論文 / 著書情報
Article / Book Information

題目(和文)	技術活用の創造性育成のための効果的な指導方法に関する実践的研究：中国の高等学校での実践を通じて
Title(English)	A Practical Study of Effective Instructional Methods to Develop Technical Creativity: Based on Cases of Chinese High Schools
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論 文 要 旨

THESIS SUMMARY

専攻： Department of	人間行動システム　専攻	申請学位（専攻分野）： Academic Degree Requested	博士　（　学術　） Doctor of
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要旨（英文 800 語程度）
Thesis Summary（approx.800 English Words ）

Chapter 1 briefly introduced the background of creativity education, stated the problems of the popularization of creativity education in the primary and secondary education faces, figured out the target level of creativity—technical creativity, drew forth the purpose of this research, presented two research questions, and proposed approaches to realize the purpose. In all, this research aimed to provide practical research on adapting different methods into Chinese primary and secondary daily instruction to develop high school student technical creativity by considering the realistic limitations, including problems of teacher, student, and the realistic environment, and the target level of creativity, comprehensively.

Chapter 2 provided an idea on creativity development in subject-dominated school education on the basis of reviewing the literatures about the creativity, creativity development, its measurement, and problems of creativity development in subject-dominated school education. Specifically, to integrate creativity development into subject-dominated school education, a teacher needs to identify a level of creativity, define it as an observable performance objective, and customize an appropriate instructional method according to the actual conditions, such as, levels of students, the original teaching objective of knowledge learning, the class size, the teaching schedule, and other conditions. Chapter 2 also pointed out the importance of doing practical research on integrating creativity development into subject-dominated daily instruction.

Chapter 3 provided a practical study on exploring the possibilities and limitations of adapting a teacher-centered instructional method—explicit teaching—into Chinese high school web design classes to develop student technical creativity when various problems hampered the creativity education reform. Explicit teaching has been used to teach high-order thinking skills by naming it, describing it, and explaining its function. However, creativity arises spontaneously from an individual's free mind. It has low explainability. Therefore, how to apply explicit teaching to teach technical creativity is a problem. To solve this problem, the author proposed an explicit technical creativity teaching (ETCT), in which, a teacher interprets the kinds of individual thinking that technical creativity involves and elaborately displays a whole individual thinking process for developing products through technical creativity based on their firsthand creative experience, rather than interpret the knowledge of technical creativity came from others, such as its name, definition, and function.

As a comparison, a general teaching method (a teacher prepares materials for students and gives them free time to create their own products) was used. Students' products were collected and rated based on a rubric by two raters. Results indicated that compared with giving students free time to ask them to express their creativity, an elaborative instruction on how to generate an original product by applying learned knowledge was more effective in increasing student technical creativity.

However, students' some performance after ETCT implied that the teacher-centered teaching method—ETCT—contributed little to actively building the relationship of separate knowledge to construct their originalities. A student-centered instructional method was supposed to solve the problem. Therefore, after considering levels of creativity, characteristics of Chinese high school students, limitations of subject-dominated classes, PI was supposed to be an available method to develop Chinese high school student technical creativity. Chapter 4 compared the teaching effectiveness of PI and ETCT in developing Chinese high school student technical creativity. Results indicated that generally, ETCT and PI had similar effects in developing student technical creativity. However, they had different effects on different types of students. The teacher-centered instructional method—ETCT—was more conducive to instruct lower-level students to generate new ideas from nothing than the student-centered instruction method—PI. In addition, although the self-reflection after ETCT also could improve student creative performance, the peer discussion in which students could realize the genuine peer instruction was more effective in helping students improve their creative performance than it.

Personality is one important influential factor of creativity. Considerable studies have been done to investigate the relationships between five personality traits and creativity. However, the situational factor can restrict the manifestation of different personality's creative potential. Therefore, understanding the effects of the interaction between environment and personality on creative performance is important. At present, few research investigated the interactional effects of instructional methods and personality on students' creative performance. Therefore, chapter 5 investigated the influences of ETCT and PI on creative performances of students with different personalities. Results showed that both ETCT could encourage the creative performance of high openness and high conscientiousness. To guarantee the creative performance of high openness in PI, teachers should consider how to match students to make sure that high openness could receive valuable feedback and comments. As for high conscientiousness who are inexperienced in being creative, PI without an elaborative instruction might inhibit their creative performance.

Chapter 6 provided a summary of research contributions and their relationships to the two research questions posed in chapter 1, discussed limitations, and reflected on some suggestions for future research.