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ABSTRACT

An interactive multimedia instructional program was developed at Kansas State University to meet the need of rural social work students for specialized training in child welfare issues. The program consists of 10 multimedia interactive computer-based instructional modules that focus on child welfare issues in generalist social work practice. The modules were designed to provide individualized staff development based on specific social worker competencies, adult education principles, and the advantages of interactive multimedia. The impact of the program on student attitudes and knowledge was assessed with 37 undergraduate students who used the modules in two courses on social work practices. Results of pretests and posttests indicate that after viewing the modules, students had increased their knowledge, developed a greater sense of competence in the subject area, and become more comfortable with the use of technology. The findings suggest that interactive multimedia is an effective means of providing training in knowledge and skills necessary for child welfare practice, and that this method has potential to overcome challenges, such as lack of specialists and lack of materials, that are common to rural service delivery in a variety of fields. (SV)

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BEYOND BELLS AND WHISTLES: USING MULTIMEDIA FOR PRESERVICE AND INSERVICE EDUCATION

Because of the difficulties of providing timely and individualized education and training for rural practitioners, interactive multimedia can be used to reduce travel costs, deliver quality training, and allow for individual differences in experience, expertise, and learning style. Not all rural professionals are able to leave work to travel to University settings and few courses are offered at off-campus sites. While distance learning opportunities have multiplied greatly in the past several years, the lack of relevant course work and access to the technology necessary to participate in these opportunities may prohibit the wide use of distance education for some rural human service professionals. In addition, few reports focus on evaluating the outcome of technology based distance education.

The curriculum that provides the basis for this presentation was designed specifically to meet these needs and has been demonstrated to be effective in increasing knowledge, competencies, and self-efficacy. To address the unique problems of teaching in rural areas, interactive computer based videodisc instruction was selected as the method of delivering education to rural professionals. The program is being used in rural areas where practitioners can access the instruction at any time and they do not have to drive to a center, nor does a teacher have to travel to the learners. They can receive the information when they need it; there is no need to wait until a group is formed or a consultant or instructor is available.

The delivery method described in this paper is being used in rural areas because it can be used in local offices and schools and can be utilized in staff development and instruction for individuals or groups. The delivery format of training

modules, a self-contained computer based multimedia program, uses specific skills development methodology and takes into consideration the range of users' skills levels with computers and supporting technology. The ability of users to control the instructional process and to record their progress allows remediation when necessary or the option to move ahead with the competency is reached.

This study describes the results of using multimedia modules on the knowledge and attitudes of the user, undergraduate social work students.

Introduction

The complicated nature of providing services in rural environments makes specialization and professional development difficult. Contextual factors, such as scarcity of local resources, lack of access to professional tools and materials, and limited availability of alternatives for professional development for rural social workers contribute to this difficulty. Many approaches have been used to provide professional development opportunities for human service workers in rural areas. The lack of a critical number to make in service training cost-effective at the local level often means that training is not delivered in a timely manner. The most common forms of training are workshops, summer institutes, night and weekend courses.

Distance education has emerged as a method to address the accessibility issues involved in providing training for rural human service professionals. Distance education refers to training approaches characterized by the separation of instructor and students (Keegan, 1990). It includes print based media, such as correspondence course and technology based instruction, such as interactive video and computer technologies. Outside experts are linked to local communities that may be a great distance away. Instruction is delivered to the learners' doorsteps with credit courses and entire degrees. Distance education accommodates training that is practical and related to the trainee's job requirements. Because it is field based, it can reduce or eliminate the need to commute to a centralized training site, and it greatly improves the accessibility of training to personnel in rural communities. Distance education provides an opportunity for rural social workers to upgrade their skills when more conventional forms of training are not available to them and offers flexibility in organizing and offering training experiences for local offices (Knapczyk, 1991).

Interactive Multimedia Instruction

Interactive multimedia instruction combines the education benefits of hypertext and hypermedia and is easily transportable to rural offices of human service providers. Hypermedia is an extension of hypertext. It incorporates other media besides text and graphics, such as illustrations, video diagrams, animation, and computer graphics. Learners can branch from topic to topic as they see it, going into more depth in one area or jumping to another related, but different subject, virtually instantly. Text, illustrations, animation, video and other aspect of multimedia are combined, controlled, coordinated, and delivered on the computer screen. Using video, key

concepts can be presented in a variety of ways and a variety of visual stimuli can be used. The interactivity of hypermedia and hypertext instruction allows the learner to try a variety of interventions and movers a video or text sequence to logical conclusions, based on the learners' actions. Learners can repeat sequences, obtain feedback about choices, and try responses or interventions that they would never do in real life (Seabury & Maple, 1993). Video images, graphics, text and sound are programmed to rapidly access any information from a single image, a video sequence or a sound sequence.

Kansas Rural Child Welfare Project

To meet the need for specialized training focusing on issues related to child welfare need, a collaborative effort was developed between the Department of Special Education and the Social Work Program at Kansas State University and the Kansas Department of Social and Rehabilitation Services. The resulting interactive multimedia instructional program, "Building Family Foundations", was developed by social work educators, educational professionals, social workers, and a team of educational technology specialists. For a complete discussion of the development of this project see Thurston, Denning, and Verschelden (1996).

"Building Family Foundations" consists of ten multimedia interactive computer based instruction modules that focus on child welfare issues in generalist social work practice. These modules were designed to provide individualized staff development that is based on specific social worker competencies, adult education principles, and the advantages of interactive multimedia (Thurston, Verschelden, & Denning, 1196).

Although the use of technology in distance education and the use of interactive multimedia are increasing, few reports analyze the impact of learning on the attitudes and skills of the learners. The purpose of this study was to assess program users' attitudes toward technology and multimedia, its efficacy as a learning method, and its feasibility for staff development. Additionally this study was designed to assess program users' gains in knowledge presented in the program and their confidence to perform the competencies upon which the program curriculum is based.

Subjects

The subjects were 37 students from the undergraduate social work program at Kansas State University. The students were in the last two semesters of their classroom training prior to their block field practicum. They were divided into two groups, Group I, which was made up of 18 students in Social Work Practice I class, and Group II, 20 students in Social Work Practice II. Use of the modules and participation in the study were requirements of the courses.

Instruments

Each Subject completed pre and post test using the following instruments: The

Building Family Foundations Competency Rating Scale; the Child Welfare Knowledge Assessment; and the Technology Rating Scale. The Building Family Foundations Competency Rating Scale is composed of seventy-six statements developed from objectives and goals of the Family Based Treatment Strategies, Social Workers in Court, Professional Development, Adolescence, and Stress Management modules. Subjects read each statement, consider their ability to use the skill identified in child welfare work, and rate themselves on a scale from 1 (very low) to 5 (very high).

The Child Welfare Knowledge Assessment consists of seventy-four multiple choice, true/false, and matching questions from the review and final test questions in the Family Based Treatment Strategies, Social Workers in Court, Professional Development, Adolescence, and Stress Management modules. Subjects read each question and choose the best answer.

The Technology Rating Scale is a modified version of a computer rating scale used to measure comfortableness with computers. It was modified to include multimedia and staff development. It consists of twenty-five statements related to computers and multimedia. Subjects read each statement and indicate how they feel about each statement using a scale from 1 (strongly agree) to 6 (strongly disagree).

Research Design

Subjects completed pre-tests, viewed the modules, and completed post-tests. Group II completed the post-test twice. One was completed in the fall after the subjects had viewed the *Adolescence* module. The second post-test was completed in the spring after they viewed the remaining three modules. For all three instruments, the interest was in whether or not there was a significant change in the pre- and post-test scores and, if so, in which direction was the change. Additionally, the two post-test scores from Group II were examined for any significant results.

The analysis consisted of paired t-tests from SAS, version 6.10 for the Macintosh. This is an equivalent procedure to the paired t-test in PROC GLM. All analysis of variance model assumptions were checked. Missing values were accounted for via the automatic SAS adjustments.

Results

Results of the Building Family Foundations Competency Rating Scale analyses were positive. For Group I subjects there is an increase from a mean of 2.7 to 4.1 ($p=0001$). This indicates that the subjects' confidence in their ability to use skills in the *Adolescence* module increased after viewing the module, and that the increase is statistically significant.

Group II subjects also have significant differences between pre- and post-test scores on all modules viewed ($p=0001$). *Family Based Treatment Strategies* pre was 2.4 and post was 3.8; for *Social Workers in Court* pre was 2.0 and post was 4.0;

Professional Development was 2.8 and post was 4.2; and *Adolescence* score means went from 2.7 to 3.9. These scores indicate an increased confidence in subjects' knowledge of skills discussed in these four modules. Scores for modules not included in this study also demonstrated increases, indicating that other factors may have been responsible for the changes or that some modules produced generalized effects.

Result of the General Knowledge Survey analyses showed that for Group I subjects who viewed the Adolescence module, there is a significant difference between the pre-test mean of 12.2 and post-test mean of 16.2 (p=.0001). This appears to indicate that although test scores significantly increased after subjects viewed the *Adolescence Module*, the entire increases cannot be attributed to learning form the module.

For Group II subjects there is a significant difference between pre- and post- test scores for all modules viewed (p=.0001). Mean scores for *Family Based Treatment Strategies* increased from 10.9 to 14.3 ; *Social Workers in Court* from 14.3 to 16.6; *Professional Development* from 5.5 to 8.8; and *Adolescence* from 12.3 to 13.9. This result indicates that subjects' knowledge in the module content areas significantly improved after they viewed the modules. However, subjects' scores also improved, although less significantly, on Stress management even through it was not viewed by them (p=.02) level of significance.

Results of the Technology Rating Scale analyses were conducted with combined scores for Group I and Group II because this instrument consists of questions that do not directly relate to a particular module but rather to the use of multimedia and computers in general. Mean score decreased form 2.3 at pre-test to 2.0 at post-test (p=0.0001), indicating a more favorable attitude toward technology.

Seabury and Maple (1993) concluded form their work with interactive videodiscs that well designed computer programs can teach social work practice skills to students. The reported study concurs with this conclusion. Findings that users increased knowledge, development a sense of competence in the subject area, and became more comfortable with the use of technology indicate that interactive multimedia is an effective means of providing training in knowledge and skills necessary for child welfare practice.

The design of this study did not allow specification of the independent effects of the various components of the social work classes the subjects were attending that contributed to the their development of both knowledge and competence in the modules' content areas. While it is clear that subjects both gained knowledge and developed competence in the module content area, it is impossible to specifically attribute changes to the modules, class activities, or some combination of factors. However, this concern does not exists for the evaluation of subjects' comfort and attitude toward the technology, which will be increasingly utilized for inservice and preservice education of professionals in rural areas. Currently, the "Building Family Foundations" program is available to and mandatory training for child welfare workers

throughout Kansas. Specific modules are also being used in graduate studies in special education and with the social work program at Kansas State University. The project's next step is to expand the evaluation study to include the child welfare workers in the field who are currently using the modules.

Implications form the study for rural areas are great. If the success we have seen so far continues, multimedia interactive training can be made readily available to the rural professional in a variety of fields. this methodology can overcome many of rural service delivery's common challenges, e.g. lack of specialists and lack of specialists and lack of access to professional tools and materials, identified by Merell, Pratt, Forbush, Jentzsh, Nelson, Odell, and Smith (1994). the technology and expertise is available to achieve advanced levels of training for all professionals no matter their location.

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