

The Constructivist Planning Self-Reflective Tool (CPSRT): Facilitating a Constructivist Instructional Planning Approach

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Abstract

Constructivist approaches to instructional planning are now widely used for instructional planning, yet there is limited support for guiding students in this area. This paper presents a new tool, the Constructivist Planning Self-Reflective Tool (CPSRT), that supports pre-service teachers using a constructivist lesson planning approach. Grounded both in social cognitive and constructivist theoretical perspectives, the CPSRT facilitates self-monitoring, self-evaluation, and organization from a self-regulatory perspective, and cognitive flexibility from a constructivist perspective. Use of the CPSRT has implications for enhancing the training of pre-service and in-service teachers in a constructivist approach to instructional planning.

The Constructivist Planning Self-Reflective Tool (CPSRT): Facilitating a Constructivist Instructional Planning Approach

In pre-service teacher education programs, there are two major models of instructional planning currently in use: systematic instructional planning models (e.g., Reiser & Dick, 1996), and constructivist approaches (e.g., Jonassen, 1991). While the traditional instructivist approaches support knowledge transmission from teacher to learner, constructivist approaches support learning through active construction of knowledge from the learner's experiences (Mayer, 1999). An effective constructivist learning environment must be open and flexible in nature to support individual differences in understanding and to simulate the complexities of the real world. From an epistemological perspective, constructivist approaches assume that acquiring knowledge should not be transmitted directly from teacher to student, but rather that it should be personally constructed by the student within the teacher-supported learning environment.

Further, in a constructivist approach the teacher's role shifts from dispenser of knowledge to facilitator of learning (Grabe & Grabe, 2001). The student's role is to be cognitively active and involved in the knowledge construction process. An important aspect in implementing a constructivist instructional plan is for the pre-service teacher to practice cognitive flexibility, which is a desirable characteristic for both the teacher and the student. Cognitive flexibility requires one to shift perspectives on a problem and consider multiple modes of learning in order to convey the inherent complexity in the knowledge domain (Driscoll, 2000; Spiro, Vispoel, Schmitz, Samarapungavan, & Boerger, 1987). Pre-service teachers need guidance in how to think more flexibly in order to shift their instructional role in the classroom, and to facilitate student knowledge construction.

Although there are explicit guidelines regarding implementation of the traditional models of instructional planning (e.g., models such as Reiser & Dick, 1996; or tools such as the IPSRT

(Baylor, Kitsantas & Chung, 2001), there are limited procedural guidelines for developing constructivist-oriented plans. Consequently, there is a need for more structured guidelines to assist pre-service teachers in the process of constructivist instructional design during self-directed practice.

To encourage self-directed deliberate practice, which is an important component for acquiring expertise (Ericsson & Charness, 1994), students need tools that promote self-regulation. This is important due to the ill-structuredness of constructivist instructional planning. Self-regulation refers to self-generated thoughts, actions, and feelings for attaining personal goals (Zimmerman, 2000). Two major processes of self-regulated learning are self-monitoring and self-evaluation which have been shown to predict achievement in various skills (Kitsantas & Zimmerman, 1998; Schunk, 1996; Zimmerman & Kitsantas, 1999). Self-monitoring includes observing, tracking and recording performance outcomes and self-evaluation includes self-judgment of one's internal standards of performance. These self-regulatory processes have also been shown to enhance systematic instructional planning, through use of tools such as the IPSRT, the Instructional Planning Self-Reflective Tool (Baylor, Kitsantas, & Chung, 2001). The purpose of this paper is to describe the Constructivist Planning Self-Reflective Tool (CPSRT), a self-regulatory tool that assists pre-service teachers in the development of a constructivist instructional plan.

Development, Description, and Implementation of CPSRT

The Constructivist Planning Self-Reflective Tool (CPSRT) was developed based on principles of self-regulated learning (Zimmerman, 2000) and constructivism (Jonassen, 1999). In terms of self-regulation, the CPSRT provides pre-service teachers with process goals that outline and facilitate self-monitoring and self-reflection of the elements involved in developing an instructional plan. From a constructivist point of view the CPSRT is designed to promote cognitive flexibility and idea generation given that designing constructivist learning environments requires

pre-service teachers to generate ideas for implementation, pull information together from several sources, and reflect on the process.

The CPSRT consists of a number of questions categorized in three phases: Before, During, and After instruction. See Figure 1 for the complete tool. The first phase, "Before," indicates what is to be done prior to implementing the instructional activities. It includes determining the instructional purpose, and defining the learning activities (for both required and desirable characteristics). For example, some of required characteristics for learning activities are as follows: "Do the activities integrate information with students' prior knowledge?"; "Do the activities require the student to be cognitively active?" Desirable characteristics include elements of the activity, such as whether it is multi-disciplinary, incorporates what-if questions, or involves cognitive conflict. The second phase, "During," indicates what elements are critical during the instruction from the perspectives of teacher and student. For example, the pre-service teacher is reminded that s/he should be facilitating the learning process and the student should be active in the learning process, gathering data, generating personal interpretation, and identifying sources of information. The third phase, "After," includes the assessment of instructional planning based on the initially-defined learning outcomes (in the "Before" phase). For example, the pre-service teacher is prompted to reflect whether the assessment evaluates critical thinking skills (assuming that critical thinking skills were specified initially as a goal of the instructional plan).

Overall, the CPSRT does not prescribe exactly what is needed to be included in the instructional plan, but rather what issues and elements of the plan the pre-service teacher should consider. It is intended to be figuratively a "menu" of ideas regarding constructivist planning rather than a procedural "recipe" such as the IPSRT, which was designed for systematic instructional planning (Baylor et al., 2001). Rather, the CPSRT was designed to support the creation of a "Learning Support Plan," rather than a traditional instructional plan. The yes/no format ensures the following: 1) that required characteristics of an effective constructivist plan are included (and that desirable characteristics are noted); and, 2) that the instructional purpose of the plan is reflected in the student activities and assessment.

For implementation, instructors of pre-service teachers should demonstrate and model the use of the CPRST by using a sample case scenario for which to design instruction. Pre-service teachers should be instructed to use the CPSRT as an idea generator. Instructors should also show pre-service teachers how to use the yes/no format to self-monitor and self-reflect through the constructivist planning process.

Initial Evaluation of the CPSRT

The CPSRT was tested with approximately 84 students in an introductory course in educational technology. As a preliminary measure to assess the value of the CPSRT, students were asked what, if anything, was helpful for them about using the tool for instructional planning. Answers were coded in terms of whether the student answer indicated value due to self-evaluation (yes or no), organization (yes or no), monitoring strategies (yes or no), and cognitive flexibility (yes or no). Thirty-eight percent of participants reported that the CPSRT was useful for monitoring, 38% reported it was useful for self-evaluation, 33% reported that it was useful for organization, and 31% reported that it was useful for cognitive flexibility. These results support the intended scope of the tool.

Instructional Implications of the CPSRT

While constructivist instructional planning designs are widely used, it is difficult for pre-service teachers to develop constructivist instructional planning skills. The CPSRT can be used by college instructors to guide pre-service teachers in selecting essential and desirable elements to include within constructivist instructional plans. Further, constructivist approaches require that the pre-service teacher use more cognitive flexibility in choosing the appropriate learning activities. In this way, the CPSRT could serve as a "menu," allowing the pre-service teacher to choose from a variety of constructivist possibilities, and to self-reflect whether they are appropriate.

References

- Baylor, A. L., Kitsantas, A., & Chung, H. (2001). The Instructional Planning Self-Reflective Tool (IPSRT): A Method for Promoting Effective Lesson Planning. Educational Technology, 41(2), 56-59.
- Driscoll, M. P. (2000). Psychology of Learning for Instruction: Allyn & Bacon.
- Ericsson, A. K., & Charness, N. (1994). Expert performance: Its structure and Acquisition. American Psychologist, 49, 725-747.
- Grabe, M., & Grabe, C. (2001). Integrating technology for meaningful learning (3rd ed.). Boston: Houghton Mifflin.
- Jonassen, D. (1999). Designing Constructivist Learning Environments. In C. M. Reigeluth (Ed.), Instructional-Design Theories and Models: A New Paradigm of Instructional Theory (Vol. II, pp. 215-239). Mahwah, NJ: Lawrence Earlbaum.
- Jonassen, D. H. (1991). Evaluating Constructivistic Learning. Educational Technology, 31(9), 28-33.
- Kitsantas, A., & Zimmerman, B. J. (1998). Self-regulation of motoric learning: A strategic cycle view. Journal of Applied Sport Psychology, 10, 220-239.
- Mayer, R. E. (1999). Designing Instruction for Constructivist Learning. In C. M. Reigeluth (Ed.), Instructional-Design Theories and Models: A New Paradigm of Instructional Theory (Vol. II, pp. 141-159). Mahwah, NJ: Lawrence Earlbaum.
- Reigeluth, C. M. (1999). What is Instructional-Design Theory and How Is It Changing? In C. M. Reigeluth (Ed.), Instructional-Design Theories and Models: A New Paradigm of Instructional Theory (Vol. II, pp. 5-29). Mahwah, NJ: Lawrence Earlbaum.

Reiser, R. A., & Dick, W. (1996). Instructional planning: A guide for teachers: Allyn and Bacon.

Schunk, D. H. (1996). Goal and self-evaluative influences during children's cognitive skill learning. American Educational Research Journal, 33, 359-382.

Spiro, R., Vispoel, W., Schmitz, J., Samarapungavan, A., & Boerger, A. (1987). Knowledge acquisition for application: Cognitive flexibility and transfer in complex content domains. In B. C. Britton (Ed.), Executive control processes. Hillsdale, NJ: Lawrence Earlbaum.

Zimmerman. (2000). Attaining self-regulation: A social cognitive perspective. In P. P. M. S. M. Boekaerts (Ed.), Self-Regulation: Theory, Research and Applications. Orlando, FL: Academic Press.

Zimmerman, B. J., & Kitsantas, A. (1999). Acquiring writing revision skill: Shifting from process to outcome self-regulatory goals. Journal of Educational Psychology, 91(2), 241-250.

Figure 1. CPSRT

Instructions: This learning support plan is divided into three phases: 1) before instruction; 2) during instruction; and 3) after instruction. It is recommended that you complete each phase sequentially. Following completion of each phase, check either the "yes" or "no" boxes as you reflect on your learning support plan. A check in the "yes" box indicates that that element is included within your learning support plan. If you answer "no" for any statement, that is an indication that you should modify your learning support plan accordingly.

PHASE	INSTRUCTIONAL PURPOSE
BEFORE	<p>Do the learning outcomes describe one or more of the following for the learner:</p> <ul style="list-style-type: none"> • Reasoning skills? <input type="checkbox"/> yes • Critical thinking? <input type="checkbox"/> yes • Retention? <input type="checkbox"/> yes • Understanding of multiple perspectives? <input type="checkbox"/> yes • Cognitive flexibility? <input type="checkbox"/> yes • Self-regulation? <input type="checkbox"/> yes • Reflection and/or self-awareness? <input type="checkbox"/> yes • Application? <input type="checkbox"/> yes <p>Are learning outcomes directed toward <u>useful personal knowledge</u>? <input type="checkbox"/>yes <input type="checkbox"/>no</p>
	<p><u>DEFINE LEARNING ACTIVITY(IES):</u></p> <p style="text-align: center;"><u>REQUIRED CHARACTERISTICS</u></p> <p>Do the activity(ies)</p> <ul style="list-style-type: none"> • fulfill the instructional purpose? <input type="checkbox"/> yes <input type="checkbox"/>no • require the student to be cognitively active? <input type="checkbox"/> yes <input type="checkbox"/>no • focus more on the learning <u>process</u> rather than specific knowledge? <input type="checkbox"/> yes <input type="checkbox"/>no • promote the personal interest of your students? <input type="checkbox"/> yes <input type="checkbox"/>no • integrate information with students' prior knowledge? <input type="checkbox"/> yes <input type="checkbox"/>no <p>Are the activity(ies):</p> <ul style="list-style-type: none"> • relevant <input type="checkbox"/> yes <input type="checkbox"/>no • meaningful <input type="checkbox"/> yes <input type="checkbox"/>no • and authentic <input type="checkbox"/> yes <input type="checkbox"/>no
	<p style="text-align: center;"><u>DESIRABLE CHARACTERISTICS</u></p> <p>Are the activity(ies):</p> <ul style="list-style-type: none"> • ill-structured tasks? <input type="checkbox"/> yes • complex? <input type="checkbox"/> yes • multi-disciplinary? <input type="checkbox"/> yes • including "What-If" questions? <input type="checkbox"/> yes • encouraging multiple perspectives? <input type="checkbox"/> yes • involving cognitive conflict? <input type="checkbox"/> yes • including discussion and/or collaboration? <input type="checkbox"/> yes • defined in part by the learner? <input type="checkbox"/> yes
	<p>Does the social environment for the activities:</p> <ul style="list-style-type: none"> • involve social negotiation and communication? <input type="checkbox"/> yes • involve the sharing of information and/or culture? <input type="checkbox"/> yes

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ROLE OF STUDENT

Are the students

- engaged and cognitively active? yes no
- taking responsibility for learning? yes no
- selecting appropriate strategies? yes no
- monitoring their progress? yes no
- self-evaluating? yes no
- reflecting on their performance? yes no

ROLE OF INSTRUCTOR

Is the instructor:

- helping the students to recognize appropriate prior knowledge? yes no
- facilitating learning rather than directly teaching? yes no
- guiding the students to achieve the task independently? yes no
- helping the students to develop connections between principles, theory, and real life? yes no
- encouraging student ownership of the process? yes no
- challenging the students' ideas when appropriate? yes no
- encouraging students to monitor their thinking? yes no
- facilitating students' learning through the process? yes no

If students are working in collaborative groups, then is the instructor facilitating the group work and encouraging interaction? yes no

If students are working independently, then is the instructor providing access to the information needed to complete the activity? yes no

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ASSESSMENT

Is the assessment directly linked to the instructional purpose? yes no

Does it involve some sort of performance by the learner? yes no

Does the assessment evaluate:

- Reasoning skills? yes
- Critical thinking? yes
- Retention? yes
- Understanding of multiple perspectives? yes
- Cognitive flexibility? yes
- Self regulation? yes
- Reflection and/or self-awareness? yes
- Application? yes