

A practical exploration of primary school Chinese Writing Teaching based on experiential teaching approach--“Underwater World” as an example

Wei Zhou¹, Xia Luo², Gang Yang³, Yi-Qi Zheng⁴
(^{1,2,3,4} School of Education, Wenzhou University, China)

Abstract: In language teaching, the development of writing skills is an important and challenging teaching task. Writing performance is not only related to the vocabulary and syntax that students usually accumulate, but also involves richness in terms of content, which is related to students' experience and perception of context. Descriptive essays are one of the writing genres that include specific understanding and perception of space, time, and context. However, in traditional writing instruction, students usually do not have the opportunity to have a deeper sense of the context of the topic. As a result, students usually have limited expression in the writing process. Therefore, this study explores the application of experiential teaching method in teaching writing in elementary schools by taking the "underwater world" as an example. Based on this, an SVVR learning system was developed and a quasi-experiment was conducted in an elementary school writing classroom to compare the learning effects of this method with those of traditional teaching methods. The results of the study showed that the SVVR-supported experiential teaching method could improve students' writing performance as well as their sense of self-efficacy and self-efficacy.

Keywords: Experiential Teaching Approach; SVVR; Writing teaching

¹Wei Zhou: Department of Educational Technology, College of Education, Wenzhou University, Wenzhou, PR. China. E-mail: 2468587302@qq.com

²Xia Luo: Department of Educational Technology, College of Education, Wenzhou University, Wenzhou, PR. China. E-mail: 2034808527@qq.com

³Gang Yang: Department of Educational Technology, College of Education, Wenzhou University, Wenzhou, PR. China. E-mail: hnyg7906@163.com

⁴Yi-Qi Zheng: Department of Educational Technology, College of Education, Wenzhou University, Wenzhou, PR. China. E-mail: 2328670001@qq.com

1. Introduction

The experiential approach is adapted by Kolb from Dewey's experiential learning theory proposed in 1983, which argues that learners' understanding comes from personal or practical experiences (Kolb, 1984). It aims to allow students to gain concrete experiences in the process of active practice to help them better understand abstract concepts; at the same time, based on reflective observation after the experience, students develop deep thinking and understanding of knowledge concepts (Yang, Gang, 2021). Boyatzis and Kolb (1995) proposed that experiential learning consists of four stages: experience stage → reflection stage → generalization stage → application stage. These four stages are continuous and can occur at any time, and any experience that arises will influence some future experience and can be seen as an upward spiral process. Given this, specific experiences will be formed through self-observation, reflection and summarization, and then applied to the next specific experience.

Writing itself is one of the most complex skills in language learning, yet our conventional writing instruction often suffers from a number of problems: first, teacher-centered and outcome-oriented writing pedagogy still dominates, paying less attention to the impact of students' knowledge experiences and emotional engagement in the writing process on writing, leading to a lack of motivation and interest in writing (Li, Bo-Wu, 2016). Second, the lack of creation of authentic contexts in writing instruction makes it difficult to evoke students' knowledge and experience, leading to hollow, confusing, and lifeless writing content (Huang et al., 2019). Third, the excessive focus on elements such as words and themes of the writing text and the lack of control over the writing process make students lack creative generation in their writing and have a significant lack of language expression (Li et al., 2018).

Spherical Video-based Virtual Reality (SVVR)

is a VR technology that is relatively inexpensive and simple to operate. By embedding 360-degree spherical video in the VR environment, it enables the virtual world to be presented in a dynamic form, bringing learners a more realistic sensory experience of sound, color, and shape (Walshe et al., 2019), thus solving the above problems encountered by students in writing. SVVR technology applications have the following characteristics: First, SVVR, as an immersive virtual reality with low development costs and low technical requirements, has three characteristics consistent with traditional VR: immersion, interactivity, and imagination, and is applied to classroom teaching to make students generate their own intuitive feelings of being in a real situation. The application of SVVR in the classroom gives students the intuitive feeling of being in a real situation (Yang et al., 2021). Some studies have shown that SVVR technology can keep students' emotional and behavioral engagement in writing high (Howe et al., 2017). Second, SVVR not only provides students with realistic environments but also rich and dynamic learning materials to facilitate their experiential learning, and Huang et al. in their study found that the immersive sensory experience brought by SVVR can effectively enhance students' writing learning effectiveness, self-efficacy, and creativity (Huang & Hwang et al., 2019). Third, a growing number of studies have shown that the application of SVVR can enhance students' language learning, and Yang et al. found that the SVVR learning system significantly affected students' writing performance in terms of thematic coherence, structural integrity, and linguistic expression (Yang et al., 2021).

Through these studies, we found that SVVR can improve the effectiveness of writing instruction. However, few studies have integrated learning methods into SVVR-based writing learning activities. Therefore, this study explores the application of SVVR-based experiential pedagogy in elementary school language writing classes, using the section

"Underwater World" as an example.

2. Literature Review

2.1. Experiential Learning Theory

In 1984, David Kolb, a famous American educator and psychologist, developed the experiential learning theory proposed by Kurt Lewin and others and constructed the experiential learning theory (Liu, Ching-Tang, 2021). According to experiential learning theory, a complete learning process consists of four stages: the acquisition of concrete experiences, the reflective observation stage, the abstract conceptualization stage, and the active experimentation stage. The learner's learning begins with actively engaging in an experience or activity, and after passing through the concrete experience stage, the learner consciously and actively reflects on the experience while simultaneously conceptualizing a theory or model of what was observed, and finally testing the conceptualized theory or model to gain a new experience. The ultimate goal is to help learners actively engage in new practices after they have passed through the first three stages of learning. Experiential learning theory has been widely used in teaching and learning. For example, Kwon incorporates experiential learning theory in VR teaching, and shows through research that VR technology can enable learners to view virtual experiences as direct experiences and improve students' learning effectiveness and motivation (Kwon, 2019). Xiao-Wen He built a flipped classroom teaching model based on the theory of experiential learning theory, which improved the efficiency of classroom teaching. For writing learning, some studies have combined experiential learning theory with writing learning and found to improve students' writing performance and emotional engagement (Yang, Gang, 2021).

2.2. SVVR-Supported Writing Learning

Writing is a complex thinking process that is closely connected with authentic contexts. Because the authentic context can form a link with students'

life experiences and prior knowledge, and then stimulate students' writing inspiration (Chen et al., 2022). As students lack rich experiences in real life, most of them do not know how to describe their experiences and ideas, and as a result, it is difficult for them to write a good essay. (Huang et al., 2020). To provide students with an authentic writing environment in writing activities, SVVR is a potential tool (Huang et al., 2020; Parmaxi, 2020; Yang et al., 2021). Firstly, SVVR can provide students with an immersive writing environment. Some studies have found that an immersive writing environment can bring rich experiences to learners, which not only improves students' perception of writing topics, but also stimulates students' writing interests (Huang et al., 2020). Secondly, SVVR can provide multimodal observation material. Some studies have found that SVVR constructs authentic learning situations, and provides multi-modal observation materials such as pictures, videos, and 3D animations so that students can observe writing objects from multiple perspectives. SVVR strengthens students' interest in writing and their self-efficacy by engaging them in a multi-sensory experience. (Yang et al., 2021). Finally, the interactive function embedded in SVVR helps students to sort out their writing ideas. Some studies have found that human-computer interaction activities embedded in SVVR scenarios allow learners to perceive the characteristics of the described object, its external form, and the relationship between the objects, to expand students' writing ideas. The results of these experiments indicate that students' writing level has improved significantly (Chen et al., 2021). In all, many studies have shown that SVVR-based writing activities provide students with opportunities for practice and exploration, and also improve their writing performance.

3. Teaching design of "Underwater World"

This lesson is designed based on the content of "Underwater World" in the elementary school

language textbook of ZTE edition. Through describing the sound and light of underwater, the activities of underwater animals, the characteristics of underwater plants and minerals, the lesson shows students a rich and diverse underwater world, thus stimulating their interest in exploring the world and traveling underwater, and further promoting students' motivation and writing ability. Before that, students have already practiced writing, mastered certain writing skills and techniques, and learned to write explanatory essays and several explanatory methods, such as giving examples, listing figures and making comparisons. Therefore, the teaching design of this lesson uses the experiential teaching method to let students experience the colorful underwater world through SVVR technology, thus stimulating their interest in writing and writing emotions, promoting students' imagination with rich teaching materials, and further improving the learning effect of writing.

The first part is to introduce the theme of this writing lesson through the reference to the text "Underwater World". The second session is reflective observation. The teacher develops and designs relevant

teaching materials before the class, including sounds, images, and text prompts about the flora and fauna of the underwater world, and uses SVVR technology to allow students to observe the underwater world in all directions and to communicate and interact with each other. The third session is independent writing, in which students integrate their knowledge and experience to write through their own observation and intuition, and complete the whole process from building a writing framework to completing the writing. The fourth session is evaluation and revision, in which the teacher uses the automatic diagnostic system to evaluate and give feedback to the students' writing results, and the students make revisions and improvements based on the feedback. See Figure 1.

4. Practical exploration of "underwater world" experiential teaching approach

4.1. Session 1: Theme Guidance and Concrete Experience

This session is the beginning of the whole writing learning activity, in which the teacher uses the contextualized perception to guide students. On the one hand, the teacher introduces the writing

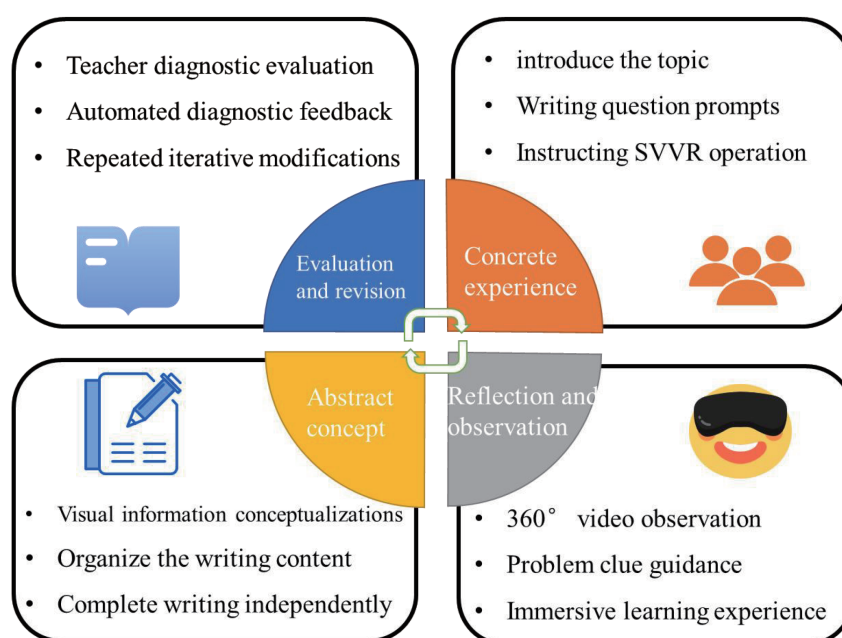


Figure 1. Learning model based on experiential teaching method

theme, points out the relevant writing difficulties, and provides students with writing ideas in the form of questions; on the other hand, the teacher guides students to get familiar with the SVVR-based experiential writing learning environment. After that, students can build up a holistic perception of the writing topic and form a concrete experience through the initial observation of the underwater world. See Figure 2.

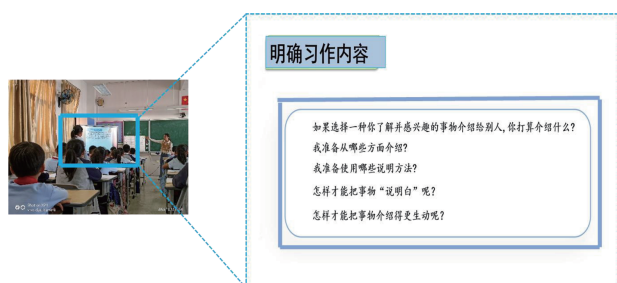


Figure 2. Concretization experience stage

4.2. Session 2: Reflective Observation and Construction of Ideas

This stage is mainly to stimulate students' inspiration and deep thinking by using questions to guide them to think independently through the questions embedded in the SVVR system. Students consolidate and deepen their thinking by reflecting on the questions embedded in the system. In this process, on the one hand, students were asked to use vocabulary to describe the underwater world on the basis of careful observation; on the other hand, students were asked to read the question prompts in the system carefully to broaden their vocabulary, sentences and rhetoric, and finally to build their writing ideas in their minds. See Figure 3.



Figure 3. Reflective observation stage

4.3. Session 3: Abstract concepts and independent writing

This stage is the writing stage, in which students express the content of their writing through the use of written symbols. Based on the visualization knowledge acquired during the concretization experience and reflective observation stage, students further abstract the observed information into concepts, organize the writing framework and form the writing content by combining the writing task list and examples given by the teacher. At the same time, students self-monitor the use of descriptive words in the writing process.



Figure 4. Abstraction conceptualization stage

4.4. Session 4: Collaborative feedback, evaluation and correction

In this session, students were provided with diagnostic feedback sheets from the teacher and the automated diagnostic system in collaboration. In Figure 5, students use critical thinking to re-conceptualize, discover, evaluate, and recreate the content of their writing based on the feedback sheet, which uses self-adjustment strategies. First, students critically think about the content of the feedback sheets and self-reflect on the problems in the writing content, including coherence, misspellings, and punctuation. And then, the problems or inappropriate content found in the essay are fixed and adjusted.

5. Effectiveness of classroom teaching based on experiential teaching method

5.1. Research Design

In order to better understand the effectiveness of the implementation of the experiential teaching method, this study assessed three aspects: writing

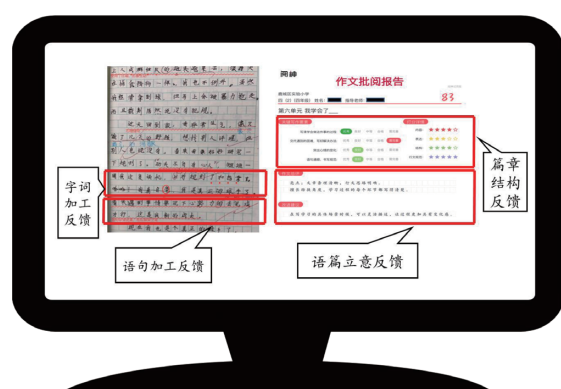


Figure 5. Evaluation revision phase

performance, self-efficacy, and transferability. Regarding the measurement of self-efficacy, this study was mainly adapted from Shell et al.'s self-efficacy scale. Regarding the measurement of transfer ability, this study divided the transfer ability into near transfer ability (transfer of writing in different genres) and far transfer ability (transfer of learning in different courses such as translation) to analyze the development of students' transfer ability.

5.2. Analysis of teaching effects

In this study, two classes of the school were used as the experimental subjects, in which the experimental class carried out teaching practice according to the form of experience-based teaching method and the control group carried out teaching practice according to the form of traditional lecture method. After a period of 7 weeks of teaching, post-test was conducted on them respectively, and the specific data were analyzed as follows.

5.2.1. Writing scores

In the posttest statistics of writing scores, there was no significant difference between the pre-test

scores of the experimental and control groups ($t=0.271$, $p=0.788>0.05$), which were at the homogeneous level. However, the results of the t-test analysis of the post-test scores showed that there was a significant difference between the two groups ($t=8.382$, $p<0.05$). See Table 1.

5.2.2. Self-efficacy

In the pre-test analysis of self-efficacy, there was no significant difference between the experimental group and the control group in writing skill self-efficacy ($t=1.749$, $p=0.085>0.05$) and writing task self-efficacy ($t=1.455$, $p=0.151>0.05$); from the post-test analysis, the mean value of writing skill self-efficacy ($ME=32.53>MC=27.00$) and writing task self-efficacy mean ($ME=33.43>MC=28.26$) were higher than the control group, and both were significantly different ($p=0.000<0.05$). See Table 2.

5.2.3. Transferability

In the post-test analysis of transferability, The Near Transferability was assessed with explanatory writing scores, and The Far Transferability test was assessed with reading scores for transferability. The results are shown in Table 3. The Near Transferability scores of the students in the experimental group were significantly different from the control group ($t=2.355$, $p<0.05$), and so was the Far Transferability ($t=2.108$, $p<0.05$).

Through the analysis of the above data, we found that front-line teachers can effectively implement the "double reduction" policy, improve the quality of classroom teaching, enhance the efficiency of classroom teaching, and improve students' performance, transferability and self-efficacy by

Table 1 Post-test analysis of writing scores

Group	N	M	SD	F	t	df	p
Experimental group	32	77.61	3.715	0.354	8.382	60	0.000***
Control group	30	68.72	4.616				

$p^{***}<0.001$

Table 2 Post-test analysis of self-efficacy

Self-efficacy	Group	N	M	F	t	p
writing skill self-efficacy	Experimental group	32	32.53	3.206	4.525	.000***
	Control group	30	27.00			
writing task self-efficacy	Experimental group	32	33.43	1.182	3.798	.000***
	Control group	30	28.26			

p* < 0.001

Table 3 Post-test analysis of transferability

Transferability	Group	N	M	SD	F	t	df	p
The Near Transferability	Experimental group	32	76.50	7.3155	0.664	2.355	60	0.022*
	Control group	30	71.80	8.3919				
The Far Transferability	Experimental group	32	13.28	3.353	0.023	2.108	60	0.039*
	Control group	30	11.33	3.916				

p* < 0.05

carrying out teaching practices according to the experiential teaching method.

6. Conclusion

Through empirical research, this paper finds that writing instruction based on experiential pedagogy is more conducive to the improvement of students' writing skills than traditional writing instruction. Virtual reality (VR) technology has a significant effect on the improvement of students' writing performance, but how to effectively integrate this technology with English writing teaching and give full play to its unique advantages is a question worth exploring.

For one thing, from the perspective of English writing teaching, teachers should actively learn advanced technologies about teaching, improve their own information literacy, and deeply integrate English writing teaching with intelligent technologies. In addition, when integrating SVVR technology with the teaching process, teachers should focus on designing

effective teaching activities, learning resources, and learning situations to stimulate students' learning motivation and give full play to the immersion and interactivity that virtual reality has.

Second, from the perspective of integrating technology and teaching, technology cannot be independent of teaching design and play an independent role. Only by effectively integrating it into the writing teaching process and optimizing writing learning activities through the improvement of the learning environment can the writing learning effect be effectively improved.

Third, from the perspective of English writing learning, students should not only accumulate relevant vocabulary and grammar, but also read widely to provide necessary materials, experience and logic for their writing, observe more situations in life, record them in real time, learn to transfer and perceive the context.

References

- Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2014). Experiential learning theory: Previous research and new directions. In *Perspectives on thinking, learning, and cognitive styles* (pp. 227-248). Routledge.

- Howe, L., & Van Wig, A. (2017). Metacognition via Creative Writing: Dynamic Theories of Learning Support Habits of the Mind in 21st Century Classrooms[J]. *Journal of Poetry Therapy*, 30(3):139-152.
- Huang, H., & Chen, C. W. (2019). Creating Different Learning Experiences: Assessment of Usability Factors in an Interactive Three-Dimensional Holographic Projection System for Experiential Learning[J]. *Universal Access in the Information Society*, 18(3):443-453.
- Huang, H. L., Hwang, G. J., & Chang, C. Y. (2019). Learning to Be a Writer: A Spherical Video-Based Virtual Reality Approach to Supporting Descriptive Article Writing in High School Chinese Courses[J]. *British Journal of Educational Technology*, 51(4):1386-1405.
- Li, M. (2018). Computer-mediated collaborative writing in L2 contexts: An analysis of empirical research. *Computer Assisted Language Learning*, 31(8), 882-904.
- Walshe, N., & Driver, P. (2019). Developing reflective trainee teacher practice with 360-degree video. *Teaching and Teacher Education*, 78, 97-105.
- Yang, G., Chen, Y. T., Zheng, X. L., & Hwang, G. J. (2021). From experiencing to expressing: A virtual reality approach to facilitating pupils' descriptive paper writing performance and learning behavior engagement. *British Journal of Educational Technology*, 52(2), 807-823.