

Lesson Planning and Preservice Teachers: A Model for Implementing Research-Based Instructional Strategies

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Out of more than 500 presentations at a recent national conferences for teacher educators, none addressed lesson planning. The focus was on teacher shortages, technology, assessment and accountability. However, the basic pedagogical elements have never been more important than now, when our profession is under scrutiny from politicians, parents and the public at large. Understanding by future teachers of what they are teaching, how they are going to teach it and how they're going to know their students learned it is the basic building block of our profession just as the scientific method is to science. We as teacher educators need to look at the lesson planning frameworks we are teaching our students in light of current research.

When preservice teachers begin their field experiences, they usually meet with their cooperating teachers to examine the overall curriculum to be taught. This curriculum is found in the district's grade level curriculum guides or textbooks and is typically arranged by teachers into units of instruction, scheduled for specific time periods during the year. Unit content is then divided into individual lessons containing specific objectives, learning experiences and assessment/evaluation strategies.

These individual lessons are arranged in one of two types of lesson plans: 1) longer or detailed descriptions of a lesson and 2) shorter planbook-style lesson descriptions. The purpose of this article is to discuss a framework for writing forty minute lesson plans, based on current research, and providing the necessary details to guide beginning teachers.

It is our belief that beginning teachers, like beginning physicians, need to learn about good practice by initially following detailed procedures and before adopting "short cuts." Who would want a surgeon to use a "short cut" to take out an appendix upon his or her first attempt? This procedure includes what the author considers to be the key elements of planning, including instructional strategies that should be part of every preservice teacher's repertoire. Following is a description of these elements and strategies:

1. Planning: Identify a Topic From the Core Content Curriculum Standards

Preservice students should begin by selecting subject area topics from textbooks and curriculum guides aligned with the New Jersey Core Content Curriculum Standards.

A standard refers to a level of performance of a knowledge or skill. In New Jersey, the first language arts standard is **3.1: “All students will understand and apply the knowledge of sounds, letters and words to become independent and fluent readers and will read a variety of materials with fluency and comprehension.”** However, the specific indicators or CPI’s (Cumulative Progress Indicators) for each standard are found under each grade level. In fourth grade for example, **LA 3.1G 11 states: “Recognizes literary elements in stories, including setting, characters, plot and mood.”** These (CPI’s) indicators, also referred to as “benchmarks,” are content standards that are presented as specific statements of what students should understand and be able to do at a particular grade level.

An important pedagogical distinction in understanding statewide standards is awareness of the difference between content and procedural standards. Content standards include those concepts, ideas, and issues students should know about in each discipline. However, procedural standards are concerned with the use of lower and higher order skills and procedures applied through a set of steps.

For example, procedural standards in math involve problem-solving, writing to explain how the answer was determined, and comparing the four basic arithmetic operations. In language arts, students must speak and write for varied purposes, critically analyze text, synthesize information, predict and reach conclusions. In science, students must form hypotheses, plan experiments, compare objects and analyze data. In social studies they must analyze varied viewpoints, compare locations and assess public issues.

2. Objectives: Create Lower and Higher Order Goals Related to Student Tasks

An objective is a description of a student learning outcome (Price, 1999), and one objective should be written for selected elements within the lesson plan such as: Questions, Practice (Skills) , and Create (Performance Tasks). Bloom’s Taxonomy is used to guide the writing of objectives to ensure that there are a variety of lower and higher order student learning experiences.

Objectives are written in the following style: “The students will be able to…” The next word that follows is a verb that not only identifies the student behavior but the level of thinking that will occur. Using Bloom’s Taxonomy and the topic “The Bill of Rights” as an example, some of the objectives might be: The students will be able to…

- recall when the Bill of Rights was passed
- describe which rights are protected in the Bill of Rights
- apply one of the Rights to their own lives
- analyze supreme court cases and describe what their decision would be
- predict what life might be like without the Bill of Rights
- construct a poster showing pictures and phrases representing three amendments
- judge which amendment is most important and why

Preservice students who write their objectives before writing the student learning

experiences, should remember to go back to the objectives when creating the student tasks and check to see that they are aligned. Both the objectives and the learning activities can be modified as new and deeper ideas are developed.

3. Motivate: Identify a Concept Within the Topic That Connects to Prior Knowledge

It is critical that preservice teachers learn the importance of beginning lessons by finding a link or connection between the topic under study, and student's prior knowledge and experiences. This connection, often known as an "advance organizer" or "anticipatory set" is made easier when a meaningful concept within the topic is identified and related to what the students already know. As Jon Saphier (1997) states: "Learning is constructed as children assimilate new experiences with prior knowledge." Within a forty minute lesson, the "Motivate" section is usually three to five minutes long.

When preservice teachers find a creative way to connect a core concept to students' prior knowledge, the brain opens up, sees meaning and is ready to place incoming information into long-term memory. The brain is continuously trying to make sense out of incoming information and experiences. As a result, one of the most brain-incompatible statements teachers can make is: "Open your science books to page 37." There is no connection to prior knowledge of a concept and the brain perceives no meaning. Studies show that pupils who connect new knowledge to prior knowledge are much more likely to retain the new knowledge in an organized fashion (Feden, 1993)

Therefore, when studying Butterfly Migration (Topic), preservice teachers can select the concept of "Migrating" and connect it to student prior knowledge by **asking questions related to student's personal experiences**: Has anyone ever moved? Where have you moved from? Why do people move? Similarly, the topic of South Africa can be studied by discussing the concepts of equality and inequality in their own lives. To the extent that teachers moderately "bump up" emotions, the brain fully attends.

As a rule, one topic and one concept are introduced and studied in one lesson. The idea is to avoid attempting to "cover" information and instead promote greater student understanding by going into more depth. As a result, preservice teachers "uncover" a concept and avoid superficial "coverage." As Howard Gardner (1999) has stated, "Coverage is the enemy of comprehension."

4. Image: Creating a Visualization of the Concept Under Study

Research has consistently shown that teachers most often present new knowledge through a linguistic mode. They either read or talk to students about new content. Yet, studies show that when teachers help students create visual (nonlinguistic representations), the effects on achievement are strong (Marzano, 2001). A variety of different types of visualization strategies helps students "elaborate" or add to their knowledge, thereby promoting a deeper understanding of what they are learning. As humans, we once thought through pictures long before we thought through words. There

is truth to the saying: “one picture is worth a thousand words.” Preservice teachers should use as many visual aids within a lesson as possible. Within a forty minute lesson plan, it is recommended that approximately 5 to 8 minutes be allotted for creating a visualization, with a follow-up discussion. Among the visualization techniques to use are 1) **guided imagery** (Bagley, 1993), where students are taken on a journey in their minds. Also, 2) **graphic organizers** (Jacobson, 1999), help children organize, interpret and understand content. A graphic organizer such as a story board might contain six rectangles, allowing the student to write or draw pictures of the correct sequence of events in a story. Similarly, the five steps involved in the scientific method can be written in the appropriate boxes. Finally, 3) **pictures, drawings and short video clips** (e.g., “Free Willy” when studying Whales or “Backdraft” for Fire Safety) are effective when representing knowledge in non-linguistic ways.

5. Teach: Convey Expert Knowledge to the Students

Preservice teachers can present information in either a “deductive” or an “inductive” manner. For example, when teaching about “air and air flow,” a “deductive” approach involves the explicit presentation of basic principles of air flow, such as the Bernoulli Theories, and encourages the students to make predictions.

An inductive approach to teaching “air flow,” however, would encourage the students to discover principles about air flow by first reading or conducting experiments, and then making predictions. Therefore, the preservice teacher directly conveys expert knowledge within a deductive approach, and when teaching inductively, “sets the stage” and allows students to self-discover. While both approaches are effective in producing learning, studies tend to conclude that deductive approaches produce higher test scores (Marzano, 2001). Yet inductive approaches tend to increase student motivation and learning and lead to more positive student dispositions.

Approximately 10 to 15 minutes of the lesson is spent conveying expert information to the students in an interactive fashion. One of the best ways of “deductively” conveying important knowledge is by reading selected parts of a good non-fiction, information book. Further, the preservice teacher can use the chalkboard, overhead transparency, or power point to convey three to five major points linked to the concept under study.

This latter technique, known as “interactive lecturing” or a “participatory lecturette,” (Feden, 1993) is a 10 to 15 minute lecture, interspersed with questions and brief student discussions. The teacher intermittently asks low and higher order questions and asks students to turn to a “Think, Pair, Share” partner to discuss the question for a period of one or two minutes before asking for responses.

6. Ask Lower and Higher Order Questions

Lower and higher-order questions (McTighe 1988) should be asked by preservice teachers following the presentation of information. The questioning section of a 40

minute lesson can take about eight to ten minutes. Lower order questions check for student recall and descriptions of correct facts, dates, definitions and events. Higher order questions, however, encourage students to think of all the possibilities. There is usually more than one correct answer. Students think more deeply, and therefore, better understand and remember content. True thinking is done when the answer is not known. Many examples of lower and higher order questions can be found in the book, Suppose the Wolf Was an Octopus (Bagley, 1995).

The students' responses to higher order questions demonstrate one or more of the following behaviors: 1) apply information learned to their own experiences, 2) compare concepts with ideas and objects known to them, and 3) predict or create new ideas or solutions to a problem and 4) make personal judgments. Lower level questions are important and the content from such questions forms the foundation for higher order thinking. However, **studies show that higher order questions, where students have to apply, compare, conclude, predict, create and judge, produce deeper learning than lower level questions** (Marzano, 2001).

Preservice teachers can use a variety of guided discussion strategies when asking higher order questions and eliciting responses from students. In fact, the way a teacher answers a question may be more important than the question. Every time a student answers or does not answer a question, a teacher does something. These responses set a tone which determines if students feel comfortable and are willing to talk without fear of criticism.

First, preservice teachers should slow down the pace of their teaching. If educators want students to think, they have to slow their pace. They also use "wait time" (Saphier, 1997), a pause of 5 to 7 seconds to allow students time to think. While waiting, teachers can look for non-verbal cues from students who want to speak but may be reluctant; these cues include making eye contact with the teacher, taking a deep breath and putting fingers to the mouth. The teacher calls on as many children as possible and encourages them to generate numerous possible responses.

More challenging for preservice teachers is "**scaffolding**" (Berk, 1995), e.g., using guided discussion strategies to assist students in thinking more deeply about the topic. Extending student thinking occurs after a question is asked and the teacher follows-up with additional questions: "Can you tell me more? Can you give me an example? Who agrees with Cindy? Who disagrees? Why? Who can summarize the most important thing said?" Vygotsky's (Berk, 1995) work reminds us of the intellectual growth which occurs in students when teachers engage in this type of follow-up questioning and social interaction.

7. Practice: Allow Students to Practice Specific Reading, Writing and Math Skills

During the practice phase of the lesson, preservice teachers implement assignments that focus on the development of specific skills, usually in the areas of language arts and math. In a lesson dealing with either social studies or science content,

the “practice” section allows for integration of language arts and math skills. Reading and writing skills, ranging from letter identification and vocabulary development to main idea and writing to summarize, inform or persuade, are taught through structured assignments, as are skills such as retelling, comparing, note taking and problem solving.

In math, calculations and word problems may be assigned from textbooks or worksheets. Students can be placed into cooperative learning groups (Silberman, 1996) and practice their knowledge of content through review and question/answers. Also, music and art activities can be included as practice tasks. In a forty minute lesson, the practice section takes ten to twelve minutes.

8. Create: Write and Evaluate a Performance Task and Rubric for Assessment

The **performance task** is the concluding part of the lesson. More time will be needed beyond the forty minutes in order to complete this “real world,” integrated learning experience, which is related to one or more standard indicators. The task is part of a performance assessment model (Wiggins and McTighe, 1998) wherein students demonstrate the extent to which they can apply the knowledge and skills previously taught. The task is “real world” or authentic in that it includes knowledge and skills needed for success outside of schools. Therefore, students write books and letters, create posters, newsletters, want-ads and advertisements, just as people do in the “real world.”

Preservice teachers need to use **rubrics**, or scoring guides to evaluate the quality of completed performance tasks. A rubric is a rating scale consisting of pre-established performance criteria (Parkay, 2003). Often the rubric is shown to students at the beginning of a lesson or unit of study. The criteria identify what the student’s work must include in order to receive a letter grade.

There are two types of rubrics. A “holistic rubric” allows teachers to score the student’s work as a whole, and the rubric is used by all teachers in a school for a specific purpose, such as scoring a “persuasive essay.” An “analytic rubric,” however, such as the one shown below, requires a teacher to score individual parts of the task. Analytic rubrics are created for specific performance tasks within lessons and units of study.

In the example below, fourth grade students, who were taught a lesson on “animal adaptation in a habitat,” are given a “real world” performance task. Note how the task is linked to a New Jersey core content curriculum standard indicator (CPI). The analytic rubric for evaluating the task follows, in a table format:

“Pretend you are an author who works for a book publishing company. You are asked to write a book about an animal that is taken from its home and has to travel through different habitats to find his way back. Through the animal’s eyes write and illustrate why each habitat it travels through is not suitable. When the animal finds its way back home have the animal explain why it feels protected again.

(Standards : Science 5.5A2: Animal Adaptations; LA 3.2D1 Writes for the purpose of informing.)

Rubric for Evaluating the Performance Task:

Category	Needs Work = 1	Satisfactory = 2	Proficient = 3
Understands content	Inaccurate information about the inappropriateness and appropriateness of each habitat.	Mostly accurate information about the inappropriateness and appropriateness of each habitat.	Very accurate information about the inappropriateness and appropriateness of each habitat.
Originality	Lacks a clear and original story line about animal adaptations	Shows a somewhat clear and original story line about animal adaptations.	Shows a clear and original story line about animal adaptations.
Sentence Structure	Few clear and complete sentences.	Mostly clear and complete sentences.	Clear and complete sentences.
Spelling	Few words spelled correctly.	Mostly correct spelling.	Correct spelling.

Additional Features of the Lesson Plan

Closure

Lesson closure occurs when students summarize what was learned in a lesson or unit of study. Closure can be initiated by the preservice teacher who might ask students to summarize the main points of study, or students can reach closure by completing a performance task and making an oral presentation to the class.

Accommodations for Special Needs Students

One of the most challenging areas for preservice students is accommodating children with special needs. Accommodation’s need to be planned for “gray area” children (Goodman, 1994) whose reading and writing abilities are not functioning at the appropriate grade level. These are children who have difficulty paying attention, work at a slower speed and may lack social skills as well. Accommodations consist of the teacher’s plans for meeting the individual needs of students through modifications of the learning experience planned for the entire class. Examples of these accommodations include assigning a smaller amount of work, using a graphic organizer, or a tape recorder.

However, within the lesson plan format described herein, all the students receive instruction in the first four elements of the lesson, i.e., all are “motivated,” all are given a

chance to “visualize” the concept, all are exposed to “expert knowledge,” and everyone has the opportunity to respond to a variety of lower and higher order questions. When the teacher plans the “practice tasks” and the “performance tasks,” differentiated assignments are created for those children who might be frustrated with the task planned for the majority of the students (Mercer, 2001).

Conclusion

These elements of lesson planning serve as a guide for preservice teachers to use good pedagogy in the classroom. Once they have an understanding of these elements and integrate them into their everyday practice, they will then be ready for planning “short cuts.” These elements make teaching more conscious and purposeful. Preservice teachers will be able to articulate what they do and why they do it to colleagues, parents and the public. Cooperating Teachers and Supervisors will be better able to provide feedback on specific elements taught during formal observations. In a few short years, today’s preservice students will be teaching other novices how to develop these same planning and teaching skills.

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