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APPLYING MICRO-LECTURES BASED ON MULTIPLE INTELLIGENCES: TEACHING CHINESE CHARACTERS TO CHILDREN

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Abstract:

Lecture videos became widely adopted as essential teaching materials during the COVID-19 pandemic. Many educators create lecture videos for their lessons and continue to use them both in face-to-face and online classes, even after the lockdown period, due to their perceived effectiveness in supporting student learning. However, considerable variation exists in the quality of lecture videos produced by educators. Therefore, it is crucial to find a validated design template to guide the educators in creating high-quality lecture videos to ensure pedagogical consistency. In the Malaysian context, teaching Chinese characters to students from diverse linguistic backgrounds presents additional learning challenges. It is imperative to seek a solution that eases the study burden on the multiracial students in learning Chinese characters and raises their study interest and learning effectiveness. Therefore, this study develops Chinese character micro-lectures based on Gardner's Theory of Multiple Intelligences and examines their impact on students' learning performance. Thus, two cycles of classroom action research were conducted with a group of third-grade students aged 7-9 years old. The results indicate that micro-lectures designed using the Multiple Intelligences framework better align with students' learning needs, enhance learning interest, and improve assessment outcomes. The study also identifies five key factors influencing the effective implementation of micro-lectures in the classroom.

Keyword:

Action Research; Chinese Characters Teaching Method; Micro-Lecture; Multiple Intelligences



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Introduction

In the field of Mandarin language teaching, teaching Chinese characters is always one of the greatest challenges for Mandarin teachers, as Chinese characters are hard to teach and learn due to their complicated strokes and structures. In the Malaysian context, it was found that the challenge seems to be greater, as the students all have different racial and language backgrounds. As educators, we should seek a solution that eases the study burden on students, raises the study interest and learning effectiveness, such as providing a self-study learning material. Therefore, adopting micro-lecture is one of the smart choices.

Literature Review

Definition of Micro-lecture

The development trajectory of Micro-lecture can be traced back to the “60 Second Course” introduced by Professor LeRoy A. McGrew, University of Northern Iowa, in 1993 and “The One Minute Lecture (OML)” introduced by T.P.Kee, Napier University in 1995, and then gradually turned out to be a systematic teaching method. David Penrose (the One Minute Professor), an expert in Curriculum Development and Instructional Design in Higher Education, then proposed the concept of Micro-lecture, which is more closely aligned with modern definitions in 2008. His micro-lecture design mainly consists of the following five steps: 1. Draft the core concept, 2. Add on the introduction and conclusion to provide contextual background for the core concept, 3. Record these 3 elements using a microphone and camera; the content should be between one and three minutes, 4. Create a task related to the core concept, 5. Upload the video and task to the course management system. (Guan, 2011) Micro-lecture has been a hot topic among researchers in the past ten years and has won the affirmation of academic experts. (Garber, 2019b; Scholtenhuis et al., 2020; Rebong, 2022)

This concept was introduced in China by Hu Tiesheng in 2011. He then defines micro-lectures as short online instructional videos that provide a target-specific disciplinary knowledge point. These online videos are designed to support diverse learning styles. (Hu et al., 2013). Li J.H. (2013) defines micro-lectures as micro courses that within 10 minutes, consist of clear learning objectives, short and precise, and only explain one focused problem; whereas Jiao (2013) defines micro-lectures as online instructional videos that aim to explain one specific knowledge point, concise and impactful, and created for learning or pedagogical application. In short, these are the three key characteristics of micro-lectures: concise and focused, clear themes, and online-video-based.

Thus, in this research, micro-lectures serve as online previews, in-class instructional, and revision materials for Chinese character classes. Related tasks are assigned after each video to reinforce specific knowledge points.

Micro-lecture in Teaching Chinese Characters

Many researchers and educators have also implemented research on the application of micro-lecture in Mandarin teaching, and have obtained positive results. (Zhang C., 2015; Wu, 2015; Zhang & Li, 2016; Ban, 2019; Li S., 2019; Wang L., 2020; Yang, 2019; Wang H., 2022) However, there is significantly less research on applying micro-lecture in teaching Chinese as foreign language (TCSOL) compared to research on Chinese as first language, especially on Chinese characters.

Yu (2015), Ou (2016), Li D. (2020), Hu X. (2020) focused on the principles and elements in designing Chinese characters micro-lecture, Zhang S. (2017), Li D. (2020) focused on teaching method in Chinese characters micro-lecture, and Xiao (2021) conducted thematic research on the Chinese characters with easily confused components. However, only Ou (2016) highlighted the integration of design theory to create the Chinese character micro-lectures. She proposed integrating Schema Theory into micro-lessons on Chinese characters, but unfortunately, no practical research has been conducted.

Multiple Intelligences

The concept of “Multiple Intelligences” was first proposed in the 1980s by American psychologist and educator Howard Gardner. Today, it is widely recognized as one of the most accepted educational theories, receiving broad acknowledgment across educational circles. In his book *Frames of Mind: The Theory of Multiple Intelligences* (1983), Gardner introduced the idea that humans possess seven distinct intelligences: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, intrapersonal, and interpersonal. Later, he added a naturalistic intelligence, bringing the total to eight. Armstrong (2009) proposes that children have different preferred intelligences that can lead them to learn better and more efficiently, and thus, this theory opens the door to a wide range of teaching strategies that can be implemented in teaching.

Since the introduction of the theory of multiple intelligences, numerous studies have combined it with teaching practices. However, research on applying this theory to Chinese language teaching did not commence until the 21st century, and these research findings showed positive outcomes. (Wang Y., 2012; Zheng, 2013; Cai, 2013; Liu, 2013; Guo, 2020). In Malaysia, this concept has not yet been widely applied in TCSOL; however, positive outcomes have been reported in many other fields of education. (Chew Fong Peng, 2011; Looi Lin Eng, 2011; Senam Kaur d/o Sarjit Singh, 2015)

Cognitive Constructivism

Cognitive Constructivism posits that learners construct their own understanding of knowledge. Piaget’s theory of cognitive development proposes that humans can not be ‘given’ information that they immediately understand and use. Instead, humans must ‘construct’ their own knowledge. They build their knowledge through experience. (Kumar et al., 2009) Therefore, the educators should apply the student-centered teaching method to encourage the learners to actively construct their own understanding of the knowledge point.

He (1997) proposed that the four essential elements of a constructivist learning environment are context, negotiation, communication, and meaning construction. Yang and Jia (2011) further proposed that multimedia technology and the Internet are the best tools to provide the said environment as these tools facilitate multi-sensory stimulation, create immersive learning environments, provide conditions for collaborative learning that transcend the limits of time and space, and offer access to rich and diverse information resources.

Thus, micro-lecture based on Multiple Intelligences is one of the best choices for educators to apply in their teaching as it aligns with the principle of student-centered learning and meets the constructivist learning environment needs of the learners.

Cognitive Load Theory

Sweller's (1988) Cognitive Load Theory (CLT) posits that our working memory is limited to a certain amount of information at once. When the information is overloaded, it creates cognitive loads – intrinsic, extraneous, and germane. (Sweller, 2010) From the perspective of CLT, educators should strive to minimize extraneous cognitive load and increase germane cognitive load, whereby the teaching duration should not be too long, and the design of the teaching materials should be aligned with the principles of schema construction, such as simplifying and strengthening the thematic focus of the teaching material.

Consequently, micro-lectures based on Multiple Intelligences are highly consistent with the principles of CLT, as they are concise, concentrated, and have a strong thematic focus and diverse scenarios that align with students' multiple intelligences.

Objective

Therefore, this research aimed to carry out action research on the Chinese character micro-lecture for children based on multiple intelligences, in which the researcher applied the micro-lectures that were designed based on eight basic intelligences in teaching Chinese characters, to investigate the effectiveness of the students' learning Chinese characters.

This study aimed to solve these research problems:

1. How to design the Chinese characters micro-lecture based on the Multiple Intelligences theory?
2. How does the Chinese characters micro-lecture based on Multiple Intelligences affect the teaching outcomes?
3. What are the factors affecting the application of the Chinese characters micro-lecture based on the Multiple Intelligences in Mandarin class?

Methodology

The Action Research

Action research emphasizes that teachers become researchers, whereby the teacher identifies teaching problems in the classroom and, through some instructional practices, seek for the solution and implements the solution to solve the problems. According to Lawrence Stenhouse, Stephen Kemmis, and John Elliott, the key to reliable and valid action research is “participation”, “improvement”, “systematic”, and “openness/public”. (Liu, L. H., 2005)

This study arranged two rounds of action research, with five weeks per round, in a Malaysian international school, among 7 to 9-year-old third-grade students, by implementing the method of “Plan → Act → Observe → Reflect → Re-plan → Re-act → Re-observe → Re-reflect”, and finally drew a conclusion from the action research. The researcher acted as both the practitioner and researcher and, through the systematic statistical analysis, sought the solution and observed the improvement. All the progress and results are open and public.

The Design Of The Chinese Character Micro-Lecture

As the three main characteristics of a micro-lecture are “concise and focused”, “clear themes”, and “online-video based” (Hu T., 2011; Li J., 2013; Jiao, 2013), the Chinese characters micro-lecture was designed based on four principles: concise and focused, clear themes, online-video based, and adapting Multiple Intelligence theory. There were four micro-lectures designed adapting the different multiple intelligences:

Table 1. The Chinese Characters Micro-lecture And The Adapted Multiple Intelligences

No	Title of Chinese Characters Micro-lectures	Multiple Intelligences
1	Hanzi the Storyteller	Naturalistic Intelligence, Spatial Intelligence, Intrapersonal Intelligence
2	The Singing Hanzi	Musical Intelligence, Linguistic Intelligence, Intrapersonal Intelligence
3	The Dancing Hanzi	Bodily-kinesthetic Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence
4	The Hanzi Costume	Logical Mathematical Intelligence, Intrapersonal Intelligence

The Classroom Observation

Participant observation and qualitative observation were applied to systematically record the actual classroom teaching situation based on specific focuses. An “Observation Rubric for Assessing Learning Objectives in Chinese Character Micro-lecture” was designed based on Shen, Lin, Wu, and Cui (2007) Classroom Observation Framework (Revised Edition), to observe the students’ interest in learning Chinese characters. Also, ten teaching journals were written immediately after each class to record observations and reflections that could lead to improvements.

The Questionnaire Survey

The questionnaire named “Student Feedback for Chinese Character Micro-lecture based on Multiple Intelligences” was designed as the preference survey after the 2 rounds of action research.

The Participant’s “Multiple Intelligences Test”

The participants were eleven third-grade students (7-9 years old) from a private international school. To collect the students’ multiple intelligences profiles, a set of modified “Multiple

Intelligences Test” was given to the students before the action research began. The test was modified based on “An MI Inventory for adults” in the book “Multiple Intelligences in the Classroom 3rd Edition” (Armstrong, 2009, p. 11). However, given that the participating students were only between 7 and 9 years old and their self-awareness was still developing, the third-grade class teacher was invited to complete an additional instrument, the “Multiple Intelligences Checklist for Students” based on her daily observations and interactions with the students. This checklist was designed based on “Multiple Intelligences Checklist for Students” (Armstrong, 2009, p. 35-38) from the same book.

Table 2. The Students’ Multiple Intelligences Profiles

No	Multiple Intelligences	Class Total Score	The top three students with the highest total scores were those whose dominant trait was this specific intelligence
1	Logical Mathematical Intelligence	423	B1, B2, G3, G5, G6, B8, B9, G11
2	Spatial Intelligence	408.5	B2, G4, G6, G7, B8, B9, G11
3	Interpersonal Intelligence	406.5	B1, B2, G4, B10
4	Bodily-kinesthetic Intelligence	397.5	G3, G7, B9, B10
5	Naturalistic Intelligence	371.5	G4, G7, B10
6	Linguistic Intelligence	370.5	B1, B2, G6
7	Intrapersonal Intelligence	368.5	G5, G7
8	Musical Intelligence	360.5	G3, G5, B8, G11

Based on the collected data, the participant’s multiple intelligences tendencies were more towards Logical Mathematical Intelligence and Spatial Intelligence, followed by Interpersonal Intelligence.

Result and Discussion

First Round of the action research

The first round of the action research was carried out for five weeks, whereby the participants were given four lessons of Chinese characters micro-lecture as the materials for preview, in-class learning, and revision in the first four weeks, and completed the “Chinese Character Assessment (1)” on the fifth week.

There were three data collected from the first round of action research: the records of classroom observation, teaching journals, and the results of “Chinese Character Assessment (1)”.

A. The records of classroom observation

Based on the four records of Observation Rubric for Assessing Learning Objectives in Chinese Character Micro-lecture”, it was shown that the micro-lectures “Hanzi the Storyteller” and “The Dancing Hanzi” proved to raise the students’ study interest and achieved the learning objective in learning Chinese characters, while the impact of the other two micro-lectures was

not notable. The main problems were shown in the records: the length of the micro-lecture video was longer than 7 minutes, the new Chinese characters were more than 5 words, and there were some areas for improvement on the design of the micro-lectures (refer to the table below).

Table 3. The Multiple Intelligences And The Problems And Suggestions

No	Multiple Intelligences	Problems and suggestion
1	Interpersonal Intelligence	The interaction between the students should be increased.
2	Linguistic Intelligence	The word choice in the “rhyming nursery rhyme” was too hard for the students.
3	Musical Intelligence	Students were not familiar with the “rhyming nursery rhyme”. The popular rhyming nursery rhyme should be selected as the rhythm of the verse, such as “两只老虎” (The Two Tigers).
4	Intrapersonal Intelligence	The method of collecting the answer or feedback from the students during the self-check part should be arranged as “answer personally” instead of “answer in a group” to ensure the data collection is clearer.

B. The teaching journals

Based on the teaching journals, it was proven that adapting micro-lecture in teaching Chinese characters can improve the teaching effectiveness, as the students can preview before the lesson, stay more focused during the lesson, and revise after the lesson. As for the absentees, they have the opportunity to get their self-study done through online-learning.

However, as the practitioner, the researcher’s analysis of teaching journals also revealed two critical issues: 1. Insufficient teaching time causing a fast teaching pace; 2. The number of Chinese characters in each micro-lecture was overloaded for the students to learn at once.

C. The result of the Chinese Character Assessment (1)

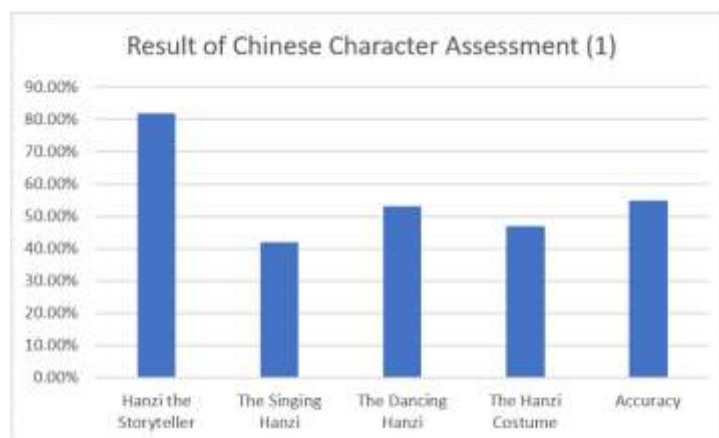


Figure 1: The Result Of Chinese Character Assessment (1)

Second Round Of The Action Research

The second round of the action research took another five weeks, same routine, with the other batch of Chinese characters and another four improved micro-lecture videos. The changes made were based on the results of the first round of action research:

- (i) The design of the micro-lectures was improved to get more align with the needs of the students' multiple intelligences profiles. (refer to Table 3)
- (ii) The length of the micro-lecture videos was decreased to a maximum of 7 minutes.
- (iii) The number of Chinese characters was decreased to 4-5 words.

After the four lessons, participants took the Chinese Character Assessment (2).

Another four data were collected from the second round of action research: the records of classroom observation, teaching journals, the result of "Chinese Character Assessment (2)", and the questionnaire survey named "Student Feedback for Chinese Character Micro-lecture based on Multiple Intelligences.

A. The records of classroom observation

Based on the four records of the second round action research, all four micro-lectures successfully raised the students' study interest and achieved the learning objective in learning Chinese characters, and the overall classroom engagement levels were consistently rated as 'Excellent'. Meanwhile, under the "Response" indicator, there was a higher frequency of proactive responses in this round of action research. In terms of "Attention Span", it was found that almost all students maintained sustained attention throughout the micro-lecture videos and participated actively in learning tasks. In short, the improved micro-lectures evidently align more with the students' needs, and therefore raised the overall teaching efficiency and learning effectiveness.

B. The teaching journals

The teaching journals showed three major observations:

- (i) Students which consistent preview lessons habits showed greater stability in their learning performance.
- (ii) Students showed proactivity across the teaching sessions
- (iii) Chinese character assessments can evaluate individual learning progress, encouraging students to self-regulate their learning goals while helping teachers monitor progress and provide remedial instruction.

C. The compared results of Chinese Character Assessment (1) & (2)

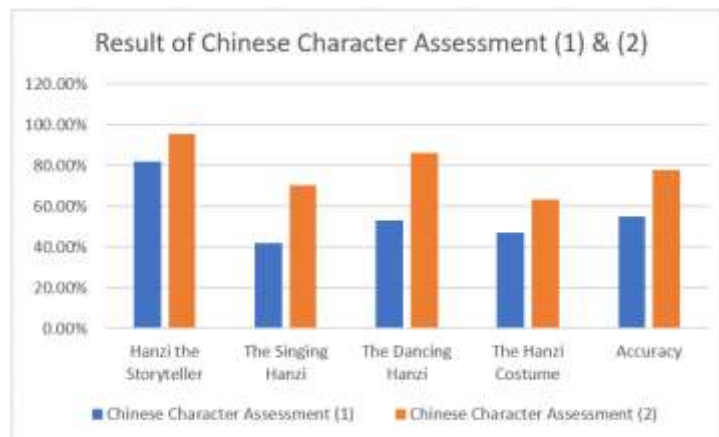


Figure 2: The Compared Result Of Chinese Character Assessment (1) & (2)

Based on the second round of action research data - records of classroom observation, teaching journals, and the compared results of “Chinese Character Assessment (1) & (2)”, it was clearly shown that the students’ learning interest, effectiveness, and results were all improved.

D. The questionnaire survey

In student-centered lessons, it is important to know students’ feedback on the teaching materials and learning experiences. The questionnaire named “Student Feedback for Chinese Character Micro-lecture based on Multiple Intelligences” was collected after the two rounds of action research. The result showed that the students prefer the four improved micro-lecture videos more compared to the first four micro-lecture videos. They like “Hanzi the Storyteller (2)” the most, with the score 96.36%, while “The Singing Hanzi (2)” and “The Dancing Hanzi (2)” share the second position with the score 94.55%.

Conclusion

The research shows that:

1. The design of the Chinese character micro-lecture teaching method based on multiple intelligences was proven to align more closely with students’ needs for learning Chinese characters. It raises the effectiveness of teaching and learning Chinese characters.
2. The interest of students in learning Chinese characters was raised, and the result of the students’ Chinese Character Assessment was improved after the Chinese character micro-lecture teaching method based on multiple intelligences was applied in the Mandarin class. The research shows that the more the design of the micro-lectures is related to students’ stronger intelligences, the higher the interest of the student in learning Chinese characters, which then leads to better results in the Chinese Character Assessment and better effectiveness in teaching Chinese characters.
3. There are five factors affecting the application of the Chinese character micro-lecture teaching method based on multiple intelligences in class: the alignment between students’ learning status and the design of Chinese character micro-lectures, the student’s proclivity in the multiple intelligences, the combination of micro-lecture videos and physical in-class teaching, the cooperation of the student’s parents, and the amount of revision time.

From the above observations, it was proved that the Chinese character micro-lecture teaching method for children based on multiple intelligences brought us a new and systematic teaching method that can be customized according to the students' proclivity of specific intelligences, to raise the effectiveness of teaching Chinese characters. The research hopes to contribute to the field of international Chinese language education by providing the conclusion of this teaching action research as a future reference.

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Author Contribution Statement: Yong Hui Wen was responsible for all aspects of this study, including conceptualization, methodology, data collection, and analysis. The author also conducted the literature review, drafted the manuscript, and performed the final critical revision. The author has read and approved the final manuscript for submission.

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