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Nadine Barnes

Univeristy Lower School, barnes@nova.edu

Rhoda Levine

Nova Southeastern University, levine@nova.edu

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Improving Learning Disabled Student Performance Using a Web Based Training Module

Nadine Barnes, Ed. D. and Rhoda Levine, SLP.D.
UNIVERSITY SCHOOL OF NOVA SOUTHEASTERN UNIVERSITY

Introduction

Students with learning differences present unique challenges as well as unique opportunities for professionals (Cole, 2007, Lloyd, 2005). One of the challenges facing those working with these students is that professionals who educate and remediate with these types of learners have undergone very insular training experiences. As a result, they may not be prepared to deal with the multifaceted issues which present themselves outside of their area of expertise.

Continuing education opportunities and graduate programs foster the isolated practice and training of professionals through concentrated studies related to specific vocational needs (Spencer, 2008, Gunsalus & Beckett, 2008, Robelen, 2007). While the type of training described above may be necessary in order to train professionals to practice in their chosen professions, it does not promote knowledge between disciplines. Interdisciplinary training can only facilitate improved outcomes for students with learning differences.

This project sought to determine an improved method for providing basic information about learning differences to a variety of learners. A web based format was chosen because it would allow for flexibility of information delivery. This flexibility would greatly benefit the working professionals, parents, and graduate students who need access to the information. Further, by using a web based venue, access to the information would also be provided to professionals and others in underserved areas of the country.

Web based instruction has been shown to be an effective method of information delivery (Bore, 2008, Salend, 2009, Notar, 2008, Ludlow, 2007). Specifically, research has examined the effects of web based instruction on graduate and undergraduate students (Hay, 2007, Hsu, 2009). The previously cited research indicated that there was little difference in student performance between web based and live instruction.

Towards that end, a training curriculum was written to facilitate improved knowledge for general educators, teacher aides, speech/language pathologists, audiologists, occupational therapists, parents, graduate students, and professionals in underserved areas of the country. The contents of the training included basic information in the areas of sensory integration, reading and math issues, language considerations, behavioral/social components, and auditory processing issues as they relate to students with learning differences.

The training was unique for several reasons. First, training was provided in a web based format so that professionals would be given the opportunity to participate at times and locations which are convenient to them. Next, the training presented basic information as well as intervention strategies which can be used in classrooms, clinics, private practices, as well as at home. Last, intervention suggestions were presented in simple to understand formats in order to facilitate utilization of techniques.

Problem

A pretest survey was given to general educators , teachers' aides, parents of students with learning differences, and graduate students from the disciplines of speech/language, education, and psychology in order to identify whether training was needed in the area of learning differences. General elementary school teachers and parents of children with identified learning disabilities continually expressed the need to acquire increased knowledge of academic, emotional and social instructional strategies to assist students with learning. Pretest survey results revealed that all participants indicated a need for additional information related to various facets of learning differences. General educators felt that they were the best prepared of the survey groups due to their experiences with students who appeared to have different learning styles. However, even general educators revealed limited academic and practical knowledge for handling these types of learners. Parent replies on the pre-test survey indicted the problem was an overall lack of knowledge about the area of learning disabilities although they indicated high levels of knowledge as it pertained to their own children's learning issues. Teacher's aides indicated the lowest levels of knowledge and were the least willing to use a web based format. Graduate students indicated knowledge in their own areas of study but limited information outside of those areas. Additionally, graduate students were the most familiar with using web based formats for learning. Based on the analysis of results from pretest surveys a problem was documented in the area of general knowledge about learning differences and strategies to use to assist students with learning differences.

Implementation

The program was piloted at a private laboratory school located on the campus of a large private university. This college preparatory private lab school launched a special program for students with identified learning disabilities four years ago. This specialized program, called the Learning and Research Academy (LRA) seeks to provide early intervention in the areas of reading, math, receptive and expressive language, and written language. Additionally, students enrolled in the program receive occupational therapy services which focus on improving visual motor skills. Psychological services are also provided which focus on facilitating improved social/emotional well being. This program is unique in that it is only available to students in first through fifth grade. By the mid to end of the fifth grade year, students must be mainstreamed in order to move

on to middle school. Success for all mainstreamed students is facilitated, in part, by general educators participating in the web based modules described above.

The LRA uses the resources of the various departments within the large university. Graduate students from the programs in audiology, speech/language pathology, psychology, and education participate as part of their graduate training. There is also a heavy focus within this program on using assistive educational technology.

Communication between the program specialists and the mainstream teachers is the responsibility of a mainstream liaison. All mainstream assignments are modified by the special educators and the speech/language pathologist who are part of the program. Students enrolled in the program are part of the LRA and part of the mainstream, in that they participate in content area courses as well as art, music, and physical education with their mainstream counterparts.

Participants in the training included parents of students with suspected or diagnosed learning differences, teacher's aides, general educators, and graduate students. General educators were primarily elementary school teachers. Graduate students were studying speech/language pathology, psychology, and education. Parental participants were those who had children with either newly diagnosed learning differences or those whose children were newly enrolled in a special program for students with learning differences. All of the parental participants had children that had experienced academic difficulties. Additionally, each participant completed a pre and post-training survey.

The curriculum was set up as five different modules. At the completion of each module, the participant was required to take a short quiz and earn a passing grade (at least 80%) in order to move on to the next module. Participants were able to complete the training at their own pace. Participants were given university emails accounts and user identification which allowed them access to the material but precluded them from obtaining any other information through the university web system.

Data Analysis

The targeted population consisted of 30 participants (n=30). All participants were affiliated with the university and the elementary division of the laboratory school housed on campus. Ten participants were parents, 10 were elementary teachers and 10 were university students participating in speech/ language pathology, education, psychology and audiology graduate studies.

Pretest survey results indicated that participants felt the need for additional information in all content area categories. Parental participants also indicated that they were not as experienced in taking courses in a web based format. University faculty and graduate students indicated a higher level of experience with web based instruction. Parents who requested training in web based instruction were provided with a WebCT tutorial. Additionally, participants reported different levels of experience with and exposure to students with learning differences. The pretest survey asked for information relative to materials to use with students with learning differences. Participants reported a wide range of responses in this area with some teachers noting a

high use and availability of materials and others indicating no exposure to materials for students with learning differences.

Results of the training were analyzed through means of post-test surveying. Post-test data revealed that all participants indicated that they had learned something from the training which they could use to assist students/children with learning differences. All participants noted an increase in their ability to successfully complete coursework through a web based format. The highest increases in this category were seen with the parent participants. Based on general dialogue, most teacher and student participants indicated they felt more able to work with students with learning differences after completing the training, but did not feel fully equipped to deliver effective instruction and interventions. Teacher and student participants suggested opportunities for practice would increase their feelings of self efficacy and ability to apply newly learned strategies. Eighty percent of participating parents indicated that they gained a better understanding of the many facets of learning differences.

Post Test Outcomes of Web Based Training to Improve Knowledge of Students with Learning Disabilities (n=30)		
Group	Participants	% of increased knowledge
Parents	10	80%
Teachers	10	50%
Students	10	10%

Implications and Recommendations

This research identified a need to improve overall understanding of the topic of students with learning differences as well as facilitating improved outcomes for these students. A web based approach was utilized in order to improve ease of access to information which would encourage a larger number of participants. As the findings of this project indicated, web based instruction was a successful venue for facilitating participation for the subjects and in improving outcomes for their students with learning differences. This study could be replicated with a larger sample size among each of the target groups in order to see if the effect remains constant.

It seems a logical conclusion to draw that participants in underserved areas with access to the internet could benefit as well as the participants who were part of this study. Results indicated an improvement in participants' abilities to understand and work with students with learning differences.

Future use of this concept could include the development and implementation of additional modules which would be more specific to stakeholders' needs. Modules could be added with a focus specifically on remediation techniques as well as use of assistive educational technology. Additionally, virtual case studies could be added as a

way for participants to actually practice use of various techniques which could be especially beneficial to participants living in underserved areas of the country.

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Authors

Dr. Levine is a speech/language pathologist working at the University School of Nova Southeastern University. Her main research interests involve the connection between language and learning as well as language and learning disabilities.

Dr. Nadine Barnes is the Director of the University Lower School (PK-5) which is located on the campus of Nova Southeastern University in Ft. Lauderdale, Florida. Dr. Barnes holds a Masters Degree in Specific Learning Disabilities. She has been instrumental in creating a Lower School Child Study Team and the Learning and Research Academy.