Preservice Teachers’ Thinking Styles, Dispositions, and Changes in Their Teacher Behaviors

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Abstract

Understanding preservice teachers’ thinking styles and dispositions and how these are related to positive changes in their teacher behaviors provide valuable information for teacher preparation. This study aimed to investigate the relationship between preservice teachers’ critical-thinking dispositions and three thinking styles (judicial, legislative, and executive) and their behavior change in a computer simulation. 178 preservice teachers participated in this study. Their interactive teaching experiences were measured via the CS-TGCTS simulation. The findings in this study suggest that preservice teachers with a high level of critical-thinking dispositions and those with judicial or legislative thinking styles are analytical and reflective vis-à-vis their teaching practice and, as a consequence, they experienced great behavior change, whereas those with executive styles did not exhibit significant behavior change at the end of the simulated teaching.

1. Introduction

While emphasizing the infusion of computers into teacher education on a large scale, it has become increasingly important to take personal characteristics into account so that teacher educators can design better curricula that reflect individual differences and, ultimately, improve teacher behaviors. In that, to date at least, very little research has focused on understanding how preservice teachers’ personal characteristics influence their changes in teacher behavior in a computer simulation training. the objective of this study is to shed greater light on the issue. In the current study, two personal characteristics are of particular interest: thinking styles and critical-thinking dispositions. Thinking styles refer to the ways in which people choose to use or exploit their knowledge and how this knowledge is used in day-to-day interactions with the environment. People with a legislative style prefer to do things in their own way and build their own structures when deciding how to approach a situation or problem. Individuals with a judicial style like to evaluate rules and procedures as well as to analyze and evaluate existing rules. Finally, an executive style is seen in those who have an inkling toward prestructured tasks (Grigorenko & Sternberg, 1995; Sternberg, 1994). Critical-thinking dispositions, which includes such qualities as open-mindedness, intellectual curiosity, reflective thinking, and an ability to be analytical and systematic in problem-solving, may contribute to the continual reconstruction of professional knowledge and, further, result in improvements in teacher behaviors. Moreover, critical dispositions are significantly related to a person’s ability to change his or her mode of behavioral functioning in order to adapt to situational constraints (Facione, Sanchez, Facione, & Gainen, 1995; McBride & Knight, 1993). Thus, critical-thinking dispositions may influence teachers’ behavior change in even a very subtle way.

Given this background, the following hypothesis was proposed: preservice teachers with a high level of critical-thinking dispositions and those who prefer to think judicially or legislatively would improve their teacher behaviors in a computer-simulated training, whereas those who have a low level of critical-thinking dispositions or who tend to think executively would not benefit as much from the training.

2. Method

Participants were 51 male and 127 female preservice teachers enrolled in a two-year teacher program at National Sun Yat-sen University, Taiwan. Their interactive teaching experience was accomplished via the CS-TGCTS’s two serial simulations, each of which takes about two hours to complete. The software also provided records of thinking styles, critical-thinking dispositions, and teacher behaviors. The former two variables were measured by The Inventory of Thinking Styles and The Questionnaire of Critical-thinking Dispositions, respectively, while teacher behaviors were measured by teachers’ actual usage of 12 teacher behaviors pertaining to improving students’ thinking ability in the CS-TGCTS program.

Four Repeated Measures Analysis of Variance were employed to test the effects of four independent variables (critical-thinking dispositions, judicial style, legislative style, and executive style) on changes in teacher behaviors.
during the computer-simulated teaching. In the following analyses, the term ‘group’ refers to the high score and low score groups divided by the mean score of each independent variable, and ‘test’ refers to both the pretest and the posttest scores of teacher behaviors.

3. Results

None of the group by test interaction effects on teacher behaviors was significant in the four Repeated Measures ANOVAs, Wilks’ $\lambda$s = .985, .997, .997, and .982, $p$s > .05, respectively. As for the main effects, all analyses yielded significant test effects on teacher behaviors when categorized individually on the basis of the scores of critical-thinking dispositions, judicial style, legislative style, and executive style, Wilks’ $\lambda$s = .836, .847, .843, and .860, $p$s < .001, respectively. That is, the preservice teachers used more positive teacher behaviors in the posttest than in the pretest in all the four different groupings.

As far as group effects were concerned, except for the executive style ($F$s(1, 174) = .030, $p$ > .05), all of the other three group effects were significant, $F$s = 9.893, 10.907, and 5.183, for critical-thinking dispositions, judicial style, and legislative style, $p$s < .05. Comparisons of the marginal means revealed that those with high critical-thinking dispositions showed greater change in teacher behaviors than those with low critical-thinking dispositions; those who tended to think judicially had greater change in teacher behaviors than those who did not; and those who were more prone to legislative thinking style had a better improvement in teacher behaviors than those who were not.

4. Discussion and conclusions

It was found that preservice teachers with a higher level of critical-thinking dispositions showed a better improvement in teacher behaviors. In terms of thinking styles, those with judicial thinking styles benefited the most from the computer-simulated training, those with legislative thinking styles closely followed, and those with executive thinking styles lagged far behind. These findings support the ideas that teachers’ thinking styles have an impact on their instruction in computer simulations and critical-thinking dispositions have influences on effective teaching. Critical-thinking dispositions, judicial thinking, and legislative thinking may relate to analytical and reflective thinking in one’s teaching practice and therefore result in behavior change. Teachers with judicial or legislative thinking style tend to create a learning atmosphere in which students are allowed to evaluate different viewpoints; they also encourage students to focus on bigger pictures of the issues encountered in their learning tasks (Grigorenko & Sternberg, 1995). These behaviors were emphasized in the CS-TGCTS simulation. Therefore, the findings in this study once more confirm the importance of thinking styles and dispositions.

In conclusion, computer simulations can be an effective tool for understanding preservice teachers’ classroom behaviors, and one which provides valuable information for teacher preparation. For cultivating successful teachers for tomorrow, teacher education programs need to put more emphases on the cultivation of thinking dispositions and styles that are constructive for coping with classroom problems and, it follows, contribute to professional development.

5. References


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