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TECHNOLOGY-ENHANCED CASE-BASED LEARNING IN MULTIPLE CONTEXTS: MATERIALS FOR IMPLEMENTATION

In the United States, institutes of higher education face significant challenges to produce sufficient numbers of fully qualified special educators to meet the needs of school districts (Billingsley, 1993; Boe, Cook, Bobbitt, & Terhanian, 1998). The Bright Futures Report (Council for Exceptional Children, 1998) indicated that while seasoned special education teachers are leaving the field at twice the rate of general educators, inexperienced and unqualified special educators with lower levels of commitment to the field are even more likely to leave. In rural communities, these challenges are exacerbated by limited resources, lack of access to high quality professional development or teacher education programs, the pervasive shortage of special education and related services personnel, and geographical and topographical barriers to a wide range of field placement options (Ludlow, 1998).

Recruiting and retaining teachers of students with emotional and behavior disorders (EBD) can be even more challenging. A study by Singh and Billingsley (1996) indicated that the highest burnout area in special education may be working with students with behavioral disorders. The difference in willingness to stay in the field was attributed to higher stress in EBD classes. This seems to be confirmed by Cegelka and Doorlag's (1995) report on attrition of special education teachers. They found that dealing with severe behavior disorders and managing challenging behavior was one of four skill areas that teachers rated themselves as least well prepared. Although teachers burn out or leave teaching for complex and varied reasons, the training that teachers receive is believed to be a primary contributor to their success or failure (Farber, 1991; Wrobel, 1993). Thus, the need to identify effective and alternative methods of preparing preservice and inservice special educators to work with students with EBD is critical.

One challenge facing teacher educators across the nation is how to effectively prepare these teachers-in-training to expand their knowledge and skill repertoires and enable them to “think like a teacher” about problems of teaching (Cochran-Smith & Lytle, 1999; Wilson & Berne, 1999). Case-based instructional approaches engage students in a more authentic environment to bridge the gap between theory and practice (Elskind, 2001; Shulman, 1992). Multimedia cases allow interactive linking of multiple media such as images, videos, and sound within a case environment to create a totally realistic practice field for teachers to solve problems of teaching (Ayersman, 1996). Enhanced through technologies such as multimedia, electronic performance support tools, and online discussion groups, case-based instruction offers teacher educators and students opportunities for teaching and learning in new ways. Largely unstudied, however, is how teacher educators should most effectively implement multimedia, interactive cases to ensure that students learn and transfer these skills in the field. The purpose of this paper is to describe activities, materials, and implementation guidelines related to using one program from the Teacher Problem Solving Skills series of cases in a variety of formats.

First, we provide a brief overview of a three year Steppingstones research project studying the implementation of case-based instruction in multiple teacher preparation contexts to document the process, outcomes, and transfer of knowledge and skills to teaching children with emotional and behavioral disorders in applied settings. Then, we describe the materials that are provided in the dissemination modules prepared through the project for each of the programs in the series. These modules include content outline, relationship to CEC Content Standards, embedded activities, discussion questions, supporting tools, guidelines for implementation, and evaluation tools. A URL to a website is provided where readers can obtain more information on the cases as well as a link to the dissemination modules. Finally, a description of future research reports will be described that identify effective implementation practices for case use across levels and courses.

The Virtual Resource Center in Behavioral Disorders-Research Consortium

VRCBD-RC is a three-year research project in the United States focusing on case-based instruction in higher education. The instruction incorporates the use of knowledge and skills to real settings, and integration of online discussions and chats to support collaborative learning with the materials. The research project is a collaborative project involving five universities; it is funded as a Steppingstones Innovations in Technology grant from the U. S. Department of Education. The project is ongoing during the 2004-2006 time period (Fitzgerald, Hollingsead, Koury, Miller, & Mitchem, 2004-2006). The goal of the project is to study the implementation of case-based instruction in multiple teacher preparation contexts to document the process, outcomes, and transfer of knowledge and skills to teaching children with emotional and behavioral disorders in applied settings. The technologies of focus include the use of 1) interactive, multimedia cases designed as practice fields, 2) electronic performance support tools that facilitate skill application in applied settings, and 3) online discussion formats for social construction of knowledge and shared problem-solving. Implementation methods vary

naturalistically across the multiple sites for both in-service and pre-service offerings. To date, 20 different implementations have been studied across a range of courses.

Multiple methods of quantitative and qualitative inquiry and analysis are being conducted within and across the implementation groups to examine how the use of practice field cases, electronic performance support systems for educators and children, and online discussion groups and chats improve learning outcomes and transfer of knowledge and skills to professional practice in applied settings. A grounded theory model is being built to identify a set of themes that characterize effectiveness and transfer across multiple sites. On these bases, findings that support effective implementation are drawn and replicated, leading to recommendations and resources to support widespread dissemination and adoption of the technology-enhanced instructional approaches.

Dissemination Modules

As part of the dissemination efforts, the research consortium is currently developing dissemination modules available at the web site (<http://coe.missouri.edu/~VRCBD>) to guide and support effective use of these hypermedia cases as identified through the project. Parts of the dissemination module for Program I, *Perspectives in Emotional and Behavioral Disorders*, is described as an example in this paper. Each module contains six components: program information, instructional activities, application bridges, supporting tools, evaluation rubrics, and indexing to CEC Standards.

Program Information

A content outline is provided for each program that describes the opening challenge to the user, brief bios and background information for each of the students portrayed in the cases, declarative information provided within the program (e.g., glossary of terms), interactive activities embedded in the software, computerized support tools available to the user, and additional instructional resources for instructors. Program I, for example, with its emphasis on the use of theoretical perspectives for understanding and treating emotional and behavioral disorders contains descriptions and audio explanations of the biophysical, psychoeducational, behavioral, ecological, developmental (only in the early childhood case), and integrative perspectives by respective experts, as well as a series of behavioral disorders fact sheets that provide the characteristics, DSM-IV criteria, etiology, treatment, education and resources for each disorder.

In addition to the content outline and case bios, each dissemination module contains an expert concept map illustrating both the concepts covered in the case as well as the organization of the case. Figure 1 displays the expert map for Program I. More detail could be included in the map, but it is intended to portray the “big picture” of the concept. In this example, the main components of the concept “Programming for EBD” are: views and approaches, types of disorders, steps in planning, team, and placement. The action steps that are supported through embedded activities in the case are displayed as an interaction of: identify concerns, hold meeting, make a plan, and build a team that are unified through a defined perspective.

Dissemination Module for Program 1: Perspectives in Emotional and Behavioral Disorders

| Instruction | * | Supporting Tools | Application Bridges | * | Evaluation |
|---|-----|--|---|----|---|
| <u>Activities within Software</u> | | <u>Planning Guides</u> | | | <u>Rubrics</u> |
| 1. Quiz to check understanding of case information | #1 | Use these guides with the cases or applied to real work: | 1. Do an individual or class behavior change plan from one perspective; gather baseline and change data, write results, and reflect. Provide information if the perspective changed over time and why. This activity requires information beyond what is provided within the case. 2. Apply perspectives learned in the cases to paper cases with follow-up to real students in field or classroom settings addressing behavior or academic concerns. This could include observation/volunteer work in special education classrooms. | #5 | Use these rubrics to evaluate students work on the activities within the software: 1. Prepare for Meeting 2. Write Report 3. Planning Guides |
| 2. Write questions to take to the meeting | #10 | 1. Identifying Concerns | | | |
| 3. Write report on perspectives about case student and needed teamwork | #3 | 2. Gathering Information 3. Meeting Needs 4. Building a Team | | #1 | |
| | #2 | | | | |
| <u>In-Class Activities</u> | | | | | <u>Evaluation Activities</u> |
| 1. Create a present levels-of-performance statement based on case information. | #2 | | <u>Online Discussion Questions</u> | | After doing an IEP in a class group, have students do an individual IEP on another case student and use this for evaluation. |
| 2. Develop a full IEP for a case student including how the disability affects performance in general education curriculum. | #7 | 1. A) Observe the video clips from each case and choose one to describe. Discuss appropriate and inappropriate teacher behaviors seen in the clip and the student responses elicited by those behaviors. | | #4 | |
| 3. Participate in a case conference taking a role of a service provider or parent; develop a programming and placement guide. | #10 | 1. B) Select two perspectives and provide appropriate teacher responses to the behavior you observed above grounded in the perspectives that you have selected. | | #4 | |
| 4. Complete a perspectives matrix in a group where each student serves as an expert on one of the theoretical perspectives. | #1 | 2. Do you believe that there is a medical intervention occurring in any of the Program 1 cases? If so, what do you believe is the result of the medical intervention and what do you think would happen if medication were withdrawn? What behaviors might be manifested? How might they then be accommodated/replaced in the context of the school? | | #2 | |
| 5. Based on the information and needs presented in the case, plan interventions for the student. | #4 | 3. There are extensive records and data included in each of the cases. What do you think is missing from the cases? What other information do you need to participate in an eligibility meeting and the subsequent IEP meeting? | | #8 | |
| 6. Compare & contrast definitions and eligibility requirements across various state regulations and apply to case students. | #9 | 4. How does the amount of information presented in these cases compare to the amount of information in your actual experience? What are the implications of this for your practice? | | #9 | |
| 7. Summarize the information on the planning guides in a report suitable for use with parents and/or other service providers. | #10 | | | | |

Application Bridges Indexed to CEC Content Standards

Investigating the transfer of learning outcomes to other contexts and situations is a primary goal of the research project and so instructors in the research consortium are studying the extent to which activities promote these desired outcomes. One preliminary finding indicates that the use of application bridges, or activities that link the concepts from the cases to other real-life or contrived issues, may be necessary to support the transfer of learning outcomes. These application bridges, like the instructional activities, are indexed to CEC Content Standards to assist instructors in selecting cases and activities specific to course or content needs. By using the Content Standards as a reference, the activities become more applicable across numerous special education categorical labels (high incidence disability areas). It should be noted that by doing these activities, not all of the requirements of a Content Standard would be fulfilled just as any assignment you would give in class. The assignments are a building process of competency to fulfill the large Content Standard.

Computerized Support Tools

Preliminary findings suggest that the computerized support tools facilitate and encourage the transfer of learning to real-life problems. The tools available for students are highlighted and described to provide instructors information on how to use them both within the case and in other real-life situations. Tools available in Program I include the Planning Guides that provide a scaffold for students to identify concerns, gather information, meet needs, and build an integrated team.

Evaluation Rubrics

Researchers in the consortium developed rubrics for each program to assist in evaluating student assignments related to the cases. These rubrics provide instructors with examples to use with case-embedded activities and with the supplemental instructional activities or to adapt to their own particular needs.

Research Report on Effective Implementation Practices

The dissemination modules will be accompanied by a report on research findings that support implementation in general and special education; undergraduate and graduate level; face-to-face, web-enhanced, and online; and preservice and inservice courses. Current research is focusing on how the knowledge and skills gained from the instruction are sustained and transferred to classroom usage. Findings will include the effectiveness of computerized support tools and implementation of ongoing online mentoring/support groups following students' technology-enhanced case-based instruction.

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