentence structure.	PPP model resulted in lower overall retention rate.
Review & Assessment	"Comprehensive Review Game" on Lingokids affirmed the success of game-based teaching strategies.	Combination of Audio-lingual, Direct, and PPP methods resulted in less stellar performance.

Table 7 shows that the experimental group demonstrated greater engagement, rapid vocabulary acquisition and use, improved sentence formation, enhanced comprehension and storytelling skills, and superior listening, speaking, and pronunciation skills compared to the control group. Additionally, the experimental group showed a higher retention rate. These qualitative observations affirm the effectiveness of digital game-based teaching strategies for enhancing language skills among kindergarten students with language delays, thereby corroborating the quantitative findings.

Findings of Interviews

Table 8 Interview Quotes

Theme	Digital Game-Based Teaching Strategy (Experimental Group)	Traditional Teaching Strategy (Control Group)

Theme	Digital Game-Based Teaching Strategy (Experimental Group)	Traditional Teaching Strategy (Control Group)
Engagement	Teacher A: "Digital games have sparked much excitement, leading to high levels of student engagement." Parent 1: "My son seems very enthusiastic about his lessons now, although he can be a little too engrossed in the games."	Teacher B: "Children are attentive during lessons, but occasionally require prompting to fully engage." Parent 6: "My son attends his lessons, but his interest fluctuates and at times, he appears quite passive."
Vocabulary Acquisition	Teacher A: "The digital group absorbs new vocabulary swiftly, largely due to the interactive games." Parent 3: "My daughter's vocabulary has grown noticeably, but her insistence on using games for revision has raised some concerns about potential game addiction."	Teacher B: "Children are learning new vocabulary, albeit at a slower pace that requires more reinforcement." Parent 7: "My child is picking up new words gradually, but does not use them frequently in conversations."
Language Skills Improvement	Teacher A: "Language skills have notably improved in the digital group, though a reliance on games is observable." Parent 5: "My son's language skills have significantly enhanced, but he seems to prefer games over	Teacher B: "Improvements in language skills are seen with the traditional method, but the progress is less rapid than I'd like." Parent 8: "My daughter shows slow yet consistent

Theme	Digital Game-Based Teaching Strategy (Experimental Group)	Traditional Teaching Strategy (Control Group)
	traditional study methods."	improvement, with better sentence formation over time."
Comprehension	Teacher A: "Digital games have enhanced the students' comprehension, though complex sentences still pose a challenge." Parent 2: "My child has a better grasp of the lessons, but I worry about the potential impact of excessive screen time."	Teacher B: "Children generally understand the lessons, but some require extra assistance for a full understanding." Parent 9: "My son can follow most lessons, but struggles with more complex topics."
Confidence	Teacher A: "The digital games enhanced students' confidence, reducing their fear of making mistakes and promoting learning." Parent 4: "My daughter exhibits increased confidence and less fear of making mistakes. However, I am noticing a growing dependence on the games."	Teacher B: "Children are gradually gaining confidence, but some still exhibit anxiety about making mistakes." Parent 10: "My child's confidence is slowly growing, but she still seems anxious about making errors."

Table 8 offers a comparative analysis between the impacts of Digital Game-Based Teaching (Experimental Group) and the Traditional Teaching Strategy (Control Group) as observed by teachers and parents.

For engagement, the Experimental Group exhibited elevated interest and participation, stimulated by the incorporation of digital games, albeit accompanied by concerns regarding potential distractions from the game's features (Teacher A, Parent 1). Conversely, the Control Group exhibited satisfactory attentiveness, although it sometimes required additional stimuli to maintain engagement. Some parents reported intermittent passivity (Parent 6).

In the domain of vocabulary acquisition, the Experimental Group demonstrated accelerated learning, largely attributed to the interactive nature of the games. Nevertheless, a few worries were raised regarding potential diversion from academic activities due to excessive gaming (Teacher A, Parent 3). On the other hand, the Control Group demonstrated a steady, albeit slower, pace of vocabulary development, often necessitating repeated exposure to new terms. The practical application of new words outside the learning context was also observed to be limited (Teacher B, Parent 7).

Language skills exhibited substantial improvement within the Experimental Group, with a notable enhancement identified by both Teacher A and Parent 5. However, overdependence on gaming as a learning tool was a concern. In comparison, the Control Group showed a gradual yet consistent enhancement of language skills, as observed by parents through improvements in sentence formation (Teacher B, Parent 8).

Concerning comprehension, the Experimental Group displayed an improved understanding of lessons but grappled with complex sentence structures. Overconsumption of screen time was a notable concern for parents (Teacher A, Parent 2). The Control Group, meanwhile, showcased adequate comprehension of lessons, with a few students requiring extra support with complex topics (Teacher B, Parent 9).

Finally, the Experimental Group showcased an upsurge in student confidence and a decreased fear of making mistakes, as noted by Teacher A and Parent 4. However, a potential dependency on games was viewed as a possible issue. The Control Group

demonstrated a slow but steady gain in confidence, although apprehension about making mistakes remained observable in some students (Teacher B, Parent 10).

In summary, while the Experimental Group showed overall faster progress across the board, potential concerns highlight the need for a balanced and monitored approach in the integration of digital games within the teaching strategy. The Traditional Teaching Strategy, although showing slower progress, offered consistent improvement across different areas.

Discussion and Conclusion

This mixed-methods investigation probed the efficacy of digital game-based teaching to bolster the language competencies of kindergarten students with language delays in China. It brought forth pivotal findings pertaining to two main research inquiries: the comparative efficacy of digital game-based instruction versus traditional pedagogical methods, and the perceived impacts of these strategies from the perspective of relevant stakeholders.

The quantitative findings concurred with prior research conducted by Papastergiou (2009) and Lieberman et al. (2018), highlighting the value of digital games as potent pedagogical instruments that could be leveraged beyond domain-specific instruction to assist language-delayed children. These results underscored the premise that digital games could serve as pedagogical 'scaffolds' to facilitate language skill development, a concept previously posited by Lieberman et al. (2018).

The qualitative data supplemented these findings by bringing to light more nuanced aspects of game-based teaching. Echoing the findings of Gee (2003) and Hainey et al. (2016), this study detected an enhancement in student engagement and active participation when instructional delivery was game-based, suggesting that such a pedagogical approach may foster a motivational climate conducive for language skill development among children with language delays.

Perceptions of stakeholders, a critical aspect of this research, indicated a broad acceptance of digital game-based learning as an effective instructional methodology, consistent with the findings of Dichev and Dicheva (2017). However, while the

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Discussion of research results relating to perceptions of the effectiveness of digital game-based teaching among parents and teachers whose children experience language delays needs to be strengthened again.

advantages of game-based learning were acknowledged, apprehensions emerged concerning the potential pitfalls. Specifically, concerns centred around the possible adverse effects of excessive screen time and the risk of distraction and overreliance on games. These concerns underscore the importance of a prudent and balanced application of game-based learning in the pedagogical landscape, highlighting the need for measured integration of digital games in teaching strategies.

In summary, this study contributes meaningful insights to the ongoing discourse on digital game-based teaching for students with language delays, reaffirming and extending the findings of previous research (Papastergiou, 2009; Hainey et al., 2016; Dichev & Dicheva, 2017; Lieberman et al., 2018). For a more holistic understanding of this pedagogical strategy's impact, future investigations should aim to expand the scope of the study to include larger sample sizes, and diverse educational contexts, and explore the potential long-term effects and challenges associated with the implementation of game-based teaching methodologies. Additionally, longitudinal studies would be instrumental in identifying the sustained effects of digital game-based teaching on language-delayed students.

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