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# Two Ways to Teach: Direct Instruction and Indirect Instruction/Inquiry: Simplifying Planning Concepts for Early Career Teachers

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**Abstract**

This paper describes two planning diagrams that support pre-service and early career teachers' understanding of direct and indirect instructional approaches to teaching Conceptual models can support understanding of the embedded decision points that new teachers must address as they plan lessons. In this paper, we offer 2 models to support the understanding of pre-service and early career teachers with two conceptual diagrams that relate to lesson planning. One of these diagrams has been used for several years with pre-service teachers who have identified that this conceptual diagram has helped them understand planning concepts early in their planning experiences. This diagram demonstrates the phases of instruction used by experienced teachers when they plan for direct instruction. A body of prior research has been completed to demonstrate the existence of the main conceptions and relative times in the diagram as they are evident in teachers' practice and to identify how the diagram is perceived by pre-service teachers. The second diagram has been designed as a complimentary method of helping pre-service teachers understand concepts related to planning for indirect instruction involving various forms of inquiry.

**Keywords:** lesson planning, direct instruction, indirect instruction, inquiry, curriculum

## Introduction

The responsibility of teaching pre-service teachers effective lesson planning led to an interest in identifying commonly understood approaches that experienced teachers might use to plan their lessons. After considerable work in a variety of classrooms with teachers who were identified by their principals as strong teachers, efforts to capture their professional practice in diagram form were made to help pre-service teachers understand what experienced teachers do with consistency (Maynes & Scott, 2011a; Maynes & Julien-Schultz, 2011b; Maynes & Julien-Schultz, 2012). The resulting diagram has been used in a variety of formats over a number of years with both concurrent and consecutive program pre-service teachers. Further study of the impact of the original diagram on self-perceptions of pre-service teachers' competency with lesson planning showed that students who were taught with the diagram early in their lesson planning experience consistently pictured the diagram in their heads as they planned lessons to guide their planning decisions (Maynes & Julien-Schultz, 2012).

However, since the development of the original lesson planning model diagram in 2011, only oral variations have been used to represent the differences between the direct instruction approach that is the focus of the original diagram and the alternative indirect instructional approaches that pre-service teachers were also required to plan. In retrospect, that practice seems counterproductive and counterintuitive. If we could "draw" what strong teachers do when they use direct instructional methods in their classrooms, why couldn't we also "draw" a model for indirect instruction? We avoided doing this because the possibilities for indirect instructional approaches seemed limitless…and they are. However, each of these limitless approaches has many similarities in the instructional phases that teachers should use. It has become very evident that indirect instructional approaches (including such approaches as jigsaw strategies, inquiry approaches, and web quests for example), while varied in how the students engage ideas and resources, require similar planning conceptions to be understood by teachers.

Therefore, it is the purpose of this paper to present these visual models for both direct and indirect instruction, specifically to support planning for pre-service and early career teachers.

## Conceptual and Practical Framework Methodology

While many research papers present new data to support ideas and actions, some, such as this paper, explore concepts in an effort to support a position. In this paper, we use a combination of two frameworks to demonstrate how we use conceptual diagrams to show pre-service teachers how to plan lessons. One of these diagrams shows the curriculum conceptions involved in direct instruction, where teacher modeling is the main source of new learning. The second conceptual diagram shows the curriculum conceptions involved in indirect instruction, including inquiry. The two frameworks can be used together to show pre-service teachers how these two approaches to new learning are similar and how they differ. The efficacy of these conceptual frameworks is supported by previous research (Maynes & Scott, 2011a; Maynes & Julien-Schultz, 2011b; Maynes & Julien-Schultz, 2012) and our own reflective practice as experienced teachers and teacher educators, thereby supporting the

concepts in each framework with a broad range or research and depth of practical knowledge. The resulting diagrams are, therefore, the results of both conceptual and practical frameworks.

Eisenhart (2001) has provided a useful summary of the characteristics, advantages, and limitations of conceptual frameworks in relation to the psychology of mathematics education. In this work, Eisenhart describes a conceptual framework as a skeletal structure of justification, rather than an explanation or description of experience. In a conceptual framework, authors provide an argument for a point of view, leading to a generalizable overview of the concepts in each conceptual diagram. Ideas then serve as guides for future action and may reflect knowledge acquired from previous research and professional literature. According to Eisenhart (2001), adopted ideas may be developed from an array of current and far-ranging sources and may be based on various aspects of different theories and on practitioner knowledge as each becomes relevant. The resulting conceptual framework would then be timely, and reflect the current reality with the understanding that it must remain open to revision and reassembly as new knowledge is acquired and disseminated.

Conceptual frameworks have the advantage of being able to draw upon many perspectives and disciplines in their development, thus accommodating the perspectives of both those that exist inside the profession of teaching and those outside of the profession (e.g., parents, trustees, the public). Where conceptions can be defined and demonstrated in the context of their use, validity of the concepts is affirmed. A conceptual framework can also be used to address problems that are sensitive, useful, and timely.

While conceptual frameworks may stand alone, we will combine both theoretical frameworks and practical knowledge to support the concepts that we will present about lesson planning in a pre-service context. Theoretical frameworks rely on formal theory and use new data to confirm, extend, or revise a theory. In this way, theoretical frameworks are characterized by the same malleability as conceptual frameworks. Theoretical frameworks are useful to the extent that they legitimize academic work without constraining it. On the other hand, practical frameworks focus on the search for improvements in practice and have a “what works” (Scriven, 1986) filter for framework strength. Research related to practical frameworks generally focuses on the search for solutions that have payoff for practitioners and accentuate the accumulated practical knowledge of practitioners, including the researchers and others who may inform the practice. To develop practical frameworks, the focus is on the conventional wisdom of stakeholders and seeks to extend, support, revise, and enrich practice. Scriven (1986) refers to this as an “exportable formula” (p. 59).

Practical frameworks also have some pitfalls as structures for framing new ideas. These frameworks can limit new understanding by leading researchers to describe new understandings in terms of pre-existing knowledge, rather than leading to the extension of knowledge which may require discarding, revising, or enriching an existing framework. Practical frameworks are also heavily bound by context. What such frameworks propose for one context may not be applicable in another. In the use of practical frameworks, researchers must also examine their own assumptions and biases and make these evident in their work.

To develop the frameworks that are presented in this paper, conceptual and theoretical frameworks have been applied and have been informed by common curriculum theory and practical knowledge. In order to communicate our vision for using conceptual and theoretical diagrams to teach the skill of lesson planning using direct and indirect instruction, we present two diagrams (or models).In developing these diagrams, we subjected them to the four requirements for a conceptual diagram as identified by Strauss and Corbin (1990). These requirements include ensuring: 1) the fit between thediagram and conceptions of planning include evolution from diverse data and adherence to the common universal reality of experienced by teachers; 2) the ability of the diagrams to support understanding of these concepts for teachers; 3) the applicability of the conceptualizations in these diagrams to broad contexts; and 4) the potential of these diagrams to provide direction about their applicability and to support future action related to teachers' planning decisions.

**Lesson Planning as a Professional Teaching Skill**

Lesson planning is among the many new skills that are taught to pre-service teachers in faculty of education programs. To support planning in one northern Ontario Faculty of Education, the faculty has developed a lesson planning template that pre-service teachers must complete for each lesson throughout their program. A careful examination of the template, however, reveals that pre-service teachers (and their instructors) must have a thorough understanding of 63 underlying curriculum concepts to be able to complete the template for lesson planning with any credible sophistication. Personal experience over the past ten years has led me to two conclusions:

1. Pre-service teachers need approximately 12 hours of curriculum instruction to help them develop some understanding of the embedded curriculum concepts in the planning template to support successful planning using it; and

2. Pre-service teachers find it very helpful to recall and use a conceptual diagram to guide their planning using the template (Maynes&Julien-Schultz, 2012).

Conceptual diagrams (sometimes referred to as graphic organizers) provide visual representations of concepts. They can represent very complex interrelations of ideas. Such conceptual diagrams provide cognitive structures that support learners'ability to relate ideas and support critical thinking and higher levels of cognition (Johnson, 1990; Mayer, 1989). Holley and Dansereau (1984) explain that concepts may be more easily learned if they are presented in a non-linear fashion, as might be supported by a diagram to depict the elements of lesson planning and delivery. The use of diagrammatic depictions to support comprehension has its origins in schema theory (Axelrod, 1973; Darch & Carnine, 1986). The use of graphic organizers and diagrams has been found to increase achievement of learning goals by 27 percent (Marzanno et al., 2001) and has been described as a high-impact instruction strategy because of the effectiveness as measured by increases in students' learning.

Schema theory (Axelrod, 1973) holds that a highly accessible schema, as provided in graphic visuals, is checked for understanding before a less accessible schema (i.e., a lessonplanning

template) is attempted. That is, graphic organizers and diagrams are much more accessible than the linear template. Pre-service teachers can retrieve their understanding and the relationships among instructional ideas more readily when they have a complex graphic representation of these ideas. Indeed, previous research in this area has shown us that pre-service teachers claim that they "see" the diagram for planning that they have been taught in their heads as they sit down to start planning a lesson (Maynes & Julien-Schultz, 2012).

Visual graphics provide access to the thinking embedded in both direct and indirect modes of instruction; they provide schema that allow teacher candidates to conceptualize a concurrent breadth of information about their professional roles related to planning and instruction. If the graphics are known to work for this purpose, teacher candidates should develop more confidence in their ability to apply the general visuals (schema) across contexts. Complex schema also reduce memory requirements because teacher candidates are able to interpret separate bits of information about a current lesson in terms of the parameters of the general schema of the organizers, as consistent with schema theory.

The credibility of the planning diagrams should be enhanced when pre-service teachers are able to apply them to many lesson instances so they can align and generalize the graphic representations. When they understand each new lesson plan and its complex elements by aligning their plan with the graphics, teacher candidates can make connections among the elements of planning, teaching, and assessing learning.

As in the theory of schema use, teacher candidates should see the graphics as readily adaptable if they support their interpretation of the needs for a lesson plan or its delivery. For example, a pre-service teacher might decide that the consolidation time for a specific learning expectation needs to be greater than the diagrams indicate visually. Alternatively, a thorough understanding of such conceptual diagrams should allow pre-service teachers to adapt a prescribed planning template to an alternative teaching assignment (e.g., a play-based Kindergarten context) with minor variations. The planning graphics that will be presented here readily allow for such adaptation to specific cases.

Schema theory also holds that a common error in recalling an experience is to recall the part that is compatible with the existing schema and to forget or discard the part that does not fit(Axelrod, 1973). By providing teacher candidates with planning diagrams for both direct and indirect instruction in an accessible, visual format, we theorize that pre-service teachers have fewer opportunities to reduce their schema to more simplistic boundaries and must explore the lesson's complex nature more thoroughly.

Finally, each pre-service teacher's cognitive style may be reflected in the value he or she sees in the planning diagrams. In the course context where these visual organizers are used, verbal support is also provided for learning the same skills. By making use of the diagrams to support the verbal instruction, each pre-service teacher's cognitive style is supported (Mayer &Massa, 2003).

Using this rationale, we designed the two conceptual diagrams (Figures 1 and 2) to help pre-service and early career teachers understand the complexities of lesson planning, teaching,

and assessment concepts. The use of these diagrams is supported by previous research into the impact of graphic organizers on the users' ability to relate and retain knowledge and differentiate among the key concepts (in this case, the phases of instruction) and related concepts (in this case, aspects of support and assessment that should be available to learners as they engage each phase of instruction) (Hall et al., 1999).

**A Conceptual and Practical Framework for Direct Instruction Lesson Planning**

In our work to develop conceptually useful diagrams to support planning for lessons, we first considered our basic assumptions about how we, as experienced teachers and teacher educators, decided upon how we would teach to achieve any particular learning goal. There are many curriculum texts (See for example Oliva & Gordon, 2013) that provide detailed breakdowns of the various curriculum concepts that teachers are taught in professional preparation programs at both undergraduate and graduate levels. To simplify these ideas, we considered a three-part breakdown of the learning expectations that seemed most relevant at the lesson planning stage. For our purposes, we considered learning expectations to be classifiable into: 1) knowledge; 2) skills; or 3) affect (including attitudes, beliefs, and values). Next we determined how we would be most likely to attempt to teach each category of learning expectation. The results of these deliberations are represented in Figure 1.

| Is it knowledge? | Is it a skill? | Is it an attitude/belief/value? |
|---|---|---|
| • lead its discovery (23% increase in learning through cooperative learning structures/ approaches)<br>• name it<br>• deconstruct it using graphic organizers (27% increase in learning)<br>• compare it (45% increase in learning)<br>• isolate big ideas/ enduring understandings (34% increase in learning)<br>• connect it to its current relevance | • model it<br>• extract a procedure for the skill<br>• consolidate it in similar practice contexts (28% increase in learning)<br>• give timely, specific feedback during practice (23% increase in learning)<br>• expand it<br>• give further feedback<br>• embed it in a problem-solving context<br>• teach criteria and standards (29% increase in learning)<br>• produce a product that demonstrates mastery of the skill | • model it by example<br>• explore perspectives<br>• engage students in deep discussions<br>• provide further exposure to the attitude/belief/value<br>• reward the appropriate direction for development of universally recognized values (29% increase in learning) |

Source for impact effects: Marzano, R., Pickering, D., & Pollock, J. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement.* Association for Supervision and Curriculum Development (ASCD). Alexandria: VA.

Figure 1. How do I teach it?

The next step was to show pre-service teachers how this would look in diagram form so they could develop visual conceptions of the differences between using direct instruction to teach a skill, indirect instruction to teach knowledge, or a combination to influence attitudes, beliefs and values.

**The Conceptual Planning Diagrams**

Previous writing has provided a diagram for direct instruction (Maynes& Scott, 2011; Maynes & Julien-Schultz, 2012). This diagram was developed as a result of watching professional and experienced teachers who were identified by their principals as being strong teachers. When we examined the time that they spent on various parts of the instruction they used to teach new skills, we found that teachers across grade levels seemed to use the same relative proportion of time modeling the new learning and the same relative sequence of steps to consolidate and apply new skills after the modeling. Following that research, we met with the teachers who had been observed and showed them the diagram that we felt represented the professional practices we had observed in their classes. There was strong agreement from

these teachers and their principals that this diagram captured their instructional decisions adequately and would likely help them in their own future practice as well. The diagram is presented here as Figure 2.

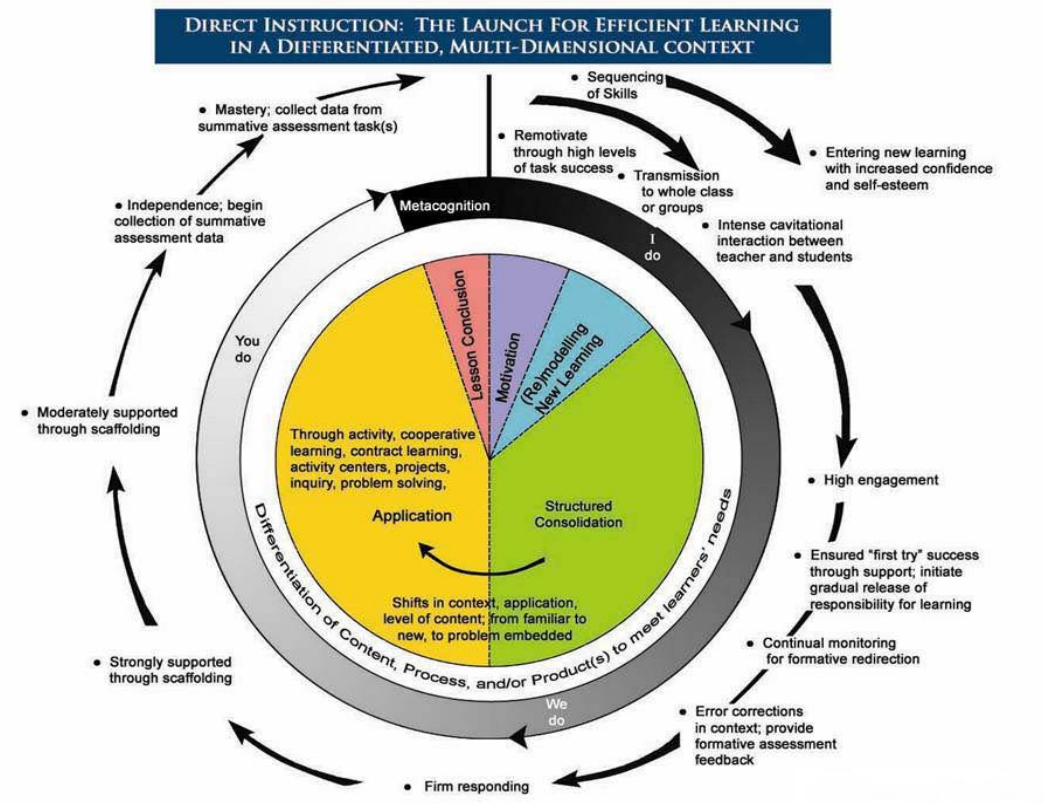


Figure 2. Phases of Direct Instruction

Embedded in this diagram is much of the current research of curriculum theorists (for example: Newton et al., 2012; Fisher & Frey, 2010; Tomlinson, 2001).During a five year span following this diagram's development and introduction to pre-service teachers, it has consistently been adapted verbally to explain how to write lesson plans using indirect instruction if the pre-service teacher decided that the learning expectation was directing them to teach knowledge. Pre-service teacher educators will recognize that showing novice teachers how to teach knowledge can be challenging. It involves developing their understanding that teaching is not telling, which can be difficult for them to grasp coming from several years of undergraduate work where lectures (teaching as telling) were the main source of knowledge transfer. To adapt Figure 1 verbally, acetate models of the diagram were made, cut into wedges, and pre-service teachers were asked to remove the wedge labeled "modeling" and explain how they would teach a lesson that did not involve modeling. This approach was generally successful but possibly because these groups of students were thereafter taught more about using inquiry, web quests, and activity centers as instructional strategies.

However, we are now seeing a renewed emphasis on inquiry as an indirect instructional

approach enriched with students' easy access to online sources of information for knowledge acquisition, co-investigation, sharing, and dissemination (Kuklthau et al., 2007).This provided an incentive to consider how the original direct instruction diagram could be adapted visually to display the phases of indirect instruction to help strengthen the pre-service teachers' conceptions of how to plan for teaching their students new knowledge without relying on a 'teaching as telling' paradigm. The resulting diagram is shown in Figure 3.

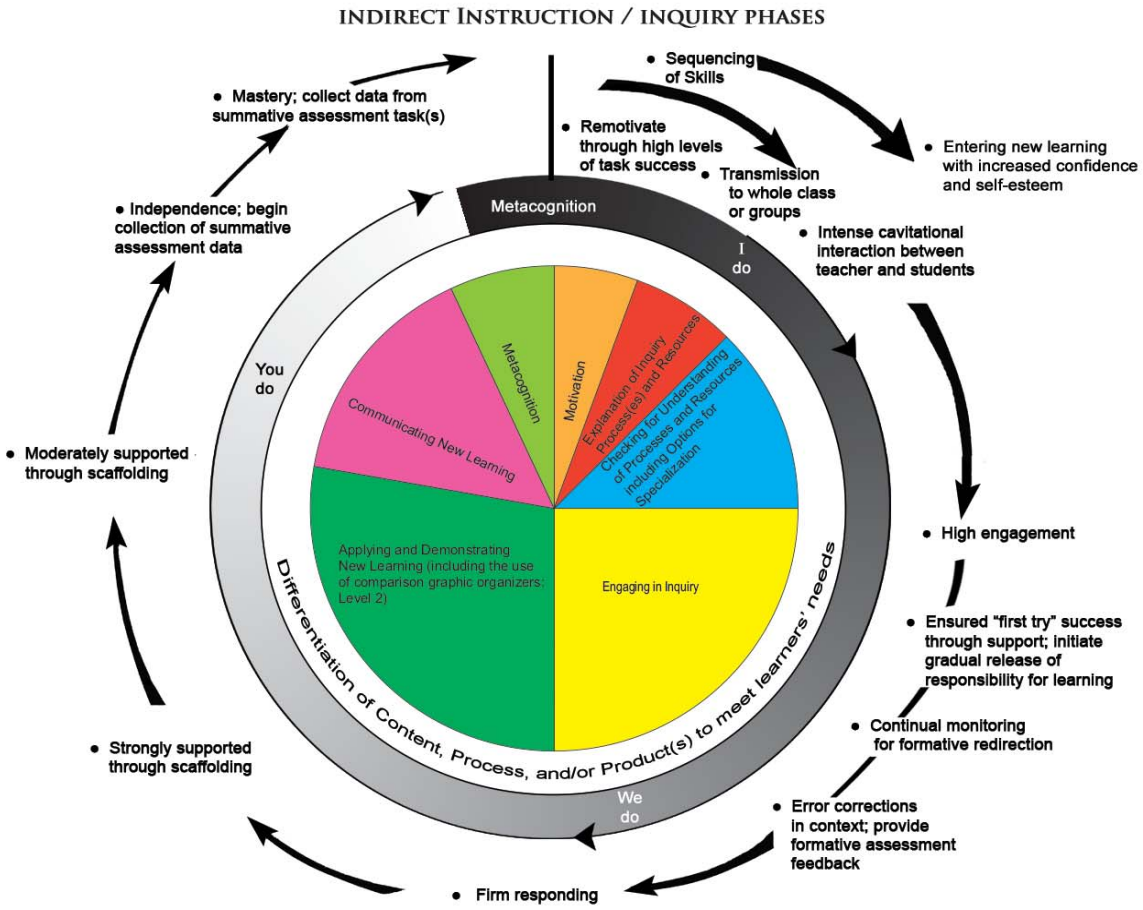


Figure 3. Phases of Indirect Instruction

As strong believers in the value of hands-on learning that engages minds and bodies of learners simultaneously, we once again printed this second diagram on acetate and cut out the coloured wedges and have pre-service teachers reassemble the circles so they can concomitantly develop instructional language as they consider concepts related to their teaching.

## Discussion

We recognize that not all learners are strongly visual in their approach to learning new ideas (Gardner, 1995).However, our previous research has shown clearly that pre-service teachers overwhelmingly found value in having a visual model for direct instruction to support their understanding of how to use a linear lesson planning template. Based on that research, it is logical to assume that they would also find it helpful to have a diagram to support their

planning for indirect instruction. Figures 1 to 3 in this paper have been designed to support this need to strengthen conceptual and theoretical understanding of curriculum concepts as pre-service teachers address lesson planning tasks.

As we continue to address the needs of millennial teachers who may rely more strategically on online sources of knowledge for their classroom resources, it may help them understand how to follow up on their students' acquisition of new knowledge if they have a visual context for the phases of instruction that should follow the simple acquisition of new knowledge. These diagrams should help pre-service teachers guide their students to consolidate and apply new knowledge after it is acquired.

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