Mobile-device-supported strategy for Chinese reading comprehension

Kuo-En Chang[a]*, Yu-Ju Lan[b], Chien-Mei Chang[a] and Yao-Ting Sung[c]

[a]*Graduate Institute of Information and Computer Education, National Taiwan Normal University, Taipei, Taiwan;* [b]*Department of Applied Chinese Languages and Literature, National Taiwan Normal University, Taipei, Taiwan;* [c]*Department of Educational Psychology and Counseling, National Taiwan Normal University, Taipei, Taiwan*

The work described in this paper explores the feasibility of using of a wireless handheld system (WHS) that supports the individual and co-operative reading activities of students and helps teachers implement reading strategy instruction in Chinese language classes. The experimental findings demonstrate that the WHS benefits students applying reading strategies and improves co-operative learning in relation to small reading groups.

Keywords: co-operative learning; wireless handheld system; reading comprehension strategies

Introduction

The ability to read profoundly influences academic achievement. Therefore, improving the reading ability of students is one of the primary goals of language teaching activities. Based on the senior high-school Chinese curriculum set by the Ministry of Education in Taiwan, cultivating students' reading comprehension proficiency and self-directed learning abilities are the major educational goals of Chinese language literacy.

Reading is a complex comprehension process. Based on Mayer's (1996) Selection–Organisation–Integration (SOI) model, a reader must first identify the most important part of a text; he/she must then re-organise selected information in short-term memory, and then form an interconnected overall concept. Finally, a reader must create links between knowledge stored in short-term memory and background knowledge stored in long-term memory. To help students understand reading content, reading strategy instruction is a method most often recommended by researchers to enhance a student's reading ability. Sears, Carpenter, and Burstein (1994) demonstrated that special-needs students were willing to read and develop and utilise more efficient reading strategies for reading and comprehending difficult materials after a six-week reading training course. The commonly used reading strategies are decoding unknown words, highlighting key points, summarising, questioning, predicting, and clarifying. Olson and Gee (1991) also found that the ability to apply reading strategies can improve a student's reading comprehension. Similar outcomes apply to the reading of Chinese. Lau and Chan (2003) compared the ability of good and poor readers in their use of

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reading strategies for Chinese reading comprehension. They asserted that an individual's ability to use a reading strategy is strongly related to reading comprehension; that is, good readers are more capable of using sophisticated cognitive strategies and metacognitive strategies to facilitate reading comprehension than poor readers are. Notably, although the strategies for decoding unknown words differ in English and Chinese, a poor English or Chinese reader has similar difficulties identifying unknown words. Siu (1986) determined that reading comprehension starts with character (words) definition, then sentence and paragraph message, and finally whole-text meaning; sustaining that knowledge of Chinese characters and words are fundamental to Chinese reading comprehension.

Although reading strategy instruction should be emphasised during reading activities, it is seldom implemented in classrooms (van Keer, 2004) because preparing teaching materials takes too much time for most teachers to become familiar with the strategies, let alone using them on students. In Taiwan, this problem is pronounced due to the pressures associated with university entrance exams and large class sizes. As a result, the reading strategies are largely ignored in practical teaching settings. Teachers involved in teaching the Chinese language typically focus on sectional content rather than explicit comprehension processes and skills; consequently, students lack training in reading strategies (Lau & Chan, 2003). Ho and Au (1994) also identified that most of these language teachers teach students to use the same strategy to comprehend different Chinese articles. Based on Yan's survey of implementation conditions in the Chinese high-school curriculum (1999), it was found that most teachers of the Chinese language apply a teacher-centred approach, which can result in students' boredom when reading Chinese. Thus, two problems in Chinese reading classes should be addressed: teachers must adopt a student-centred approach rather than a teacher-centred approach; and, they must understand students' reading processes and help students to use reading comprehension strategies when reading Chinese.

In terms of a student-centred approach to reading instruction, co-operative learning (CL) has been widely used and has considerable research support. Co-operative learning is based on the constructivist theory of learning, which asserts that people are active learners and must construct knowledge for themselves via interactions between individuals and an environment. Although CL is considered an effective method for teaching reading, the possible drawbacks of conventional CL approaches, such as unbalanced loading, distraction (Lan, Sung, & Chang, 2009) and other pedagogical challenges (such as the difficulty of tracking students' reading processes) generally prevent teachers from applying CL approaches to Chinese reading activities. Mobile technology appears to offer a feasible tool for overcoming the obstacles mentioned above in conventional CL approaches. It has garnered increased attention recently in different research fields due to its unique features – such as portability, social interactivity, connectivity, individuality, and immediacy (e.g. Huang, Kuo, Lin, & Cheng, 2008; Hwang, Yang, Tsai, & Yang, 2009). Given the technology's high potential in educational settings, a handheld device should be able to provide individuals with essential information and the tools needed within a co-operative learning context (Luchini, Quintana, & Soloway, 2004). It should also be able to help students co-ordinate and negotiate with others in face-to-face interaction (Zurita & Nussbaum, 2004).

In order to solve the two problems that exist in current Chinese reading classes and to help Chinese teachers implement CL approaches in their Chinese classes, this study embeds Chinese reading strategies in a mobile-assisted Chinese reading system – the

wireless handheld system (WHS) – to support individual and CL processes and also help Chinese teachers understand students' reading behaviours. Because few mobile-related studies have focused on Chinese reading, the findings from the research should add to the existing literature on mobile-assisted Chinese reading.

Wireless handheld system (WHS)

The proposed WHS consists of two modules: the individual and co-operative modules. The WHS employs commonly used reading strategies (including setting reading goals, self-interpretation, the guessing strategy, highlighting, recognition of the strategies used, note-taking, and summarising) in the individual reading module and implements group discussion and individual accountability in the co-operative reading module.

The individual reading interface of the WHS has the functions of strategy instruction and hierarchical hints of the comprehension strategy used to train students in using strategies to comprehend a Chinese article. Figure 1 shows the interface for individual reading activities. Students can practise different reading strategies when comprehending a text, including decoding target characters or words and inferring textual meaning by guessing based on context. The reading procedure in individual reading activities is described briefly as follows. During individual reading, students first log into the WHS and obtain the reading materials. Students must then identify the target article format based on information about reading materials. This strategy is called setting the reading goal, and the information that needs to be identified includes titles, writers, and sources. Students are then asked to adopt a guessing strategy to speculate and explain the meaning of target words assigned by teachers. To help students guess meaning, several useful language-learning strategies (such as note-taking, summarising, and highlighting) are embedded in the individual reading module of the WHS. After students finish guessing at a word's meaning, they submit a complete explanation of target words. The procedures involved in individual reading activities are depicted in Figure 2.

After individual reading activities, students can proceed with CL activities. During the co-operating phase, the WHS not only supports students' reading activity, but also focuses on training for the application of reading strategies. By attempting to answer the teacher's questions, students use reading strategies (such as guessing and inferring) to identify the main idea in the text. While answering questions or defining target words, students can share their answers and strategies with other students – as shown in the scheme for sharing ideas presented in Figure 3. By sharing ideas through the procedure shown in Figure 4, students have opportunities to learn from the experience of other students and then determine the true meaning of a text. Each group member must complete their own individual tasks prior to group discussion. If any of the group members do not complete their tasks, the entire group cannot hold any co-operative discussions. The 'idea-sharing function' can randomly assign answering privilege to any group member. Any student who is given this right must submit the group-discussion results; if this outcome is not sent by this student, this group cannot continue its discussion of the next question. Consequently, each group member has an opportunity to submit an answer and is responsible for leading a group discussion.

In addition to learning aids for students, the WHS also provides teachers with real-time information about each student's reading performance in individual and group learning contexts. The system collects the information from the learning process of
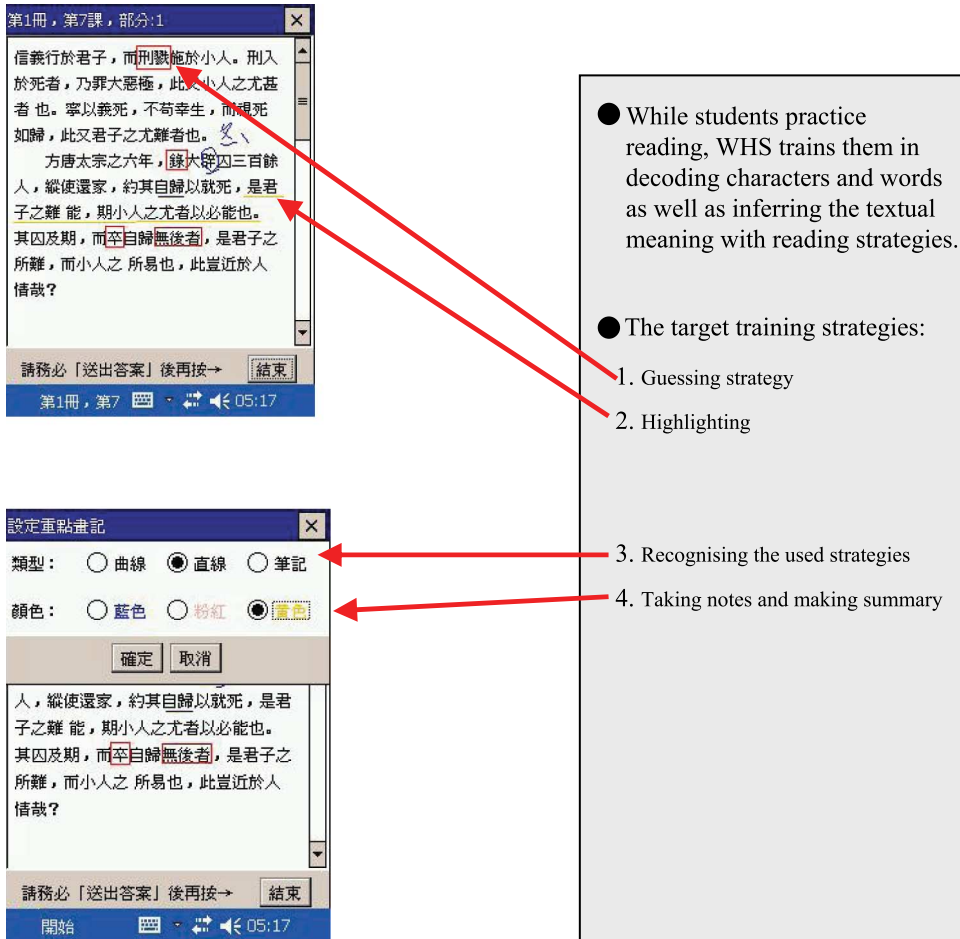
Figure 1.   The interface of individual reading activities.

each student and then produces a statistical chart during both individual learning and CL phases. In the individual reading phase, teachers can focus on a specific student's learning activities, such as their performance in article format identification, word meaning guessing, and the frequency of looking up learning hints. This information helps teachers to identify the learning status of both individual students and the whole class. The real-time statistical information can also assist teachers in providing students with appropriate face-to-face feedback during the reading processes. Figure 5 shows the interface used to present statistical data for individual reading activities performed by a student. Furthermore, the interface can be divided into three parts in which: (1) the top of the interface depicts the number of students who have completed the assigned individual reading activities; (2) the middle of the interface shows the function that teachers can use to choose a target student whose reading process profile is to be observed; and (3) the bottom part shows the reading process profile of the chosen student. Based on the profile, the teacher can see the student's explanation of the assigned words as well as how many hints the student has used while trying to formulate an explanation.
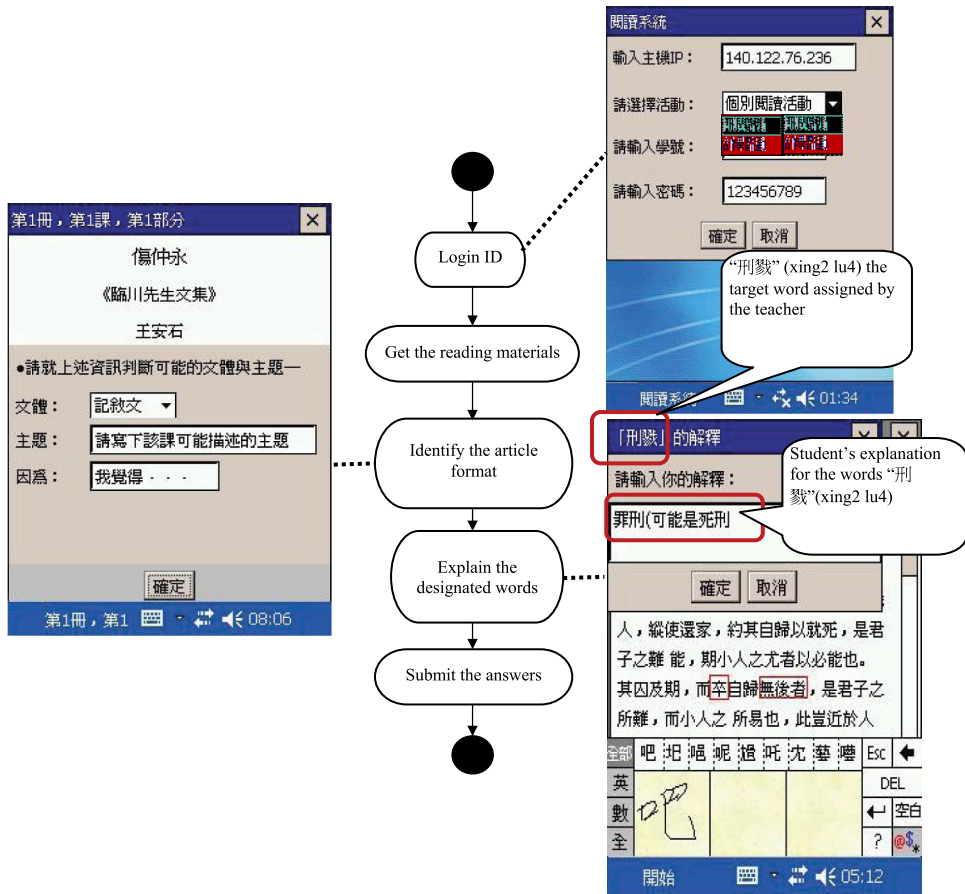
Figure 2.   The procedure of individual reading activities.
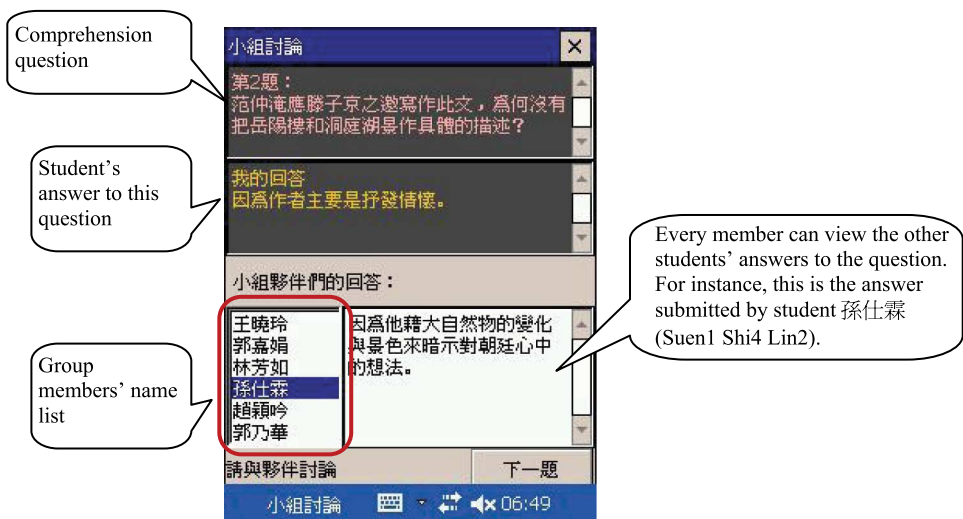

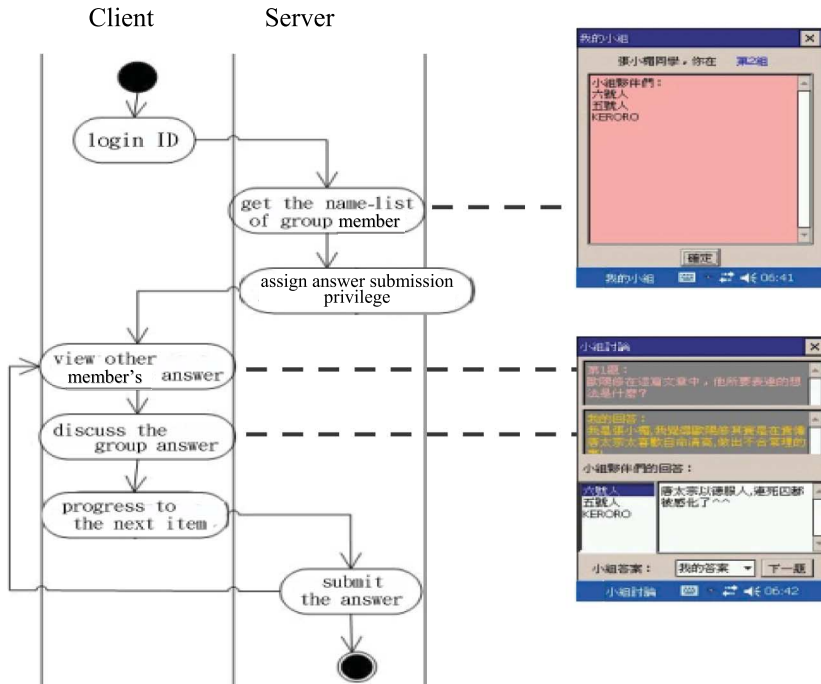Figure 3.   The scheme for idea sharing.

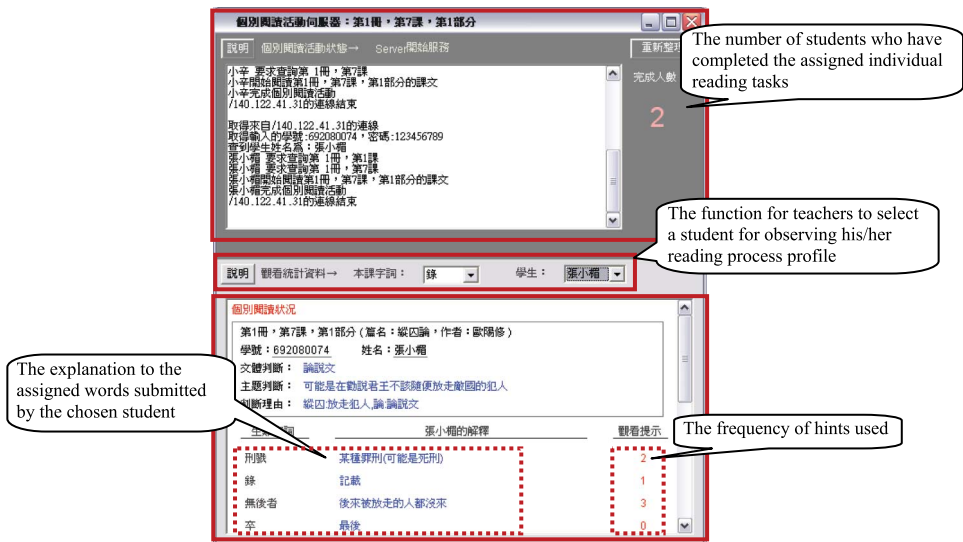Figure 4.   The procedure of the 'co-operative learning activity'.

Figure 5.   The interface of student 'individual reading activities' from the server side.

The data from CL activities includes the percentage of scheduled progress achieved, the overall discussion status of each group, and the answers to the comprehension questions submitted by each group. Figure 6 shows the interface for assigned questions and the condition of each group answering from the server side. The teacher can also
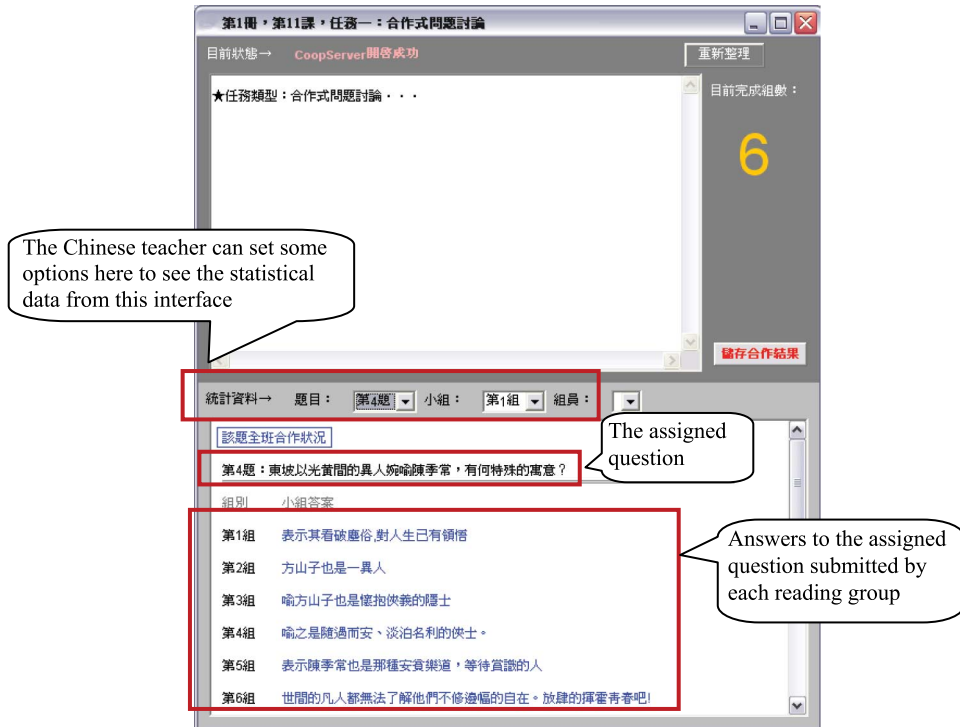
Figure 6.   The interface for assigned questions and the condition of response from each group from the server side.

set options to see the statistical data from this interface. These data are useful to teachers for understanding the students' co-operation process.

Methods

Subjects

The samples used in this study were drawn from two classes of Grade 10 students with an average age of 16 years. The two classes were randomly assigned to the experimental or control group; each group contained 43 students. Additionally, all participants had just completed the high-school entrance exam and had the same percentile rank (PR) scores. At the start of the school year, all Grade 10 students enrolled at this high school were randomly assigned to different classes. Based on the same achievement level in the entrance exam and the random class arrangement, we assumed these two classes had the same level in Chinese reading proficiency and the same ability to apply Chinese reading comprehension strategies. In order to understand the effect of the WHS on the application of Chinese reading comprehension strategies by students with different Chinese reading proficiency levels, all participants were further classified into two categories based on their mid-term achievements when analysing the scores on the Metacognition Awareness of Reading Strategies Inventory (MARSI). Participants were classified into those with high or low Chinese reading ability. The top one-third (15 students) of each class (of 43 students) were assigned to the high sub-group while the bottom one-third (15 students) to the low.

Design

This study used an experimental design. The data analysis (relating to the ability to apply reading strategies) was based on two-way ANOVA. The independent variables are: group (experimental or control) and Chinese ability (high or low). The dependent variable is students' abilities in applying reading strategies.

Instruments

Metacognition Awareness of Reading Strategies Inventory (MARSI)

The MARSI was developed by Mokhtari and Reichard (2002). The MARSI is a self-reported scale for understanding how well students applying reading strategies comprehend an article. MARSI contains 30 items and each item is a statement about a reading strategy. With the Cronbach's α for overall reliability 0.93, the 30 reading comprehension strategies are divided into three categories: *global reading* (GLOB) strategies, such as the predicating strategy, which help students determine meaning of a text; *problem-solving* (PROB) strategies, such as adapting reading pace, which are useful when addressing problems encountered during the reading process; and, *reading support* (SUP) strategies, such as taking notes and highlighting, which support the reading process. The average MARSI score is called the total MARSI score, and the sub-average of a category's score represents category scores for each different category, i.e. the scores for the GLOB, PROB, or SUP strategies. These scores can be used to assess students' abilities to apply reading comprehension strategies, and help determine the efficiency of reading strategy instruction.

WHS Attitude Questionnaire

The purpose of the attitude questionnaire was to identify students' attitudes toward using the WHS in Chinese reading classes (Appendix). The questionnaire also collects students' opinions on the WHS and data on whether their attitudes toward Chinese reading improved after using WHS in their Chinese reading classes over a period of two months.

Procedure

This eight-week study covered nine Chinese reading units. Both the experimental and control groups were taught using identical reading materials, including articles, target words and questions teachers wrote for individual reading and CL activities. However, pre- and during-learning activity phases differed due to the usage of the WHS. Before class, the *control group* used a conventional method to preview activities (which were to study at home, mark questions and guess the meaning of target words) while the students in the *experimental group* used a PDA to access the WHS for both individual reading activities and co-operative words discussions. During class, the *control group* was taught using traditional methods, during which teachers asked students to answer questions about, say, the meaning of target words and problems students encountered during previewing, to understand the quality of preview activities. The teacher also asked students to answer pre-designed comprehension questions among which students freely expressed their ideas about target articles. Conversely, the *experimental group* used the WHS to learn the guessing strategy by trying to explain the

meanings of target words. They worked with their group members to co-operatively answer comprehension questions whereas teachers checked each group's learning activities, such as their discussion and answers to questions, all with the support of the WHS.

After the treatment, the MARSI questionnaire was administered to all students while students in the experimental group were also given the WHS Attitude Question-naire. The overall procedure is depicted schematically in Figure 7.

Results

Analysis of students' ability to apply reading strategies

The MARSI is a self-statement measurement tool on which responses are given on a five-point scale. The total MARSI scores and the scores for the three sub-tests (GLOB, PROB, and SUP strategies) were subsequently analysed. The analytical results are described below.

MARSI total score

For the MARSI total score, the homogeneity test of regression coefficients was insig-nificant ($F(1,56) = 0.63$, $p > 0.05$). Table 1 shows the means and standard deviations for the MARSI total scores. The MARSI scores >3.5 were considered high (median 2.5–3.4), and scores <2.4 were regarded as low. The MARSI scores of both groups are between the median and high scores (Table 1). Based on the analytical results of the
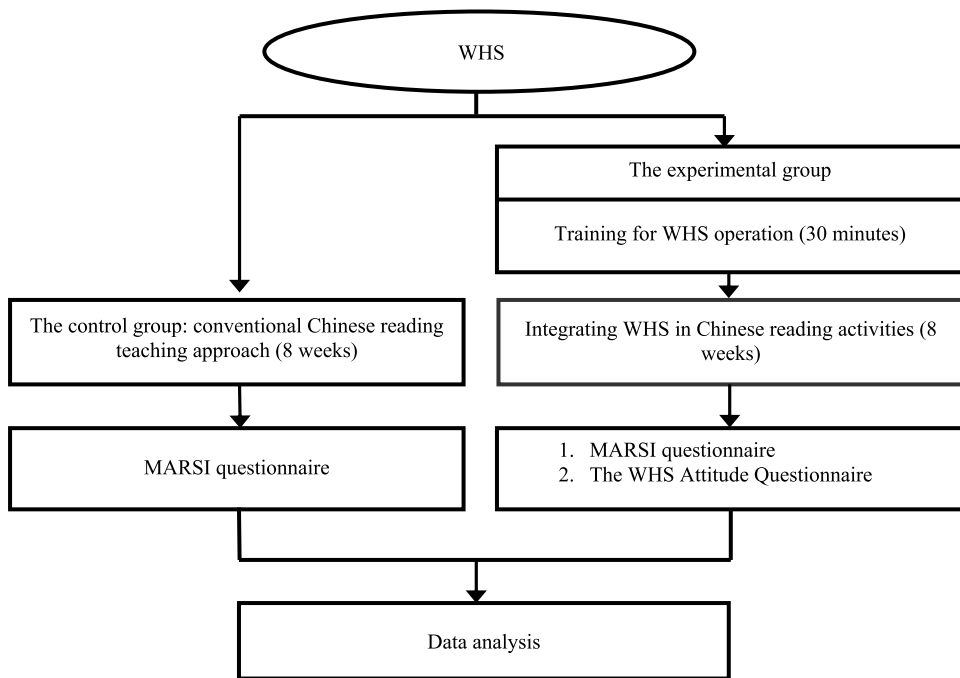

Figure 7. The experimental design and procedure of WHS.

Table 1.   Means and standard deviations for the MARSI total scores.

Level of Chinese ability	Experimental group		Control group	
	Means	SD	Means	SD
High	3.47	0.54	3.56	0.57
Low	3.49	0.63	3.05	0.50

two-way ANOVA, the two groups were insignificantly different ($F(1,56) = 1.37$, $p > 0.05$). This finding shows that no difference existed in the MARSI total scores between the two groups. The Chinese language ability was insignificant ($F(1,56) = 2.81$, $p > 0.05$), meaning that students with high and low abilities did not have significantly different total MARSI scores. The interaction between groups and Chinese language ability was not significant ($F(1,56) = 3.30$, $p > 0.05$), meaning that no level varying difference existed.

The overall reading strategies score

Table 2 lists the GLOB strategy performance of students with different Chinese language abilities in both groups. According to the two-way ANOVA results, the interaction between group and Chinese language ability was significant ($F(1,56) = 6.91$, $p < 0.05$), meaning that level varying differences existed. Students with low Chinese language ability in both groups had significantly different GLOB strategy scores ($F(1,56) = 4.51$, $p < 0.05$); the GLOB strategy scores of students with low Chinese language ability in the experimental group were better than those of the same student sub-group in the control group. Students with high and low Chinese language abilities in the experimental group did not have significantly different GLOB strategy scores. In contrast with the analytical results for the experimental group, students with high Chinese language ability had higher GLOB strategy scores than those with low Chinese language ability in the control group ($F = 9.00$, $p < 0.05$).

PROB strategy score

Table 3 lists the means and standard deviations for the PROB strategy scores. The two-way ANOVA result shows that the group was not significant ($F(1,56) = 1.52$, $p > 0.05$), meaning that no variation existed between groups in PROB strategy scores. Chinese language ability was insignificant ($F(1,56) = 3.57$, $p > 0.05$), meaning that no difference existed between students with high and low language abilities. The interaction between group and Chinese language ability was insignificant ($F(1,56) = 0.86$, $p > 0.05$), meaning that no level varying differences existed.

Table 2.   Means and standard deviations for the scores of the GLOB strategy.

Level of Chinese ability	Experimental group		Control group	
	Means	SD	Means	SD
High	3.34	0.53	3.63	0.49
Low	3.50	0.59	3.05	0.58

Table 3. Means and standard deviations for the scores of the PROB strategy.

Level of Chinese ability	Experimental group		Control group	
	Means	SD	Means	SD
High	3.78	0.56	3.73	0.72
Low	3.61	0.78	3.24	0.60

SUP strategy scores

Table 4 shows the means and standard deviations for SUP strategy scores. The two-way ANOVA results indicate that the group was insignificant ($F(1,56) = 1.12, p > 0.05$), demonstrating that no difference existed in SUP strategy scores for the two groups. Chinese language ability was insignificant ($F(1,56) = 1.20, p > 0.05$), meaning no difference existed in SUP strategy scores between students with high and low abilities. The interaction between group and Chinese language ability was also insignificant ($F(1,56) = 1.04, p > 0.05$), meaning that there were no level varying differences.

In summary, students with high and low Chinese language abilities in the experiment did not perform differently based on all MARSI scores. In contrast, the MARSI total scores for students with high and low Chinese language abilities in the control group varied most, especially in GLOB strategy scores because the scores of students with high ability were significantly higher than those with low ability in the control group. Moreover, students in the low Chinese language ability sub-group of the experimental group had higher scores than those in the control group. Table 5 summarises the results of comparisons between the low Chinese ability sub-groups from the experimental and control groups.

Analytical results of the WHS Attitudes Questionnaire

This aim of this questionnaire was to understand students' opinions about using the WHS in Chinese language classes. Assessments include hardware and system usage, students' attitude toward Chinese class and reading comprehension, and opinions

Table 4. Means and standard deviations for the scores of the SUP strategy.

Level of Chinese ability	Experimental group		Control group	
	Means	SD	Means	SD
High	3.35	0.68	3.35	0.65
Low	3.33	0.71	2.98	0.64

Table 5. Comparison of participants with low Chinese abilities in both the experimental and control groups.

Sub-tests	Experimental group		Control group	
	Means	SD	Means	SD
MARSI total score	3.49	0.63	3.05	0.50
GLOB	3.50	0.60	3.05	0.58
PROB	3.61	0.78	3.24	0.60
SUP	3.33	0.71	2.98	0.64

about the PDA usage in Chinese reading activities. Excluding the scores for Items 2 and 14, the average score on the 14 five-point scale items was 3.3. Six items had scores above the average – Items 5 (3.7), 4, and 8 (3.6) and Items 1, 13, and 15 (all 3.5).

Among all responses to Item 5, which is 'whether the CL activity using the WHS improved your opinion about group participation', only two students disagreed with this statement, 11 students had a neutral attitude, while the others (66%) agreed. This analytical result means that students believed that using the WHS in CL activities increased their willingness to participate in group reading activities. The fourth item, 'The CL activity using the WHS helped your understanding of reading articles', had in total 58% of students agreeing that using the WHS to co-operate with others helped them think deeply about the meaning of articles. For Item 8, 'Usage of the WHS in Chinese class helped you think more about the content of articles', 57% of students agreed with this statement. Additionally, based on responses to Items 1, 13, and 15, most students considered using the WHS and PDA easy.

The average score is 3.3 for statements about whether the WHS promotes Chinese learning and reading skills. Roughly 45% of students 'agreed' and 'strongly agreed' that WHS was easy to use and that integration of the WHS with Chinese teaching activities helped them learn and think deeply about the meaning of articles. The lowest score, 2.6, was for Item 16. Students expressed a negative attitude regarding the stability of the wireless Internet connection; that is, 57% of students indicated that the connection was 'unstable' or 'very unstable'.

In total, 80% of students liked the CL activities, while 57% of students indicated that that they liked the group-discussion activity. The reasons students liked these activities were based on whether the activity process was interesting and whether they helped critical thinking. Some students preferred individual reading activities because they considered the system to be easy to use and stable, and particularly because it helped them think carefully about reading contents.

Responses to another non-five-point scale item, Item 14, which asked students 'whether they think using a PDA is suitable while learning Chinese', also showed that students had positive attitudes toward using a PDA in Chinese classes. Most students (66%) thought using a PDA in Chinese class was suitable because of its lightness, rapid turn-on, ease of use, and convenience for team work.

Discussion and conclusions

This work described in this paper has assessed the ability of a novel WHS to support reading activities in Chinese language classes. It has also assessed the ability of such a system to overcome practical problems that exist in current Chinese reading classes as such as the lack of reading strategy instruction and a teacher-centred instructional approach.

The MARSI results show that for the experimental group, the students with different Chinese language abilities (high and low) had similar abilities to apply reading strategy after treatment; however, the situation differed for the control group. Furthermore, students with low Chinese ability in the experimental group performed better than those in the control group, especially in overall application of reading strategies (the GLOB strategy) (Tables 2 and 5). The difference in the two groups (experimental and control) might have been caused by progress made by students with low Chinese ability in the experimental group. Although the main strategies used in individual reading activities with the WHS (setting reading goal, self-interpretation, and

intelligent guessing) covered the three categories of reading strategy (GLOG, SUP, and PROB, respectively), it only made a significant difference between the two groups in the GLOB strategy scores. Actually, the strategy of setting the reading goal belonged to the GLOB strategies; self-interpretation was an assistant strategy of the other two strategies (a kind of SUP strategy); and intelligent guessing belonged to PROB strategies which was a kind of strategy influenced by the hints provided. Further analysis of hints embedded in the WHS designed by the language teacher determined that most hints were direct suggestions of a specific reading strategy or an explicit explanation of the syntactical functions of a target word. The experimental results indicated the need to redesign a set of hints that would encourage students to do further inferring during the reading process.

The role of teachers in Chinese reading activities also deserves consideration. When employing the WHS, the language teacher simply provided the necessary instruction or guidance to students and monitored students' behaviours, acting as managers and learning facilitators. In the control group, the teacher had to lead overall reading activities. The change in the teacher's role also influenced students' attitudes toward using the WHS in their Chinese reading class. Most students in the experimental group had a positive attitude toward using the WHS and also believed that the proposed system and PDA were easy to use. Based on the results of the WHS Attitudes Questionnaire, students stated that the WHS helped them to understand reading articles and to identify their learning status. Most importantly, the support scheme for CL activities made students feel interested in the reading process and increased their willingness to participate in co-operative reading activities. The analytical results for the questionnaire are consistent with the assessment report of the Palm Education Pioneer Grants conducted by Stanford Research Institute (SRI) International (Vahey & Crawford, 2002), which argues that portable computers are personal learning equipment and can support new types of CL. Moreover, the findings in the study indicate that the WHS can improve students' CL in the Chinese class; the findings of our study are similar to those obtained by Zurita and Nussbaum (2004) and Lan, Sung, and Chang (2007). Both studies state that mobile technology can help elementary school students improve their CL in language classes.

We conclude that the WHS reduces problems associated with conventional Chinese reading classes and provides co-operating students with support via mobile technology. In addition to learning support for students, the WHS also provides language teachers with the immediate and specific statistical information needed to understand students' reading processes. Moreover, it benefits students with low Chinese reading ability to improve their ability to apply reading strategies. This study focused on the effects of the WHS on students' application of reading strategies in Chinese reading activities. Future studies should evaluate the effects of the WHS on students' Chinese reading comprehension and proficiency.

Naturally, we believe that although this work was conducted in Taiwan using Chinese reading activities, the same techniques and technology could be applied to reading processes using any other language.

Notes on contributors

Kuo-En Chang is a professor in the Graduate Institute of Information and Computer Education at National Taiwan Normal University, Taipei. His research interests include intelligent tutoring systems, Web-based learning, and learning technology.

Yu-Ju Lan is an assistant professor in the Department of Applied Chinese Languages and Literature at National Taiwan Normal University, Taipei. Her research interests include technology-enhanced foreign language learning, ICT in education, and mobile learning.

Chien-Mei Chang received the MS degree in information and computer education from National Taiwan Normal University, Taiwan, in 2006.

Yao-Ting Sung is a professor of the Department of Education and Psychology and Counseling at National Taiwan Normal University, Taipei. His research interests include the psychology of learning and computer-assisted instruction.

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Appendix

The Questionnaire of Students' Opinions about Integrating the "Wireless Handheld System" into the Chinese Language Arts Class

Class : _____ ID : _____ Name :

1. How do you feel the usage of the "Wireless Handheld System" ?
   □Very easy   □Easy   □Average   □Difficult   □Very difficult

2. Which activity or activities do you like while employing "Wireless Handheld System" ?
   □Individual Reading Activity   □Cooperative Learning Activity (□Problem Discussion □Words Discussion) And why? (one or more than one answers)
   □East to use □The system is stable □Processes of the activity are interesting □Help the learning of Chinese Language Arts subject □Help self thinking about articles
   □Other

3. Do you think the Individual Reading Activity of the "Wireless Handheld System" help you have a better understanding about articles?
   □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

4. Do you think the Cooperative Learning Activity of the "Wireless Handheld System" help you have a better understanding about articles?
   □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

5. Do you think the Cooperative Learning Activity of the "Wireless Handheld System" let you have a stronger feeling about group participation?
   □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

6. Overall, using the "Wireless Handheld System" in the Chinese Language Arts makes you feel more interested in the Chinese Language Arts class?
   □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

7. Overall, using the "Wireless Handheld System" in the Chinese Language Arts class makes you feel more interested in the Chinese Language Arts subject?
   □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

8. Do you think the usage of the "Wireless Handheld System" in the Chinese Language Arts class helps you think the content of articles?
   □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

9. Do you think the usage of the "Wireless Handheld System" in the Chinese Language Arts class improve your reading skills?
   □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

10. Do you think the usage of the "Wireless Handheld System" in the Chinese Language Arts class helps your study about the Chinese Language Arts subject?
    □Strongly agree   □Agree   □Neutral   □Disagree   □Strongly disagree

11. Overall, are you satisfied with the usage of the "Wireless Handheld System" in the Chinese Language Arts class ?
    □Very satisfies   □Fairly satisfied   □Satisfied   □Unsatisfied
    □Very unsatisfied

12. Whenever it is possible, are you willing to use the "Wireless Handheld System" in the Chinese Language Arts class?
    □Very likely   □Fairly likely   □Somewhat likely   □Unlikely   □Very unlikely

13. How do you feel the usage of PDA?
    □Very easy   □Easy   □Average   □Difficult   □Very difficult

14. While using the "Wireless Handheld System" in the Chinese Language Arts, do you think it is suitable to use PDA like gadgets?
    □Suitable, because: □Easy to use   □Quick to turn on   □Convenient □Quick to get connected □ Easy to work together   □Other
    □Unsuitable, because: □The screen is too small □Difficult to key in   □Other

15. Are you satisfied with the Internet connection speed?
    □Very satisfies   □Fairly satisfied   □Satisfied   □Unsatisfied
    □Very unsatisfied

16. Is the Internet connection stable for you?
    □Very stable   □Stable   □Somewhat stable   □Unstable   □Very unstable