A Study of Smart Technology Utilization and Mandarin Language Instruction

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Abstract

Today, the twenty-first-century curriculum has been transformed into innovation activities that incorporate the latest technologies and concentrate on student-centred approaches. However, to what extent has innovation based on IR 4.0 technology achieved its objectives. Innovation in language education can only happen through attempts to diversify pedagogy, consider students and educators, and understand the consequences of teaching new communication in multiple contexts. Therefore, the study explores successful means of learning through innovative technologies, the degree to which the transition from teacher-centred learning to student-centred has taken place. This research evaluated based on a five-step methodology. The findings show that Mandarin's teaching and learning have made a range of developments tailored to the use of innovative technology applications in line with global demand. Educator-centred education is gradually shifting to student-centred instruction. However, the question is how the mastery of a pedagogical viewpoint can be expanded. This concern is due to smart technology integration preparation, which recognises students' readiness, educators, curricula, and technology implications. It aims to contribute to long-term experience and provide adequate support for the university curriculum.

Keywords
Smart technology, innovation, pedagogy, Mandarin language

1. Introduction
The internet has revolutionised communication, which is now a consumer choice as a daily intermediate medium. The emergence of Web 2.0 in the twenty-first century is a   historic revolution for the internet. The internet enables

users to interact across borders, but it also poses new privacy and security challenges. The internet has changed consumers' lives in business, education, government, health, and human relations. The development of the internet has been transformed into mobile and cyberspace. Users no longer spend time on the computer screen; instead, they keep in touch with the virtual world using smart devices everywhere and anytime. Therefore, we must study the history and development of the internet and the Web's existence. The internet came into existence in 1972. The internet's growth has made it possible for users to surf the internet quickly and without limitations. A World Wide Web (WWW) was created in 1991, where the webserver was successfully connected to the network. The Web is a group of websites stored on a web server and linked directly to a computer via the internet. The website's contents including video, audio, digital photos, text pages, and others. Users can use devices such as computers, laptops, mobile phones to access the website.

The Web has gone through several evolutionary stages. Web 1.0 is the first evolution. Most web users at this level are likely to have access to information. Users can only read material but cannot upload it. Web 1.0 is usually used as a personal website, and a fee based on the page viewed is charged to users. Web 2.0, known as the Participative and Social Web. It emphasises the generated content, the use, and the uninterrupted interoperability of users' content. Users are free to customise the website according to their preferences. For instance, on social media, users can interact and work together as content creators in a virtual community. Web 3.0 is a technology network that offers new and efficient methods to help computers organise and draw conclusions from online data. Users can convert the Web to a database where multiple views can be found on the same Web.

Furthermore, Web 4.0 is a paradigm based on various models, technologies, and social relationships. Such a Web can register and record all the daily routines of users. In short, it helps users to find information, save search history, or gather users who are searching for the same information from different locations, times, and situations. It is also known as an smart Web or Smart Web, where the software agent can represent the user when communicating with the software agent to solve something. This technology could respond by detecting the user's face or the user's attitude. The data that has been detected can then provide suggestions, solutions, or help with the user's psychological problems. Overall, the Internet and the Web are intertwined and evolving parallel with the changing industrial revolution of human life.

1.2 Industrial Revolution

How the evolutions of the internet and the Web affect industries? For that reason, the understanding of the evolution of industry must be grabbed. Industry 1.0 is positioned for the use of steam engines. Industry 2.0 focuses on electricity, Industry 3.0, where information-oriented industries and Industry 4.0 involves the Internet of Things (IoT) in almost every aspect of human life (Kurniawati, 2018). IR 4.0/5.0 is a blurred image of the real, digital, and biological world. The combination of artificial intelligence (AI), robotics, the Internet of Things (IoT), three-dimensional printing, genetic engineering, quantum computing, and other technologies are forces for many products and services in modern life. For example, GPS systems recommend the fastest route to destinations, voice-activated virtual assistants such as Apple Series, personalised Netflix recommendations, and the ability of Facebook to recognise the face of the user and tag the users in a photo of their friend.

IR4.0 has a significant impact on human life, particularly in the education sector, which poses an essential contributor to the national economy. For example, the Institute of Public Higher Education is responsible for producing high-quality human capital (Devi, Annamalai, & Veeramuthu, 2020). The study's findings indicate that graduates who want to compete in the labour market need to equip themselves with the Industrial Revolution skills. Currently, educators need to understand and integrate flexible and interactive digital technology into the delivery style to meet the learning style of students of the new millennium. In brief, to achieve educational aspirations with the IR4.0 revolution concept, educators need to strengthen their technical knowledge and competence in their operations.

The industrial revolution, the sophistication of smart technology, has influenced human style and how we communicate and learn. Education, especially world languages, has received many innovations based on mobile technology. The approach to language acquisition is changing with the development of smart technology. However, to what extent has innovation based on IR 4.0 technology achieved its objectives. Moloney and Xu (2016) asserted that innovation in language education could only happen through efforts to diversify pedagogy, understand students and educators, and comprehend the implications of teaching new communication in different contexts. Therefore, exploring related issues is appropriate to strengthen educators' knowledge and student language acquisition.

1.3 The Development of Mandarin Chinese Instruction

After looking at the internet and web evolution and the industrial revolution, it is indispensable to comprehend how these things affect Mandarin Chinese instruction. Chinese's strict education system and high respect for teachers

have made the teacher-centred approach have long been favoured in Mandarin language education, especially in China for a long time. Students receive information passively from teachers and rarely engage in group activities or challenge the knowledge provided. This one-way approach allows educators to focus on delivering lessons. Nevertheless, twenty-first-century education has transformed into innovation practices that integrate the latest technology and focus on student-centred approaches(student-led approach). Educators play a role as facilitators and mentors. Students act as active contributors to group interactions. Students are encouraged to ask questions and challenge ideas and concepts. The examination's success is still considered necessary, but with a method that emphasises deep understanding, creative and critical thinking. Such a method equips students with practical knowledge and skills in an academic setting. Hence, this study examines effective means of learning through mobile technology, the extent to which the transition from teacher-centred teaching to student-centred learning has taken place.

2. Methodology

This study was analysed based on the five-step approach proposed by Khan, Kunz, Kleijnen, and Antes (2003). Such approaches include: (i) formulating review questions, (ii) identifying relevant studies, (iii) evaluating the quality of the study, (iv) summarising evidence, and (v) interpreting the findings, guiding the data collection process. Sources of information collected include scientific journals, conference proceedings, books, and book chapters. The research involved searching the databases of Scopus.com and Mendeley.com. The terms Mobile Application, MALL (Mobile-Assisted Language Learning), Technology Integration, and Acquisition of Mandarin were used (Dinçer, 2013). While Tekedere (2016) stated that two studies were sufficient if a stable model was used in meta-analysis studies. Tekedere (2016) also claimed that although the number of studies varies by subject, the number of studies in practice was at least eight. Due to a combination of empirical study results and quantitative data, it improved the study's validity (Ellis, 2012). As a result, this study used a five-step approach, and a total of 13 studies in the practice of Mandarin language were discussed.

2.1 Smart Technology in Mandarin Chinese Acquisition

Studies related to language learning with Mobile-Assisted Language Learning (MALL) between 2008and 2018 has demonstrated that mobile devices in language learning are more effective than conventional methods (Chen, Chen, Jia, & An, 2020). Computer-based learning (e-learning) relates to learning in front of a computer, even if it can happen outside the classroom. Mobile learning (m-learning) refers to learning that can occur anywhere and anytime, formally, informally, privately, in groups, face-to-face or virtually. In a word, learning goes beyond the classroom. Recently, all these mobile devices, smart technologies such as smartphones, tablets, smartwatches, and smart glasses, can work with touch, voice, or body language. Learning can be implemented with various advanced functions of innovative technology functions, such as QR codes, augmented reality (AR), and place-sensitive functionality (Reinders and Pegrum 2017). Nowadays, the popularity of smartphones has influenced educators, and various parties are committed to providing application software and tools for educational purposes.

Scholars in Mandarin have widely studied Web 2.0. Among the studies related to smart technology studies as a teaching tool are smartphones that facilitate Chinese orthography/ characters (Wong & Hsu, 2016). Increased writing skills in Chinese/ Hanzi writing (Eubanks, Yeh, and Tseng, 2017), using the MOSE platform reduces language errors. Still, the learning does not depend on language experience when performing language assignments outside the classroom (Lan & Lin, 2016). In contrast, the software-based smart technology study takes inPleco applications (He and Yang, 2016). Researchers noticed that it improves the efficiency of reading activities. Yang & Yin (2018)observed that language experience and attitudes do not affect learning outcomes in their study on WeChat. Xu & Peng (2017)and Jiang & Li (2018)remarked that the use of WeChat with the guidance of native speakers enhances students' oral skills. Likewise, WeChat software provided with the Chinese language resources can be integrated into teaching according to students' language level (Jin, 2018). The MyCloud application, consisting of a Mobile dictionary, My e-Textbookand MyCLOUDNet, builds up students' tendency to convey meaning proactively and spontaneously when interacting with people near them(Wong, King, Chai, & Liu, 2016). The study of Ying, Ruomei, & Susilo (2020) discovered that the Smart Word application (Smart Word) provides learning comfort in time and place. Besides, Hung, Chen, & Huang (2017)viewed that learning with the Learn Mandarin (Learn Chinese Interface) application is more accessible and attracts students but does not contribute to self-confidence.

Furthermore, Web 3.0-oriented applications such as three-dimensional (3D) virtual environment applications can enrich the learning experience and autonomy of Chinese language students and can be implemented at the university level (Wang, Grant, & Grist, 2020). In comparison, Hung et al. (2017)learnt that the Augmented Reality

(AR) graphics book offers practical methods and hands-on learning to explore and learn about the learning contents. The study results suggested that the application of AR is very interesting for students compared to picture books and physical interaction. In summary, this exploration found that the number of Mandarin Smart Technology web-based integration studies is more than just Web 3.0 technology. Web 2.0 usage studies include smartphones, iPads, mobile devices, 'MOSE' platforms, WeChat, MyCloud, Pleco software, Smart Word, and Learn Chinese Interface. Simultaneously, web-oriented studies are keen on the use of three-dimensional virtual environment applications and AR graphics books. The summary of the significant findings is summarised in Table 1 below.

Table 1: Summary of significant findings – technology integration and Mandarin instruction

Era	Scholars	Major findings
Web 2.0	Wong and Hsu, (2016)	smartphones that facilitate the learning of Chinese orthography/ characters
	Eubanks, Yeh, and Tseng, (2017)	increased writing skills in Chinese/ Hanzi writing
	Lan and Lin, (2016)	the use of the MOSE platform reduces language errors but the learning does not depend on language experience when performing language assignments outside the classroom
	He and Yang, (2016)	the software-based innovative technology study takes inPleco applications
	Yang and Yin (2018)	language experience and attitudes do not affect learning outcomes in their study on the use of WeChat
	Xu and Pesng (2017) Jiang and Li (2018)	the use of WeChat with the guidance of native speakers enhances students' oral skills
	Jin, (2018)	WeChat software provided with the Chinese language resources can be integrated into teaching according to students' language level
	Wong, King, Chai, and Liu, (2016)	The MyCloud application, consisting of a Mobile dictionary, My e-Textbook and MyCLOUDNet, builds up students' tendency to convey meaning proactively and spontaneously when interacting with people near them
	Ying, Ruomei, and Susilo (2020)	the Smart Word application (Smart Word) provides learning comfort in time and place
	Hung, Chen, and Huang (2017)	learning with the Learn Mandarin (Learn Chinese Interface) application is more accessible and attracts students but does not contribute to self-confidence
Web 3.0	Wang, Grant, and Grist, 2020	three-dimensional (3D) virtual environment applications can enrich the learning experience and autonomy of Chinese language students and can be implemented at the university level
	Hung et al. (2017)	the Augmented Reality (AR) graphics book offers practical methods and hands-on learning

3. Discussion

Today, smart technology-oriented learning has become the primary strategy for learning Mandarin (Qian, Owen, & Bax, 2018). The integration of smart technology attracts, accelerates, simplifies, and enriches the student experience, particularly in learning Mandarin, a complex language. For instance, it facilitates the learning of the complex Chinese characters and the understanding of many proverbs. Moreover, students have made fewer mistakes when communicating with smart technology and virtually receiving additional help from their peers. Native speakers can

also be involved in improving the oral skills of students. Ying confirmed that technological tools are needed to enable students to learn on their own at a convenient time and place. This objective is consistent with the principle of personalised learning in the twenty-first century, where students can learn according to their level of ability. Studies related to technological equipment such as digital pens and blended learning have shown that the intervention promotes differentiated learning and positively impacts student achievement (Chen et al., 2016; Ghysels and Haelermans, 2018).

However, research on who and what kind of benefits/ output of this approach is still lacking and needs to be developed, particularlyforMandarin instruction (Van Klaveren, Vonk&Cornelisz, 2017). The limitations of technological practice are the deficiency of incomprehensive training and speaking confidence that cannot be developed. Studies also have indicated that language experience and attitudes do not have an impact on student output. It illustrates that technological tools can produce meaningful learning, even though they are not free from weaknesses. In other words, some skills cannot be achieved by technological sophistication. Therefore, Chen et al. (2020)proposed that pedagogical studies should be expanded, although the smart technology approach is more effective than conventional approaches. Educator competence in the design, selection, and adaption of applications or technologies to the existing curriculum is the learning success factors integrated with smart technology (Chua, Tajudin & Soon, 2020). Wang et al. (2020)recommended that task-oriented language learning methods (Task-Based Language Learning/ TBLL) be used for teaching and learning activities to increase this approach's effectiveness. Task-Based Language Teaching (TBLL) is becoming increasingly popular in teaching a foreign language. Moreover, Jiang & Li (2018)argued that language assignments using native-speaking resources and smartphone technology could boost students' intrinsic motivation, where smartphones can meet new students' desire to have virtual conversations with native speakers.

As for the Augmented Reality(AR) study, Hendrys Tobar-Mun˜oz, Silvia Baldiris (2017)suggested that AR technology should be combined with game-based learning. This combination allows users to play with natural objects such as maps, equipment, and books and creates an atmosphere of playing while learning (Mouri & Ogata, 2015). This learning can further enhance learning outcomes based on smart technology. Even a lot of research has been done on technology-based innovation. It is still a lack of study that explores the willingness and understanding of students and educators with the implications of teaching in different contexts. These topics should focus on future research to produce a model of teaching and learning Mandarin language-oriented smart technology that can achieve optimal learning outcomes. This opinion aligns with Wang et al.(2020) that further research is needed to develop "consistently successful premises" where successful and effective interactive elements can be integrated into a university's Chinese courses.

4. Conclusion

In conclusion, the Internet and Web technology significantly impact human life, specifically in learning styles. Nowadays, technology usage has become widespread, and educators who face the new generation of the millennium need to be proactive and diversify how technology is integrated to achieve effective and sustainable learning outcomes. In short, the teaching and learning of Mandarin have made several innovations geared towards the use of smart technology applications in line with global demand. Educator-centred teaching is increasingly turning to student-centred teaching. The issue of how the mastery of pedagogical perspective should be attended. This issue is due to smart technology integration planning that considers students' readiness, educators, curriculum,and technology implications, which will lead to long-term experience and sufficient support for the university's Chinese curriculum development.

References

Chen, C., Tan, C., and Lo, B. (2016). Facilitating English-language learners' oral reading fluency with digital pen technology. Interact. Learn. Environ. 24, 96–118. doi: 10.1080/10494820.2013.817442

Chen, Z., Chen, W., Jia, J., & An, H. (2020). The effects of using mobile devices on language learning: a meta-analysis. Educational Technology Research and Development, 68(4), 1769–1789. https://doi.org/10.1007/s11423-020-09801-5

Chua, N. A., Tajuddin, A. J. B. A., Soon, G. Y., Zakaria, R., Zaid, C. M., Essa, M. A. E. F. I., & Ahmad, M. (2020). Mobile Applications in Mandarin Pedagogical Practice. In Journal of Physics: Conference Series (Vol. 1529). Institute of Physics Publishing. https://doi.org/10.1088/1742-6596/1529/4/042055

Devi, M., Annamalai, M. A. R. R., & Veeramuthu, S. P. (2020). Literature Education and Industrial Revolution 4.0. Universal Journal of Educational Research, 8(3), 1027–1036. https://doi.org/10.13189/ujer.2020.080337

Ellis, P. D. (2012). The essential guide to effect sizes. Cambridge-UK: Cambridge University.

Eubanks, J. -., Yeh, H. -., & Tseng, H. (2018). Learning chinese through a twenty-first century writing workshop with the integration of mobile technology in a language immersion elementary school. Computer Assisted Language Learning, 31(4), 346-366. doi:10.1080/09588221.2017.1399911

Ghysels, J., andHaelermans, C. (2018). New evidence on the effect ofcomputerized individualised practice and instruction on language skills. J. Comput. Assist. Learn. 34, 440–449. doi: 10.1111/jcal.12248

He, S., & Yang, H. (2016). A case study of the use of the Pleco app in extensive reading class. Beijing, China: China Academic Journal Electronic Publishing House.

Hendrys Tobar-Mun͂oz, Silvia Baldiris, and R. F. (2017). Augmented Reality Game-Based Learning : Enriching Students' Experience During Reading Comprehension Activities. Journal of Educational Computing Research, 0(0), 1–36. https://doi.org/10.1177/0735633116689789

Hung, Y., Chen, C., & Huang, S. (2017). Applying augmented reality to enhance learning : a study of different teaching materials, 252–266. https://doi.org/10.1111/jcal.12173

Jiang, W., & Li, W. (2018). Linking up learners of Chinese with native speakers through WeChat in an Australian tertiary CFL curriculum. Asian-Pacific Journal of Second and Foreign Language Education, 3(1), 14. https://doi.org/10.1186/s40862-018-0056-0

Jin, L. (2018). Digital affordances on WeChat: learning Chinese as a second language. Computer Assisted Language Learning, 31(1–2), 27–52. https://doi.org/10.1080/09588221.2017.1376687

Khan, K., Kunz, R., and Kleijnen, J. (2003). Five steps to conducting a systematic review. Journal of the Royal Society of Medicine (JRSM), 96(3), 118-121Lan, Y. J., & Lin, Y. T. (2016). Mobile Seamless Technology Enhanced CSL Oral Communication, 19(3), 335–350. Retrieved from https://www.jstor.org/stable/pdf/jeductechsoci.19.3.335.pdf

Lan, Y. J., & Lin, Y. T. (2016). Mobile Seamless Technology Enhanced CSL Oral Communication, 19(3), 335–350. Retrieved from https://www.jstor.org/stable/pdf/jeductechsoci.19.3.335.pdf

Moloney, R. & Xu, H. L. (2016). Exploring Innovative Pedagogy in the Teaching and Learning of Chinese as a Foreign Language. (Robyn Moloney and Hui Ling Xu, Ed.) (Vol. 15). London: Springer Singapore Heidelberg New York Dordrecht

Mouri, K., & Ogata, H. (2015). Ubiquitous learning analytics in the real-world language learning. Smart Learning Environments, 2(1), 15. https://doi.org/10.1186/s40561-015-0023-x

Reinders, H., & Pegrum, M. (2017). Supporting language learning on the move: An evaluative framework for mobile language learning resources. In B. Tomlinson (Ed.), Second language acquisition research and materials development for language learning (pp. 116–141). (Second Language Acquisition Research Series). London: Routledge.

Qian, K., Owen, N., & Bax, S. (2018). Researching mobile-assisted Chinese-character learning strategies among adult distance learners. Innovation in Language Learning and Teaching, 12(1), 56–71. https://doi.org/10.1080/17501229.2018.1418633

Reinders, H., & Pegrum, M. (2017). Supporting language learning on the move: An evaluative framework for mobile language learning resources. In B. Tomlinson (Ed.), Second language acquisition research and materials development for language learning (pp. 116–141). (Second Language Acquisition Research Series). London: Routledge.

Tekedere, H. (2016). Examining the Effectiveness of Augmented Reality Applications in Education : A Meta-Analysis, 11(16), 9469–9481.

Van Klaveren, C., Vonk, S., and Cornelisz, I. (2017). The effect of adaptive versus static practicing on student learning - evidence from a randomised field experiment. Econ. Educ. Rev. 58, 175–187. doi: 10.1016/j.econedurev.2017.04.003

Wang, Y., Grant, S., & Grist, M. (2020). Enhancing the learning of multi-level undergraduate Chinese language with a 3D immersive experience - An exploratory study. Computer Assisted Language Learning, 0(0), 1–19. https://doi.org/10.1080/09588221.2020.1774614

Wong, L. H., & Hsu, C. K. (2016). Effects of learning styles on learners' collaborative patterns in a mobile-assisted, Chinese character-forming game based on a flexible grouping approach. Technology, Pedagogy and Education, 25(1), 61–77. https://doi.org/10.1080/1475939X.2014.963661

Wong, L. H., King, R. B., Chai, C. S., & Liu, M. (2016). Seamlessly learning Chinese: contextual meaning making and vocabulary growth in a seamless Chinese as a second language learning environment. Instructional Science, 44(5), 399–422. https://doi.org/10.1007/s11251-016-9383-z

Xu, Q., & Peng, H. (2017). Investigating mobile-assisted oral feedback in teaching Chinese as a second language. Computer Assisted Language Learning, 30(3–4), 173–182. https://doi.org/10.1080/09588221.2017.1297836

Yang, J., & Yin, C. (2018). Learning Through Mobile Technology. Journal of Technology and Chinese Language

Teaching, 9(1), 35–47.

Ying, Y., Ruomei, F., & Susilo, P. M. (2020). Smart Word Aplication Design for Learning Mandarin-Indonesia Vocabulary. Journal of Physics: Conference Series, 1477(4), 042015. https://doi.org/10.1088/1742-6596/1477/4/042015

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