The Impact of the Instructional Planning Self-Reflective Tool on Preservice Teacher Performance, Disposition, and Self-Efficacy Beliefs Regarding Systematic Instructional Planning

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This study investigated the impact of a self-regulatory tool, the Instructional Planning Self-Reflective Tool (IPSRT), on preservice teachers' performance, disposition, and self-efficacy beliefs regarding systematic instructional planning. Participants enrolled in an introductory educational technology course were taught how to develop an instructional plan as part of the course. An experimental group was provided with instruction on how to use the IPSRT while engaging in instructional planning. Results indicated that the experimental group demonstrated greater skill acquisition, showed more positive disposition, and reported higher perceived instrumentality of instructional planning. In terms of self-efficacy, no significant differences were found between the two groups. However, further analyses revealed that participants who were initially high in self-efficacy reported significantly lower self-efficacy following the tool intervention; in contrast, participants initially low in self-efficacy showed significantly higher self-efficacy following the tool intervention. Findings are discussed from a social-cognitive perspective.

Instructional planning is a method to help teachers systematically design instruction. Numerous instructional planning models have been developed (e.g., Dick & Reiser, 1989; Dick & Carey, 1996; Seels & Glasgow, 1990) with the goal of improving teacher instruction. A systematic approach, which is the focus of this paper, has been shown to be beneficial because it results in effective instruction (Reiser & Dick, 1996). According to Reiser and Dick, a systematic approach to instructional planning consists of the six following phases: goals, objectives, instructional activities, assessment, revision, and implementation. Four key principles underlie these six instructional planning phases: (a) identifying goals and objectives that students will be expected to attain; (b) planning instructional activities that correspond with the objectives; (c) developing an assessment instrument to measure attainment of objectives; and, (d) revising instruction based on student performance and attitudes.

Even though it is widely believed that instructional-planning skills are critical for instructional effectiveness in the classroom, there is no strong evidence that teachers (or even superior teachers) actually use these processes (Martin, 1990; Young, Reiser, & Dick, 1998). Research evidence suggests that teachers typically do not follow procedures acquired in preservice teacher education programs (Kagan & Tippins, 1992; Reynolds, 1993). However, experienced teachers believe in the value of instructional

planning and that it should be taught to novice teachers (Neale, Pace & Case, 1983). Along this line, preservice teachers taught to use systematic instructional planning express more enthusiasm in using these skills in the future (Reiser, 1994).

Based on this research evidence, how can we better prepare preservice teachers to both incorporate and increase their awareness of critical instructional planning components? One possibility is by providing them with tools that promote self-regulation. Self-regulation refers to self-generated thoughts, feelings, and actions that are systematically designed to achieve a goal (Zimmerman, 2000). Two core components of self-regulation are self-monitoring and self-evaluation. Self-monitoring refers to tracking one's performance whereas self-evaluation refers to comparing one's performance to a standard or goal.

Implementation of self-monitoring and self-evaluation strategies is effective in many fields, such as learning academic tasks (Zimmerman & Kitsantas, 1999), motor skills (Kitsantas & Zimmerman, 1998), and modifying and maintaining health-related behaviors (Kitsantas, 2000). In regard to academic achievement, self-monitoring training has been associated with enhanced performance in problem solving, time on task, and percentage of assignment completion (Mace, Belfiore, & Shea, 1989). Students who self-monitor, and consequently self-evaluate their progress, display higher skill acquisition and more satisfaction, show more intrinsic interest in the task, and report higher self-efficacy perceptions than those who do not (Schunk, 1989; Zimmerman & Kitsantas, 1999). Self-efficacy, the degree to which one feels capable of performing a task at certain designated levels (Bandura, 1986), is an indicator of self-motivation. Students who are self-efficacious set higher goals, demonstrate more intrinsic motivation in a task, persist longer in the face of obstacles, and select more effective learning strategies (Zimmerman & Bandura, 1994). Correspondingly, would the implementation of self-regulatory strategies such as self-monitoring and self-evaluation encourage more systematic instructional planning and awareness of its importance and complexity?

In an attempt to find ways to encourage

Table 1 □ Excerpt from the IPSRT

Objectives

- Does each objective derive directly and logically from one of the instructional goals? ❑ yes ❑ no
- Are all four of the following components present for each objective? ❑ yes ❑ no

1. Audience
   - Does this component state who will be doing the performance? ❑ yes ❑ no
   - Is it stated from the LEARNER's perspective, NOT the INSTRUCTOR's perspective? ❑ yes ❑ no
2. Behavior
   - Is the behavior specific and explicit? ❑ yes ❑ no
   - Is the behavior measurable and observable? ❑ yes ❑ no
   - Does the behavior state what the learner will do at the END of instruction, not DURING instruction? ❑ yes ❑ no
   - Is there one active verb? ❑ yes ❑ no
3. Condition
   - Is the context for the behavior specified? ❑ yes ❑ no
   - Does this component clarify the conditions under which the performance will be done? ❑ yes ❑ no
4. Degree
   - Does this component clarify how well / to what extent the performance must be done? ❑ yes ❑ no
   - Is it specific and measurable? ❑ yes ❑ no

Note: Each of the case studies was also accompanied by an outline of the major subheadings for the instructional plan: instructional goal, objectives, materials, learner characteristics, procedure, and assessment.

teachers to engage in these activities, Baylor, Kitsantas, & Chung (2001) developed the Instructional Planning Self-Reflective Tool (IPSRT) based on self-regulation research (Zimmerman, 2000). The IPSRT contains a number of questions with check-boxes for the student to assess if each area was covered in his or her current instructional plan. For example, when writing test items, preservice teachers do not always check to see if the items reflect objectives stated in a prior phase. Or, the students see the process as so incremental (e.g., the individual phases or tasks) that they fail to see the global aspect of the overall planning model. (For an excerpt from the IPSRT (e.g., objectives) see Table 1.) The IPSRT guides the instructional planner to reframe the problem and possible solutions, combining a reflective perspective of thinking and teaching while including what Moallem (1998) referred to as the "logical view" of instructional planning models. The IPSRT was assessed previously, and Baylor et al. (2001) found that the 80% of participants reported that the IPSRT was useful for monitoring, 75% reported it was useful for self-evaluation, and 25% reported that it was useful for organization. Given that the IPSRT was developed specifically for self-monitoring and evaluation, the results supported its value as a cognitive tool in these two areas.

The purpose of the current study was to test the effectiveness of the IPSRT on skill acquisition, disposition, perceived instrumentality, and self- efficacy beliefs of preservice teachers regarding systematic instructional planning. It was hypothesized that the preservice teachers employing a self-regulatory approach via the IPSRT would show (a) greater skill acquisition, (b) positive disposition, (c) higher self-efficacy beliefs, and (d) greater perceived instrumentality regarding instructional planning than the control group.

METHOD

Sample

The total sample consisted of 114 preservice teachers, in seven sections of an introduction to educational technology course. Given that the intervention took place over two weeks, only the participants who were in attendance throughout the duration of the study were included in the final sample. The mean age of the sample was 20.43 years (*SD* =2.68). Of those reporting ethnicity, 81% were White, 8% were Hispanic, 7% were Black, and 4% were of other groups. Of those reporting gender, 22% of the sample were male and 78% were female. The majority (46%) of the participants were sophomores; 37% were juniors; 2% freshman; and 15% seniors. Of all the participants, only 16% reported having prior coursework in instructional planning.

Instructional Materials

IPSRT. The IPSRT was developed based on research on self-regulated learning (Zimmerman, 2000) in conjunction with the Reiser & Dick (1996) instructional planning model. It was designed to facilitate monitoring and self-evaluation during instructional planning. The major headings for the IPSRT were determined based on the Reiser & Dick model: instructional goal, objectives, materials-preparation, learner characteristics, procedure, and assessment. We added an additional heading for the quality of the overall instructional plan. Under each subheading, the IPSRT consists of multiple prompt questions. (See Table 1 for an excerpt, or see Baylor et al., 2001, for the complete tool.)

Planning approach. The planning approach taught to all participants included the instructor's presentation of a sample lesson plan via PowerPoint slides. This planning approach was designed to be similar to the regular class instruction (e.g., lecture format with PowerPoint slides). Each slide contained a component of the instructional plan (e.g., instructional goals, objectives, materials, instructional activities, or assessment). The slides purposely contained errors so that the instructor could model how to discriminate and rectify errors in the instructional plan. After each component of the instructional plan was presented, a yellow PowerPoint slide prompted the students to REFLECT before proceeding to the next component of the plan. For example, one of the erroneous instructional

goals in the sample plan was listed as follows: "The goal is for students to use a variety of resources from the Internet to identify typical Greek houses and landscapes." The instructor modeled the process of evaluating this goal by determining whether it focused on the purpose of the instruction rather than on how the instruction would be implemented. In this case, the instructor pointed out that the phrase "on the Internet" suggests *how* the goal would be achieved.

Case-study assignments. Four case-study assignments were given to students at different points of the study. The case studies did not require specific content knowledge or grade level expertise. The first case study was given to students for an in-class activity after the planning approach was taught to them. Each of the case studies was also accompanied by an outline of the major subheadings for the instructional plan: instructional goal, objectives, materials, learner characteristics, procedure, and assessment. (See Table 2 for the complete case studies.) The case studies were tested and modified by experienced instructional designers prior to use in the study.

Measures

Posttest achievement (quiz). All participants developed an instructional plan as a posttest achievement measure that was a graded quiz as part of the class, based on a case study assignment (as listed in Table 2). Each quiz was scored according to a rubric that consisted of three subareas, each graded holistically taking into account the effectiveness of the plan on a scale of 1–5 (where 1 = *poor* and 5 = *excellent*). The three subareas of the rubric were goals-objectives (combined), procedure, and assessment, which were aligned with four of the major headings of the IPSRT (goals, objectives, procedure, and assessment). Two of the researchers met and together discussed what characterized a score of

Table 2 □ Demonstration (1), In-Class (2), Homework(3), and Quiz (4) Case Study Assignments.

1. You are a sixth grade teacher of a social studies class. A Greek friend of yours emails you to remind you that tomorrow is "Greek Day" and to share that with your students. Since you only have a 40 minute class period and must limit your focus, you decide that you would like your students to be able to identify typical housing and landscape from Greece using resources on the Internet. The problem is that you don't have much time to plan as "Greek Day" is tomorrow!
2. You are a sixth grade teacher of a social studies class. Your principal calls and will be visiting tomorrow and wants evidence that students can recall the Southeastern capitals. Specifically, students need to be able to provide the capital for each of six Southeastern states (Florida — Tallahassee, Georgia — Atlanta, Alabama — Montgomery, Mississippi — Jackson, Louisiana — Baton Rouge, South Carolina — Columbia). But you realize that you haven't taught this yet!! So, within a 40 minute class period later today, you need to teach your students the capitals of these six states.
3. You are a sixth grade teacher of a geometry class. Your students will be taking an important standardized test tomorrow in math, and you realize (in talking with a colleague) that you haven't taught the differences between isosceles, scalene, and equilateral triangles. Within your 40 minute class period later today, you need to cover this area. Quick— write a lesson plan and review it using the attached handout. You will receive 10 points for this assignment.
4. You are a sixth grade teacher of a physical education class. A member of the president's advisory committee is visiting today and wants to see an example of your instruction to promote aerobic fitness. For a 40-minute class period, you decide to teach your students how to develop their aerobic fitness by using jump rope. Two related concepts about fitness that immediately come to mind to include are *heart rate* (students should aim for 170 beats / minute) and *length and frequency of exercise at that heart rate* (at least 20 minutes 3–5 times a week). Since you only have 30 minutes to complete this lesson plan, budget your time wisely!

Note: Each of the case studies was also accompanied by an outline of the major subheadings for the instructional plan: instructional goal, objectives, materials, learner characteristics, procedure, and assessment.

For Case Study 1, the in-class demonstration, students were provided with additional information regarding Greek landscape and architecture.

1 through 5 for each subarea of five sample instructional plans. Disagreements were resolved through discussion. Following that, each researcher independently scored 10 instructional plans. Interrater reliability between the two researchers was determined to be greater than .90 for the 10 instructional plans. One of the researchers then scored the remainder of the instructional plans using the same rubric. The overall quiz score was the compilation of these three subscores, ranging from 3 to 15. The researchers were blind as to the conditions of the participants. The control group participants were given instruction regarding the IPSRT following the quiz and were allowed to revise their quizzes if desired using a red pen. Three new scores were assigned for each of the three subareas based on participants' revisions. These revisions were scored by two of the researchers.

Disposition. To assess preservice teacher disposition toward instructional planning, all participants were asked to write two adjectives to "Describe what you think about instructional planning." This method was employed to obtain the participants' personal affect regarding instructional planning as opposed to the response set that could bias them to choose more favorable adjectives if presented in a list. These adjectives were coded according to three levels: (a) as –1 if both were negative; (b) as 0 if 1 was negative and the other positive; or (c) as +1 if both were positive. The items were coded by two raters independently. Interrater reliability was established at .97. There were only two disagreements about two sets of adjectives which were resolved through discussion. Two adjective pairs were discarded because they could not be classified. The validity of this measure was established through concurrent validity of initial disposition with initial self-efficacy scores (r = .26, $p < .05$), given that research has shown that self-efficacious students generally have positive affect (Bandura, 1986). The test-retest reliability was r = .40, $p < .01$. The correlation and the reliability are relatively low given that changes between first and second administration were expected.

Self-efficacy. This one-item scale measured students' self-efficacy beliefs about instructional planning and was administered before and after the intervention. It was developed based on Bandura and Schunk's (1981) guidelines. All participants were asked, "How sure are you that you can write a lesson plan?" on a scale from 10 (*not sure*) to 100 (*very sure*). The test-retest reliability was r = .71 ($p < .01$).

Perceived instrumentality. To assess the participants' perceived importance of instructional planning, they were asked to rate "How important is writing a lesson plan to you as a future professional?" on a scale of 1 to 5 (1 = *not important*, 2 = *fairly important*, 3 = *important*, 4 = *very important*, and 5 = *extremely important*). Given that this measure was administered only once, we could not establish reliability.

Procedure

Seven intact class sections were randomly assigned to experimental and control groups. As part of this required course, the participants had already been taught the Reiser and Dick (1996) model of instructional planning. All seven sections implemented identical course material throughout the course (e.g., identical lecture material, PowerPoint slides, assignments, exams). There were approximately equal numbers of participants from each section. Of the initial sample size of 114 participants, 28 participants (25% of the original sample) either dropped out or were not in attendance for both of the class sessions (e.g., they attended only one of the two sessions), leaving approximately 38–43 students in each group, depending on the measure. All lab sections were taught by graduate students (each graduate student taught one section) and the lecture component was taught by an experienced educational technology professor.

There were no significant differences in age and grade point average (GPA) between the two groups. In terms of ethnicity, gender, and year in school, chi-square analyses also revealed no significant differences between the groups. Although each section had a different lab instructor during the semester, for the two-week

intervention the instructor-coordinator of the course taught all of the sessions (both control and experimental).

All participants answered a demographics questionnaire including questions regarding gender, year in school, ethnicity, age, and GPA. As part of this questionnaire, the participants' dispositions and self-efficacy beliefs toward instructional planning were assessed. Following these initial measures, the instructor implemented the planning approach (see materials section) through presenting a sample lesson plan via PowerPoint slides that were identical for both the control and experimental groups.

For the experimental group, the same planning approach was implemented together with the IPSRT. This entailed that for errors in the plan, the instructor modeled checking the *no* checkbox when appropriate, indicating a stopping point in the reflection process and the need to stop and correct the instructional plan before continuing.

Following the implementation of the planning approach, all participants (control and experimental) were given an identical case study (see Table 2) and instructed to write an in-class instructional plan. Additionally, all participants were given an identical case study for which to write an instructional plan for homework. All students who were present completed the in-class assignment, and 79% of the participants completed the homework assignment. Neither the in-class nor the homework assignments were graded, and no feedback was provided. Students were not prompted to take notes. Next, all participants were notified that a quiz would be held during the next class session, and told that they would be required to write an instructional plan based on a case study that they would receive at that time.

The same quiz, which included a case study for which to write an instructional plan, was administered to both the experimental and control groups. For the quiz, the experimental group had the IPSRT attached to their quizzes while the control group did not. Following the quiz, all participants were asked about self-efficacy beliefs, perceived instrumentality, and disposition regarding lesson planning.

The control group's instructional plans from the quiz were xeroxed and returned to them. Next, a demonstration regarding use of the IPSRT was conducted for the control group students, and they were allowed to modify their xeroxed lesson plans using a red pen. Following their modifications to the quizzes, they were queried about their self-efficacy perceptions regarding writing future lesson plans.

Design and Data Analyses

The design of this study was quasi-experimental, given that different intact class sections were randomly assigned to either the experimental or the control group. Independent sample *t* tests were conducted to determine differences (e.g., posttest achievement, perceived instrumentality) between the two groups (experimental, control) and paired-sample *t* tests were conducted to determine differences within each group over time (e.g., disposition, self-efficacy).

RESULTS

Posttest Achievement (Quiz)

In terms of the effect of the IPSRT intervention on posttest achievement, the experimental group (M = 11.27) outperformed the control group (M = 9.32), $t(53) = -3.53$, $p < .001$. Note that the potential range of scores was 3–15 (1–5 for each of the three subscores). Additionally, the control group performed significantly better following the introduction of the IPSRT, $t(23)= 5.68$, $p < .0001$. On average, the mean score of the control group improved to M = 10.46, indicating that the average score increased by 12%.

Disposition

A *t* test was performed to determine initial differences between the control and experimental group regarding disposition toward instructional planning. There were no statistically significant differences between the two groups regarding their disposition about instructional planning initially. Following the intervention,

there were significant differences between the two groups $t(69) = -2.64$, $p < .01$. Specifically, participants in the control group ($M = -.094$) were somewhat negative toward instructional planning whereas the experimental group participants were more positive ($M = .41$), where the possible range of scores was from –1 (negative) to 0 (neutral) and 1 (positive). (See Table 3 for examples of objectives reflecting positive and negative disposition.)

Table 3 Frequencies of Positive and Negative Adjectives Regarding Instructional Planning for All Participants.

Adjective	*Frequency*
Organized	21
Helpful	20
Time-consuming	16
Tedious	9
Not helpful	8
Important	7
Useful	6
Long	4
Confusing	3
Drawn-out	3
Difficult	3
Boring	2
Pointless	2

Self-efficacy

A paired *t* test showed no significant differences between preservice teachers' self-efficacy beliefs before and after IPSRT intervention for the experimental group. Similarly for the control group, no significant differences in self-efficacy beliefs were found after they were presented with the IPSRT (following the quiz). Given this unexpected finding, we conducted further analyses to delineate specific trends between those initially high and low in self-efficacy following tool intervention. The mean score for self-efficacy regarding instructional planning for all participants following the intervention was $M = 80.35$, with a standard deviation of 15.37. Given this distribution, low self-efficacy was defined as scoring 70 or below ($n = 28$) and high self-efficacy beliefs as scoring above 80 ($n = 31$).

In the experimental group, those who had low self-efficacy ($n = 17$) regarding instructional planning prior to the intervention ($M = 60.67$) reported significantly higher self-efficacy beliefs regarding instructional planning ($M = 72.00$) immediately following the quiz, $t(14) = -3.52$, $p < .01$. In contrast, those who had high self-efficacy beliefs ($n = 15$) regarding instructional planning prior to the intervention ($M = 94.62$) reported significantly lower self-efficacy beliefs regarding instructional planning following the quiz ($M = 83.85$), $t(12) = 3.48$, $p < .01$.

Similar results were found with the control participants when the instructor demonstrated the IPSRT tool and students used it to modify their already-submitted quizzes. Of the control participants with low self-efficacy regarding instructional planning ($n = 11$), it was found that their self-efficacy beliefs significantly improved from the initial self-efficacy assessment ($M = 62.73$) to the final self-efficacy assessment following their presentation with the IPSRT tool ($M = 71.82$), $t(10) = -3.62$, $p < .01$. Of the control participants with high self-efficacy ($n = 16$), it was found that their self-efficacy beliefs significantly decreased from the initial self-efficacy measure ($M = 95.00$) to following their presentation with the tool ($M = 90.63$), $t(15) = 2.78$, $p < .01$.

A paired *t* test was conducted to determine if there were practice effects over time for the control participants' initial reports of self-efficacy beliefs with their self-efficacy beliefs following the third instructional plan (the quiz). It was shown that there were no significant differences in self-efficacy beliefs about instructional planning over time by the control group ($M = 82.5$ vs. $M = 83.13$), $t(31) = -.403$, $p = .69$.

An additional *t* test revealed differences in quiz performance between the low and high self-efficacy groups. Those with higher self-efficacy scored significantly higher on the quiz ($M = 13.18$) than those lower in self-efficacy ($M = 7.53$), $t(32) = -16.83$, $p < .000$.

Perceived Instrumentality

For perceived instrumentality, a measure of

utility value, the experimental group reported higher perceived instrumentality (M = 4.06) than the control group (M = 3.64) following the quiz $t(84) = -1.71$, $p < .10$. While this difference only approached significance, the difference in the means indicated that the experimental group participants viewed instructional planning as more important to them as future teachers than did the control group participants.

DISCUSSION

The results confirmed that the IPSRT improved preservice teachers' performance and disposition regarding instructional planning.

Findings showed that preservice teachers who were instructed to use the IPSRT scored higher (i.e., developed more effective instructional plans) on the posttest measure of achievement than did the control group participants. Baylor et al. (2001) found that the IPSRT is perceived as valuable by preservice teachers because it encourages them to self-monitor and subsequently to self-evaluate their performance. Consequently, given that both groups were instructed in a similar manner, we attribute the students' better performance on instructional planning to the self-monitoring and subsequent reflection of the IPSRT. Similarly, Schunk (1983) suggested that performance feedback (such as the IPSRT) provides individuals with information on how well they are performing. Studies conducted in other areas (e.g., writing, math achievement) have found that self-monitoring enhanced student achievement (e.g., Zimmerman & Kitsantas, 1999; Schunk, 1996). Although it was not a primary hypothesis, the value of the IPSRT for self-evaluation was indicated by the control group participants' improved scores on the posttest achievement.

The IPSRT positively affected preservice teachers' disposition regarding instructional planning. Specifically, following the intervention, the preservice teachers using the IPSRT tended to use more positive adjectives (e.g., "important," "helpful") to describe instructional planning than did their counterparts in the control group. In fact, the control group was slightly negative about instructional planning (e.g., using adjectives such as "time-consuming," "pointless"). Perhaps the IPSRT, by facilitating reflection and illuminating the underlying systematic process of instructional planning, elicited more positive disposition. Similarly, Driscoll, Klein, and Sherman (1994) found that preservice teachers taught to employ a systematic planning process expressed more enthusiasm about using these skills in the future.

The results regarding instructional planning self-efficacy were different from what was hypothesized. No significant differences emerged between the control and experimental groups following implementation of the IPSRT, which could be attributed to the fact that self-efficacy items only assessed globally rather than specific self-efficacy for each component of the instructional plan. Further analyses of self-efficacy showed that those participants who were initially high in self-efficacy reported significantly lower self-efficacy regarding instructional planning following the quiz. In contrast, those who were initially low in self-efficacy reported significantly higher self-efficacy regarding instructional planning following the quiz. In confirmation of these findings, similar results were found for the control group, who received the IPSRT at a later time. However, this should be interpreted with caution, given that it could be a result of regression to the mean.

These results may suggest that for the high self-efficacy group the IPSRT highlighted the complexity and comprehensiveness of instructional planning, thus leading these students to reevaluate their self-efficacy beliefs regarding instructional planning more negatively, or perhaps more realistically, following use of the IPSRT. On the other hand, the use of the IPSRT may be detrimental for high self-efficacy participants because it leads them to reduce their optimism about their instructional planning capability.

On the other hand, the low self-efficacy group participants reported significantly higher self-efficacy perceptions following the quiz. This suggests that those initially low in self-efficacy became more confident in their ability to write an instructional plan when given the IPSRT. With enhanced self-efficacy perceptions, it is expected that preservice teachers will be more like-

ly to engage in systematic instructional planning in the future. In support of this interpretation, Bandura (1986) proposes that self-efficacy beliefs influence the choices that individuals make, the effort that they expend, the perseverance they apply, and the emotional reactions they experience. Further, consistent with Bandura's (1997) theory of self-efficacy, the high self-efficacy participants performed better on the quiz than did low self-efficacy participants.

In terms of perceived instrumentality, or utility value, of instructional planning, results showed that instructional planning was perceived as more important to the experimental group than the control group although the difference between the groups was not significant. The tool enabled them to view instructional planning as a more substantive and significant part of instruction, and engendered more respect for the instructional planning process. Consequently, use of the IPSRT may increase the likelihood to change preservice teachers' disposition regarding the importance of instructional planning.

CONCLUSION

In the present study, self-regulatory processes such as self-monitoring and self-evaluation, promoted through the IPSRT, guided student learning, enhanced their performance, and improved their dispositions regarding instructional planning. In terms of self-efficacy, the IPSRT may have facilitated the high self-efficacy preservice teachers to realize the depth and complexity of instructional planning, whereas it may have facilitated the low self-efficacy preservice teachers to feel more competent.

In addition, the IPSRT promotes a reflective dialogue for the preservice teacher instructional planner, fulfilling the role of Moaellem's (1998) description of teacher reflection-in-action. Given that instructional design is a highly complex task that cannot be reduced to a set of procedures, this reflective dialogue is critical. These findings are important for instructors who must prepare their students to practice writing instructional plans effectively on their own.

Future research should examine the value of the IPSRT for more experienced teachers, and preservice teachers later in their academic careers. An additional question to investigate is if the IPSRT would expedite the instructional planning process. Follow-up structured interviews would be useful to determine the specific reasons for the changes in the existing self-efficacy beliefs of preservice teachers. In addition, longitudinal studies could examine if preservice teachers' instructional planning-related disposition and beliefs change once they enter the classroom. □

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