資訊科技於雙語音樂師資培育課程之教學實踐

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摘　要

　　因應臺灣雙語政策及雙語師資需求，國內師資培育機構近年陸續開設雙語師資培育課程。本研究旨在探討英文介面資訊科技應用於雙語音樂師資培育課程之教學實踐歷程與實施成效。採行動研究法，融合音樂類與非音樂類英文介面資訊科技，設計並實施 18 週課程，內容涵蓋音樂知識、音樂唱奏、音樂賞析、音樂創作，以及雙語音樂教學設計。研究參與者為 50 位選修雙語音樂課程之師資生。研究工具包含師資生學習需求調查問卷、音樂能力前後測、資訊科技融入雙語音樂教學設計評定量表，以及教學觀察紀錄表等。研究結果顯示，在合作奠基期、融合擴展期與應用評估期三個教學實踐階段中，資訊科技以多樣化方式融入課程，展現其高度可行性。從課程實施成效來看，資訊科技有效提升師資生雙語音樂專業知能與雙語音樂教學設計能力。而師資生亦對個人學習成效持正面態度。在英文操作介面下，非音樂類資訊科技較容易融入課程，而音樂類資訊科技則需要更多的引導與教學示範，方能更有效地促進師資生的教學轉化與應用。

關鍵詞：資訊科技融入教學、雙語音樂課程、雙語教育、雙語師資培育課程

The Teaching Practice of Integrating Information Technology Into a Bilingual Music Teacher Training Course

Ya-Chen CHI

Abstract

In response to Taiwan's bilingual policy and the demand for bilingual teachers, domestic teacher training institutions have implemented bilingual teacher training courses to meet the trend. This study aims to explore the teaching practice and effectiveness of integrating English-interface information technology (IT) into bilingual music teacher training courses. Based upon action research, this study incorporates both music-related and non-music-related IT into an 18-week course that covers music knowledge, music performance, music appreciation, music composition, and bilingual music lesson planning. The participants are 50 preservice teachers enrolled in the bilingual music course. Research tools include a survey on the learning needs of preservice teachers, pre- and post-tests of music ability, an evaluation scale for the integration of IT into bilingual music lesson planning, and teaching observation records. The research results indicate that during the three stages of the course—"Collaboration and Foundation," "Integration and Expansion," and "Application and Evaluation"—IT is to be variously incorporated into the curriculum, which shows the great potentiality of IT as a useful tool for instruction. In terms of the effectiveness of the course, IT significantly enhances preservice teachers' bilingual music competencies and their ability to design bilingual music lessons. Moreover, preservice teachers are positive about their individual learning achievements. Under the English interface, non-music-related IT can be more easily incorporated into the course, while music-related IT requires additional guidance and demonstrations to facilitate preservice teachers' application in their teaching.

Keywords: integrating information technology into instruction, bilingual music course, bilingual education, bilingual music teacher training course

* This article, written on the subject of music education, uses APA format.

參考文獻

一、 英文文獻

Ahmad, A. (2014). Globalization of science and technology through research and development. *Open Journal of Social Sciences, 2*(4), 283-287. https://doi.org/10.4236/jss.2014.24031

Bertaux, P., Coonan, C. M., Frigols-Martín, M. J., & Mehisto, P. (2010). *The CLIL teacher's competences grid*. CLIL Cascade Network. http://tplusm.net/CLIL_Competences_Grid_31.12.09.pdf

Chen, P.-S. D., Lambert, A. D., & Guidry, K. R. (2010). Engaging online learners: The impact of Web-based learning technology on college student engagement. *Computers & Education, 54*(4), 1222-1232. https://doi.org/10.1016/j.compedu.2009.11.008

Cinganotto, L., & Cuccurullo, D. (2015). The role of videos in the teaching and learning of content in a foreign language. *Journal of e-Learning and Knowledge Society, 11*(2), 49-62. https://doi.org/10.20368/1971-8829/1024

Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development, 47*, 47-61. https://doi.org/10.1007/BF02299597

Evens, M., Elen, J., Larmuseau, C., & Depaepe, F. (2018). Promoting the development of teacher professional knowledge: Integrating content and pedagogy in teacher education. *Teaching and Teacher Education, 75*, 244-258. https://doi.org/10.1016/j.tate.2018.07.001

Guha, S. (2001). Integrating computers in elementary grade classroom instruction: Analyses of teachers' perceptions in present and preferred situations. *Journal of Educational Computing Research, 24*(3), 275-303. https://doi.org/10.2190/69W7-HPTU-WMQV-M8P3

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development, 55*, 223-252. https://doi.org/10.1007/s11423-006-9022-5

Johnson, D. L., & Maddux, C. D. (2007). Introduction: Effectiveness of information technology in education. *Computers in the Schools, 24*(3-4), 1-6. https://doi.org/10.1300/J025v24n03_01

Jonassen, D. H., Howland, J., Moore, J., & Marra, R. M. (2003). *Learning to solve problems with technology: A constructivist perspective* (2nd ed.). Prentice Hall.

Li, Y. (2020). Visual education of music course for college students based on human-computer interaction. *International Journal of Emerging Technologies in Learning, 15*(2), 175-186. https://doi.org/10.3991/ijet.v15i02.12535

Light, J. (2001). Rethinking the digital divide. *Harvard Educational Review, 71*(4), 709-734. https://doi.org/10.17763/haer.71.4.342x36742j2w4q82

Liu, P.-L., Chen, C.-J., & Chang, Y.-J. (2010). Effects of a computer-assisted concept mapping learning strategy on EFL college students' English reading comprehension. *Computers & Education, 54*(2), 436-445. https://doi.org/10.1016/j.compedu.2009.08.027

Maddux, C. D. & Johnson, D. L. (2010). Global trends and issues in information technology in education. *Computers in the Schools, 27*(3-4), 145-154. https://doi.org/10.1080/07380569.2010.523888

Magesa, E., & Josua, L. M. (2022). Use of technology to morph teaching and learning in higher education: Post COVID-19 era. *Creative Education, 13*(3), 846-853. https://doi.org/10.4236/ce.2022.133055

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A new framework for teacher knowledge. *Teachers College Record,108*(6), 1017-1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Nelida, N., Pop, C. G., & Mârza, H. (2022). The use of information and communications technologies in musical-rhythmic education: A case study. *Specialusis Ugdymas [Special Education], 2*(43), 3557-3565. http://sumc.lt/index.php/se/article/view/1992

Prensky, M. (2001). *Digital game-based learning*. McGraw-Hill.

Scherzinger, L., & Brahm, T. (2023). A systematic review of bilingual education teachers' competences. *Educational Research Review, 39*, 100531. https://doi.org/10.1016/j.edurev.2023.100531

Schmid, M., Brianza, E., & Petko, D. (2021). Self-reported technological pedagogical content knowledge (TPACK) of pre-service teachers in relation to digital technology use in lesson plans. *Computers in Human Behavior, 115*, 106586. https://doi.org/10.1016/j.chb.2020.106586

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14. https://doi.org/10.3102/0013189X015002004

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-23. https://doi.org/10.17763/haer.57.1.j463w79r56455411

Wekerle, C., & Kollar, I. (2021). Fostering pre-service teachers' situation-specific technological pedagogical knowledge: Does learning by mapping and learning from worked examples help? *Computers in Human Behavior, 115*, 106617. https://doi.org/10.1016/j.chb.2020.106617

二、中文文獻

《2016-2020 資訊教育總藍圖》。（2016）。https://ws.moe.edu.tw/001/Upload/3/relfile/6315/46563/65ebb64a-683c-4f7a-bcf0-325113ddb436.pdf

【Information Education Blueprint, 2016-2020. (2016). https://ws.moe.edu.tw/001/Upload/3/relfile/6315/46563/65ebb64a-683c-4f7a-bcf0-325113ddb436.pdf】

《2030 雙語政策整體推動方案》。（2021）。https://ws.ndc.gov.tw/Download.ashx?u=LzAwMS9hZG1pbmlzdHJhdG9yLzEwL3JlbGZpbGUvMC8xNDUzMi83NDBlMTY5Ny1lZmIwLTRjZGItYjYxMi03M2UzMTVhMTM5ZjIucGRm&n=MjAzMOmbmeiqnuaUv%2Betli5wZGY%3D&icon=.pdf

【2030 Bilingual Policy Implementation Plan. (2021). https://ws.ndc.gov.tw/Download.ashx?u=LzAwMS9hZG1pbmlzdHJhdG9yLzEwL3JlbGZpbGUvMC8xNDUzMi83NDBlMTY5Ny1lZmIwLTRjZGItYjYxMi03M2UzMTVhMTM5ZjIucGRm&n=MjAzMOmbmeiqnuaUv%2Betli5wZGY%3D&icon=.pdf】

《十二年國民基本教育課程綱要國民中小學暨普通型高級中等學校：藝術領域》。（2018）。https://edu.law.moe.gov.tw/LawContent.aspx?id=GL001818

【Curriculum Guidelines of 12-Year Basic Education for Elementary School, Junior High and General Senior High Schools: The Domain of Arts. (2018). https://edu.law.moe.gov.tw/LawContent.aspx?id=GL001818】

《中華民國教師專業素養指引：師資職前教育階段暨師資職前教育課程基準》。（2021）。https://edu.law.moe.gov.tw/LawContentHistory.aspx?hid=194463&id=GL002163

【Guidelines for the Professional Competence of Teachers in the Republic of China: Pre-Service Teacher Education Stage and Pre-Service Teacher Education Curriculum Standards. (2021). https://edu.law.moe.gov.tw/LawContentHistory.aspx?hid=194463&id=GL002163】

《全英語教學師資培育實施計畫》。（2018）。https://ws.moe.edu.tw/Download.ashx?u=C099358C81D4876C725695F2070B467E8B81ED614D7AF43E6763EA7D6D69D249444C7F931E479018E055423D1DD2F71E409B40B92EF8E3E65B66EB4F35BC6EDDA334FE1A6C11B4251A5A0215FD65EF61&n=03247E214173540B5B379D7A18F5D875D696D724B0E3DE70D6DD07F38470E019D70CB3AE43BA1D1A8C1C932CD66B76FC589AAEA0CC74708C&icon=.pdf

【Implementation Plan for Cultivating Teachers for All-English Instruction. (2018). https://ws.moe.edu.tw/Download.ashx?u=C099358C81D4876C725695F2070B467E8B81ED614D7AF43E6763EA7D6D69D249444C7F931E479018E055423D1DD2F71E409B40B92EF8E3E65B66EB4F35BC6EDDA334FE1A6C11B4251A5A0215FD65EF61&n=03247E214173540B5B379D7A18F5D875D696D724B0E3DE70D6DD07F38470E019D70CB3AE43BA1D1A8C1C932CD66B76FC589AAEA0CC74708C&icon=.pdf】

王千倖。（2010）。〈「資訊科技融入教學」推廣政策之敘說研究〉。《教育實踐與研究》23（1），31-56。https://doi.org/10.6776/JEPR.201006.0031

【Wang, C.-H. (2010). Narrative research on the implementation of educational policies for technology integration. *Journal of Educational Practice and Research, 23*(1), 31-56. https://doi.org/10.6776/JEPR.201006.0031】

余政賢、梁雲霞。（2008）。〈轉化與再生：資訊科技融入課程設計之實踐省思〉。《課程與教學》11（3），129-154。https://doi.org/10.6384/CIQ.200807.0129

【Yu, C.-S., & Liang, Y.-H. (2008). Transformation and regeneration: Reflections on the process of technology integrated into curriculum design. *Curriculum & Instruction Quarterly, 11*(3), 129-154. https://doi.org/10.6384/CIQ.200807.01 29】

吳明隆、林振欽。（2023）。《資訊科技與教學應用：議題、理論與實務》（第 2 版）。易習圖書。

【Wu, M.-L., & Lin, Z.-C. (2023). *Information technology and teaching applications: Issues, theories and practice* (2nd ed.). Yi Xi Book.】

吳明隆、張毓仁。（2018）。《SPSS 問卷統計分析快速上手祕笈》。五南。

【Wu, M.-L., & Chang, Y.-J. (2018). *SPSS quick guide to questionnaire statistical analysis*. Wunan.】

吳清山。（1989）。〈課程決定的理論探究〉。《教育與心理研究》12，199-229。

【Wu, C.-S. (1989). A theoretical exploration of curriculum decision-making. *Journal of Education & Psychology, 12*, 199-229.】

宋曜廷、張國恩、侯惠澤。（2005）。〈資訊科技融入教學：借鏡美國經驗，反思臺灣發展〉。《教育研究集刊》51（1），31-62。https://doi.org/10.6910/BER.200503_(51-1).0002

【Sung, Y.-T., Chang, K.-E., & Hou, H.-T. (2005). Technology-instruction integration: Learning from America's experience and reflecting on Taiwan's development. *Bulletin of Educational Research, 51*(1), 31-62. https://doi.org/10.6910/BER.200503_(51-1).0002】

李佳蓉。（2016）。〈推動資訊科技融入教學的進階改變：從師資培育課程談起〉。《臺灣教育評論月刊》5（1），150-153。

【Li, J.-R. (2016). Advancing changes in integrating information technology into teaching: A discussion starting from teacher education courses. *Taiwan Educational Review Monthly, 5*(1), 150-153.】

侯惠澤。（2017）。〈以認知理論設計素養導向迷你教育遊戲：「微翻轉遊戲式學習模式」在教學現場的推廣與研究〉。《教育研究月刊》282，26-42。https://doi.org/10.3966/168063602017100282002

【Hou, H.-Z. (2017). Designing literacy oriented mini educational games with cognitive theory: The promotion and research of "mini-flip game-based learning model" on teaching spots. *Journal of Education Research, 282*, 26-42. https://doi.org/10.3966/168063602017100282002】

洪月女、陳敬容。（2022）。〈全球在地化臺灣雙語教學知能與培育〉。收錄於鄒文莉、黃怡萍（主編），《臺灣雙語教學資源書：全球在地化課程設計與教學實踐》（第 15-31 頁）。書林。

【Hong, Y.-N., & Chen, J.-R. (2022). Global localization of bilingual teaching competence and development in Taiwan. In W.-L. Zou & Y.-P. Huang (Eds.), *A resource book for bilingual education in Taiwan: A globalized design & practice* (pp. 15-31). Bookman.】

徐式寬。（2019）。〈教育科技與教育實踐間的差距及省思〉。《清華教育學報》，35（2），71-103。https://doi.org/10.6869/THJER.201812_35(2).0003

【Hsu, S.-K. (2019). Discrepancies between educational technology and educational practices: A reflection. *Tsing Hua Journal of Educational Research, 35*(2), 71-103. https://doi.org/10.6869/THJER.201812_35(2).0003】

徐憶嘉。（2004）。《線上評量系統應用於國小視覺藝術鑑賞教學之研究》〔未出版碩士論文〕。國立新竹師範學院。

【Hsiu, Y.-C. (2004). *A study on the application of on-line assessment system in elementary visual arts appreciation classrooms* [Unpublished master's thesis]. National Hsinchu Teachers College.】

高震峰。（2012）。〈資訊融入國小視覺藝術教學之研究：以部落格與故宮數位典藏資源為例〉。《藝術教育研究》23，1-35。

【Kao, C.-F. (2017). An integration of information technology in elementary school visual arts teaching: Using blog and resources of the National Palace Museum. *Research in Arts Education, 23*, 1-35.】

曹嘉秀、陳少芬。（2015）。〈自律學習及專題導向數位學習對大專技職生英文課程之參與度及學習成效之影響〉。《輔英通識教育學刊》2，61-94。

【Tsao, C.-H., & Chen, S.-F. (2015). Using Web-enabled self-regulated learning and project-based learning to enhance vocational university students' course engagement and learning achievement in English. *Fooyin Journal of General Education, 2*, 61-94.】

陳虹百、謝苑玫。（2014）。〈臺灣資訊科技融入音樂教學之發展〉。收錄於代百生（主編），《媒體時代的學校音樂教育：第三屆兩岸四地學校音樂教育論壇論文集》（第 86-93 頁）。暨南大學出版社。

【Chen, H.-P., & Hsieh, Y.-M. (2014). Development of information technology integration into music education in Taiwan. In B. Dai (Ed.), *School music education in the media age: Proceedings of the third cross-strait school music education forum* (pp. 86-93). Jinan University Press.】

陳碧祺。（2019）。〈資訊科技與多元媒體於師資培育課程《教育議題專題》之教學融入與應用〉。《臺灣教育評論月刊》8（1），180-191。

【Chen, P.-C. (2019). Teaching integration and application of information technology and multimedia in the teacher education course *Seminar on educational issues*. *Taiwan Educational Review Monthly, 8*(1), 180-191.】

陳碧祺。（2021）。〈科技教學內容知識融入師資培育課程「班級經營」的教學實踐研究〉。《當代教育研究季刊》29（2），1-32。https://doi.org/10.6151/CERQ.202106_29(2).0001

【Chen, P.-C. (2021). Teaching practice and study of technological pedagogical content knowledge in the teacher education course "class management". *Contemporary Educational Research Quarterly, 29*(2), 1-32. https://doi.org/10.6151/CERQ.202106_29(2).0001】

溫嘉榮、徐銘鴻。（2016）。〈偏鄉學校推動數位化創新教學探討與省思〉。《教育學誌》36，139-187。

【Wen, J.-R., & Xu, M.-H. (2016). Discussion and reflection on promoting digital teaching in the rural area schools. *Journal of Education, 36*, 139-187.】

董霄云。（2008）。《文化視野下的雙語教育：實踐、爭鳴與探索》。上海教育出版社。

【Dong, S. (2008). *Bilingual education from a cultural perspective: Practice, debate, and exploration*. Shanghai Education Publishing House.】

廖羽雯（2017）。《新北市國民小學音樂教師資訊科技融入教學與教學效能關係之研究》〔未出版碩士論文〕。臺北市立大學。

【Liao, Y.-W. (2017). *The study of the relationship between elementary music teachers' information technology instruction and teaching effectiveness in New Taipei City* [Unpublished master's thesis]. University of Taipei.】

顏榮泉。（2020）。《運用創新科技實施課堂 5E 教學策略之資訊教育行動研究》。教學實踐研究計畫編號 PED1080353。

【Yen, J.-C. (2020). *Action research on implementing the 5E instructional strategy in information education through innovative technology*. Teaching Practices Research Program Number PED1080353.】

The Teaching Practice of Integrating Information Technology Into a Bilingual Music Teacher Training Course

Ya-Chen CHI

Summary

In response to the increasing demand for bilingual teachers in Taiwan, teacher education institutions started implementing bilingual teacher training programs since 2018. The author has been teaching the preservice teacher training course "Bilingual Music" for several years and has encountering numerous challenges such as significant differences in students' prior knowledge, divergent learning needs, and low learning outcomes. The development of information technology (IT) has greatly expanded pedagogical possibilities, making the cultivation of preservice teachers' digital teaching literacy a fundamental aspect of teacher education. Based on the development, this study aims to explore the process and effectiveness of using English-interface IT in bilingual music teacher training programs.

According to the literature review, IT in education is commonly applied in three ways: (1) teachers use IT to collect teaching materials, convey knowledge, or interact with students; (2) IT serves as a learning aid to enhance student performance; (3) IT helps create learner-centered, interactive, and problem-solving learning environments. In music education, the integration of IT has expanded with advancements in digital music technology, multimedia, and software for arranging, mixing, recording, and notation. Common applications include computer-assisted music instruction, internet usage, and digital technology integration. The recent development of Artificial Intelligence (AI) further enhances the potential for IT applications in music education.

From the perspective of teacher education, it is essential to strengthen preservice teachers' professional competency in both music and bilingual teaching. Music professional competency required for elementary music education ranges from music performance, music composition, music appreciation, to music theory. Bilingual teaching knowledge encompasses proficiency in both theoretical knowledge (e.g., concepts of bilingual education) and practical usage (e.g., designing bilingual teaching activities, implementing bilingual teaching practices). This study designs an action plan for the course based on the content of the elementary music curriculum, considering preservice teachers' learning needs and integrating various IT tools to gradually build their music competencies and bilingual music teaching ability.

This study is structured upon an action research approach, using the bilingual music course offered in 2023 as its research setting. The course aims to cultivate preservice teachers' music competencies and improve their skills in planning bilingual music lesson plans. The course is implemented over 18 weeks, with three cycles of action research. Each cycle includes four stages, namely: planning, action, observation, and reflection. The participants are 50 students enrolled in a bilingual music course, coming from 12 different departments, including English Teaching, Education, Music, and others. Among them, 42 are undergraduate students (84%) and 8 graduate students (16%).

The research tools include a survey conducted at the beginning of the course to assess the preservice teachers' backgrounds, learning experiences, language proficiency, and expectations for the bilingual music course. Pre- and post-tests of music ability are done to evaluate preservice teachers' skills in music sight-reading, knowledge, bilingual terminology, and discrimination. The content of the tests comprises multiple-choice, matching, and short-answer questions. Additionally, an evaluation scale, which consists of six criteria, is developed to assess preservice teachers' ability to design bilingual music lesson plans on a three-level scale: Excellent, Pass, and Needs Improvement. Other research tools include classroom observation records, research and teaching reflection journals, and additional assessment tools.

To meet the requirements of bilingual teaching, this study selects IT software based on the necessary criteria of "English-interface," "usefulness," and "usability." Ultimately, six music-related software (MuseScore, Music Rhythm Trainer, GarageBand, Acapella APP, and Google Doodle's AI creation) and two non-music-related software (Wordwall/Kahoot and Jamboard) are chosen for the bilingual music course. The three cycles of the course are planned around five main themes: the first cycle focuses on teaching "music knowledge," the second, "music performance," "music appreciation," and "music creation"; and the third, the application of "bilingual music lesson planning."

The research results indicate that the integration of IT into the bilingual music course begins with the "Collaboration and Foundation" phase. During this phase, the instructor focuses on developing preservice teachers' bilingual music competencies. Preservice teachers are grouped homogeneously based on their music abilities, and three music-related IT tools—MuseScore, Music Rhythm Trainer, and GarageBand—are used to assign music tasks of varying degrees of difficulty.

The second phase, "Integration and Expansion," underscores the cultivation of preservice teachers' comprehensive music abilities. This phase involves using music-related IT tools such as the Acapella App and Google Doodle's AI music creation, along with non-music educational platforms like Wordwall and Kahoot, to assist with music performance, appreciation, and composition. Additionally, bilingual instructional concepts, including language scaffolding and bilingual teaching assessment, are integrated into the course.

The final phase, "Application and Evaluation," strengthens the competency of the preservice teachers to coordinate musical knowledge, IT applications, and bilingual music lesson planning skills. Jamboard, a non-music-related IT tool, is selected as a platform for executing these activities. Moreover, poster presentations of the bilingual lesson plans are organized as the final assessment.

During the teaching process, preservice teachers offer their feedback on the course content and implementation. Positive remarks endorse the course's diversity, the benefit of IT literacy to their future teaching, and the valuable experience gained from the poster presentations. On the other hand, preservice teachers also

recommend that the researcher should slow down the instructional pace, use Chinese as a supplementary language when explaining music terminology, and reconsider the grouping methods. Based on these comments, the researcher adjusts the course content and teaching methods accordingly.

To evaluate the course's effectiveness, this study assesses preservice teachers' understanding of bilingual music terminology, sight-reading, and music listening skills through pre- and post-tests. The results show that the use of English-interface IT significantly enhances these abilities. Furthermore, most preservice teachers successfully incorporate IT into their lesson planning and effectively design music teaching activities. Self-assessments indicate that they are satisfied with their learning outcome, particularly in categories such as: music performance skills, bilingual music vocabulary, classroom English, teaching strategies, and lesson planning competencies.

Overall, it is comparatively easy to incorporate non-music-related IT into the course, and thus preservice teachers tend to use them in their lesson planning much more frequently. In contrast, music-related IT tools, with the specialized music terminology in an English-interface environment, require more guidance and demonstration from the instructor to help preservice teachers effectively apply them in their teaching. Integrating IT into the bilingual music course should not simply be a fad or a novelty for instructional practice, but rather a pedagogical tool that preservice teachers can effectively apply for bilingual music teaching. It is anticipated that the findings of this study can contribute to the ongoing development and refinement of bilingual teacher training programs in Taiwan.

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