

## CHAPTER 4 – DEVELOPMENT OF A REFLEXIVE TEACHING MODEL

This chapter documents the development of a teaching model for ID instruction, beginning with a description of my participation in the course as a student during the Fall 1992 semester. Since the instructional approach treats both teacher and student as co-participatory, an account of my student involvement begins this chapter and describes my continuing engagement in the learning of instructional design by teaching instructional design. This account is followed by a description of six cases of ID instruction (1994-1998), in which I assisted with the course.

For each of the six cases, the documentation of the teaching model was reported in terms of the design and development cycle: design decisions, implementation, and evaluation. The needs assessment and subsequent design decisions, based on the teaching model, were reported by describing (1) participants, (2) learning tasks, (3) course sequence, (4) assessment, and (5) instructional materials. Analysis of the implementation of the model for each case was reported by describing student performance and feedback on instruction and instructor's assistance during (1) ID context activities, (2) ID process instruction, and (3) draft ID projects. Summative evaluation of the teaching model was reported on the basis of summarizing (1) student performance on the ID project, (2) students' self-perceptions of their learning, and (3) instructor responsivity to student needs. Chapter 4 concludes with a section that summarizes changes in the design decisions, model implementation, and model evaluation over the six cases.

### Student View of Instructional Approach, Fall, 1992

#### Course Features and Instruction

The syllabus for the Fall, 1992 instructional design course laid out a 15-week semester sequence beginning with a series of activities that set the context for an overview of an 8-phase ID process. The course's principal learning task was ID project. Over the semester students submitted drafts of ID components, received feedback from the instructor, revised draft work, and submitted a final ID project. Each week groups of students were given class time to discuss their projects. Additional learning tasks included a personal ID model, teaching presentation, mid-term exam, and a written self-evaluation of their learning and the course. Instructional materials included Seels and Glasgow (1990) and handouts.

#### Student Performance

For my ID project I re-designed a semester-long undergraduate management science course on the use of expert systems to solve business problems. I had taken the course (MSCI 4444: Decision Support Systems) during the Fall of 1990 as a requirement in my undergraduate business major and had produced three products that later became useful in the ID project's needs assessment: (a) notes on course content, sequence, and instruction, which were used to develop a (b) prototype of a hypermedia presentation of selected course content; and a (c) a study guide to supplement the text (Lauriere, 1989). Additional needs assessment efforts surveyed instructors and students from three sections of the course. The resulting ID project, "AI and Problem Solving," featured cooperative work-teams to simulate corporate group activity, as many of these management science graduates took jobs as systems analysts in accounting and consulting firms. My teaching presentation in the ID course was on cooperative learning and was

developed and presented with two other students. From my written self-evaluation I noted that each of my design components were submitted complete and on time, except for the needs assessment surveys which took several weeks to complete and analyze. Regarding my contributions to colleagues' projects, I suggested ways to manage the project and advised a group member on video production.

### Collaboration

My collaborative activity with Dr. Magliaro began as a student in the course through the exchange of email commenting on each week's instruction. In addition to the note-taking of content, I recorded what happened in class and noted the sequence of instructional activities. After finishing the course, we discussed the features for a summer, 1993 delivery of the ID course. During the spring of 1994 I designed and wrote a student guide structured around three interrelated challenges that I believed students faced in the ID course: clarifying one's beliefs, learning a process, and managing a project. "The Worrier's Guide to Instructional Design" was sequenced by a chapter for each ID component, with each chapter divided into sections that addressed learning beliefs, ID process components, and ID project management. Case 1 provided a site for the first field test of the student guide, as well as my first experience in what it meant to teach instructional design by assisting student learning.

#### Case 1: Summer 1994

Case 1 was held during a five-week summer session in 1994. Each week's schedule included three 3-hour class meetings. Thirteen students were enrolled in the course.

### Design Decisions for Case 1

Learning tasks and course sequence. Four tasks were added to the syllabus's assessment rubric that did not appear on the syllabus from the previous semester and included: a preliminary version of a personal ID model, peer feedback, self-evaluation, and student guide feedback. The personal ID model and peer feedback were features from previous courses but were not included in the assessment plan. Figure 17 compares the two courses in terms of the learning tasks recorded on the course syllabi.

Summer 1993 ID Course	Summer 1994 ID Course (C1)
<ol style="list-style-type: none"> <li>1. Learning Principles</li> <li>2. Final Exam</li> <li>3. Daily Preparation of Design Project</li> <li>4. Instructional Model Presentation</li> <li>5. Personal ID Model</li> <li>6. ID Project</li> </ol>	<ol style="list-style-type: none"> <li>1. Learning Principles</li> <li><b>2. Preliminary ID Model</b></li> <li>3. Final Exam</li> <li>4. Daily Preparation of Design Project</li> <li><b>5. Peer Feedback</b></li> <li>6. Instructional Strategies Presentation</li> <li>7. ID Project</li> <li>8. Revised ID Model</li> <li><b>9. 1-page Self Evaluation</b></li> <li><b>10. Worrier's Guide Feedback</b></li> </ol>

[Items in **bold** were new additions to assessment rubric on syllabus]

Figure 17. Comparison of learning tasks for Summer 1993 and Summer 1994 (Case 1).

The course sequence can be visualized along two levels of activity: ID instruction and ID learning activities (see Figure 18). The first level depicts ID instruction, structured around an eight-phase ID process, while the second level of activity involves the transfer of ID process understanding into an ID project. The first ID phase or component, “Design Tools,” includes three learning tasks (i.e., What is Learning?, Learning Principles, and Preliminary ID model) to establish the context for the remaining ID phases.

ID INSTRUCTION: Instructional Design Phases →

Design Tools	Needs Assessment	Lesson Sequence	Assessment	Teaching Model	Sample Lesson	Media	Program Evaluation
--------------	------------------	-----------------	------------	----------------	---------------	-------	--------------------

↑  
ONGOING DIALOGUE AND LEARNING TASK FEEDBACK  
↓

ID PROJECT: Learning Tasks →

What is Learning?	Project Intent Statement	Sequence Plan	Assessment Plan	Teaching Demos	Sample Lesson	Media Plan	Revised ID Model
Learning Principles	Needs Assessment and Goals			Teaching Plan			Self-Evaluation
Pre-ID Model		Exam					
Context		ID Project				Self-Assessment	

Figure 18. Course sequence and learning tasks for Case 1, Summer I, 1994.

Instructional materials. Smith and Ragan’s (1993) Instructional Design replaced Seels and Glasgow’s (1990) Exercises in Instructional Design, because of Smith and Ragan’s use of learning principles as a basis for designing instruction and their extensive coverage of instructional models which matched Gagné’s taxonomy. Relevant chapters of the Smith and Ragan text and the student guide were assigned as the class progressed. Handouts included readings from journal articles and book chapters.

Design Decisions	Rationale
1. Added to assessment rubric on syllabus: preliminary ID model, peer feedback, self-evaluation, guide feedback.	Increased assessment options.
2. Smith & Ragan (1993) text.	ID based on learning principles/theory; coverage of instructional models.
3. Introduced student guide.	Provided structural support of student beliefs, ID process learning, ID project management; modeled a prototypical product developed from the ID process and experiences with the course.

Figure 19. Design decisions for Case 1, Summer I, 1994 .

### Teaching Model Implementation for Case 1

This section reports on student responses to instruction and instructors' efforts to provide assistance over the five-week summer session in terms of ID context activities, ID process instruction, and draft ID projects (For a summary see Figure 20).

ID context. Week 1 focused on setting the context for ID instruction using two activities: the Learning Principles task and a Personal ID model task. From assigned readings describing behavioral, cognitive, and social-constructivist views on learning, students were asked to generate ten learning principles. During a class session, participants in four groups identified three principles they agreed with, three they disagreed with, and one principle they wanted to know more about. Members reported that they required more effort to identify principles of non-agreement than those they agreed with. The groups reported a mix of learning principles from behaviorist (i.e., activity, feedback, reinforcement), cognitive (i.e., prior knowledge, schemas, "how to learn"), and social constructivist (i.e., discourse, cognitive tools, stimulating and safe environment) perspectives. Areas of disagreement included content learning versus "how" to learn, teaching for individual differences, and teaching "whole-to-part" versus "part-to-whole". Areas of concern included assessment, teacher expectations, and learner developmental issues. A chart was drawn on the blackboard that listed students' learning principles under each learning theory (e.g., stimuli, cognitive, inner speech, respectively) and identified teaching approaches that could be classified under each perspective (e.g., mastery, advance organizer, cooperative learning, respectively).

The second learning task required that students represent their own planning/design processes. Some ID models were personalized representations, (e.g., spinning top, flower). For one student who had just finished student teaching, ID models were seen as a means to ensure survival, because she would be teaching for the first time the next semester. Another student attempted to incorporate social constructivism into Dick and Carey's ID model (1996). Models from two other designers did not focus on their personal needs but rather on learner needs. One favored instructional design as a structured means to involve students in the design of their own instruction, while the second showed a strong commitment to increasing the awareness of her learners of the human side of health care. Other personal ID models revealed concerns with

institutional needs (e.g., training requirements), or were based on the culture of a discipline (e.g., technology-education). The instructor used these models to identify a number of learning issues that might be addressed in the course: learner control, learning support, active learning activities, content coverage, learning levels (via taxonomies), and learner characteristics. From a survey of course features obtained at the end of the course, the preliminary ID model task rated (4.09, on a 1-5 scale) lower than the students' revised models (4.40), which students completed at the end of the course. Students expressed uncertainty with the preliminary ID model due to the lack of time, "not knowing how to proceed," and difficulties with drawing a visual. However, two other students reported that the preliminary ID model task helped them to think about the ID process, while for another it helped her to "clarify beliefs and see gaps in my knowledge."

ID instruction and Draft ID projects. Weeks 2-3 addressed needs assessment. Instruction on needs assessment asked students to consider issues of curriculum, including "What is to be taught?" and how one's curriculum is to be organized; the range of learner characteristics; and existing resources and constraints. Two task sheets for needs assessment suggested an outline and tools to help students gather data on content (e.g., literature review, curriculum), learners (e.g., learner profile), context (e.g., context analysis of resources and constraints), and project goals for draft submission. Two in-class group activities had students share needs assessment issues and report what they had learned. Issues included differentiating between goals and objectives, analyzing and reporting needs assessment data, and evaluating workshops. Some students reported that needs assessment helped them to identify goals in their projects, examine one's instructional purpose, and realize that "one cannot design everything."

By Week 3 nine out of thirteen students were late in their submissions of needs assessment research. Four other students had submitted all required-to-date components, including goals for the ID project. From "exit slips" handed in at the end of class, students asked "How much research is enough?" and "How do I get organized for this?" Students cited lack of time to process all of their data. To respond to the challenge and complexity of conducting a needs assessment, a visual organizer of this design phase was drawn up and an example of an instructional problem was developed for subsequent class sessions. Another problem topic for students was task analysis. A task sheet for "Lesson Sequence" included an outline of how to draft a task and instructional analyses of a learning task in students' first lesson in their ID project. In-class instruction on task analysis included an example from one of the students' projects (i.e., "Explain statistical definitions and concepts in everyday terms.") and used this example to (a) identify learning levels associated with the objective, (b) conduct an information-processing analysis of this objective, (c) examine the affective learning inherent in the objective, and (d) identify essential/supporting prerequisites. Six out of 13 students reported they were unclear about the difference between task/instructional analyses, how to conduct them, and their value. Three students asked for more examples, explanations, or questions to guide them. Responses to student exit slips on task analysis included advice on identifying learning levels (using cognitive, affective, psychomotor taxonomies as tools) for major goals and using task/instructional analysis on critical learning tasks, rather than on all learning tasks.

Assessment and teaching models were covered in Weeks 3 and 4 and included task sheets outlining sub-components for each. Classroom instruction and discussion of assessment included the political issues of assessment and purposes of assessment (Gronlund & Linn, 1994). In-class reports of students on their assessment plan revealed a range of assessment tools in their projects,

including group feedback, portfolios, multiple choice, essays, computer performance, observations, projects, informal questions, diagnostic tests, and surveys. Instructor responses to submitted work addressed assessment issues of multidisciplinary and integrated curriculums and establishing assessment rubrics for portfolios. Week 4 also included instruction on the value of systematically approaching instruction through models, examining Gagné's events of instruction (Gagné, Briggs & Wager, 1992), instructor demos of teaching presentations (i.e., synectics, non-directive learning), and providing handouts of the syntax of various teaching models (e.g., Joyce, Weil & Showers, 1992). Students delivered presentations of teaching models over two class sessions and provided peer feedback. Models presented included technological problem solving, group investigation, whole language, training, presentations, synectics, PSI (Personalized System of Instruction), the Van Hiele method, and empathy-building.

Week 5 addressed instructional media and program evaluation. Media instruction involved lab demonstrations and a mini-lecture on media purposes and use-adapt-design options for media development. Customized media packets of articles related to student projects were distributed and discussed in class on the basis of four characteristics: media-as-learning environment (e.g., visualization, simulation), learner engagement (e.g., hands-on), context (e.g., maps, portfolios, microworlds), and people-as-media (e.g., dialogue, workshops, professional practice). Program evaluation instruction included an overview, task sheet, and an exercise conducted by student groups. The last two classes consisted of an in-class "help session" to assist students with their ID projects, presentations of revised personal ID models, and submitting self-evaluation and course evaluations.

Learning Tasks	Student Responses	Instructor Assistance
<b>Establishing context for the ID process</b>		
Learning principles task	Mix of theory-based learning principles	Written feedback; in-class viewing of student's lists; group sharing
ID model task	Unique representations	Shared in class, written feedback; Identified ID issues from student models
<b>ID Instruction and Draft ID Project</b>		
Needs Assessment	9/13 "behind" in obtaining or writing up research; "How much is enough?"	Task sheets; feedback on written work; in-class example; visual organizer, class example
Task/Instructional analyses	6/13 unclear about Instructional, Task analysis; 3 asked for more explanation and examples.	Task sheet; recommendations to class to use for critical learning tasks
Assessment	Wide range of assessment tools	Task sheet; instruction; feedback; establish assessment purpose before tool selection; develop assessment rubrics
Teaching models	Tried out teaching model and received peer feedback	Overview of teaching model syntax, used class time for presentations
Instructional media	Unique needs for each project	Lab demos, mini-lecture, customized media packets
Program evaluation	Filled in tables	Overview, in-class example, chart as tool

Figure 20. Student responses, instructor assistance during Case 1, Summer I, 1994.

### Teaching Model Evaluation for Case 1

The instructional approach (i.e., the teaching model) was evaluated by students' performance on the principal learning task for the course, the completed ID project, student perceptions of their learning, and instructor responsiveness to student needs.

Completed ID projects. Required project components included:

- Table of contents
- Project idea or intent statement
- Needs assessment
- Lesson sequence
- Assessment procedures
- Model(s) of teaching/instruction
- Sample lesson with task and instructional analyses
- Media
- Program evaluation
- References

Of the six projects analyzed, four included all required components, the criteria for completeness. Needs assessment in 4 of the 6 projects lacked research on how to teach the content, and references were listed as consulted, but not cited in the needs assessment summary. Task and instructional analyses were sources of confusion for five students. Two projects lacked an instructional analysis altogether, while another inverted the task and instructional analysis. One project's instructional analysis was limited to essential prerequisites, while another substituted an instructional analysis with Gagné's (1970) instructional events (e.g., gaining attention, providing feedback, insuring retention).

Consistency of one's learning beliefs across ID project components was achieved by four of the six projects analyzed. Only one of the six projects made a specific reference to a statement as a personal learning belief. However, personal beliefs on learning, learners, and teaching were written in students' project intent statement and in their design decisions, such as the use of "hands-on" activities, whole language, or discovery as an instructional method.

In terms of coherence of project features across ID components, five of the six projects included a match of assessment methods with teaching approaches, and in these five projects, multiple teaching approaches and multiple assessment methods were identified. In the Sample Lesson component, three of the six projects did not fully incorporate previous ID components in their identified sample lesson. One project used whole language as a "starting point" for her project. Although identifying learner-centeredness as a key feature in her ID model, one student, who was to teach for the first time in the upcoming school year, made assumptions that students had the same reading level, sequenced content along topical lines, viewed instruction partly as "keeping students busy," and viewed assessment activities as grading opportunities. In another project, a novice teacher translated the ID process into features that reflected partly her aspirations as a teacher and her beliefs (i.e., learner-centeredness). Her project represented a novice teacher's concerns: moving through traditional views of content, assumptions about

learners, and lack of rationale for sequence. However, she expressed an awareness of her responsibility for teaching and the need to re-examine this teaching. Another project did not have a specific implementation site and produced generic features that did not address the complexities of instruction. Figure 21 summarizes evaluation of ID projects.

Completeness	Consistency	Coherence
4/6 included all components 4/6 lacked research on teaching content 5/6 missing or incorrect task analysis and instructional analysis in sample lesson	4/6 achieved consistency of learning beliefs across ID components; 1/6 directly referenced personal learning beliefs in Intent Statement.	5/6 match of teaching approaches with assessment methods; 5/6 multiple teaching methods, assessment methods; 3/6 did not include previous ID decisions in sample lesson.

Figure 21. Student performance on ID projects for Case 1, Summer I, 1994.

Students' perceptions of their learning. Ten students who responded to the course evaluation rated their learning in the course (on a 1-3 scale) in terms of gains in knowledge and theories (2.9), problem solving abilities (2.7), and appreciation of the subject (2.8). Students rated their effort in the course as "greater than average," and several students stated concerns on the time needed to complete tasks and project, more time for reflection, or fewer self-assessment tasks and course evaluation instruments. One student said that "This is one of the only classes I have had where I felt more energized coming out then I did going in." Another wrote "There's more to it than I thought." Students reported that needs assessment was time-consuming and challenging, but that decision-making was necessary in light of incomplete information. During the last class meeting several students acknowledged the importance of beliefs in their revised ID models and suggested that in the next delivery of the course we should treat "beliefs" as a distinct component of instructional design. Student comments from the self-evaluation task included: early concerns on being unclear as to the "big picture" of instructional design, the language of ID and educational psychology, constructing a project, and reading the assigned readings. Three students were uncomfortable with submitting work-in-progress. Student comments asked "Is this right?" and "Is this what I need to do?"

Concerns	Student Reports
Effort	All cited "greater than average;" (1) challenged by ID/Ed Psych. Terminology. (3) concerns with time needed to complete tasks, reading, and project. Lack of time for reflection.
Learning	Gains in knowledge = 2.9 (1=LT avg. 2=avg. 3=GT avg) 9/10 Gains in problem solving = 2.7 (1=LT avg. 2=avg. 3=GT avg) 7/10 Gains in appreciation of subject = 2.8 (1=LT avg. 2=avg. 3=GT avg) 8/10
ID process	Needs assessment time-consuming and challenging; "beliefs" should be a part of the ID process; needed overview of ID at beginning of course.
ID project	ID project needed specific implementation site; (3) Uncomfortable with handing in draft work; concerns with component coherence.

Figure 22. Student perceptions on their learning for Case 1, Summer I, 1994.

Responsivity to learner needs. In terms of instruction, ten of the 13 students who responded to the OPSCAN of student perceptions of instruction assigned an overall rating of 4.0 (on a scale from 1-4) to the instructor, as well as her knowledge of the subject. The majority of students rated the instructor in terms of success in communicating the subject (3.8), making the subject stimulating (3.9), value of assignments (3.9), and administration of the class (3.7). In terms of contingency management, students assigned the instructor with a rating of 4.0 for the concern and respect shown toward students. In terms of feeding-back, fairness in grading was rated at 4.0 (8/13 respondents).

From a supplementary set of questions asking students to rate (on a scale of 1 to 5) and comment on major features of the course, six students rated the organization of the course at 4.64. Three comments affirmed that the course's structure helped them "negotiate" the course, while one cited the 5-week course as "too rapid." One student cited the overview of learning theories as helpful, while another recommended that the "teaching models" phase be scheduled before "lesson sequence" and teaching demonstrations. One student suggested that our treatment of instructional media was "too far down in the process," and would benefit from a treatment throughout, or at least, earlier in the course. One student asked to reduce the number of self-assessment and course evaluation tasks. Another example of cognitive structuring was the use of task sheets and were rated at 4.73 (on a scale of 1-to-5). Students expressed mixed reactions to the task sheets: two students were "overwhelmed," two others "welcomed" them for their direction and structure. Two students wrote that the task sheets did not provide enough structure, and one student requested that each phase have only one task sheet. The Learning Principles task was rated at 4.55 (on a scale from 1-to-5) and received six comments, including "gets you to think," "helped to clarify beliefs" and hear beliefs of others, and "probably the most useful experience of my return to school."

The textbook (Smith & Ragan, 1993) was rated 3.6 in the OPSCAN course evaluation (on a scale from 1.0 to 4.0; 6/10 responses) and 4.4 (on a scale from 1.0 to 5.0) from a supplementary survey. Some comments written in the student guide found the Smith and Ragan

text difficult to use because its content was not organized along the lines of the course syllabus. Three out of 13 students did not use the textbook, while three other students “used it to clear up a few questions,” learned from the examples, and helped them to complete the project. Students rated the student guide lower (4.0) than the main text, and its comments ranged from “direct and concise” to “superfluous” and “not extensive enough.” Cited as needing the most improvement were the sections on task and instructional analysis, adding more examples, and customizing self-evaluation questions at the end of each chapter. Three other students commented on the tone of the guide, describing it as “calming,” a “daily little voice in my ear that kept me on track,” and “provided a framework for the project.”

In terms of reflecting, the self-evaluation task was rated by nine out of 13 students at 4.18 (on a 1-to-5 scale). Two students liked the chance to reflect on the class, while another believed it was an opportunity to summarize the class. On the other hand, one student cited writing a dissertation as a distraction, another felt the task was too long, and two others cited the self-evaluation as the most difficult part of the course and reported they did not like to evaluate themselves. See Figure 23 for a summary of instructor responsiveness.

Assistance	Student Rating		Student Comments
Instructing	Overall	4.0 10/13	
	Knowledge of subject	4.0 10/13	
	Communicating subject	3.8 10/13	
	Made subject stimulating	3.9 10/13	
	Value of assignments	3.9 10/13	
	Administration of class	3.7 10/13	
Feeding-back	Fairness in grading	4.0 08/13	
Contingency management	Concern and respect for students	4.0 10/13	
Cognitive structuring	Organization of course (1-5 scale)	4.64 10/13	(3) helped negotiate course (1) too rapid (1) teaching models earlier (1) media "too far down in the process" (1) reduce self-assessment, course evaluation tasks, (1) teaching models should precede sequence.
	Task sheets (1-5 scale)	4.73 10/13	(2) overwhelmed by requirements, (2) not enough structure, (2) welcomed structure (1) one sheet/task
	Learning principles (1-5 scale)	4.55 10/13	"Gets you to think." "Helped to clarify beliefs."
	Text (1-5 scale) (OPSCAN 1-4 scale)	4.4 10/13 3.6 10/13	3/10 did not use. 3/10 resource for the project. (1) reported that text not related to course structure.
	Student guide (1-5 scale)	4.0 9/13	Direct and concise, calming, kept me on task, provided framework; superfluous, not extensive enough; needing improvements were task analysis, more examples, customize self-assessment questions.
Reflecting	Self-evaluation task (1-5 scale)	4.18	3/10 liked; (1) found task too long, (2) did not like self-assessment.

Figure 23. Instructor responsivity to student needs for Case 1, Summer I, 1994.

## Case 2: Fall, 1994

Two months after Case 1, Case 2 met once per week for three hours over a 15 week Fall, 1994 semester. Twenty-two students were enrolled in the course.

Design Decisions for Case 2

Learning tasks and course sequence. Based on student comments from Case 1, four changes were made to the course design (see Figure 24). A “Learning Beliefs” component was formally added as the first phase of the ID process. A Mission Statement task was added to help students bridge learning beliefs with their project. The mid-term exam was replaced with an individual student conference a month into the course to assist students in project selection and needs assessment activity. A second conference was scheduled toward the end of the course to evaluate student and instructors performance in the course, review changes to one’s instructional design model, and provide course feedback.

## ID INSTRUCTION: Instructional Design Phases →

Learning Beliefs	Design Tools	Needs Assessment	Lesson Sequence	Assessment	Teaching Model	Sample Lesson	Media	Program Evaluation
------------------	--------------	------------------	-----------------	------------	----------------	---------------	-------	--------------------



ONGOING DIALOGUE & LEARNING TASK FEEDBACK



## ID PROJECT: Learning Tasks →

What is Learning? Learning Principles	Mission Statement Pre-ID Model	Intent Statement Needs Assessment and Goals Conference	Sequence	Assessment Plan	Teaching Demos Teaching Plan	Sample Lesson	Media Plan	Revised ID Model Self-evaluation Conference
--	-----------------------------------	--	----------	-----------------	---------------------------------	---------------	------------	---

Starting Point

ID Project

Self Assessment

**Figure 24.** Learning tasks and course sequence for Case 2, Fall, 1994.

Instructional materials. Case 2 included the Smith and Ragan (1993) text, handouts, and revised task sheets. The second version of the student guide, “Mastering the Possibilities: A Tour of Instructional Design” (known as the “Tour Guide”), was restructured. Each chapter, or “tour,” included four sections: (1) information that corresponded to each design phase; (2) a hypothetical design project, “The Bluebird Learning Project,” an example of how an ID project developed over time, (3) a fictional story, and (4) customized self-assessment questions. The purpose of the stories was to provide a radically different view of the design process through a journey narrative,

depicting ID as a human activity, particularly the dilemmas that human designers face in responding to instructional problems. Figure 25 summarizes design decisions for Case 2.

Design Decisions	Rationale
Added “Learning Beliefs” to ID representation	Acknowledged influence of personal and institutional beliefs to designing activities
Added Mission Statement task	Bridged learning beliefs and project intent
Replaced mid-term exam with student-instructor conference	Difficult to address individual issues in class; provided time for student concerns: project choice and mission statement
Rewrote student guide <ul style="list-style-type: none"> <li>• Added “Beliefs” as Chapter 1</li> <li>• Added hypothetical project</li> <li>• Added stories to each chapter</li> <li>• Wrote different self assessment questions for each chapter</li> </ul>	<ul style="list-style-type: none"> <li>• Acknowledged influence of beliefs in ID</li> <li>• Provided more examples</li> <li>• Depicted ID as a human activity</li> <li>• Customized self-assessment to each chapter</li> </ul>

Figure 25. Design decisions for Case 2, Fall, 1994.

### Teaching Model Implementation for Case 2

**ID context.** The first three weeks of Case 2, a 15-week semester, introduced students to the ID process, course requirements (Week 1), learning theories (Week 2), and ID models (Week 3). Three learning tasks were used during these three weeks: Learning Principles task, Mission Statement, and a Personal ID Model.

In the Learning Principles task, students selected from assigned readings ten learning principles that resonated with their learning beliefs. To support class discussion on what students wrote, participants were divided up into four groups. Each group developed a list of three learning principles they agreed with, two they disagreed with, and one they had a question about. Agreed upon were a mix of behavioral (e.g., “keeping things simple), cognitive (e.g., memorization, prior knowledge and experiences, metacognition), and social constructivist (e.g., student-teacher relationships, group exchange, real-world applications). Areas of disagreement were also mixed across learning theories, such as the sequence of lessons (behavioral), a genetic link to IQ (cognitive), and motivation based on social and task structure (social constructivist). Questions raised by the group included: “If the mind is a black box, do we need to know how it work?”, “Is it possible to make all instruction relevant?”, “How is content and process balanced?”, and “How can we apply these principles across situations?” From an evaluation question in the student guide (“In what ways did your learning beliefs change over the course?”), less than half (9/20) of the students responding said that their learning principles expanded, intensified, broadened or were made more clearer over the course.

Another context-setting task was writing a Mission Statement. The purpose of the Mission Statement task, which was new for the course, was to summarize learning principles into

a statement that would be used, along with goals identified from a needs assessment, to guide students on their ID project. Out of 22 students, 20 initial versions of mission statements contained mismatches between beliefs and their “mission.” Based on revisions over the course, five out of the 15 mission statements on file integrated some aspect of their project into a mission statement. Two submissions were not mission statements at all; but, rather, a project description. Fourteen of the 15 final mission statements were narratives, while one was an expansion of the student’s Learning Principles list. One student’s mission statement developed over several revisions in a narrative that included a concise statement of these beliefs. During the first student-teacher conference (30-minutes scheduled during Week 6), students reported that mission statements were “hard work,” that “articulation and condensing is hard.” While one student reported that she “learned a lot about learning” from writing one, another commented that it “took me a while to understand the mission statement activity,” and another admitted it took a week to write the first version. For one student the task “turned her off,” while another student did not initially complete the mission statement and moved directly into the project.

Preliminary ID models provided us with students’ views of learning issues and how they might represent their view appropriate to developing instruction. Out of the 22 models, seven were motivated by personal needs such as upcoming teaching assignments or trying to understand an instructional setting being used for doctoral research. Five models represented students’ concerns for students and teachers. Examples included models that represented a “democratic learning community,” responsibility of students to “navigate the river” but also provide feedback for teachers, and co-participation of teachers and students. Finally, ten models could be characterized as being influenced by contextual issues, such as product development, licensing requirements, political concerns, and school culture. Students reported from a course evaluation task at the end of the course that their instructional design models provided a “picture” of their views on learners, learning, and education that they had not developed before.

ID instruction. Students were given overviews of the major components of the ID process during Weeks 4-14. To introduce Needs Assessment students were asked to consider their “focus” in terms of content (i.e., academic rationalism, structure of knowledge) or process (i.e., development of cognitive processes, curriculum-as-technology, self-actualization, social reconstruction). Needs assessment was covered during Weeks 4-6, and was presented as a systematic means to learn more about the intended content, range of learners, and instructional context. During Week 5 the class generated a list of 39 learner characteristics that could be influenced by instruction. Formative evaluation of instructional media (Chinien & Hlynka, 1993) and the use of the connoisseur as a generalist, formative evaluator (Eisner, 1984), was introduced to help students think about “evaluating your ID as you design.”

During Week 6 students met with the instructors for 30 minutes to discuss their reactions to and performance on mission statements, previous educational and teaching experiences, ID project choice, and needs assessment efforts. The conference was summarized by ID issues relating to learners, content, and instructional context, and ID project concerns. In terms of learners, issues raised by students and instructors included honoring students’ point of view; focusing on individual needs, thinking about the cultural dimensions to students and hypermedia use; designing for teachers as learners and including teachers as an active part of the planning process. Content issues included prompting students for the scope of the content (e.g., high school geology, writing tasks to engineering), assessment methods (portfolios, writing tasks,

conferences, observations). Context issues included providing a safe environment and realities of implementing workshops. Concerns on students' ID projects included determining a project's instructional purpose and ultimate use; envisioning possibilities for the project; sources of data for a needs assessment, including readings and interviews with experts and students; examining media possibilities (e.g., Listserv lists, hypermedia, visualization); and suggesting ways to try out project in front of others (e.g., YMCA).

Weeks 7, 8, and 9 addressed lesson sequence, task/instructional analyses, and assessment, respectively. Weeks 10-12 were spent on teaching models. Dr. Magliaro demonstrated synectics in front of the class and asked presenters to develop a one-page handout while the rest of the class provided written feedback. Students enacted a model of their choice during Weeks 11 and 12. During Week 12, I presented a media presentation, which involved (1) asking people in the class to share their favorite media, (2) a nostalgic show-and-tell of media examples (chalk, construction paper, crayons, slide viewer, blocks, illustrated journal), (3) an audio tour using audio clips of music and spoken word to make some important points about media's possibilities for learning (e.g., children have something to say and share similar concerns, the affective aspects of higher order thinking, appreciation goals, examples of mixed media), and (4) important guidelines during media materials development (tying media to goals, 5 ways to use media, ways of acquiring media). Week 13 continued our discussion of media in the University's New Media Lab with demonstrations of multimedia software from experts.

Week 14 was devoted to program evaluation and how formative and summative evaluations could be addressed in students' ID projects by asking questions of experts, learners, and generalists in terms of appeal, effectiveness, and appeal. We prompted students to think about ways to evaluate technology designs, including the need to plan early; determining the main evaluation objective (i.e., goal-based or goal-free) and major evaluation questions, in terms of appeal, effectiveness, and efficiency; and data sources, data collection methods, and instruments. In addition, we discussed the final two weeks of the course, the final ID project, and the individual evaluation conference. A summative evaluation activity using the University's curriculum was dropped in favor of course concerns, which included our assessment of student work, how to manage instructor feedback, workshops, and ID document format. For Week 15 students revised their personal ID models and shared a visual of this model. The week scheduled for Final Exams was used as the second individual evaluation conference, in which students handed in their revised Personal ID Models, self-evaluation task, and student guide feedback.

Learning Tasks	Student Responses	Instructor Assistance
<b>Establishing context for the ID process</b>		
Learning principles task	Student choice of principles. Mix of theory-based learning principles. 9/20 reported that their beliefs were expanded.	Structured and assigned task; provided written feedback; class discussion in groups on major learning issues.
Mission statement	20/22 had initial mismatches between beliefs and mission; 5/15 over time integrated project into mission statement. Reported (1) hard work, (1) articulation and condensing is hard, (1) turned off by task, (1) did not complete, (1) took a while to understand.	Introduced in class, provided task sheet, provided feedback, prompted for revision, discussed in Conference 1; used as assessment for ID project.
ID model task	Reported that ID models provided a picture of their designing/planning processes.	Shared in class; discussed in Conference 1; revised at end of course.
<b>ID Instruction and Draft ID Project</b>		
Needs Assessment	Sources of data; questions on instructional problem selection, learners, content, context.	Instruction over 3 weeks, task sheet, feedback
Sequence	[no data from draft projects]	Instruction, task sheet, two opportunities to complete (Sequence, Sample Lesson)
Assessment	[no data from draft projects]	Instruction, task sheet, feedback
Teaching models	Teaching demos, peer feedback	Instruction over 3 weeks, task sheet, feedback
Instructional media	Media possibilities discussed in conference	Two class meetings, presentation, task sheet, feedback
Program evaluation	Used suggested table to report formative and summative program evaluation.	Instruction, task sheet, feedback on final ID project, conference 2, formative evaluation introduced during needs assessment.

Figure 26. Student responses, instructor assistance during Case 2, Fall, 1994.

### Teaching Model Evaluation for Case 2

Student learning on ID projects. All four of the projects available for analysis included required components, the criteria for completeness, although instructional analysis was judged as minimal in two of the projects. Two of the projects addressed personal teacher issues that in one submission were expressed as goals (e.g., provide learning opportunities) and in another as concerns (i.e., “My lack of confidence to teach writing skills”). Two projects, involving a workshop and the World Wide Web (WWW), introduced instructional settings, but lacked research on how these settings supported learning and the contextual issues in using them.

All four analyzed projects showed a consistency of learning beliefs across project components. All four projects included mission statements, which provided a means to record these learning beliefs. In the first project the mission statement talked about “engaging individuals in an active and interactive process” and included student feedback in her needs assessment and program evaluation components, and included self evaluation, portfolios, and student conferences as assessment methods. In the second project the student wrote about “students and teachers as co-learners,” and in the in-service workshop design proposed giving attendees a choice of content based on their needs. In a third project the mission statement advocated “creating learning situations that address social processes” (i.e., assisting international graduate students) and proposed a web site that would provide this type of learning. The fourth project’s mission statement cited skills proficiency, technology to support conceptual and skill development, and multiple assessment types. The ID project proposed a computer-based tool to help students visualize math concepts.

Three out of the four projects exhibited coherence across design components. Two of these three students had teaching experience and one was planning to teach the following semester. Three projects exhibiting coherence included sufficient details to describe decisions made within each design component, were systematic and clearly laid out. This may have been due to their familiarity with the setting (i.e., high school geometry), familiarity with the learners (i.e., library staff) or their motivation to enact the design (e.g., college study skills course). The fourth project proposed the WWW to help international students learn to survive in an American university. The application proposed using World Wide Web as a site to socially support international students, but lacked details of how students would learn from the web site, as well as a lack of details on the support issues involved in maintaining the web page content and the web site itself. Despite the overall coherence of the three projects, two of them ignored two important proposed features. One design proposed writing a student handbook to help high school students use a geometry software package. Although the ID project clearly laid out samples of activities using the software, the document did not discuss the learning issues involved in the design of the student handbook. A second project involved a five-day workshop for library staff. The workshop was not examined in the needs assessment or other components of the project as a setting to support learning.

### ID Project

Completeness	Consistency	Coherence
4/4; (2) minimal instructional analysis, (2) included teacher goals in project, in addition to learner goals	4/4 consistency of learning beliefs written in mission statement proposed in ID project.	3/4 coherent across design components, (2) ignored learning issues of proposed workbook and workshop

Figure 27. Student performance on ID project for Case 2, Fall, 1994.

Student perceptions of their learning. The majority of those responding to a course evaluation (2.7, on a scale of 1-3) rated the course as requiring “greater than average” effort. The majority also believed the course produced “more than average” gains in knowledge and theories (2.8), problem solving abilities (2.6) and an appreciation of the subject (2.9). When asked what students learned about themselves a third of the respondents (7/21) identified self-regulation topics (e.g., “writing down my thoughts,” managing time, writing too quickly, reflecting, patience, and “with more freedom I have to push myself harder to exercise personal control”); beliefs (3/21); and teaching (3/21), such as “I’ve made many assumptions about my teaching.” When asked about self-assessment, 16 out of 18 responses identified the course’s self-assessment features as “helpful, good, positive,” while two responses were “uneasy” and “uncertain” about self-assessment.

Responses from the self-evaluation task and individual conferences requested more opportunities for group activities to share work and questions with other people, but one student believed that they could be more task-focused so as to get some actual “designing” done in class to resolve design problems. Students (5/18) identified working with their peers as a valuable new learning strategy and one student commented, “I yearned for a team” to help design.

When asked about changing beliefs about learning over the course, 6 out of 20 responses were labeled as having their beliefs “expanded, intensified, or broadened,” while three students’ beliefs were clearer or better articulated, and six students reported that their beliefs about learning did not change much. From the second individual conference three students commented on the course giving them “freedom to explore” in individual ways. “Every phase challenged me. The class was about taking risks.” Four students said that the course helped them to “look at things I haven’t looked at before,” “forced me to look at the long term,” and “clarified a whole lot of thinking.” One student said that she learned most about writing down her beliefs and articulated what she knew. One student who had teaching experience reported that he reassessed what he knew and that “I’ve made many assumptions about my teaching.”

Students commented differently on the project. One student, a novice teacher, commented, “It wasn’t that difficult. Should it have been? It was like a big puzzle.” This student reported that the ID project gave her a chance to implement her own ideas. For another student the project was a “struggle to put together,” but that the process provided a rationale for her efforts and that the student guide “helped me to do the homework.” From the written self-evaluation task, students (20 respondents) were asked to identify critical moments. Seven students identified needs assessment, two identified the “teaching models” components, and four identified project idea selection. The selection of an instructional problem was a challenge for these four students. One insisted on a project in which he had difficulty converting into an instructional problem. At the end of the he said, “I didn’t regret my choice of a project. I learned a lot.” Two students changed their project topics, one made a decision to change at mid-semester, her choice driven by the “need to get something done.” Her project document was an outline missing important components and lacking narrative to explain her design decisions.

Concerns	Student reports
Effort	2.7 (on a 1-3 scale) "greater than average" effort required for the course.
Learning	2.8 = (on a 1-3 scale) "more than average" gains in knowledge 2.6 = (on a 1-3 scale) problem solving abilities 2.6 = (on a 1-3 scale) appreciation of subject  16/18 cited self-assessment features as helpful; 2/18 "uneasy" and "uncertain" about self-assessment. Self-assessment issues categorized by self-regulation (7/21), beliefs (3/21), teaching (3/21)
Groups	5/18 cited working together as a positive activity; (2) requested more opportunities; (1) need to be more task-focused; 1) "yearned for a team"
ID process	6/15 reported that beliefs were expanded, 3/15 beliefs clarified, 6/15 no change. Students cited "freedom to explore" and examine beliefs and teaching.
ID project	Ranged from "not as hard as I thought" to "a struggle;" choice of instructional problem a major decision.  Critical moments: needs assessment (7/20); project selection (4/20); teaching models (2/20)

Figure 28. Student perceptions on their learning for Case 2, Fall, 1994.

Responsivity to learner needs. In terms of instructing, all of the students who responded to the OPSCAN survey (15) rated the instructor overall as "excellent," as well as her knowledge of the subject (4.0 on a scale of 1-4), communicating course purposes (3.9), making the subject stimulating (3.9), value of assignments (4.0), and class administration (4.0). Written comments on the standardized form in terms of instruction included: "Should serve as a model to other educators." "One of the most well organized and well taught courses I have taken." "Everything I have learned I intend on using in my classroom." "The dynamic between [the instructors] was great, two different explanations increased the probability that I would understand." Comments from the course evaluation, self-evaluation task, and personal conference included requests for a follow-up course.

In terms of feeding-back and contingency management, another two means of responsiveness, the majority (10/15) rated as "excellent" the instructor's grading fairness (4.0) and concern and respect for students (4.0). During the final class meeting, students expressed a desire to see not only the revised ID models, but to hear from peers about their projects. Conferences provided a new source of student assistance. When we asked participants during the final conference as to "What should we drop?" the response was "You have to keep everything."

In regards to cognitive structuring, students (13/15) rated the textbook at 3.8. Comments on the student guide were frequently embedded within overall reactions to the value of the course. "The Tour Guide is a great tool. It really helped me with clarification of phases." However, a third had no comment or were indifferent as to the effect of the guide. Based on feedback, the ID example in the guide, "The Bluebird Learning Project," did not cover the variety

of ID projects that students were looking for. Students as evaluators of the guide reported mixed reactions to the stories.

Assistance	Student Rating		Student Reports
Instructing	Overall	4.0 15/22	“Serve as a model.”
	Knowledge of subject	4.0 15/22	“Well organized and well taught.”
	Communicating subject	3.9 15/22	“Dynamic between instructors was great. Two different explanations increased understanding.”
	Made subject stimulating	3.9 15/22	
	Value of assignments	4.0 15/22	
	Administration of class	4.0 15/22	
Feeding-back	Fairness in grading	4.0 10/22	Requested review of peer’s projects.
Contingency management	Concern and respect for students	4.0 15/22	“Dedicated to students and their learning.”
Cognitive structuring	Text (1-5 scale)	3.8 13/15	
	Student guide (1-5 scale)		Helped to clarify ID phases. 1/3 of class had no reaction to text. Detailed example did not cover the range of ID projects. Mixed reactions to stories.
Reflecting	Self-evaluation task (1-5 scale)		

Figure 29. Instructor responsivity to student needs for Case 2, Fall, 1994.

### Case 3: Fall, 1995

One year after Case 2, Case 3 met during the 15-week Fall semester of 1995, meeting once per week for three hours. Twenty students enrolled in the course.

#### Design Decisions for Case 3

Learning tasks and course sequence. The ID process remained a 9-phase sequence (see Figure 30). Instructional media and formative evaluation, topics in phases 8 and 9, were introduced during the third class session. The first conference was moved up a week earlier than Case 2 to provide students with feedback on their needs assessment strategy. The last phase, Program Evaluation, was scheduled before Thanksgiving to give students more time to work on their ID projects during the holiday week.

## ID INSTRUCTION: Instructional Design Phases →

Learning Beliefs	Design Tools	Needs Assessment	Lesson Sequence	Assessment	Teaching Model	Sample Lesson	Media	Program Evaluation
------------------	--------------	------------------	-----------------	------------	----------------	---------------	-------	--------------------



ONGOING DIALOGUE &amp; LEARNING TASK FEEDBACK



## ID PROJECT: Learning Tasks →

What is Learning? Learning Principles Mission Statement	Pre-ID Model	Intent Statement Needs Assessment and Goals	Sequence	Assessment Plan	Teaching Demos Teaching Plan	Sample Lesson	Media Plan	Revised ID Model Self-evaluation
		Conference						Conference
Starting Point		ID Project					Self Assessment	

Figure 30. Learning tasks and course sequence for Case 3, Fall, 1995.

On the course syllabus ten assessment items remained in place from Case 2, four of which were assigned percentages of the final grade, including Mission/Beliefs Statement (15%), Weekly Preparation of Design Project (30%), completed ID Project (35%), and Revised ID Model (20%). The other six tasks were judged on a “pass/fail” basis. During the second conference students would hand in a written self-evaluation, while the instructor would provide her own written evaluation of student performance.

We worked out a schedule where I would comment on student work on the Thursday and Friday following each class meeting, while Dr. Magliaro would record her feedback on the Monday and Tuesday before the next class meeting. We also decided to audio tape the conferences.

Instructional materials. The textbook (Smith & Ragan, 1993) was retained and task sheets, task sheets, overhead transparencies, and student guide were revised. Thirty-six supplementary readings (i.e., journal articles and book chapters) were placed on reserve in the library. Performance criteria were added to the task sheets. For example, criteria for Phase 5, Assessment Plan, included whether or not a first draft had been submitted by a particular date, to what extent (on a scale from 1-5) assessment tools, rationales, and timeline were described and to what extent assessment tools matched intended goals. Appendix E records the criteria for the nine design phases. An electronic Listserv ([ID-L@listserv.vt.edu](mailto:ID-L@listserv.vt.edu)) was established for the first time to post weekly course agendas, reminders, resources, and feedback to student questions.

The content of the third version of the student guide, “Mastering the Possibilities: A Process Approach to Instructional Design,” was rewritten to represent our understanding of the ID process and course requirements, but was becoming more of a collaborative representation between Dr. Magliaro and myself. After three revisions we characterized our instructional approach for the guide (and course) as a “process approach” in which the learner is central to the structural features of the text (e.g., reflective and prompting questions, activities, writing space, tone). Responding to student requests for more structural support, introductory chapters were added to assist readers in using the guide and providing an overview of instructional design. The self-assessment questions at the end of each chapter were replaced with a standardized K-W-L chart, which asked readers to record what they “knew,” what they “wanted” to know, and what they had “learned” (Carr & Ogle, 1987). Project tips and a glossary were added at the end of the guide. Figure 31 summarizes the design decisions for Case 3.

Design Decisions	Rationale
1. Added performance criteria to learning tasks.	Made assessment explicit and informed students to how they were doing.
2. Scheduled conference before Thanksgiving. Audio-tape conferences.	Provided feedback for students regarding needs assessment and project completion; record of what was said to supplement notes.
3. Established a course Listserv.	Provided weekly agendas and another means to interact with instructors and students.
4. Guide revised to include more subject matter content, more examples and assistance for the ID project; tips on using the guide and overview of the ID process; KWL self-assessment.	Provided more comprehensive treatment of the ID process, support for project management, and provided “big picture” of ID process; standardized self-assessment that would record learning over the reading of the guide.

Figure 31. Design decisions for Case 3, Fall, 1995.

### Teaching Model Implementation for Case 3

ID context. The first three weeks of Case 3 were used to set the context for the formal phases of instructional design. During the first class we presented a visual of our teaching approach, which had emerged from research on the teaching of the course (Shambaugh & Magliaro, 1995). We also distributed copies of the revised student guide and briefed students on its history, purpose, and structure. We asked students to record their responses to the questions: “What is Learning/What is Instruction?” and the subsequent discussion allowed participants to introduce themselves and talk about what they had written. To continue their thinking about learning, a set of readings on learning theories and a Learning Principles task were distributed asking students to list ten learning principles that resonated with their beliefs about learning and teaching. During Week 2 six student groups listed three principles they agreed with, two they disagreed with, and one question for discussion. Learning principles were recorded on the board under behavioral, cognitive, and social constructivist perspectives and were used to discuss participants’ assumptions, their understanding of the concepts behind the principles, and their

contributions to instructional design. Prior to the class, a table was constructed and distributed. In the table each perspective was examined in terms of focus, aims, methodology, and views of the learner using key words. Assessment of the learning principles task was accomplished by recording a “C” for complete. This scheme was explained on email and students were further prompted to read written comments or email, telephone, or visit during office hours. For Week 3 we provided additional handouts on learning principles, presented an overview of the ID process, and a presentation on ID models and ways in which they help an instructional designer. Students also constructed their own ID models and shared them with the class.

ID instruction and draft ID project components. Weeks 4-13 were used to provide overviews of and task sheets for the major components of the ID process. Weeks 4-6 were devoted to needs assessment. We developed visuals to communicate (a) the “big picture” of needs assessment within the ID process, (b) purposes of needs assessment, (c) the needs assessment process (moving from what one envisions, the “Ideal,” to reality and potential or goals), and (d) a tool to help one organize a needs assessment. The class was broken up into five groups, which included different individuals from the grouping conducted during Week 2. Issues discussed by these groups included learning tasks, developmental issues, and learner characteristics. After a de-briefing, we introduced formative program evaluation and its commonalities with needs assessment. We used the student guide as an example of formatively-evaluated product. We also raised instructional media issues; asked students to think about instructional purpose, buy-adapt-design options; and the differences between media design and media development. Week 5 was used as the first hour-long individual conference to discuss students’ mission statement, project idea, needs assessment strategy, and KWL chart entries in the student guide. The third week of needs assessment (Week 6) was used to debrief on students’ needs assessment efforts and concerns. Recorded student reports of these issues included administrative barriers, stakeholder additions, Internet use of needs assessment, and learner profiles.

Weeks 7-12 addressed design components including lesson sequence, assessment, teaching models, media, and a sample lesson. In “Lesson Sequence” we discussed the use of taxonomies as tools to sequence content; task analysis as a means to analyze the complexity of learning a task; and the differences between aims, goals, and objectives. Students had questions about interviewing and obtaining permission for interviews. We prompted students to think about the language used in goals and if these goals were implying deficit models (i.e., focus on students failings rather than potentials) and fielded some questions about task analysis. The mini-lecture on assessment looked at the different functions of assessment, such as educational temperature-taking, gate-keeping, attainment of course objectives. Students were asked to volunteer assessment words to examine the different purposes of assessment from their point of view (e.g., extra credit, task completion, competencies, standards, expertise versus experience, accountability, performance). Finally, we introduced participants to validity, reliability, and practicality measures of assessment tools.

Weeks 9-11 were spent examining different instructional methods (i.e., models, approaches, strategies), first through instructional events, or what should be in all lessons (Gagné, 1970), followed by model features, such as syntax, student reaction, and social support (Joyce, Weil, & Showers, 1992). We described direct instruction and Ausubel’s advance organizers as examples. Dr. Magliaro and a student demonstrated inclusion issues using the

jurisprudential model. During the next two weeks students demonstrated teaching models, including group generation of social development activities, role playing of self-concept concepts, multi-sensory approach to developing trust; and group investigation of multiple intelligences.

For Week 12, I assembled an information packet on articles (i.e., software for children, media sources, presentation tips), computer technology standards, and media catalogs, and developed and delivered a media presentation addressing media issues for administrators and designing media materials.

During Week 13 we provided an overview of Program Evaluation. During Week 14 students worked together on their projects. Participants were asked via the course Listserv to identify one major concern that they would like addressed. Group activity consisted of identifying and recording issues, problems, and concerns from each project and reporting back to the whole class for suggestions. Students handed in their ID projects during Week 15, presented their revised personal ID models, and completed a written self-evaluation task. The following week, exam week, was used for the second individual conference, in which students discussed their project, what they learned, feedback on the course, and their grade. Figure 32 summarizes student responses and instructor assistance during Case 3.

Learning Tasks	Student Responses	Instructor Assistance
<b>Establishing context for the ID process</b>		
What is Learning?	Write and share their principles.	Welcome personal beliefs and encourage participation in class.
Learning principles	Write principles, group activity.	Structure to task; provide readings to start student thinking; form groups for discussion.
ID models	Presented visual and narrative of personal model in class.	Provide written feedback. Brief students on commonly used ID models.
<b>ID Instruction and Draft ID components</b>		
Needs assessment	Group activity to discuss needs assessment issue. Needs assessment activity, summary, goals. Make revisions.	Mini-lecture: overview; grouping to identify one needs assessment issue. Mini-lecture on formative evaluation and instructional media. Task sheet; feedback on written work.
Conference I	Written needs assessment strategy, KWL chart entries, mission statement; questions, feedback on class so far.	Review intent and mission statements; discuss instructional problem, mission, needs assessment strategy.
Sequence	Write sequencing plan.	Mini-lecture: taxonomies, task and instructional analysis as tools, clarify aims, goals, objectives, examine language used in goals. Task sheet; feedback on written work
Assessment	Share assessment words in class; group discussion. Write assessment plan.	Mini-lecture: assessment purposes; methods; validity, reliability measures; task sheet
Teaching models	Teaching demo; provide feedback for others; Write instructional methods	Mini-lecture: instructional events, teaching models; demonstrate 2 teaching models; task sheet.
Instructional media	Write instructional media plan	Distributed media packet of articles; mini-lecture: issues for administrators, designing and evaluating media materials; task sheet.
Program evaluation	Write program evaluation plan	Mini-lecture: overview; task sheet.

Figure 32. Student responses, instructor assistance during Case 3, Fall, 1995.

### Teaching Model Evaluation for Case 3

Student learning on ID projects. Of the nine projects available for analysis, five included the required components, the criteria for completeness. In the other four projects, one project lacked a mission statement, three lacked sufficient needs assessment, and three used a topical outline as a lesson sequence, but without any written justification for this choice. One project lacked assessment details, two projects lacked sufficient detail in the sample lesson component, and one project contained limited program evaluation details.

The mission statement task was used to track consistency of learning beliefs across project components. Six of the nine projects revealed consistency of beliefs. In the three that did not, one project used institutional beliefs in the mission statement, but were absent in the project. In a second project, the mission statement was missing altogether, and in the third project, the writing for the mission statement was unclear.

Only three of the nine projects exhibited coherence of components. In four of the six projects which lacked coherence, project components, such as assessment, teaching approach, and program evaluation, were not connected with project goals. In other words, within these components, the goals identified from a needs assessment, were not identified in the assessment, teaching approach, or program evaluation plan. In another project the student confused the instructional event (i.e., workshop) with a program in which it was embedded. The student used templates and elements of a program evaluation class as features in the project. And yet another project did not lay out details of the project within a sample lesson to “test out” the proposed decisions. Figure 33 summarizes student performance ID projects for Case 4.

Completeness	Consistency	Coherence
5/9 included all required components.	6/9 achieved consistency of beliefs across components.	3/9 achieved coherence of components.
Out of the four incomplete projects:	Out of the 3 inconsistent projects:	Out of the 6 projects which lacked coherence:
3 lacked sufficient needs assessment	1 – institutional beliefs not addressed in project.	(4) lacked an identification of project goals with components.
1 no mission statement	1 – mission statement missing.	(1) confused instructional event (project) with institutional program.
3 used topic outline without any rationale for sequencing	1 – unclear writing in mission statement.	(1) insufficient detail in sample lesson to test out design decisions.
2 insufficient detail in sample lesson		
1 insufficient detail in program evaluation.		

Figure 33. Student performance on ID projects for Case 3, Fall, 1995

Student perceptions of their learning. Student perceptions of instructors, instruction, and materials were obtained from the course evaluation (15 out of 22 students responded) and two student-instructor conferences. From the course evaluation, a majority of students believed that they gained greater-than-average gains in knowledge and theories (2.9 on a scale from 1-3),

problem solving ability (2.7), and subject appreciation (2.7). The majority of students who responded to the course evaluation cited the value of assignments as “excellent” (3.7 on a scale from 1-5), while all that responded (15/15) regarded the effort required in the course to be greater-than-average (3.6). “Very demanding time-wise,” was the comment from one student. Another student began the semester with, “I’m kinda confused about where I should be with this project” and completed the course saying, “I was confused a great deal of the time.” Her evaluation revealed that, “the parts were there, but I didn’t know how to organize them.” Some expressed anxiety over “too much to do” and think about, although when asked what should be cut out of the course, we received no concrete answers but two responses from the end of the course said: “It’s all necessary.” “You can’t get rid of anything.”

Three students reported the need to see as much of the “big picture” of instructional design as they could “to have a sense of where I’m going to end up.” Although we provided examples of previous design projects, concerns from the first conference included “What does a project look like?” and “How long should a project be?” Several students admitted to being “lost” early on until the last few weeks of the course, when “it all came together.” This was confirmed by analysis of student projects in which project coherence between phases was achieved through constant iteration and that submissions took several months to achieve a coherency across components. However, three students, who did not have teaching experience, reported appreciation for the task sheets with performance criteria. As analysis of student projects revealed, these novices seemed comfortable with working through the phases and regularly submitted work and made sense of “the puzzle pieces.” Others reported being uncomfortable with the uncertainty of the task or the overwhelming challenge from the instructional problems they chose.

Students identified the most challenging parts of the course as the tasks from the first couple of weeks, including identification of learning principles, mission statement, and needs assessment. Two students valued our alerting them to tasks, which we described as “hard,” or “challenging,” or “will take time,” while two students objected vocally to this labeling and preferred to discover this for themselves. From the self-evaluation, students regarded examination of learning beliefs and principles as valuable, particularly experienced teachers who used the course to review what they learned in earlier education courses and examine what they had been doing professionally, to “tie my learning beliefs to all aspects of performance.”

Small group work during class time received comments. Two students wanted to stay in the same groups, while three students reported dissatisfaction with lack of productivity in their groups, not having enough time, and ineffective communication when briefing group members about individuals. One design novice had difficulty understanding the domain-specific “lingo” of other group members, while another, a newcomer to teaching, had years of listening to such conversations from her parents, who were both teachers. During class time two students reported difficulty in making design decisions within groups as the activities took time and each design project was different.

Supplementary questions outside those required by the University course evaluation asked students to rate their value of particular activities and tasks (on a scale from 1 to 5, with 1 being “poor” to 5 being “excellent”). Of the tasks measured all had mean scores above 4. The highest mean scores included the Learning Principles task (4.6) individual conferences (4.6),

while the lowest mean scores were for the preliminary ID model task (3.6) and the teaching model presentation (4.2).

Concerns	Student reports
Effort	3.6 (on a 1-5 scale) All (15/15) greater-than-average effort. "Very demanding time-wise."
Learning	2.9 (on a 1-3 scale) greater-than-average gains in knowledge and theories. 2.7 (on a 1-3 scale) greater-than-average gains in problem solving ability. 2.7 (on a 1-3 scale) greater-than-average gains in subject appreciation.  (1) re-examine teaching next year (1) changed everyday thinking.
Groups	(2) stay in same groups, (3) dissatisfied with groups, (1) difficulty understanding group language, (1) comfortable with teacher talk, (2) difficulty making decisions in groups.
ID process	4.6 (on a 1-5 scale) learning principles task; 4.3 mission statement task. (2) objected to our labeling of some tasks as "hard."  For all coherence between components took several months. (3) need to see "big picture" of ID frequently. (1) "lost early," but came together by end of course.
ID project	3.7 (on a 1-5 scale) rated 'excellent' value of assignments. 4.6 for conferences. 4.2 for teaching demonstration.  (1) initial confusion over project, (1) too much to do, (2) "It's all necessary." (1) what does a project look like. (1) How long should the project be? (3) appreciated task sheets.

Figure 34. Student perceptions on their learning for Case 3, Fall, 1995.

Responsivity to learners. In terms of instructing, students (15/20) gave the instructors an overall rating of 3.9 (on a 1-4 scale), class administration (3.9), and cited their high amount of individual attention consistently provided over the course. Students highly regarded instructors' knowledge of the subject (3.9), success in communicating and making subject matter stimulating (3.7). Self reports included favorable response to teaching style and team teaching.

In terms of feeding-back and contingency management, another two means of responsiveness, students rated "grading fairness" at 3.8. One student commented that "your comments worked better for me than grading." The instructor's "concern and respect for students" was rated by the respondents at 4.0. Student comments reported favorably on instructor's time spent, availability, patience, and responsiveness to student questions, providing access to readings, and directing students to content-specific resources. Self reports also acknowledged that instructors maintained a clear grasp on student projects and encouraged students to make their own decisions.

Additional feeding-back and contingency management were available during the individual conferences, rated by students at 4.6 (on a 5-point scale). During the conferences we asked questions examining one's "design thinking," to be more explicit about what we meant by design understanding in our teaching model. For example, being able to see "the big picture" and

still attend to the details of an instructional design is a competency one needs to develop over time, if one is to use the systems approach (Shambaugh & Magliaro, 1996a). Several students reported the need to see the whole picture up front, but even when we complied and offered the “big picture,” the same students recanted, saying, “I liked the little steps. I need small steps to build success.” The students with more teaching experience needed to immerse themselves first, “Not until I saw the ‘whole’ could I ... really gain a feel for the process.... I just had a difficult time trying to make the connections between the components without ‘seeing the whole’ in its entirety.” Transfer of design thinking to practice was mentioned by two students: “When I go back to work next year and have to think about this process on a daily basis, which parts are heuristic, which parts can I just skip over....It will take some time to struggle with the ‘how-to’ aspect of designing and planning in such a comprehensive manner with daily instruction -- a daunting task to say the least, but one which is certainly necessary.” And a second comment on transfer: “I’m finding that this exposure is affecting my everyday thinking at work and at home, which, in my estimation is just about the most one can hope to get from a focused educational experience.”

In terms of cognitive structuring, supplementary questions recorded student perceptions on instructional materials. The highest rating was given to task sheets and performance criteria (4.6), followed by handouts/overheads (4.4), textbook (4.4), and student guide (4.2). Also rated were introductory chapters that discussed how to use the guide and an overview of the ID process (4.6), content and project sections (4.3 each), margin space for student notes (4.1), fictional stories (3.6), and the KWL self-assessment charts (2.9). Task criteria were new to this setting and three students openly valued them, the combination of task sheets/criteria prompted this comment: “You just broke it down for us so we were able to think about each section at a time” and “I need to know how I am doing.” Another student needed them to “pry folks like me along.”

For some students, the materials were insufficient or too much to manage. “I had a hard time figuring out where to put things.... The goldenrod paper (i.e., the project outline) just didn’t fit.” Several students pointed out that the project outline did not exactly match the task sheets. Task sheets were designed to help students begin a design phase and provided suggestions on developing a design component. Needs assessment, for example, involved three class sessions and three task sheets that addressed content, learners, and context. Some students wanted us to be even more concrete and specific in our instruction: “... physically hand us examples of the piece you want with the work done so we see what it looks like.”

Assistance	Student Rating		Student Reports
Instructing	Overall (1-4 scale)	3.9 15/20	Cited favorably teaching style and team teaching.  Mixed need to instructing “big picture” vs. components.
	Knowledge of subject	3.9 15/20	
	Communicating subject	3.7 15/20	
	Made subject stimulating	3.7 15/20	
	Value of assignments	3.7 15/20	
	Administration of class	3.9 15/20	
Feeding-back	Fairness in grading	3.8 11/20	Responded to student questions. Paid attention to projects. Comments “better than grading.”
	Conference I (1-5 scale)	4.6 12/20	
	Conference II	4.5 10/20	
Contingency management	Concern and respect for students (1-4 scale)	4.0 15/20	Individual attention, time, availability, patience, encouraged students to make decisions.
Cognitive structuring	Text (1-5 scale) Smith & Ragan	4.4 15/20	
	ID project	4.4 12/20	
	Task sheets/criteria	4.6 12/20	
	Handouts/overhead’s	4.4 12/20	
	Student guide (1-5 scale)	4.3 12/20	
	Content sections	4.3 12/20	
	Project example sections	4.3 12/20	
	Stories	3.6 12/20	
	KWL charts	2.9 12/20	
	Margin space	4.1 12/20	
Introductory sections	4.6 12/20		
Reflecting	Self-evaluation task (1-5 scale)	4.3 12/20	

Figure 35. Instructor responsivity to student needs for Case 3, Fall, 1995.

## Case 4: Fall, 1996

Case 4 met once per week for 3 hours for fifteen weeks in the Fall of 1996. Nineteen students enrolled in the course.

Design Decisions for Case 4

Learning tasks and course sequence. The second instructor-student conference was scheduled the week before the week-long Thanksgiving holiday. The titles for the ID phases, “Teaching Models” and “Sample Lesson,” were changed to “Instructional Frameworks” and “Prototype” to match the chapters in the student guide, now a publisher's prototype. Based on a student suggestion from Case 3, a new task for the first class, “Design a Lesson,” was intended to reveal students’ present planning and/or design processes (see Figure 36).

## Instructional Design Phases (ID process) →

Learning Beliefs	Design Tools	Needs Assessment	Lesson Sequence	Assessment	Instructional Frameworks	Prototype	Media	Program Evaluation
------------------	--------------	------------------	-----------------	------------	--------------------------	-----------	-------	--------------------

↑  
ONGOING DIALOGUE & LEARNING TASK FEEDBACK  
↓

## Learning Tasks (ID in action) →

Design a Lesson	Mission Statement	Project Intent Statement	Sequencing Plan	Assessment Plan	Teaching Demos	Prototype	Media Plan	Revised ID Model
What is Learning?	Prelim. ID Model	Needs Assessment and Goals			Instructional Framework			Final self-evaluation
Learning Principles	Preliminary Self Evaluation							
		Conference				Conference		
Starting Point		ID Project				Self Assessment		

Figure 36. Learning tasks and course sequence for Case 4, Fall, 1996

The assessment plan consisted of weekly submissions of draft ID project components (30%), the final ID project (35%), a personal ID model (20%), and “miscellaneous, but integral,” tasks (known as MIT’s), which were grouped together (15%). MIT’s included preliminary and final self-evaluation tasks, learning principles task, a preliminary ID model, and teaching demonstrations.

Instructional materials. The text included a publisher’s prototype of the fourth version of the student guide. Smith and Ragan’s (1993) Instructional Design text was retained as a supplementary text. Additional readings (31) from book chapters and journal articles were placed

on reserve in the University's library, including one set of the course's overhead transparencies and one set of 30 Design Activity forms used in the publisher's prototype. An electronic Listserv ([EDCI5164-L@listserv.vt.edu](mailto:EDCI5164-L@listserv.vt.edu)) was established to communicate with participants. Figure 37 summarizes design decisions for Case 4.

Design Decisions	Rationale
Assessment: miscellaneous but integral tasks (MIT's) grouped together, assigned 15% of the grade.	Clarify assessment rubric
Sequence: conference 2 scheduled before Thanksgiving	Provide guidance on projects before holiday to give students more time on projects
"Teaching Models" labeled as "Instructional Frameworks" and "Sample Lesson" to "Prototype"	Labels addressed a wider range of learning settings; matched chapter titles.
Added "Design A Lesson" as first task.	Reveal prior knowledge of planning processes.
Text: adopted publisher's prototype; retained Smith and Ragan (1993) as supplementary text	Publication version supported our instructional approach; Smith and Ragan as resource text.
Readings placed on library reserve.	Save photocopy costs and time.
Design activity forms	Tools to help students begin a design component.
Electronic Listserv	Increase communication options.

Figure 37. Design decisions for Case 4, Fall, 1996.

#### Teaching Model Implementation for Case 4

**Setting the context.** In Cases 1-3 the first in-class activity had asked students to write a response to "What is Learning? What is Instruction?" In Case 4 a "Design a Lesson" task asked students to write how they would plan/design a lesson addressing a topic of their choice. The purpose of this task was to prompt students to think about and record learning issues and their planning processes. Students compared their responses in groups and shared their results with the whole class. A total of 21 issues were raised by this activity, including interaction, group learning, prior knowledge, learning styles, assessment, curiosity, and ensuring success. Details of individual planning processes were not discussed owing to the hour and twenty minutes spent on this task. The class also included an overview of the syllabus, instructional materials, and 20 minutes in asking students to complete the questions: "What is Learning? What is instruction?" for review next class. Students reported being overwhelmed with the handouts and terminology raised. One student reported later that she "went home and read the whole [text]," while another student admitted "there were times when I wanted to cry."

Week 2 discussed learning theories in the context of a "learning principles task" in which students compiled a list of ten learning principles extracted from a set of readings on learning theories. The most common learning principle identified was "providing instruction meaningful

to students,” followed by individual learning differences, social interaction, instructional technology, cooperative learning, and modeling. Week 2 also featured an overview of mission statements, their purpose, benefits, and examples.

Between Weeks 2 and 3, in which students were asked to complete a mission statement of their learning beliefs and an intent statement of a project, personal meetings and email conversations with four students addressed concerns on project identification. For example, two personal meetings addressed project choice (i.e., indecision toward three possible project ideas: medical school faculty development, distance education, or historical survey web site; a choice of intensive Spanish experiences). Electronic mail also addressed two students and their struggle with learning theories and course requirements. Week 3 instruction discussed the implications of students’ learning principles on designing instruction. For example, the most cited principle extracted from the readings by students was “provide instruction meaningful to learners.” The implications of this principle for instructional design, as we discussed in class, was to use a needs assessment to learn more about learners and what resources could be utilized that would be relevant to learners; acknowledge student, as well as instructor, representations of content; and the selection of rich tasks that enabled learners to express these representations. During this class students were asked to explain their personal ID model before introducing commonly used ID models. Finally, to support work on their mission statements, a “Mission Statement Workshop” guided students on writing their mission statements.

ID instruction and draft ID projects. Instruction for Week 4 examined student definitions of instructional design that might impact the ID process. An overview of needs assessment, the beginning of the ID process, identified its purposes and tools (i.e., literature review, interviews, external data sources, learner profile, context analysis), followed by a group task in which members identified and discussed a question to examine in a needs assessment.

During Case 4 electronic mail was used by students to send us feedback (email text or as word processing file attachments) on course activities and draft ID project components. For example, between Weeks 3 and 4 we responded to questions from six of the 20 students on project selection, mission statements, and what they had read. In one instance, both of us responded similarly but with some difference to one student’s decision on three project options. I responded with “All three of these are worthwhile areas to work in. My suggestion is to examine a project idea in each of these and decide which one is most interesting, valuable, or timely for you.... I think a project idea selection is important for you at this point” (email, 9-16-96). In contrast, Dr. Magliaro’s comments included: “I would suggest that you try to focus on your project.... This would situate your work in a particular setting and keep the two statements [mission statement, intent statement] in concert.... Remember, you don’t have to have THE right answer right away.” Electronic mail was also used by us to share ideas and suggestions for the next week’s course, augmenting or sometimes replacing our weekly in-person consultations. I would volunteer instructional components, such as overhead transparency ideas and activities (i.e., “Jumpstart to Needs Assessment”) for a needs assessment overview in Week 4, as well as make suggestions on the agenda for the next class. Dr. Magliaro would consider these suggestions and post the next class meeting’s agenda to the course Listserv. These agendas would include not only the agenda items, but an outline of the notes for the class.

An hour-long conference with each student was scheduled during Week 5. The agenda included the students’ needs assessment strategy, draft curriculum (i.e., an outline of what’s to be

taught), and any other questions and concerns about the class or project. For our part, preparation involved reading project intent and mission statements, and clearing our schedule for 20-plus hours of individual conferences. Students commented during the first conference on the course in general, coping with the new terminology from instructional design and educational psychology, and initial concerns of being “overwhelmed and frightened.” One newcomer to the graduate program reported that she had “been used to being lectured at,” while another student commented that the course was “more complex than I’m used to.”

By Week 6 (week 3 of needs assessment) project selection remained an issue for at least two students, who eventually made a project choice or narrowed down an original choice through personal and/or electronic mail feedback. Other issues included revisions to mission statements and questions about the various types of models discussed so far (i.e., models of learners, ID models, curricular models). Because of these concerns, the class session for Week 6 began by examining how one might view content and decide “what to teach.” This was followed by Goal Identification, in which we introduced learner profiles and context analysis (Tessmer, 1990) as needs assessment tools to help make goal decisions. To support these ideas an in-class task was developed that guided participants to identify the major issues of content, learners, and learning context, and to identify one or two goals to address these issues. Examining student work and concerns on their submissions during Week 6, I commented on the class Listserv on a number of issues, including the need for students to experience the whole process before one can “understand the parts” (Schön, 1987). I suggested that participants clarify their mission statements to address their views of learners, of learning, and teaching and that a mission statement might require revisiting over the semester. For some students the mission statement was another version of their project intent statement. I asked the students on the Listserv whether or not they learned anything new from a needs assessment and to what extent they might need to change the focus of their project. Finally, I suggested that students limit their project goals to 5, examine the words one chooses to specify the goals, identify learning levels for each, and identify instructor goals as well as learner goals.

Week 7’s meeting addressed student concerns on managing projects, including submitting weekly work, interpreting our written feedback, including mission and intent statements with submissions, summarizing how to capitalize or circumvent resources and constraints, and thinking about learners with disabilities. Week 7’s presentation addressed lesson sequencing, by examining aims-goals-objectives differences, introducing taxonomies as a sequencing tool (e.g., simple to complex), and briefing the students on task and instructional analysis. An in-class group task was developed to provide participants with practice in using these tools. The publisher’s prototype of the student guide represented task and instructional analysis as one activity, “learning task analysis,” which combined both task analysis and instructional analysis, in order to tighten the connection between the two and based on our experience that students sometimes inverted the two or completed one and not the other. This difference in terminology was pointed out to students in an email posting (10-9-96). Issues identified from student work submitted during Week 7 included mission statements, goal identification (prioritize, organize, eliminate, translate into objectives), and needs assessment (identify instructional media needs, cite reading and interview sources, write more about learners).

Weeks 8-12 continued instruction on design components: assessment, instructional frameworks, and instructional media. Assessment discussion spanned Weeks 8 and 9 and began

by using student perceptions of assessment. Key words identified from their in-class responses were represented as a web on the blackboard to visually demonstrate the range of assessment purposes. To begin their assessment plan for their projects, groups were formed and a task sheet asked students to list their ID project goals, then record their assessment purposes, and choose appropriate assessment methods. After examination of student work submitted during this week (12/20), general feedback was posted on the course Listserv. These comments addressed students' work on needs assessment (ask your participants, summarize your findings), goals (identify in your lessons, clarify "will understand," "will appreciate"), sequence (use task analysis for major tasks, sequencing rationale), and project concerns (narrow problem choice, negotiating between a class project and a real project, organizing project document, write more).

During Week 9 assessment continued by discussing what is "good performance," what is mastery, "What Is a True Test" (Wiggins, 1989). We cited student examples of tasks with embedded assessments (i.e., writing a video treatment, playing out a role, designing a web page). Students were divided into six groups to identify assessment issues, which was summarized and posted on the course Listserv. Based on student work submitted during Week 9, suggestions were made in terms of matching goals with design decisions, determining assessment criteria, and adding more details in lesson sequences.

At this point in the course and based on work we had seen and discussions with students, six students had submitted work on a timely fashion and had completed ID task criteria, five were judged to be still "trying to put the pieces together," while eight students had not submitted enough drafts for us to make an assessment of their ID process understanding. For example, one student commented that "I'm sitting on it for a little bit, thinking a lot of things through before I put them on paper" (email 10-23-96). One student's submissions represented her needs as a teacher and did not systematically address learner needs. During Week 9 I met with three students and responded to questions from four other students on electronic mail. One of these four continued to electronically submit ID project components for feedback, although his submissions were several weeks behind the due dates for drafts. I interacted regularly in person or on electronic mail with four students who used electronic mail to submit drafts or ask questions.

Four weeks were spent on Instructional Frameworks, Weeks 9-10 for instruction and Weeks 11-12 involved student teaching demonstrations. To set the stage for a discussion of teaching models in Week 9, Dr. Magliaro demonstrated synectics and used this approach to list the components of a teaching model (Joyce & Weil, 1996). Week 10 instruction included revisiting theories that underlie teaching models by using the family categorization in Joyce, Weil, and Showers (1992), and how different teaching models (i.e., direct instruction, advance organizer) covered Gagné's set of instructional events. Week 10 also included an instructional media presentation, which was organized by five questions in order to frame media issues as questions that needed decisions. These questions included (a) What are my instructional media possibilities?, (b) Does instructional media support my goals?, (c) Does my choice of media materials promote learning?, (d) What are my options? (i.e., buy, adapt, develop media), and (e) How do I evaluate media in my project? A task sheet was developed to guide students in class to examine their perceptions to instructional media, identify media possibilities, and ask themselves if their choices supported their goals. Analysis of student work handed in during Week 10 (5/20)

resulted in suggestions for students to re-order ID components (2), include more details in the learner profile (2), and decide on goals (1).

Teaching demonstrations included the PACE model of teaching a second language, synectics, self-control, non-directive teaching, teaching with PowerPoint™, concept attainment, Community Content-Based Instruction (ESL teaching using themes), role playing, and advance organizers. A PMI form (plusses-minutes-interesting ideas) was used by the students to provide the presenters with their feedback, which was posted as an attachment on a submission to the course Listserv. Task sheets for instructional frameworks and lesson prototype components of the project were distributed.

The course Listserv was used extensively during Case 4 and included not only posting of the notes for the next class meeting, but reminders of campus events and educational resources. Information was also posted regarding copyright issues on the World Wide Web, interacting on course Listservs, online cooperation, and the issue of requiring teachers and students to learn online. Submission of drafts increased significantly from three students during Week 12, either through email or through file attachments to electronic mail messages. One student posted five files during Week 12 and six during Week 13 for review. In addition, these postings sometimes included questions which required responses.

In previous cases the second individual conference was scheduled late in the semester to discuss course and self-evaluations. Based on the previous iteration of the course (Fall, 1995), the second conference was moved to Week 13, prior to the Thanksgiving holiday week, to give students a reading of their draft projects and more time to make revisions. Several students did not submit draft components a weekly basis. One student said he “needed time for it all to make sense.” The conference re-scheduling provided additional support to help students move their projects to completion. During this second conference workshops were being discussed as several students featured workshops for teacher staff development in their projects. From the first conference we prompted students to think about “What do you want participants to gain?” In the second conference we suggested ways to have participants in these settings share the responsibility for making content decisions with the participants of the workshops. As one student said “Letting teachers decide lifted a huge load off of me.”

Week 14 involved Program Evaluation and a discussion of program evaluation purposes (appraise success of design, make judgments on changes/acceptance), criteria (effectiveness, efficiency, appeal), evaluation models of (goal-oriented, decision-oriented, responsive, evaluation research, goal-free, advocacy, utilization), and formative/summative dimensions. During Week 15 students submitted their completed ID projects, course evaluations, and revised ID models, which were shared in class. A PMI (plusses-minuses-interesting tasks for next time) form was distributed in class, which asked students to comment on course content and sequence, tasks, teaching, book, and ID project. Figure 38 summarizes student responses and instructor assistance during Case 4.

Learning Tasks	Student Responses	Instructor Assistance
<b>Establishing context for the ID process</b>		
Design a Lesson	Write their planning process; introduce themselves; group activity identified 21 issues.	Structure task for students to think about learning issues and their planning processes.
Learning principles task	Recorded list of 10 principles; Class discussion; struggle with learning theories and terminology	Task sheet; provided readings; class discussion; mini-lecture: implications of learning principles on designing instruction; distributed booklet of students' learning principles.
Mission Statement	Wrote narrative incorporating learning principles; revisions.	Task sheet; mini-lecture: overview of mission statement purpose, benefits, examples; Mission Statement Workshop.
Intent Statement	Choose and record details of proposed instructional problem; concern over project requirements.	Task sheet; written feedback, personal meetings and email feedback.
ID model task	Visualize and explain personal ID model on paper and in class.	Review commonly used ID models; provide feedback; distribute booklet of students' ID models.
<b>ID Instruction and Draft ID Project</b>		
Needs Assessment	Group activity; needs assessment activity, goal identification. Submissions on paper or through email.	Instruction 3 weeks. Mini-lecture: needs assessment purposes and tools; feedback on written work; task sheet (3 versions), goal identification activity in class.
Conference I	Needs assessment strategy, intent and mission statements	Review work to date; discuss mission and project choice, needs assessment efforts.
Sequence	Project revisions; sequencing plan	Task sheet; written feedback; project management guidelines, mini-lecture: differences between aims, goals, objectives, taxonomies, task and instructional analyses as tools.
Assessment	In class: student perceptions of assessment, assessment purposes and tools, issues; written assessment plan.	Instruction over 2 weeks. Task sheet; written feedback; in-class group activities, mini-lecture: what is mastery; assessment purposes/tools.
Teaching models	Teaching demonstration. Feedback to others. Written teaching plan.	Instruction 4 weeks. Task sheet; written feedback. Mini-lectures (2): teaching model components, theories, instructional events. Instructional media presentation. Email resources and current event notices.
Program evaluation	Written program evaluation plan.	Mini-lecture: overview, in-class example, chart as tool for formative/summative evaluation.

Figure 38. Student responses, instructor assistance during Case 4, Fall, 1996.

#### Teaching Model Evaluation for Case 4

Student performance on final ID projects. Five completed ID projects were available for analysis. Four out of five projects included all required components, the criteria for completeness. For the fifth project the student did not use the task analysis to examine the complexity of the identified skill (i.e., “be able to work in groups, comment, and make suggestions”). This project needed more details on supporting the social interaction of students. The sequence was not laid out in this project.

Although a project outline listed required components, students responded with some unique features. One project included not only instructor and learner goals, but organizational goals. The five projects analyzed provided rationales to how they sequenced content: (a) by problem solving procedures, (b) by topic and by lessons, (c) by goals, (d) by web page creation procedures, and (e) by historical inquiry procedures. Gagné’s (1970) instructional events were used in the project’s prototype lesson to represent not only “teacher moves” but “learner moves” as well. In a project using the WWW as an online historical inquiry tool, Gagné’s events were specified for the Web (i.e., entry screen as attention, pages as organizer for inquiry approach, information pages, pages for practice, feedback, review), and laid out a historical inquiry sequence by a visual map of proposed Web pages. Another WWW project involved the demands of completing an ID project and responding to the organizational agenda of the actual setting of the project.

All five projects exhibited consistency of learning beliefs across project components. Consistency was analyzed by examining the language used in the mission statement and then examining student decisions in design components. In the first project technology literacy in elementary grades was described as having technological awareness, appreciation, and integration in curriculum. The project specified that parents and administrators would be involved in technology literacy decisions, while cooperative learning and cognitive apprenticeships were proposed as the teaching approach to hands-on activities and social activities. In the second project the learning environment for Korean English-speaking tour guides proposed using Community Content-Based Instruction (CCBI) and the PACE model within authentic activities (e.g., television, audio, games, conversation) to improve conversational language. In the third project a communication approach was proposed to help employees improve their English using role playing and non-directive teaching. In the fourth project self-directedness was viewed as the means to help individuals at remote locations support web page updating. Direct instruction of web site design and web site maintenance skills were proposed plus guidelines to update sites to organize guidelines. In the fifth project technologies-as-tools were proposed to help people create personal representations and understanding of the world around them. The project used historical inquiry procedures to help individuals and groups to investigate local history and incorporated portfolios and a final project as assessments.

All five projects exhibited coherence of design decisions across all components. For example, in the project designed to improve language competency and cultural awareness for Korean English-speaking tour guides, the student incorporated the PACE model, an instructional method which contextualizes language form (e.g., sound system, word formation, syntax) instruction into a whole language lesson. The project also specified the use of Community Content-Based Instruction to address the cultural issues of the learners. The project identified 16 weeks of lessons using television, audio, reading, games, and conversations. The student

identified seven assessment tools and used a prototype lesson to illustrate how the PACE model would be used in a lesson, including assessment tools and lesson options.

A second example of coherence was a project providing university alumni chapters with instruction on designing alumni chapter web pages and guidance on maintaining these pages in ways that support the sometimes conflicting aims of the alumni chapters and the overall alumni organization. The student reported that eight revisions were needed to develop her instructional design. The document included an in-depth narrative of the “beliefs and principles that underlie the project,” a survey of alumni chapter members responsible for their chapter’s web pages, a set of goals for the alumni organization, the web site project, instructor, and learners. Advance organizers, used within a direct instruction model, introduced chapter members to web page basics, while a cognitive apprenticeship model provided these members with guidelines on teaching others and taking responsible for their own web site updates. Checklists, self-assessment, and feedback were laid out as assessment tools. This project was being implemented while it was being designed and the student struggled with the demands of designing a course ID document that also served the needs of a client (see Figure 39).

Completeness	Consistency	Coherence
4/5 had all components. The 5 <sup>th</sup> project incorrectly used task analysis to examine the identified skill in the prototype lesson. The lesson sequence was not laid out by instruction, but by topic along.	5/5 achieved consistency of learning beliefs across project components.	5/5 achieved coherence across all components.

Figure 39. Student performance on completed ID projects for Case 4, Fall, 1996.

Student perceptions of their learning. Students rated the overall value of assignments at 3.8 (on a 1-4 scale) and their gains (on a scale from 1 to 3) in knowledge and theory (2.9), problem solving ability (2.8), and subject appreciation (2.8) as “average.” Students reported that the course provided a “whole new way of thinking,” a “real mind stretcher – totally changed the way I see the world.” One student cited the challenge of the course as “the most intense, most challenging course that I have ever encountered.” Another student described the ID course as a “very difficult course,” while another reported “too much to deal with all at once.” Comments about the class in general included requests for a two-semester course. One student suggested that a first course would present the process and the second would involve the project, while another suggested a two-semester version to present the whole process, in order to “slow down and provide more time to read” and cope with “too much going on.”

Students rated group activities at 4.4 (on a 1 to 5 scale). One example of grouping involved six small groups discussing assessment issues at Week 9. Membership in the groups was based on project similarity. Each group was asked to draw up three issues or questions about assessment. One of the six groups not only identified issues but offered suggestions. For example, one question asked, “How to expand on what has been previously learned.” One suggestion by the group was to use small groups to give students opportunity to be comfortable

in “participating and taking risks to answer questions.” The group members also self-assessed their performance in the group activity and reported “We found different ways to monitor and assess students’ work.”

Assessment issues differed by groups, which were grouped on the basis of their ID project choice. A staff development group asked about how to assess learning in workshops. A technology group asked about needing objectives for assessment and to what extent learners could self-assess. Novice teachers asked about assignments not handed in, students who did not participate in activities, how to assess process versus product, and how to convert a qualitative process to a percentage of a grade. An experienced-teachers group asked how to assess students working on different activities, who learn at different paces, and how to move away from negative connotations of assessment.

The instructional design project was rated by students as 4.7 (on a scale of 1-5). Two students commented on designing from the standpoint of a teacher first, designer second. “Thinking of myself as a teacher then designer” and “I never stepped out as a designer. I stayed as a teacher.” Four students said they would do a better job with the needs assessment, spending more time on it and conducting more in depth research and keeping up with maintaining a reference list. “I didn’t know who my learners were.” Students “learned from putting a project together, while I felt I was in pieces as I couldn’t see the big picture.” The project forced people to “pull together” decisions on all of the components. One teacher said that she had “gained knowledge that I hadn’t had,” that instructional design was “more than a lesson plan,” but a “way to approach my other classes.”

Concerns	Student Perceptions
Effort	Effort required = 2.9 (1 = LT avg, 2 = Avg, 3 = GT avg.) 20/20 Value of assignments = 3.8 (1-4 scale) 20/20 (1) “Most intense, challenging course I have taken. It was also the best.” (1) Very well structured. Just enough anxiety.”
Learning	Gains in knowledge = 2.9 (1 = LT avg, 2 = Avg, 3 = GT avg.) 20/20 Gains in problem solving = 2.8 (1 = LT avg, 2 = Avg, 3 = GT avg.) 20/20 Gains in appreciation of subject = 2.8 (1 = LT avg, 2 = Avg, 3 = GT avg.) 20/20 (1) “A whole new way of thinking” (1) “A real mind stretcher. Totally changed the way I see the world.” (1) I have learned a beginning for things I will learn about the rest of my life.” (1) “Makes you think.” (1) “My perceptions of program development are clearer.” (1) “I can think and listen in terms of a designer.”
Groups	4.4 (on a 1-5 scale) 20/20 (1) “Good group of students who were willing to share ideas and take risks with the material.”
ID process	(1) “Very difficult.” (1) “Too much to deal with at once.” (1) “Needed more direction on mission statement. Had trouble getting started.”
ID project	4.7 (on a 1-5 scale) 20/20

Figure 40. Student perceptions of their learning during Case 4, Fall, 1996.

Instructor responsivity. In terms of instructing, students assigned a rating of 3.9 (on a scale of 1 for poor to 4 for excellent) to the teacher’s administration of the class and to the

instructor, including knowledge of subject (3.9), success in communication (3.8), and made the subject stimulating (3.8).

In terms of contingency management, the instructor received a high rating on “concern and respect for students” (3.9), who “puts the learners first” and “your concern and attention to my work is greatly appreciated.” Students also cited grading fairness (3.7).

In terms of feeding-back and questioning, two additional means of responsivity, two student-instructor conferences were scheduled during Case 4, the first for Week 5 for the purpose of examining students’ mission statements, views on curriculum, and a needs assessment strategy. The second conference was scheduled just before the Thanksgiving break during Week 13 for the purpose of providing feedback on students’ ID projects before handing them in. Students rated the two conferences, on a scale of 1 to 5, at 4.5. From the OPSCAN one student wrote, “I greatly enjoyed the discussions and layout of the instruction” and “the interactions/discussion meetings were excellent,” with students “who were willing to share ideas and take risks with the material.”

Teaching demonstrations (4.4, supplementary questions, 20/20) and the fictional stories (3.8, 19/20) in the student guide provided examples of modeling, another means to support student performance.

In terms of cognitive structuring, adequacy of the textbooks and materials were rated by students at 3.6 (on the OPSCAN scale of 1-4), while (on the supplementary question scale of 1-5) the Smith and Ragan text rated 3.6, the Shambaugh and Magliaro text at 4.3; the task sheets at 4.5 and the handouts were rated 4.2. The highest rated feature of the Shambaugh and Magliaro text was the Design Activities (4.5), while the lowest was the stories (3.8). Figure 41 summarizes instructor responsivity to student needs for Case 4.

Assistance	Student Rating		Student Comments
Instructing	Overall (1-4 scale)	3.9 20/20	"Really puts the learners first."
	Knowledge of subject	3.9 20/20	
	Communicating subject	3.8 20/20	
	Made subject stimulating	3.8 20/20	
	Administration of class	3.9 19/20	
Feeding-back	Fairness in grading (1-4 scale)	3.7 12/20	"Appreciated written comments."
	Conferences (1-5 scale)	4.5 20/20	
	Grouping (1-5 scale)	4.4 20/20	"Interactions/discussion meetings were excellent."
Contingency management	Concern and respect for students	3.9 20/20	"Your concern and attention to my work is greatly appreciated." "Atmosphere in the classroom was a safe place to express ideas."
Modeling	Teaching demonstrations (1-5 scale)	4.4 20/20	"... a good way to begin my graduate program."
	Stories in text (1-5 scale)	3.8 19/20	"I did not use the stories in the book."
Cognitive structuring	Organization of course (1-5 scale)	4.6 20/20	(2) "Well thought out course."
	ID Project (1-5 scale)	4.7 20/20	
	S&R Text (1-5 scale)	3.6 18/20	
	S&M Text (1-5 scale)	4.3 19/20	
	(OPSCAN 1-4 scale)	3.6 20/20	
	Task sheets (1-5 scale)	4.5 20/20	
	Learning principles (1-5 scale)	4.7 20/20	
	Mission statement (1-5 scale)	4.3 20/20	
	Prelim. ID model (1-5 scale)	4.1 20/20	
	Revised ID model (1-5 scale)	4.5 20/20	
	Handouts/Overhead's (1-5 scale)	4.2 20/20	
	Design activities (1-5 scale)	4.5 20/20	
Forms package (1-5 scale)	4.4 17/20		
Reflecting	Self-evaluation task (1-5 scale)	4.1 20/20	

Figure 41. Instructor responsivity to student needs for Case 4, Fall, 1996.

## Case 5: Fall, 1997

Case 5 met once per week for 3 hours for fifteen weeks in the Fall of 1997. Sixteen students enrolled in the course.

Design Decisions for Case 5

Learning tasks and course sequence. One change to the course sequence involved switching “Instructional Media” with “Prototype” to incorporate media decisions in students' projects and to match the sequence of the textbook, and moving Conference 2 up from Week 13 to Week 10 to address student concerns on their projects. Design activities, found in the text and on the web site, were referenced for the first time in the course syllabus (see Figure 42).

## ID INSTRUCTION: Instructional Design Phases →

Learning Beliefs	Design Tools	Needs Assessment	Lesson Sequence	Assessment	Instructional Frameworks	Instructional Media	Prototype	Program Evaluation
------------------	--------------	------------------	-----------------	------------	--------------------------	---------------------	-----------	--------------------

↑  
ONGOING DIALOGUE & LEARNING TASK FEEDBACK  
↓

## ID PROJECT: Learning Tasks →

Design a Lesson	Prelim. ID Model	Project Intent Statement	Sequencing Plan	Assessment Plan	Teaching Demos	Instructional Media Plan	Prototype Lesson	Revised ID Model
What is Learning?	Preliminary Self Evaluation	Needs Assessment and Goals			Instructional Framework			Final self-evaluation
Learning Principles	Mission Statement							
		Conference			Conference			
Starting Point		ID Project					Self Assessment	

Figure 42. Learning tasks and course sequence for Case 5.

Adjustments to the assessment rubric included (1) assigning the same percentage of the final grade to weekly submissions of ID project and final ID project (35%), and (2) adding weekly feedback on class and textbook to Miscellaneous-but-Integral Tasks (MIT's). To provide feedback on the text, customized questions for each chapter were distributed during the class session in which the topic was being discussed.

Instructional materials. Case 5 was the first delivery of the ID course featuring the published version of the student guide (Shambaugh & Magliaro, 1997). A website was added, which provided participants with electronic access to course syllabus, task sheets/criteria, project outline, URL links to resources, process learning hints, and Design Activities. The web site's “process learning hints” consisted of suggestions on participating within different structures:

electronic (Listserv and WWW), instructor, peers, project, textbook, and reflective activities. These “Process Learning Hints” included:

1. Interacting Online – Listserv
2. Interacting Online – Web chats [not implemented]
3. Assessing Yourself
4. Individual Conferences
5. The Nature of Iterative Work
6. Managing Your ID Project
7. Using the Text
8. Learning in Groups
9. Demonstration Lessons
10. Submitting Work to Work Folders [not implemented]

Participation structures. Design Activities replicated those found in the text. Readings were planned to be added to the site but were not because of difficulties with scanning documents. An electronic Listserv was established to distribute weekly agendas, notes, and reminders (ID-1@listserv.vt.edu). We decided to address the membership of group activities, mixing up group membership early in the semester to improve discussion across different content areas and interests and improve the structure of tasks to increase thinking during group activity. We also decided to use students’ projects as examples of ID projects under development. My participation in each week’s instruction was limited to the second half of each class as I attended another course. Planned but not implemented were web chats on the web site and submitting work to folders on the web site. Based on student comments of “too much to do” and our concern that too much was being expected of students, we decided that sufficient participation structures were already in place. Figure 43 summarizes design decisions for Case 5.

Design Decisions	Rationale
Moved “Instructional Media” before “Prototype.”	Matched course sequence with text sequence.
Referenced Design Activities in syllabus.	Improved connection between textbook and course instruction.
Added web site.	Additional source for course materials, assistance.
Added “Process Learning Hints”	Provided guidance on participation structures.
Decided not to implement web chats and work folders.	Sufficient participation structures in place.
Equalized assessment for weekly work and final ID project at 35%.	Assigned equal “worth” to draft and finished work.
Added class/text feedback to MIT tasks.	Modeled formative evaluation to receive student feedback on published text.
Mixed up group membership early in the semester.	Increased opportunity for students to learn from each other.
Improved structure of group tasks.	Increased thinking of group members.
Used Design Activities in text.	Connected tasks with book tasks.
Used student projects for class review.	Provided examples of ID projects under development

Figure 43. Summary of design decisions for Case 5, Fall, 1997.

### Teaching Model Implementation for Case 5

Setting the context. The class size of 16 allowed participants to sit in a circle, so everyone could see and talk with each other. During Week 1 the participants shared their previous experiences and educational backgrounds. We also shared our instructional approach through a visual of our reflexive model and discussed its features: requirements for instructor and student, and the dialogue within the learning tasks. Tasks used during Weeks 1-3 to promote dialogue on learning and instructional design included: “Design a Lesson” and “What is Learning/Instruction” task in Week 1, a Learning Principles task and survey of instructional design competencies in Week 2, and sharing of personal ID models in Class 3. The “Design A Lesson” task was the first Design Activity in the text, and its purpose was to help reveal to students what they knew about instructional design using a task familiar to many teachers. Students introduced themselves and briefly discussed what they wrote. The Learning Principles task was identical to that used in previous cases, asking students to read three articles addressing learning theories and identifying ten learning principles based on these theories. A survey of designer competencies had students rate their abilities on a list of designer competencies (Seels & Glasgow, 1990; Shambaugh & Magliaro, 1996a). This task was used as the basis for a class discussion on what makes a “good designer.”

During Week 2 students' learning principles were discussed in a group activity in which student papers were exchanged and read and were asked to assign "stars" behind principles they agreed with and "checkmarks" beside learning principles they disagreed with. The class debriefed on these decisions. Students' learning principles were collected, photocopied, and distributed as a packet to the class.

To assist student thinking on writing a mission statement, a Mission Statement Workshop was revised and implemented. The workshop format was chosen to model this type of instructional event, as five students used workshops in their projects. A brochure and badge were handed out in Class 1 to "advertise" the following week's simulation of workshop activity. The Workshop consisted of distributing a folder of materials, introducing students to mission statement purposes, examples, and "walking-through" a worksheet to help students write their mission statement. However, only 30 minutes were available for the Workshop and no group activity was possible.

During Class 3, a "show-and-tell" day, students shared their personal ID models, mission statements, and project intent statements. Thirteen out of 15 models matched students' definition of instructional design. Four of 15 models, however, did not complete this task according to the instruction for the task. Popular ID models (e.g., Dick & Carey, 1996; Kemp, Morrison, & Ross, 1996; Tripp & Bichelmeyer, 1990) were introduced, as well as our representation used in the text (Shambaugh & Magliaro, 1997). Students' models were examined in groups by identifying similarities and differences. Students' mission statements and intent statements were also discussed in class.

ID instruction and draft ID project components. Instructional design process instruction began in Week 4 and consisted of an overview examining the functions of a needs assessment, components to examine (i.e., content, learners, context), and selection of an instructional problem. Initial instruction on "content" introduced students to a range of ideologies driving curriculum (Eisner, 1994) and conceptions of curriculum that connected one's learning beliefs with content and process. A group activity, consisting of students generating and sharing questions, was used to "jumpstart" the needs assessment. Resulting questions were handed in and provided the instructors with information to help prepare for the first personal conference during Week 5.

Week 5 included the first individual conference with students. Eight of the 16 projects were targeted for implementation and students faced outside client demands that exceeded the course requirements. The proposed instructional event for their projects included workshops (5), courses (5), web sites (4), summer camp (1), and a curriculum re-design (1). Several project issues emerged from the conferences. Four of sixteen students had difficulties with identifying and clarifying an instructional problem. In the projects targeted for implementation, students talked about the conflicts of designing for client expectations versus client needs, particularly in two projects involving web site development and support. Instructors suggested that a needs assessment include an examination of the client's culture; for example, a county's views of special education, another county's program to train teachers in the use of computer technology, and a teacher education program. Other students (6/16) proposed writing instructional materials, such as manuals and workshop materials (5/16). We urged that research be conducted on the learning issues of designing these materials. In almost all cases, we suggested that research be conducted on ways to teach the content (e.g., experiential learning of geography and science, a

thematic approach to history, using the web to support writing). Other challenges identified from this first conference included personal and academic commitments, difficulties moving thinking to paper, and the lack of a specific “site” to investigate a proposed instructional problem.

The theme of Week 6 was “Goal Identification” and was the third of three weeks devoted to needs assessment. A mini-lecture presented issues surrounding learners, including learner characteristics, essential and supporting prerequisites, remediation, context, and dealing with resources and constraints facing the designer. A group activity asked students to identify issues of learners and context. A second mini-lecture discussed taxonomies; their different domains, characteristics, and advantages and disadvantages; and goal identification, particularly ways to sort priorities of constituencies influencing the project.

Week 7 was the first week of the design phases. A mini-lecture reviewed the differences between aims/mission, goals, and objectives and used a design activity in the “Sequence of Instruction” chapter of the text to help students “Match Learning Goals with Learning Types.” We reminded students to consider the social aspects of learning not addressed by the taxonomies. Sequencing instruction by learning types (i.e., simple to complex) and flexible understanding (i.e., build on learners’ representation, transfer to other problems, use of cognitive strategies, use of reflective activities) were presented. Also introduced were task and instructional analyses. An in-class group activity analyzed the task and learning requirements of developing a mission statement. Analysis of student work submitted during Week 7 revealed minimal writing on context. Students were encouraged to use an article on context analysis (Tessmer, 1990) to write about how they planned to capitalize or circumvent these resources and constraints. In addition, students were reminded to consider learners with disabilities in their learner profiles.

Week 8 addressed assessment. Joining the class were members of a College Teaching class. A panel discussion on assessment was conducted involving all of the students and three faculty. Analysis of student work submitted during Week 8 continued to involve needs assessment findings and goals. Incomplete needs assessment data was common from projects using surveys and interviews. In some projects the needs assessment narrative lacked sufficient contextual details (e.g., what is meant by an “adapted version”?). Instructor suggestions included the need to re-organize, consolidate, and simplify goals. Some goals were too broad, such as “Develop creative skills,” “Develop computer literacy,” or “Support rites of passage.” The issue of what students meant by “understanding” emerged (e.g., “Students will understand culture.”). Students were urged to be more specific about what they intended learners to understand so that assessment options would become more clear. We prompted participants to think about the affective components of goals, particularly in intellectual learning, and what was meant by goals that asked students to “appreciate.” Some projects revealed a mismatch in mission and goals. One student wrote about “presenting opportunities” and later laid out content based on her own experiences, rather than also considering the experiences of the participants.

Some projects, which used a topical outline of content, did not include an estimate of how much time would be assigned for instructional activities. Many instructional events in student projects were driven by time limitations, such as topical units and workshops, and included more activities than could be reasonably achieved. Workshop goals needed to be more explicit about what content and activities could be achieved in a limited time. Four of sixteen students with web site-related projects asked questions about sequencing and assessment issues. Some Intent

Statements were not addressed. One project specified a workshop and booklet, but the booklet's design and content were ignored in the project drafts.

To address some of these workshop issues, a workshop on workshops was delivered by a guest during Week 9. Additional instruction addressed the "Instructional Frameworks" phase of instructional design by describing components of teaching models and Gagné's events of instruction. On email or during personal visits we responded to questions on the differences between normative and criterion-referenced assessment, student choice of an instructional problem, and guidelines and feedback on the upcoming lesson demonstrations. During this time I submitted to the course Listserv a number of web site addresses for public schools, guidelines for creating school home pages, web site style guide, web site internal/external evaluation, a web site prototype lesson example, and a web site to review one's web site as appropriate for learners with disabilities. I also suggested web sites or Listserv resources for each of the sixteen students and distributed these on the course Listserv. For example, one student received a resource for "Student Ambassadors," originally developed within the Global Schoolhouse® project, as a possible immersive language activity.

The second conference was held at the end of October during Week 10, a month after the first conference. Originally, the syllabus had called for the second conference to be held during Week 13 just prior to the Thanksgiving holiday week, but was moved up to address student concerns. Student issues reported at this conference included the assessment and program evaluation of web sites, identification of goals, and the write-up of needs assessment findings. During the conference we helped students to "talk out" the learning levels in their goals and develop sequences of lessons or activities.

Weeks 11, 12, and 13 were devoted to student demonstration of their teaching models and prototypes of their projects. Weeks 12 and 13 were moved to a library computer lab and department computer lab to better support the demonstration of models of student projects. Audience members provided written feedback for presenters.

Week 14 addressed Program Evaluation. A mini-lecture provided an overview of program evaluation, including its purposes, criteria, models, and formative and summative program evaluation. The program evaluation process was presented as a sequence of determining one's evaluation focus, writing up a list of evaluation questions, and deciding who and how the evaluation was to be conducted. A group activity evaluated the University's updated comprehensive plan.

During the last class meeting, ID projects were collected and revised personal ID models were shared in class. Comments from an in-class discussion reported how students felt at the end of the course. Time was a big issue with students and differed greatly in their comments. One student admitted that he "should have spent more time writing than in the library," while others wished they would have started gathering data earlier and spent more time talking to teachers and students about their projects. One student "took ten weeks before I made important decisions," while another "spent a lot of time trying to figure out what the project was all about."

Tasks	Student Responses	Instructor Assistance
<b>Establishing context for the ID process</b>		
Design a Lesson	Record planning/design thinking on paper.	Support personal introductions and begin their thinking about learning issues.
ID competencies	Self-perceptions, some unfamiliarity with terms	Basis for class discussion on what skills make for a good instructional designer.
Learning principles task	Write 10 principles, group activity to review and judge others' principles.	Task sheet, written feedback; class discussion; implications for ID; distribute packets of students' learning principles.
Mission Statement	Write and revise. Mix of mission and intent.	Task sheet, written feedback; Mission Statement Workshop
Intent Statement	Write and revise. Share in class. Workshops (5), courses (5), web sites (4), camp (1), curriculum re-write (1)	Task sheet, written feedback
ID model task	13/15 match between ID definition and ID model; 4/15 did not follow task directions; group sharing of models.	Task, written feedback; mini-lecture: popular ID models; distributed packet of students' ID models
<b>ID Instruction and Draft ID Project</b>		
Needs Assessment	Data gathering, goals. Group activity. Initial goals fuzzy, incomplete, too many, mismatch with mission statement; lack of contextual details; data in progress.	Mini-lectures: overview, goals, content ideologies, learner profile, context analysis, taxonomies. Task sheets (3), written feedback; "Jump Start" activity in class.
Conference 1	4/16 difficulty in clarifying instr. problem; 8/16 addressing external client needs; 6/16 questions on proposed instructional materials; difficulties in summarizing needs assessment; difficulties in writing.	Listening, suggesting. Written feedback on work submitted for review. Prompting students to clarify instructional problem and think about the different ways to teach the proposed content.
Sequence	Written sequence plan; class activity practicing task and instructional analyses. Questions on how to sequence on the Web.	Task sheet, written feedback; mini-lecture: differences between goals, aims, objectives; sequencing principles; task and instructional analyses.
Assessment	Assessment plan. Class discussion	Task sheet, written feedback; panel discussion
Instr. Framework	Written plan. Demonstrations and feedback to other presenters.	Mini-lecture: teaching models and events of instruction; email feedback; URL postings on web-based resources.
Conference 2	Web site assessment/evaluation, goal identification, learning levels of goals, needs assessment summary.	Listening, suggestions on structuring project document. Written feedback on submitted work.
Program evaluation	Written program evaluation plan, in-class group activity.	Task sheet. Feedback in final project. Mini-lecture: overview

Figure 44. Student responses, instructor assistance during Case 5, Fall, 1997.

### Teaching Model Evaluation for Case 5

Student performance on final ID projects (12/16). In terms of completeness five of the twelve projects available for analysis had all required components. Three projects lacked a literature review required in the needs assessment. Two projects lacked an instructional analysis in their prototype lessons, while one project contained no mission statement and another project did not describe a teaching approach.

Eleven of twelve projects achieved a consistency of learning beliefs across design components. Consistency was analyzed by examining the project mission statement and the overall intent of the project. For example, from the projects in which consistency was achieved, one project proposed the design of a reflective classroom community by using John Dewey's ideas as content. Another example featured a teacher who wanted teachers to experience her approach to teaching writing in middle school. The project laid out her instructional approach. The one project which was judged not to achieve a consistency of learning beliefs across the project initially wrote about her mission to strive for a partnership of participants. However, the project revealed no features that addressed respect, responsibility, or teamwork as mentioned in the mission statement. All details in the project were teacher-directed with no outside evaluators.

Ten out of the 12 analyzed projects exhibited an overall coherence of project components. An example of one project that achieved this coherence was a project incorporating Computer-Aided Design (CAD) into a middle school technology education curriculum. Goals for both instructor and learners were listed and the sequence for instruction was specified on two levels: CAD skill development and CAD skills application. Cooperative learning and direct instruction were proposed as instructional approaches, while assessment concentrated on student performance of skills. In the project using Dewey to create a reflective learning community, the student outlined 15 class meetings, using multiple experiences through inquiry as the instructional approach and having students design their own rubrics for reflective papers, journals, representations, mid-term conference, and self-assessment. Her wide range of instructional media resonated with her intent to provide multiple experiences for students. In one project that lacked coherence, the program goals and learning goals for a summer science camp were not connected in activities. The project lacked a needs assessment to support her goals. No instructional framework was described and most of the project consisted of learning activity descriptions. A second project lacking coherence identified goals for unit plans for a "personal look at the Civil War," and although a unit plan was laid out to examine life in the North and South, leaders, battles, literature, and technological advances, the details of how the "personal" side would be featured were minimal. The prototype lesson dealt with battle sites with no personal dimensions specified. A description of media was limited to one page. See Figure 45 for a summary of student performance on ID projects for Case 5.

Completeness	Consistency	Coherence
5/12 had all components. (3) missing literature review (2) missing instructional analysis in prototype lesson (1) lacked mission statement (1) lacked teaching model	11/12 consistency of learning beliefs (mission statement) across ID components (ID project).	10/12 achieved an overall coherence of ID project components

Figure 45. Student performance on ID projects for Case 5, Fall, 1997.

Student perceptions of their learning. Students (15/16) rated the overall value of learning tasks and course requirements at 3.8 (on a 1-4 point scale) and their effort just below “greater than average” (2.9). Students rated their gains (on a scale from 1 to 3) in knowledge and theory (2.7), problem solving ability (2.4), and subject appreciation (2.6) as “average.”

From an end-of-the course evaluation task (PMI), students reported both positive comments and suggestions for improvements. Three students found group discussion “enjoyable, felt it brought the class closer together,” while two others cited the small group presentations and group interaction as positive. Three suggestions for improvements were recorded. One student requested more time to work with groups, another more interaction, “if only for a few minutes to touch base or bounce ideas off one another.” Another requested that a time limit be assigned for each person in the group to talk and to give groups enough time for discussion.

Reactions from students on the instructional design process were received from an in-class activity in which participants were asked what they would do differently and how they felt about their work. One student said “with this class I took the time to look at it [instructional problem],” while an experienced teacher said the course “caused things to come to the surface,” and a novice teacher said the course presented “a lot of things I hadn’t thought about.” For two other students the course “helped me put the problem into context” and was “an avenue to get my ideas out.” Time was another concern as comments were reported on wanting to “spend more time writing,” and “spend more time talking to teachers and students.”

Students also reported on their reactions to the ID project task. Positive comments cited the project as “really the best way to truly understand instructional design,” and “an excellent way to get ‘down and dirty,’ get our feet wet with design. It’s the only way to experience it.” The interaction of instructor with students and projects was reported: “Tremendous effort of instructors to give useful feedback, over and over again” and “feedback was very helpful.” Another student cited the opportunity to review and check out completed projects. Suggestions with projects included more interaction with other class members on the projects, going over them in class, spending some time analyzing other ID projects, and one student requested a group project to capitalize on individual strengths. When asked what students would do differently, comments were reported on the instructional problem challenge of “trying to figure out what my project was,” “narrowing sooner my problem,” and making decisions earlier: “I was ten weeks into the course before I made important decisions.”

Concerns	Student Perceptions
Effort	Effort required = 2.9 (1 = LT avg, 2 = Avg, 3 = GT avg.) 15/15 Value of assignments = 3.8 (1-4 scale) 14/15
Learning	Gains in knowledge = 2.7 (1 = LT avg, 2 = Avg, 3 = GT avg.) 15/15 Gains in problem solving = 2.4 (1 = LT avg, 2 = Avg, 3 = GT avg.) 15/15 Gains in appreciation of subject = 2.6 (1 = LT avg, 2 = Avg, 3 = GT avg.) 15/15
Groups	(3) Group work was enjoyable. (3) More time to work in groups; time limit for each speaker.
ID Process	(3) Helped to examine an instructional problem and one's teaching;
ID project	(3) Project was best way to learn ID. (1) Wanted to view other projects. (3) More time in class reviewing people's projects. (1) Requested group project.  (4) Wanted more time; (4) Spent time making decisions on instructional problem

Figure 46. Student responses, instructor assistance during Case 5, Fall, 1997.

Responsivity to learners. In terms of instructing, one way in which we attempted to be responsive to student learning, students assigned the instructor an overall rating of 3.9 (on a scale of 1 for poor to 4 for excellent), and administration of class at 3.5, while rating the instructor's subject knowledge at 4.0, success in communicating subject matter at 3.6, making the subject stimulating at 3.6. Student comments cited "a variety of activities and different methods of instruction presented," "energetic atmosphere in the class." "The instructors seem to be intimately involved with the subject matter. They also seemed to be very consistent from the beginning of the semester until the end." Four negative comments on the course were recorded. "Some of the activities we did in class did not seem to connect with the project. This confused me and I found that I was asking myself how this related to anything." Another student requested more "stimulating conversation and time management. Most of us have either family or homework to do at night." One student described the room as "really crowded" and several students asked for a room which had computers for display of visuals and Internet connections to view students' web sites in development. Other suggestions included featuring a completed, successful model at the beginning of the semester and to use the prototypes earlier.

In terms of feeding-back and questioning, the instructors were cited for their steady feedback and availability on weekly work and during the individual conferences and rated their grading fairness (3.9). Students asked for more opportunities to work in groups and to talk about peers' projects and share ideas. One comment asked for more structure in group activities which would allow everyone in the group to have time to talk. In terms of contingency management, the instructor received an "excellent" rating on "concern and respect for students" (3.8).

In terms of cognitive structuring of learning tasks and instructional materials, some students felt there was too much to do with too much paperwork. Students generally liked the Task Sheets, but some were confused by them and requested that they more closely match the project outline. One student asked that handouts be distributed at the beginning to get an idea of the amount of required reading. "I would have liked to have gotten all the handouts in a booklet

broken down by area, matched with the different chapters in the text.” On the OPSCAN course evaluation students rated the text at 3.5, citing it as a useful resource and reference and the format as “somewhat busy but appealing.” One student preferred more text and less visual elements, while another suggested that the number of iconic symbols be reduced. One student found the Design Activities in the text helpful, particularly “when the time came to compile the final project.” Comments on the web site were mixed. Some liked the available resources, but others wanted web links updated, and more interactions on the web site: “More on-line discussions with each other about our gains and losses throughout this project.”

Assistance	Student Rating		Student Comments
Instructing	Overall (1-4 scale)	3.9 15/15	Variety of activities and different instructional methods. Energetic atmosphere. Intimately involved with subject matter. Consistent. Some activities did not connect with project. More conversation. Room too small. Room for computer display of projects.
	Knowledge of subject	4.0 15/15	
	Communicating subject	3.6 15/15	
	Made subject stimulating	3.6 15/15	
	Value of assignments	3.8 14/15	
	Administration of class	3.5 15/15	
Feeding-back	Fairness in grading (1-4 scale)	3.9 11/15	Prompt feedback. Availability.
	Conferences (1-5 scale)		One-on-one discussion.
	Grouping		Talk about peer projects. More structure.
Contingency management	Concern and respect for students	3.8 15/15	
Modeling	Teaching demonstrations		Schedule earlier in semester.
Cognitive structuring	Organization of course		Too much to do. Too much paperwork
	S&M Text (OPSCAN 1-4 scale)	3.5 15/15	Useful resource. Busy, but appealing. Design activities helpful.
	Task sheets		Some likes. Confused some as they did not match project outline.
	Handouts/Overhead's		Distribute at beginning of class.
	Web site		Update links, more interaction.

Figure 47. Instructor responsivity to student needs for Case 5, Fall, 1997.

### Case 6: Spring, 1998

The course for Case 6 met in Rockbridge County High School once per week for 3 hours for fifteen weeks in the Spring of 1998. The course was attended by 23 Lexington city and Rockbridge County teachers and was the second in a master's program, funded jointly by Rockbridge County School System and Virginia Tech's College of Human Resources and Education. The group agreed at the beginning of the program that instructional technology would be a key theme running throughout the program's courses.

#### Design Decisions for Case 6

Learning tasks and course sequence. The assessment rubric remained the same from Case 5, but the course sequence and some learning tasks changed (see Figure 48). The teaching demonstrations, referred to in earlier cases as "teaching model presentations," would have teachers enact a teaching strategy that would be used in their ID project's prototype lesson. This, we hoped, would allow students to "try out" an instructional approach involving issues of sequence, assessment, instructional media, and teaching. Previously these teaching presentations might be different from the instructional approaches proposed in the project's prototype lesson.

Another variation in the learning tasks simplified the needs assessment activity through the use of a modified KWL chart (Carr & Ogle, 1987) as an analysis strategy and data summarizing tool. A KWHL chart recorded what they already knew; what they wanted to know; how they could find this information; and what they learned (Barell, 1995). The KWL chart had been used in an earlier version of the student guide, but with limited success due to its repeated use throughout the guide. Students wrote that they tired of carrying forward to each chapter what they had already written. In Case 6 one KWHL chart was used to record teachers' research activities.

A third variation in sequence and learning tasks presented Instructional Frameworks before Assessment, which was the reverse to the approach taken in earlier Cases. Previously, we had students examining what was to be taught and identifying the purposes to assessment, then deciding how learning should be assessed and selecting assessment tools that supported these purposes. In Case 6 the sequence was reversed. Through a discussion of one's instructional framework, teachers could examine what is to be taught, the order in which it will be taught, and how learning will be assessed.

### ID INSTRUCTION: Instructional Design Phases →

Learning Beliefs	Design Tools	Needs Assessment	Lesson Sequence	Instructional Framework	Assessment	Media throughout	Prototype	Program Evaluation
------------------	--------------	------------------	-----------------	-------------------------	------------	------------------	-----------	--------------------

↑  
ONGOING DIALOGUE & LEARNING TASK FEEDBACK  
↓

### ID PROJECT: Learning Tasks →

What is Learning? Learning Principles Mission Statement	Prelim. ID Model Preliminary Self-Evaluation	Project Intent Statement KWHL Needs Assessment and Goals	Sequencing Plan	Instructional Framework	Assessment	Teaching Demos and Prototype Lesson	Teaching Demos and Prototype Lesson	Revised ID Model Revised Self Evaluation
		On-campus	Conference					

Starting Point	ID Project	Self Assessment
----------------	------------	-----------------

Figure 48. Learning tasks and course sequence for Case 6.

Since instructional technology was chosen as a major theme to be examined by teachers in the master's program, a fourth variation addressed the instructional design issues of media throughout the course. Incorporated into the course schedule were technology updates by several teachers who had volunteered to work on the design of a week-long instructional technology course for the upcoming summer.

**Instructional materials.** Case 6 used the published text and revisions to the web site developed for Case 5. The web site included the syllabus, task guidelines/criteria, process learning guidance, and design activities. Web chats were also planned for the web site to increase dialogue, but ultimately were not implemented. An articles packet, funded by the master's program, would be distributed. A Listserv (id-1@listserv.vt.edu) would distribute each week's class agenda and communicate with participants.

**Participation structures.** Since we were working with practicing school teachers, we decided to examine participation structures from a teacher's point of view. Classroom groups would be composed of teachers from different school divisions. The student-teacher conference would include one visit to campus to meet with content specialists and/or technology experts, use the campus library in needs assessment efforts, and meet with us to discuss their findings and project. In addition, my instructor role was different than in previous cases, as I chose an observer status in order to spend more time making detailed observations of teachers for an ethnography course I was taking at the time.

Design Decisions	Rationale
Learning tasks: Use teaching demonstrations as prototype lessons in students' ID projects.	Teachers enact a new teaching method in the context of their project.
KWHL chart as needs assessment tool.	Simplify needs assessment data gathering.
Course sequence: Instructional framework before a discussion of assessment.	Examine assessment in terms of what teachers already do: instructional activities.
Incorporate "technology" component in ID plan to implement in the future.	Technology agreed-upon focus for master's group; models formative evaluation in the discussion of summer technology course.
Mix up groups to include different members of school divisions.	Teachers learn more about each other's challenges, students, content, and different purposes.
Comprehensive articles packet distributed.	Provide resources for use during master's program.
On-campus conference for needs assessment.	Conduct research.
Direct our attention to co-participatory structures appropriate to teachers.	Supporting dialogue on design tasks from teachers' point of view.

Figure 49. Design decisions for Case 6, Spring, 1998.

### Teaching Model Implementation for Case 6

**Setting the context.** One week before the Spring, 1998 semester began Dr. Magliaro emailed teachers with details on our instructional approach for the course. The last assignments from a previous course, Advanced Educational Psychology, included an analysis of participant's teaching and a final reflection paper. These tasks were to be used as a transition to the ID course, which would begin with an examination of learning beliefs. Teachers were also asked to think about a possible project that might build on their work from the previous course.

Snow and ice set the practical context for Case 5, as the first, third, and fourth class meetings of the semester were cancelled because of school closings in Lexington. The syllabus was adjusted and a week added at the end of the semester. In the absence of a class meeting, teachers were asked to complete the first Design Activity in the text, "Design A Lesson," which could also be accessed on the course web site. The purpose of this task, as explained on email to the instructors, "is to begin to juxtapose your own tacit design process with a formal design process" (email 1-15-98). The first class meeting (January 22) required 30 minutes for registration, payments, and distributing instructional materials. The participants sat at four lab tables in a science classroom in the County's high school. The participants worked in groups to discuss what they had learned from their teaching and reflection papers. Each member of the class shared his or her definition of learning. In a computer lab the teachers were given a tour of the course web site.

The second class meeting, February 12, was held after two weeks of weather cancellations. An overview of instructional design was provided, including the assumptions of ID, and characteristics of well-designed instruction. We also shared the instructional design of the course, providing a visual of our representation of the ID process and a visual depicting participant activity as a two-track ID process presentation and ID project performance, as represented in Figure 47. Mission Statement and Intent Statement tasks were assigned. In Class #3 the class participants examined students' personal ID models, a survey of their designer competencies, a proposed project (i.e., intent statements), and mission statements in a group activity. Class #3 concluded with an introduction to needs assessment.

ID instruction and draft ID projects. During Class #4, five members of the technology group and Dr. Glen Holmes, solicited ideas from the rest of the cohort group about the activities for the week-long instructional technology course to be held during the summer. Groups of six summarized the features of Eisner's curriculum ideologies (1994). Group membership was mixed up in new configurations, as the participants tended to sit by school division (i.e., elementary, middle, high school).

Four group visits were scheduled over the next month (February 27 – April 1) to the Virginia Tech campus. These day-long visits (9 a.m. – 3 p.m.) required us to line up experts for the teachers to talk to as well as an hour-long debriefing conference. One visit in particular (March 6) enabled four of the high school teachers to talk with three of the middle school teachers. As one of the high school teachers commented, "I feel we made a breakthrough with some of the middle school teachers.... I really felt I got to know some of them better" (email 3-9-98). During these visits the teachers talked with content or instructional technology specialists on their project needs. The teachers summarized their needs assessment activities to date and discussed the instructional media component of their project, and in some cases, revised choices of instructional media. One group required some additional time on our parts to help them think through the unique requirements of their instructional problem, which was to produce and implement a video to welcome 8<sup>th</sup> graders to the high school.

In Case 6 we spent a great deal of time listening and understanding the participants' lives as teachers. In addition to the day-long visits to campus, I used email to respond to all of the participants' mission and intent statements. In email conversations with two middle school special education teachers I learned about how their daily lives are very different from regular classroom teachers. One of these teachers said, "I wish I was a regular ed' teacher with a curriculum to follow." Another participant, a substitute teacher, used her spare time to improve her technology experience. She used our email feedback as a means to share her web page work and educational resources she had discovered.

Before Class #5 (March 5) I visited the office and performance room of one of the participating teachers, the high school music instructor, to see and hear what his teaching life was like and to discuss the difficulties he was having on a project choice. In class the teachers shared their KWHL charts, which recorded their needs assessment questions and progress. Participants identified and shared in class the most important information gathered from the needs assessment so far. Five students volunteered their reactions to an article we had distributed on multiple intelligences (Gardner, 1995), and the issue of motivation as a design issue was raised.

During Class #6 (March 19) teachers shared important questions they had about their needs assessment efforts: deciding what is important to study, the learner profile, taxonomies and goals, developmentally appropriate technology, and the costs of technology. Mini-lectures addressed the differences between aims, goals, and objectives, and how taxonomies could be used to sequence instruction. The topics of discussion for Class #7 (March 26) included context analysis as a means to help teachers identify resources and constraints in their projects. Teachers were assigned to another group arrangement to discuss their sequence and identify their top three goals and to encourage teachers from different schools and grade divisions to talk with each other. Each person acted as a formative evaluator of the other's work. A report from the technology group briefed the class about a tentative sequence of activities for the summer course. An overview of the overall design process, including instructional frameworks and assessment, was presented.

Class #8 (April 2) began with feedback on student projects, which encouraged teachers to reduce the number of goals, identify learning levels, and be clear about what "meaningful instruction" meant in goals. We asked that teachers provide conceptual titles to sequence components to give us a sense of what would happen in an activity or unit. We discussed the value of submitting revisions and how to take advantage and interpret our written feedback. Purposes and components of teaching models and events of instruction were described. Class #9 (April 9) and #10 (April 24) were devoted to teaching demonstrations, which would be prototype lessons of teachers' projects. Written audience feedback was provided to presenters. Two presentations demonstrated the limitations of their prototype lessons if implemented. One teaching demo on developing second grade geography map skills adhered to Virginia's Standards of Learning and featured only association tasks, displayed incorrect spelling of map labels, lacked challenge to tasks (map locations labeled), and made no connections outside the task (e.g., geology or landforms). A second demonstration on how airplanes fly was not clear or accurate as to the physical concept involved (i.e., Bernoulli's Principle). Class #11 (April 30) asked teachers to summarize their prototype lessons and introduced teachers to program evaluation by asking them to think about how their projects might match particular program evaluation models (e.g., goal-oriented, decision-oriented, goal-free).

Class #11 (April 30) began with asking teachers to think about matching their teaching models to their one's mission, intent, and goals of the project, and to discuss with intended participants their reactions on new instructional approaches. A program evaluation overview addressed evaluation criteria (i.e., effectiveness, efficiency, appeal), evaluation models (e.g., goal-oriented, goal-free), and the formative/summative dimensions of program evaluation. The program evaluation process was presented as a sequence of decisions asking when to evaluate, what to evaluate and how to evaluate.

During the final class meeting, #12 (May 7), participants handed in their projects and divided up into groups to share their personal ID models. Volunteers shared their model visuals with the class. Course evaluations were handed out and collected.

Tasks	Student Responses	Instructor Assistance
<b>Establishing context for the ID process</b>		
Design a Lesson	Completed task from text or online.	First class cancelled. Email prompted teachers to think about their planning or design process.
Web site	Familiarity in Class 1 with web site resources and activities	Arranged for school computer lab to be used to tour web site.
Learning principles task	Read assigned readings and list 10 principles. Class activity on What is Learning?	Provided readings. Task sheet. Written feedback. Class discussion.
Mission Statement	Drawn from previous work, written and submitted. Discussed in groups.	Task sheet. Written and email feedback.
Intent Statement	Written and submitted. Project ideas shared in class.	Task sheet. Written and email feedback.
ID model task	Draw visual, write narrative of one's own ID model; share in class.	Task sheet. Written feedback. Mini-lecture: ID models overview.
<b>ID Instruction and Draft ID Project</b>		
Needs Assessment	Information-gathering, goals written. KWL charts, key questions and concerns shared in class.	Task sheet; written feedback. Mini-lectures: overview, aims-goals-objectives, learners, context analysis.
Conference	Consultation with content and IT experts on campus.	Arranged for experts. De-briefing sessions.
Sequence	Group task on curriculum ideologies. Formative evaluation task on top 3 goals and sequence.	Mixed up group membership for ideologies group task. Mini-lecture: taxonomies, sequencing principles.
Assessment	Assessment plan submitted.	Task sheet, written feedback. Mini-lecture: assessment purposes.
Teaching models	Instructional framework plan submitted. Prototype demos. In-class summary.	Task sheet, written feedback. Mini-lecture: teaching models, events of instruction; matching teaching models to project.
IT component	Technology group (5) briefed class on progress for summer course. Meeting with experts on campus.	Provided time in class. Dr. Holmes visits and consults with teachers during day-long visits.
Program evaluation	Submitted with final project.	Task sheet. Written feedback on final project. Mini-lecture: overview.

Figure 50. Student responses, instructor assistance during Case 6, Spring, 1998.

### Teaching Model Evaluation for Case 6

Student performance on final ID projects. Thirteen individual or group projects were developed by 22 teachers (the project for the 23<sup>rd</sup> teacher was handed in during a subsequent semester and was not available). All thirteen projects were available for analysis. In terms of completeness, only two out of thirteen projects had all project components in place. Ten out of the 13 projects used our recommended KWHL approach to organize their needs assessment. All

projects lacked any research on what it meant to teach their content (e.g., spelling, science, video as a persuasive medium, calculator use, aerospace, geography). None of the projects brought forward research findings from texts assigned from their previous educational psychology course (Bruer, 1990; Schauble & Glaser, 1993). Two of the projects by special education teachers provided more learner description than other projects. Only one project included a profile of the instructor, although such a profile was requested in the project outline. Six of the thirteen projects featured incorrect or missing task and/or instructional analyses. Several projects did not specify a key task to be examined through a task analysis, and several projects used Gagné's instructional events for their task analysis.

Nine of the 13 projects achieved a consistency of a teacher's learning beliefs, reported in a mission statement, across their project's design components. A lack of consistency in the four projects was determined by what the teachers wrote in their mission statements and what they designed. One mission statement expressed a desire to "assist learners to reach their goals through collaborative partnerships" but did not examine what "assistance" or what "collaborative partnerships" meant in his teaching. Another mission statement advocated "active involvement...using a variety of instructional methods...to produce self-directed learners," although the project only described direct instruction and strictly adhered to Virginia's Standards of Learning.

Achieving consistency of beliefs across components was not always responsive to learners' needs. One teacher cited being "practical and hands-on" in his mission statement, which was exhibited in activities, but was inadequate to support the conceptual learning called for in the project. Materials in the lesson prototype did not provide any explanation for the conceptual content underlying the activities. The teacher did not conduct research on ways to teach the content or re-evaluate or describe the pre-existing curriculum materials that were inserted into the project. Another student wrote about "collaborative partnerships" but did not specify any affective dimensions in project goals to support these. In another project, in which cooperative groups were stressed, the assessment plan accounted for skill learning without any provisions for social learning goals.

Coherence across design components was found in eleven of the thirteen projects. In all eleven instances of coherence, lessons identified goals, which had been determined from the needs assessment. Of the two projects which were judged not to have coherence, a 6-week lesson outline in one project did not match activities with goals. In a second project a geography unit specified goals in a mission statement but were not identified in later design components, although lesson activities were keyed to Standards of Learning. Six of the thirteen projects used Virginia's Standards of Learning (SOL's) as goals. Three of the thirteen projects used an activities sequence to address their instructional framework, assessment, and media. A technology component was required in their ID projects, although only the instructional design issues of media selection and use were specified. Although this technology component was a major influence in the selection of an instructional problem, teachers identified a full range of instructional media. Chosen media supported projects that addressed current teaching (e.g., audio spellchecker, LEGO's<sup>TM</sup>, maps, floral supplies), were mandated for future courses (i.e., graphing calculators), or were innovations (programmable logic controller, orientation video). No research was conducted on how these media choices supported learning. Instructional media rationales, although frequently specified within lessons, did not include details on their use.

Completeness	Consistency	Coherence
9/13 had all required components. 10/13 used KWHL chart to organize needs assessment. All projects lacked any research on ways to teach content. 2 special education teachers included more detail than others in their Learner Profile. 6/13 incorrect or missing task or instructional analyses.	9/13 consistency of learning beliefs across components.	11/13 coherent across components. 6/13 based on Virginia SOL's. 3/13 included instructional approaches, assessment, and media in lesson sequence. 4/13 minimal description of teaching. 13/13 included instructional media, but minimal details.

Figure 51. Student performance on ID projects for Case 6, Spring, 1998.

Student perceptions of their learning. The teachers rated (on a scale of 1 to 3) their increases in knowledge (2.5) and problem solving ability (2.4). Teachers cited a number of benefits for their teaching, including looking at planning in detail and creating something they could use in the classroom, “being able to take the time to do some in-depth work in what I’m teaching.” Others cited improvements on communication and collaborative skills, as well as increased problem solving and creating thinking skills. In terms of instructional design, one student remarked having a “much greater appreciation of the design process now.” Teachers cited the course as providing “different ways to think about the learners” and “forces the teacher to look at lots of details to designing instruction and curriculum,” although one student said “It would take me forever to do this for all my units.”

Twelve out of the 21 respondents to the P-M-I course evaluation cited “time” as the number one constraint and negative aspect to the course. “Finding the time to devote to class was very difficult and at certain times frustration was the overwhelming emotion.” One teacher requested that “a time management lesson” be added, although one admitted that “time is always a problem,” and another wrote: “It’s hard to find the time and having to do it truly was beneficial.” Some teachers felt the assignments were “overwhelming” and “stressful.” Suggestions included adding more hands-on activities, submitting work electronically, and reducing the number of assignments due at the end of the course. The due dates on some assignments coincided with an end-of-grading period.

Feedback from teachers on the ID projects included the time it took to complete them and the difficulty of meeting with group members. One teacher dropped the master’s program and another did not hand in a project until the following summer session. One teacher requested more time for groups with similar projects and interests. “It REALLY helps to be able to bounce ideas off someone who’s in it with you and who understands because of the same interest.” Another teacher commented that “Putting the pieces of the entire project brought things together and made sense.”

Concerns	Student Perceptions
Effort	Effort required = 2.4 (1 = LT avg, 2 = Avg, 3 = GT avg.) 22/22 Value of assignments = 3.4 (1-4 scale) 22/22
Learning	Gains in knowledge = 2.5 (1 = LT avg, 2 = Avg, 3 = GT avg.) 22/22 Gains in problem solving = 2.4 (1 = LT avg, 2 = Avg, 3 = GT avg.) 22/22 Gains in appreciation of subject = Not Available
Groups	(1) "Having us work with different groups this time made things more interesting." (1) "...the grouping to discuss the reading was also very informative." (1) More time with groups.
ID process	"Greater appreciation of the process." "Different ways to think about the learners." "Forces teacher to look at lots of details." "It would take me forever to do this for all my units."
ID project	5.4 (on a 1-6 scale) 21/22 "Putting the pieces of the entire project brought things together and made sense." "Time to complete project." "Challenge of working with groups on the project."

Figure 52. Student responses, instructor assistance during Case 6, Spring, 1998.

Responsiveness to learners. In terms of instructing, teachers gave an overall rating of 3.9 (out of 4.0) to the instructor and administration of the class (3.5). The teachers also rated Dr. Magliaro's knowledge of subject matter (3.6), success in communicating or explaining the subject (3.6), and making the subject stimulating or relevant (3.5). Seven of the 21 students submitting the P-M-I course feedback form cited the instructors as "flexible and supportive," "very understanding," "helpful," and "knowledgeable." One student wanted "just the facts" and that "too much explaining can leave me in the fog."

In terms of contingency managing, the teachers rated the instructor's concern and respect for students, and fairness in assigning grades at 4.0. Teachers also cited the "inviting and comfortable atmosphere" and the opportunities for interactions with each other. "I loved the camaraderie among the group and the sharing that went on constantly. Interaction with peers is difficult on a daily basis and we treasure those occasions we have to communicate with each other." Time was allocated in each class for working together on activities or ID project components, sometimes with teachers from different schools and grade levels. "Working with someone made it better for help when confused on tasks."

In terms of feeding-back and questioning, seven students cited the instructors for providing helpful comments on work. Teacher submissions on email were minimal. Three students responded in detail to my questions on their teaching lives. Although the purpose of the conference was to de-brief on needs assessment activities while teachers were on campus, they were also an opportunity for us to hear about their backgrounds and classroom experiences. As a result of these consultations, some teachers shifted the focus of their projects and media components. The conferences gave us a better idea of what teachers wanted to accomplish with their projects, as well as examining the details of learners, content, and context that may have not been clear in their written submissions.

In terms of cognitive structuring, the teachers formally rated learning tasks. From the supplementary questions administered on the OPSCAN course evaluation, teachers assigned the highest rating (on a scale of 1 for “poor” to 6 for “great”) for the mission statement task (5.5) and the lowest to the self-evaluation activity (4.6). Other ratings included the project (5.4), learning principles task (5.2), preliminary (5.3) and revised ID models (5.4), individual conferences (5.2), and demonstration lessons (5.2).

Teachers’ perceptions of instructional materials were recorded from supplementary questions on the OPSCAN form and P-M-I form. Rated (on a scale of 1-6) were handouts (5.1), web site (5.2), and task sheets/criteria (4.9). Overall, the text was rated at 5.3 with readability as the highest rated feature of the text (5.6), followed by tone (5.4), glossary/index (5.4), design activities (5.2), and stories (4.7). The textbook was cited by two teachers as “easy to follow and understand.” Six of 21 teachers cited the amount of readings as “sometimes overwhelming.” One teacher appreciated the class agenda and notes that were sent in advance each week by electronic mail, while another wrote “...I would prefer notes just on the most important material instead of step-by-step exact statements on the way the class will flow.” For some students the task sheets for each design component were confusing, but most teachers liked the task sheets with performance criteria. “Clearly stated objectives for the course made it easy for me to follow the blue sheets.” One teacher wanted the task sheets handed out at the end of class, while another wanted them at the beginning and discuss “when minds are fresh.” Figure 53 summarizes instructor responsiveness to student needs for Case 6.

Assistance	Student Rating		Student Comments
Instructing	Overall (1-4 scale)	3.9 22/22	Provided "in-depth look at planning." "Knowledgeable"
	Knowledge of subject	4.0 22/22	
	Communicating subject	3.6 22/22	
	Made subject stimulating	3.5 22/22	
	Value of assignments	3.4 22/22	
	Administration of class	3.5 22/22	
Feeding back	Fairness in grading (1-4 scale)	4.0 22/22	"Provided helpful comments on work." "Being allowed to revise work." "Willingness to help."
	Conferences (1-6 scale)	5.2 21/22	"More on conferences to review progress."
	Grouping		"Helped when confused on tasks."
Reinforcing	Concern and respect for students	4.0 22/22	"Flexible and supportive"
Modeling	Teaching demonstrations	5.2 21/22	"Neat way of sharing."
	Stories in text	4.7 17/22	"Read the stories in the book!"
Structuring	Organization of course (1-6)	5.3 21/22	"Very organized." "Weekly assignments made final easier."
	Coherence of activities (1-6)	5.1 21/22	
	ID Project (1-6 scale)	5.4 22/22	12 comments on time.
	S&M Text (1-6 scale)	5.3 20/22	"Book was easy to follow."
	(OPSCAN 1-4 scale)	3.5 22/22	
	Text: readability (1-6)	5.6 20/22	"Well written, easy to understand."
	Text: tone (1-6)	5.4 20/22	
	Text: glossary/index (1-6)	5.4 18/22	
	Task sheets (1-6 scale)	4.9 20/22	"Specific expectations provided." "Very helpful." "Confusing."
	Learning principles (1-6 scale)	5.2 21/22	
	Mission statement (1-6 scale)	5.5 21/21	"Really helped me."
	Prelim. ID model (1-6 scale)	5.4 21/22	
	Revised ID model (1-6 scale)	5.4 21/22	
	Handouts/Overhead's (1-6 scale)	5.1 21/22	"Readings were overwhelming."
	Design activities (1-6 scale)	5.2 20/22	
	Web site (1-6 scale)	5.2 20/22	
Reflecting	Self-evaluation task (1-6 scale)	4.6 19/22	

Figure 53. Instructor responsivity to student needs for Case 6, Spring, 1998.

## Summary of Cases 1 – 6

For each of the six cases, the documentation of the teaching model was reported in terms of the design and development cycle: design decisions, implementation, and evaluation. The needs assessment and subsequent design decisions, based on the teaching model, were reported by describing participants, learning tasks, course sequence, assessment, and instructional materials. Analysis of the implementation of the model for each case was reported by describing student performance and feedback on instruction and instructor's assistance during ID context activities, ID process instruction, and draft ID projects. Summative evaluation of the teaching model was reported on the basis of summarizing student performance on the ID project, students' self-perceptions of their learning, and instructor responsiveness to student needs. Figures 54 and 55 summarize changes in design decisions, implementation, and evaluation for Cases 1-3 and Cases 4-6, respectively.

### Design Decisions

Features of the course that remained in place over the six cases included an instructional sequence that included (a) setting the context for ID instruction, examining one's learning beliefs, one's personal ID model, and surveying design tools, particularly other ID models; (b) ID instruction over a multi-phased set of components; and (c) self-assessment. The ID project was the principal learning task with task sheets providing students with explanation and guidance for each ID component. Assessment included weekly and final submission of an ID project, a revised ID model, and a set of miscellaneous tasks, including a self-evaluation. Instructional materials over the six cases included a text, supplementary articles from journals and book chapters, and presentation overhead transparencies for in-class instruction. Co-participation structures that remained in place across the cases included in-class activities, learning tasks, and text. The following sections summarize changes in the above features over the six cases.

Course sequence and learning tasks. Case 1 (Summer I, 1994, 13 students) used an 8-phase ID process representation (i.e., design tools, needs assessment, lesson sequence, assessment, teaching models, sample lesson, media, program evaluation). Case 2 (Fall, 1994, 22 students) added a Learning Beliefs component to the beginning of the ID process representation. Learning Beliefs, however, had always been in the course activities, just not in the formal representation. Students from Case 1 suggested that if we valued learning beliefs as an important issue, we should include beliefs as a component in the ID process. A structured learning task, a mission statement, was added in Case 2 to support students examining their beliefs on learning, learners, and teaching. In Case 4, two ID components (Sample Lesson to Instructional Frameworks; Sample Lesson as Prototype) were relabeled to match the chapter titles of the student guide, which by Case 4 was a publisher's prototype. A new activity for the first class session was used at the beginning of Case 4, "Design A Lesson," to help students to think, write, and discuss important learning issues and as a means to introduce themselves in the first class. In Case 5 (Fall, 1997, 16 students), Instructional Media was moved before Prototype in the ID process, so as to include media decisions in one's prototype lesson. Also in Case 5, we added a survey assessing their perceptions of their ID competencies at the beginning and end of the course. Some of the design decisions for Case 6 (Spring, 1998, 23 teachers in Rockbridge County) were based on the fact that the participants were working teachers in an intact cohort program. In Case 6 we combined the teaching demonstration with the project's prototype lesson,

and addressed Instructional Frameworks and Assessment together, since teachers worked with both on a daily basis. A KWL chart was used as a familiar and simpler tool to help teachers monitor their needs assessment progress than the charts we had used previously. Technology was an agreed-upon major theme for the teachers in their master's program and was discussed throughout the semester, particularly the scope and shape of the upcoming summer course in instructional technology.

Assessment. The mid-term exam, used in Case 1, was replaced with individual conferences in Cases 2-6 to increase one-on-one attention to student needs and as a more appropriate ongoing assessment tool. The first conference was scheduled a month into the course and topics of discussion included student's mission statement, preliminary ID model, and project choice. During these conferences we as instructors learned more about their previous work and educational experiences. A second personal conference in Case 2 was scheduled during the last week of the semester to discuss a student's ID project, revised ID model, and self-evaluation. During Case 3 (Fall, 1995, 20 students) we added performance criteria to each of the task sheets to clearly communicate our expectations for each task. Design decisions for Case 4 (Fall, 1996, 19 students) grouped miscellaneous learning tasks together for 15% of the grade. In Case 5, weekly project submissions and the final project were assigned an equal percentage, 35%, of the final grade, to signal to students an equal importance for weekly work and final project. Class and text feedback were added as a miscellaneous assessment item to solicit student comments on our teaching efforts and newly published text. This requirement also modeled to students the practice of formative evaluation of instructional materials.

Instructional materials. Case 1 (Summer, 1994) used Smith and Ragan (1993) as the primary text because of its emphasis on learning principles and teaching models, plus field-testing a student guide. The student guide was written from my point of view as a previous student in the course to help students examine learning beliefs, understand the ID process, and manage an ID project. Two months later, for Case 2 (Fall, 1994), the student guide was restructured and rewritten to include Learning Beliefs and an in-depth example of an instructional problem throughout the text. For Case 3 (Fall, 1995), a third revision of the student guide featured new additions in terms of content text, examples, project assistance, an ID overview, and KWL self-assessment for each chapter. For Case 4, the primary text for the course was the publisher's prototype of the fourth student guide, with Smith and Ragan (1993) as an optional text. In addition, supplemental readings, which had been periodically distributed in class, were available on reserve at the University library. Design Activity forms, which were included in the publisher's prototype, were electronic files to help students begin their thinking on a particular design component. With Case 6, Shambaugh and Magliaro (1997) was adopted as the text. In Case 6, funds from the master's program paid for supplementary articles to be distributed in a packet at the beginning of the course, so that teachers would have all the readings available to them.

Participation structures. The set of stable participation structures, which included in-class activities, learning tasks, and text, was joined in Case 2 by a pair of individual conferences, discussed above. With Case 3 we added an electronic Listserv to increase communications between and with students. A web site was added in Case 5 to increase student access to course tasks and resources, including process learning hints (e.g., How to Use the Text) and links to educational resources.

Groups were used frequently during the course to introduce students to one another and share different perspectives and experiences. Mixing up the group membership several times during the first half of the course helped members to become acquainted and exposed them to different instructional problems. We discovered that grouping on the basis of project type is successful in the middle-to-later stages of the course, so that group members can discuss design issues they might have in common. Evaluating the effectiveness of groups during class meetings was difficult due to the large number of participants.

In Case 5 we made conscious decisions about improving the use of groups in terms of group membership and group task structure. We mixed up the groups early in the semester to promote discussion from people with different backgrounds, while grouping students with similar projects mid-way through the course. We also improved group tasks to guide their thinking and subsequent reporting back for class discussion. Another change with Case 5 was having all participants sit in a circle to increase eye contact, participation, and change the traditional “teacher up-front/student as audience” roles. With Case 6, we mixed up group membership to include teachers from a range of grade levels, as they sat in approximately the same grade divisions, elementary, middle, and the high school. The purpose of this strategy was to encourage teachers to better understand each other’s roles and challenges. Needs assessment, which was partly conducted as an on-campus visit to consult content and media experts, was another opportunity in which teachers talked with each other and came to better understand the differences they faced in their respective school.

### Implementation

Implementation of design decisions was examined by what occurred during the semester in terms of ID context and ID instruction. ID context activities that remained constant over the six cases included structured student examination of learning beliefs (What is Learning/Instruction? task, a Learning Principles task, and one’s Personal ID Model) and introduction of design tools, such as ID models. During Cases 2-6, which were 15-week semesters, three weeks were spent on setting the context for ID instruction. ID instruction included three weeks on needs assessment, followed by overviews of sequencing, assessment, teaching models, media, and program evaluation. During the teaching model phase, 2-3 weeks were spent on students’ teaching demonstrations. Colored task sheets were distributed for all learning tasks. Student work, guided by these task sheets, was submitted the following week. Written instructor comments on submitted work were returned the next week and included questions, prompts for elaboration or clarification, and encouragement. Some tasks required multiple submissions, such as the mission and project intent statement, and project goals.

ID context. Setting the context for ID instruction involved establishing an environment conducive to dialogue and assessing student ideas about instructional design. The 15-week semester-length course, as it developed over the six cases, included three weeks of “starting point activities” to establish a context for the instructional design process. These initial activities were designed to raise students’ awareness of their planning processes, learning beliefs, designer capabilities, and an initial representation of their own ID model.

In all Cases the “What is Learning/What is Instruction?” task was conducted in class to prompt students to think and talk about learning issues. Subsequently identifying a list of ten learning principles enabled students to read about the theoretical basis for principles of learning

and their implication for instructional design. In all Cases, students identified a mix of theory-based principles. These lists were also used as a basis for group activity and class discussions. In Case 2 nine out of 20 students reported that their learning beliefs were expanded or clarified with the Learning Principles task. Students also reported struggling with the terminology of educational psychology and instructional design. The Learning Principles task was supported by a task sheet, three assigned readings, discussion, group activity, a mini-lecture on the differences between learning theories and their implication for instructional design, and a booklet of students' learning principles was distributed.

Based on a suggestion from a student, a new activity, "Design A Lesson," was used during the first class session beginning with Case 4. This task helped to reveal students' existing planning/design processes and the complexity of planning/designing instruction. For example, in Case 4, students identified 21 different issues. Because of snow and cancellation of school, teachers in Case 6 completed this task using the course's web site.

The mission statement task was implemented in Case 2 to help students assimilate their important learning principles into a comprehensive statement of their view of learners, learning, and teaching. In Case 2, 20 out of 22 mission statements had mismatches between students' learning principles and mission statement. Over the course, five students integrated their project description into their mission statement. Students described the mission statement as "hard work," that articulating and condensing their beliefs was a challenge. In all Cases, there were students who frequently used the mission statement as a description of their proposed project, without articulating a statement of their beliefs. In Cases 4 and 5 a Mission Statement Workshop was implemented to help students understand a mission statement's rationale and features, along with a range of personal, institutional, and learning examples. In Cases 4 and 5 an in-class walkthrough of a mission statement worksheet was curtailed because of lack of time. Teachers from Case 6, meanwhile, pulled their mission statement from a teacher reflection paper conducted in a previous course. Over the six cases some students handed in multiple versions of their mission statement over the ID course. The form of the mission statement ranged from one sentence to a multiple-page narrative. Some relied on their learning principles list and some included a revised list with a short narrative. Two projects dealing with school district instructional technology support included their district's mission statement.

Another preliminary learning task that helped set the context for ID instruction was a student's first representation and narrative of their own ID model. This task helped to set the stage for an overview of other ID models cited by the ID field (e.g., Dick & Carey, 1996; Gagné, Briggs & Wager, 1992; Gerlach & Ely, 1980; USAF, 1975; Heinich, Molenda, Russell & Smaldino, 1996); Kemp, Morrison & Ross, 1996; Tripp & Bichelmeyer, 1990; Wedman & Tessmer, 1990). For all Cases, students submitted unique representations of their ID understanding and metaphors depicting their view of the educational enterprise.

ID instruction. Three weeks were devoted to needs assessment in the 15-week semesters of Cases 2-6; however, the needs assessment activity frequently lasted over much of the semester for many students, particularly for those who conducted a literature review, interview, or a survey. Needs assessment was requested to examine the content to be taught, the range of learners, and the realities of the learning context. Initially, a topical list of content was requested with further examination in the following ID component, sequencing. A learner profile and a context analysis (Tessmer, 1990) were principal tools to examine learner characteristics and

contextual realities. A needs assessment strategy was suggested by us, beginning with Case 3, to help students organize their research and prepare for their first personal conference. This strategy suggested that students identify what questions to ask, who to talk to, where to look for more information, and how to summarize their research.

The first personal conference, begun with Case 2, served as a personal forum to discuss a student's mission statement, personal ID model, project choice, and needs assessment plans. Formative evaluation was discussed during needs assessment to help students think about using the same informants. For Case 6 one personal conference was held on the University campus, a needs assessment visit to conduct research and talk with University content and media experts.

Goal identification, which was the major outcome from the needs assessment, was an ongoing challenge for some students. Some students resisted submitting goals. Some goals were unclear, too numerous, or were a mix of broad goals and activity objectives. For Case 4, an in-class group task was added that helped participants to identify goals from their research. In all Cases, we prompted students to identify the specific learning levels for each of their goals to gain a better understanding of what they were asking students to know (cognitive), do (psychomotor, social), or appreciate (social and other affective dimensions).

Issues of time, getting organized, and "Am I doing this right?" were the predominant concerns of students at this point in the course. Responses to these concerns as submitted by exit slips or personal conversations were addressed at the beginning of each class.

After needs assessment, ID instruction moved to examining and sequencing one's "content." For Case 5, a book chapter from Elliot Eisner (1994) on curriculum ideologies was assigned to help participants think about different ways to view curriculum. Six ideologies or viewpoints on curriculum were summarized by groups in class. Learning taxonomies were also used as a conceptual tool to help students sequence content from simple to complex. Beginning with Case 3 (and added to Shambaugh & Magliaro, 1997) we added a "flexible understanding" way of thinking about content and implications for learners, teachers, and sequencing (McDiarmid, Ball, & Anderson, 1989). Initial topical lists of content remained the same throughout the course for some projects, depending on students' view of what was to be taught and learned in the course. Students who chose a thematic approach to their content used much of their project to lay out these themes with supporting activities. Task and instructional analyses were also introduced during the Sequence phase as a tool to help students analyze the complexity of learning tasks. Beginning with Case 1, students were encouraged to select a critical learning task in which to experience the use of these tools. Those students who identified a procedural task were more successful in conducting a task analysis.

The principle guideline for Assessment, the next ID phase, was identifying one's assessment purposes and selecting assessment methods appropriate to these purposes. In the development of the student guide/published text, our treatment of assessment was not to categorize assessment methods as traditional or non-traditional, but as a range of tools contingent on knowing one's assessment purpose(s). A panel discussion on assessment was held in Case 5 with campus experts. Four of the 16 projects were web-based in Case 5 and questions were raised on how to sequence and assess learning on web sites.

The next phase of instructional design, Teaching Models, was re-labeled Instructional Frameworks beginning with Case 4 to match the chapter titles in the text, but also to include the

instructional approaches, models, and strategies that participants might propose in their projects. Students were asked to specify what teaching methods they would use, the rationale for their choices, and how these approaches would support their project goals. A common problem in student projects was the lack of project goals identified in proposed learning activities; thus, it was unclear in draft submissions as to how their proposed instructional features supported their project intent. During this phase, 2-3 weeks were spent in having students enact teaching models. During Case 5 we experimented with the idea that students might try to demonstrate a teaching model they would propose in their prototype lesson and learn from the enactment. This strategy was formally implemented in Case 6.

The Sample Lesson, or Prototype (beginning with Case 4), was a phase which allowed students to lay out the details of a lesson including its place in the overall instructional sequence, assessment, media, and teaching approaches, including how their teaching approach could be represented using Gagné's events of instruction, and an optional "Plan B." A task analysis and instructional analysis were requested for their prototype or sample lesson and frequently the same analysis, conducted during the Sequence phase, was used. However, students revealed misunderstandings about both tools. In Case 1, for example, nearly half of the students reported they were unclear about task and instructional analyses (6/13). Some lessons/prototypes did not include a task analysis but did submit an instructional analysis. Some submissions mixed the two tools. Others substituted Gagné's instructional events for a task analysis.

Instructional Media instruction varied over the cases. With Case 5 media was formally represented in our sequence before the Prototype phase to include its consideration in the Prototype Lesson. However, in practice, instructional media was addressed to varying degrees over the entire course. Because of the time demands of a 5-week summer session in Case 1, customized media packets were distributed to each student, in addition to brief presentations on the use of media. In Case 3 instructional media was the focus of one of the three class sessions that were devoted to teaching demonstrations. By Case 5 (Fall, 1997) instructional media questions had shifted from multimedia to web-based concerns. Using the Listserv, URL links to web-based teaching and other learning resources were suggested throughout the semester. The web site itself was used as an electronic access point for course learning tasks and existing links to other resources. In Case 6 the course web site was introduced to the teachers in the first class meeting using the high school's computer lab. Over the six Cases students listed a range of instructional media and their purposes, but did not elaborate in much detail as to their use. Exceptions were web-based projects in which the media for delivery was the principal concern. Workshop or seminar-based projects did not address in much detail the content of supporting media, such as presentation materials, handouts, workbooks, or booklets, or how learning could be supported in these settings or with these materials.

The final phase of the ID process, Program Evaluation, discussed purposes to evaluation and formative and summative dimensions. Students frequently incorporated program evaluation issues in their assessment plan, particularly workshop-based projects. Our suggested chart that laid out when to evaluate, who to talk to, and questions to ask, was generally used by students at the end of the course. Because this phase was at the end of the semester, students submitted their program evaluation plan in their final ID project.

The second personal conference was used to discuss a student's project, revised ID model, and self-evaluation of one's learning. The second conference for Case 2 was scheduled

during the final week of the semester, while Cases 3-5 were moved up earlier in the semester to provide more feedback and suggestions on projects.

### Evaluation

Evaluation of the instructional approach was conducted by examining ID projects, and evaluating them in terms of completeness, consistency of learning beliefs across the project, and coherence of individual project components. A second evaluation measure were student perceptions of their learning, including effort, learning gains, groups, ID process, and ID project. A third measure examined how the instructors were responsive to learner needs based on seven categories: instructing, feeding-back, contingency management, questioning, modeling, cognitive structuring, and reflecting. In this summary, ID project performance, student perceptions, and teacher responsivity will be summarized in turn.

ID project performance. Cases 1 (6 projects), 2 (4 projects) and 4 (5 projects) included a small number of projects and in all three Cases, a majority of the projects exhibited completeness, consistency, and coherence. With Case 3 (9 projects), 5 (12 projects), and 6 (13 projects), some variations in these three measures were seen. In Case 3, 3 of 9 projects lacked sufficient detail in a needs assessment, learner profile, what it meant to teach content, or a literature review. One project failed to supply a mission statement. Two projects lacked insufficient detail in a sample lesson to give a clear picture of what was to be accomplished by the lesson, while another project lacked sufficient detail to guide an evaluation of an implemented project. Six out of the 9 projects in Case 3 exhibited consistency of learning beliefs across the project. One project's institutional beliefs were not addressed in the project, a second project did not have a mission statement to track consistency, and a third project's mission statement was unclear. Only 3 out of 9 projects exhibited a coherence. Four lacked an identification of project goals in subsequent components, one project confused the project with the overall institutional program, and one program lacked sufficient detail in the sample lesson to test out any of the project's design decisions.

By Case 5, with 12 completed projects for analysis, only 5 of the 12 had all components in place. Three lacked a literature review, two were missing instructional analysis in their prototype lesson, one project lacked a mission statement, and one project lacked an identification of a teaching model. However, 11 out of 12 projects exhibited a consistency of learning beliefs based on what students wrote in their mission statement and what was subsequently designed. Ten out of 12 projects achieved a coherence of ID components.

In Case 6, with 13 completed individual or group projects, 9 of 13 projects had all required components in their project documents. Ten out of 13 used the KWL strategy as a means to track their needs assessment progress. All 13 projects did not bring forward information on teaching from their previous course in educational psychology. Two special education teachers included more detail than the other teachers on learners in their learner profile. Six out of 13 had incorrect or missing task and/or instructional analyses in their prototype lessons. Nine of the 13 projects exhibited a consistency of learning beliefs across their projects, while 11 of 13 appeared coherent across ID components. Six out of 13 projects were based on Virginia's Standards of Learning. Three projects merged their instructional approaches, assessment, and media in their lesson sequence. All projects addressed instructional media, but with minimal details.

Student perceptions. Student perceptions of the course across all six cases revealed “greater than average” effort in the course (averaged 2.8 on a 1-3 scale). Students reported they needed more time to complete tasks, read the assigned articles and chapters. In Case 1, a five-week summer session with three 3-hour sessions per week, several students commented that there was not enough time for reflection. Comments from Case 2 included “very demanding, time-wise,” and “most intense, challenging course with just enough anxiety.” Students, however, highly rated the value of course assignments (averaged 3.8 on a 1-4 scale).

In terms of learning, students reported their perceptions of gains in knowledge (averaged 2.8 on a 1-3 scale), problem solving (averaged 2.6), and subject appreciation (averaged 2.8). Student comments included one teacher who would be “examining her teaching next year” and another who said the course “changed her everyday thinking” (Case 3). Students also cited the changes in their thinking: “Totally changed the way I see the world” and “I can think and listen in terms of a designer” (Case 4).

Student perceptions of group activity were both positive and critical. On the one hand, students generally regarded groups as positive activities, as opportunities to share ideas and take risks, making the discussion of reading more interesting, and helpful when confused on tasks. On the other hand, student comments included wanting more group opportunities that were better structured, more task focused, and more sensitive to members who did understanding “teacher language.” Some students wanted more time to work in groups, some liked the same groups, and others preferred different groups.

The ID process helped some students to examine their beliefs and teaching and to examine an instructional problem, provided “different ways to think about the learners,” and “forces a teacher to look at lots of details.” On the other hand, some students regarded the process (and course) as “very difficult,” with too much information. In Case 3 two students objected to our labeling of some tasks as “hard,” preferring instead to discover this out for themselves. One teacher from Case 6 remarked, “It would take me forever to do this for all my units.” For some, needs assessment was viewed as time consuming and challenging. Students in Case 1 and 2 called for frequent re-visiting of the “big picture” of ID process and using more examples.

Students provided a wide range of comments about the ID project. On the critical side, some students stated that there was too much to do, that it was a “struggle,” some initially experienced confusion on the scope (i.e., “How long?”) of the project. Three students in Case 1 reported being uncomfortable with handing in draft work. However, comments were largely favorable on the project: “Not as hard as I thought,” and that the project was “the best way to learn instructional design.” Students asked for more time in class to review peer’s work on projects and complete the project. When asked in Case 2 what were the critical moments in the course, seven out of 20 responded with needs assessment, followed by project selection (4 out of 20) and teaching model determination (2 out of 20).

Teacher responsivity. Responsivity was analyzed according to student reactions to the course from the official OPSCAN form (standard plus supplementary questions), self-evaluations, and comments from the personal conference. Seven different means of support or responsivity to learner needs were used: instructing, feeding-back, questioning, contingency management, modeling, cognitive structuring, and reflecting.

High marks were given the instructor for overall instruction (averaged 3.9 on 1-4 scale), including knowledge of subject (averaged 3.9), communicating subject (averaged 3.7), making subjecting stimulating (averaged 3.7), and class administration (averaged 3.8).

In terms of feeding-back, students rated “fairness in grading” at 3.9 (averaged on a scale of 1-4). Although no question in the data sources asked specifically about questioning, another means of being responsive to students, comments were obtained about the attention given to individual students: “appreciated concern and attention on my work.” Conferences were another source of feedback and questioning in which students acknowledged “one-to-one discussion.” Group activities were another means for feedback and questioning between participants about their projects, issues, resources, and ideas.

One question on the OPSCAN form addressed contingency management, “concern and respect for students,” as well as comments from the self-evaluation task, in-class PMI task, and the second personal conference. The instructor was highly rated (averaged 3.9 on a 1-4 scale) over the six cases in terms of “concern and respect” for students. Comments from the cases cited the instructor as “flexible and supportive,” and “dedicated to students and their learning.” Others cited individual attention, time, availability, patience and encouragement for students to make their own decisions. One comment included appreciation for “an atmosphere that was a safe place to express ideas.”

Modeling. Teacher modeling of design activity included making clear our instructional approach beginning with Case 3, using our study of the ID course as an example of teacher research, and the prototyping and field testing of instructional materials (i.e., task sheets, student guide). Other aspects of teacher modeling included the willingness to take risks in class with activities, presentations, and materials, as well as a willingness to share control and responsibilities for learning. Students were encouraged to make their own design decisions while we provided written comments and encouragement on weekly work and through email and personal conferences. Teaching demonstrations were a means for students to model instructional approaches. Students found these a “neat way of sharing” and to learn from others, providing a break in the class, although one student in Case 5 asked that they be scheduled earlier in the semester.

Cognitive structuring included two types: Type I structures of explanation which organize content, and Type II structures for thinking included principles, guidelines, and heuristics from our experience. Type I structures predominated in this analysis and include course organization, task sheets, instructional texts, and project outline, while Type II structures included, for example, project guidelines, such as “Keep your list of goals to five.” Cognitive structures can be both teacher-provided and student-constructed, as in the case of students’ personal instructional design models and ID projects. Both student-generated models and projects are Type I cognitive structures, in which they represented the ID process in terms of its components and their relationships in the case of the ID models, and a designed response to an instructional problem in the case of an ID project. Meanwhile, learning principles and the mission statement were Type II cognitive structures, which learners developed to reflect their views on learning, the learners, and the teacher’s role in learning.

Instructor-provided cognitive structures included the overall course organization, task sheets, and texts. Overall, course organization was rated highly by students (averaged 4.6 on a 1-

5 scale). Some students regarded the course organization as helping them to “negotiate” the course, and the weekly assignments made the final project easier. Some students thought the pace was too rapid with too much to do and too much paperwork. Suggestions on improving course organization included talking about teaching models and media earlier, and reducing self-assessment and course evaluation tasks. Task sheets had mixed responses (averaged 4.6 on a scale of 1-5), cited by some as overwhelmed by requirements, while others wanted more structure. Responding to the need for more structure, we added criteria of performance to the task sheets. Students suggested one task sheet per ID phase and matching the task sheets to the project outline to reduce confusion.

Both texts used in the course (Smith & Ragan, 1993; Shambaugh & Magliaro, 1997) received the same rating when averaged over the six cases (4.3 on a scale of 1-5). This includes the four student guide versions which were being field tested in Cases 1-4 and the published version in Cases 5-6. Comments on the Smith and Ragan text reported mixed use as a resource for project. The first three versions of the student guide rated below the Smith and Ragan text and received a wide range of comments, from “direct and concise” to “not extensive enough.” Students regarded the published student guide in Case 5 and 6 as a useful resource, “well written and easy to understand” and “busy, but appealing.”

The project outline represented another example of a Type I structure of explanation for the project. Students observed the differences between the project outline and the ID component task sheets, which were guidelines for an iterative examination of the ID process. Task sheets might differ week to week, such as with needs assessment, which used three different task sheets for each of the three weeks spent on needs assessment in Cases 2-6.

Student-constructed cognitive structures included the ID model, ID project, learning principles and mission statement task. Students rated the preliminary personal ID model lower (averaged 4.1 on a 1-5 scale) over the six cases than their revised ID model (averaged 4.4 on a 1-5 scale). The ID project was rated highly by students (4.9 on a 1-5 scale). The Learning Principles task was higher (averaged 4.6 on a 1-5 scale) than the subsequently constructed Mission Statement task (averaged 4.4).

Reflecting. The self-reflection task, conducted at the end of the course, was rated at 4.2 (averaged on a 1-5 scale), which was just above the lowest rated learning task, the preliminary ID model, rated at 4.1. While a lack of time for reflection was cited by students in Case 1, an opportunity for reflecting was provided in the self-evaluation task (4.18 on a 5-point scale). Three of the ten self-evaluations analyzed in Case 1 did not like the self-evaluation task, one of the three found the task too long and two others said they did not like self-assessment. Meanwhile, 16 out of 18 students in Case 2 found self-assessment helpful. Two were “uneasy” and “uncertain” about self-assessment. In Case 2 self-assessment issues included self-regulation (7 out of 21), learning beliefs (3 out of 21), and teaching (3 out of 21).

	Case 1-Summer 1994	Case 2-Fall 1994	Case 3-Fall 1995
Design decisions	8 phases Increased assessment options	9 phases (added Beliefs) Added mission statement task	9 phases Added performance criteria to tasks

	Smith & Ragan (1993) text Student guide #1	Replaced exam with 2 conferences Student guide #2	Moved conference 2 before Thanksgiving Student guide #3 Listserv
<b>Implementation</b>	9/13 behind in needs assessment; cite more time needed More reflection time Unclear on task and instructional analyses Customized media packets	Mission statement difficult task Project identification Introduced formative evaluation during needs assessment	Group activities for learning principles, needs assessment, assessment
<b>Evaluation</b>	Projects: 4/6 complete, 4/6 consistent, 5/6 coherent; lacked research on teaching content, incorrect or missing task/instructional analysis Student perceptions: high effort, challenging terminology, concerns with submitting drafts Instructor responsivity: high ratings, mixed responses to guide	Projects: 4/4 complete, 4/4 consistent, 3/4 coherent; one project included teacher goals; 2 lacked details on supporting materials (workbook, workshop) Student perceptions: groups more task- focused, beliefs expanded or clarified, needs assessment and project identification as critical moments Instructor responsivity: high ratings, mixed responses to guide	Projects: 5/9 complete, 6/9 consistent, 3/9 coherent; insufficient needs assessment in 5/9 projects Student perceptions: mixed comments on groups, high ratings on conferences Instructor responsivity: high ratings. Low ratings to guide's KWL self-assessment feature

Figure 54. Summary of Changes in Cases 1-3.

	Case 4-Fall 1996	Case 5-Fall 1997	Case 6-Spring 1998
<b>Design decisions</b>	<p>9 phases</p> <p>Re-labeled design phases</p> <p>Added "Design a Lesson"</p> <p>Shambaugh &amp; Magliaro (1997) as text; readings on reserve</p> <p>Design Activity forms</p>	<p>9 phases</p> <p>Media before Prototype</p> <p>Added web site</p> <p>Grouping decisions</p> <p>Design Activities in syllabus</p> <p>ID competencies</p>	<p>9 phases</p> <p>Using teaching demos as lesson prototype</p> <p>KWL as needs assessment record</p> <p>Design based on participants as teachers</p> <p>On-campus needs assessment visit</p>
<b>Implementation</b>	<p>"Design a Lesson" introduced learning issues</p> <p>Mission Statement workshop</p> <p>Goal identification activity</p> <p>Instructional media during demos</p>	<p>Ideologies activity</p> <p>"Jumpstart" activity for needs assessment</p> <p>External client concerns in 5/16 projects.</p> <p>Issues of sequencing and assessment in web projects</p> <p>Panel discussion on assessment</p>	<p>Mission statement pulled from work done in previous course</p> <p>Conference on campus</p> <p>Grouping to encourage teachers to talk</p> <p>Instructional technology as major focus</p>
<b>Evaluation</b>	<p>Projects: 4/5 complete, 5/5 consistent, 5/5 coherent</p> <p>Student perceptions:</p> <p>Instructor responsivity:</p>	<p>Projects: 5/12 complete, 11/12 consistent, 10/12 coherent</p> <p>Student perceptions: mixed comments on groups, view peers projects, problems with identifying project, room too small, lack of computer-Internet</p> <p>Instructor responsivity:</p>	<p>Projects: 9/13 complete, 9/13 consistent, 11/13 coherent. 6/13 based on Virginia SOL's, 3/13 merged teaching, assessment, media in sequence, 13/13 addressed media, but minimal details</p> <p>Student perceptions: overwhelmed by readings and paper</p> <p>Instructor responsivity:</p>

**Figure 55.** Summary of Changes in Cases 4-6.