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HUMAN RESOURCE MANAGEMENT ISSUES IN COMPETENCY FOR
ASSISTIVE TECHNOLOGY OF OCCUPATIONAL THERAPY PROACTITIONERS

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ABSTRACT

This article discusses the assistive technology competencies that appear in literature. Through a review of literature, two university programs are analyzed as to their methodologies and amount of instruction provided in entry level occupational therapy academic programs. This provides background to a proposed multiple case study to further delve into this area of study.

KEYWORDS

Occupational Therapy

Assistive Technology

Human Resource Management Issues in Competency of Assistive Technology for Occupational Therapy Practitioners

INTRODUCTION

Today, technology is making it possible for a diverse level of physical, cognitive and sensory impaired individuals to be productive in every field imaginable. Through the political activism of persons with disabilities, key legislation has made a significant impact on technology usage. Telemedicine and telerehabilitation are emerging areas of practice. Assistive technology must be considered in the plan for every special needs student across the United States. Occupational Therapy Practitioners (OTPs) need to be prepared to deliver these new technological based services. This paper explain the need for the increased development of competency of OTPs in technology, review recent research on OT entry level curriculum on AT , outline proposed methodology to explore the topic further based on this research and recommendations for the future.

BACKGROUND

The Human Resource issue to be examined is the need for competent occupational therapy practitioners in the area of the new emerging practice of assistive technology. The education, training and professional development of OTs is a critical human resource issue. Technology is linked to OT practice through occupation. The OT profession recognizes that occupational therapy practice revolves around the everyday occupations and the roles of clients. Computers are an integral part of occupation for most of us with 75 percent of jobs requiring the use of a computer and the ability to relate to information technologies on a daily basis. Yet new technologies place a whole new set of physical,

cognitive and mental demands on today's workers Hammel (1996). Technology skills have become critical components of productivity and can no longer be considered optional or ancillary. Technology competencies for occupational therapy need to take a more dominant role in preparation of OT professionals in education institutions. Brienes(2002).

Competency. The definition of competency is identified criteria established for assessing and measuring performance. As the OT moves into the new millennium it becomes important for the practitioner to develop and maintain knowledge and performance skills to perform the necessary professional responsibilities. This is an ongoing process by a practitioner to engage in activities that maintain or advance competence necessary for meeting the required behaviors or tasks inherent in the OT's area of responsibility. Holm (2001) page CE-16.

Assistive Technology Competency. Smith (1991) presented the following as competencies and responsibilities for occupational therapists who desire to work in the area of AT. In summary, these tasks are:

1. To become a technology problem solver by using AT to increase an individual's functional independence.
2. To see oneself as the human technology and environmental expert
3. To gain a basic comfort level with low and high technology.
4. To gain a basic literacy in technology related areas.
5. To understand one's limits in the area of AT.
6. To understand the ethical issues surrounding the use of AT.

Hammel (1996) developed a list of technology competencies for the OTPs that are attached in Appendix A. The Standards for an Accredited Educational Program for the Occupational Therapist Requirements states

1. Use therapeutic adaptation with occupations pertinent to the need of the client. This shall include, but not be limited to assistive devices, equipment and other technologies.
2. Demonstrate the ability to reach compensatory strategies such as use of technology, adaptations to the environment, and involvement of humans and nonhumans in the completion of tasks.

One of the primary barriers to use of assistive technology by those in need is the lack of adequately trained staff. In a report by the Alliance for Technology Access “the respondents indicted that technology training is not sufficiently addressed in professional training curricula for occupational therapists”. Wahl(2002) page 4. . This lack of knowledge also is often cited as a barrier to obtaining assistive technology for persons with disabilities.

CONCEPTUAL FRAMEWORK

The conceptual framework is based on assistive technology competencies, entry level OT curricula and the occupational therapy professional programs. The focus is on the preparation of occupational therapy students to possess the competencies at the occupational therapy, entry level, upon completion of accredited OT educational programs.

STATEMENT OF THE PROBLEM

Occupational therapy practitioners are faced with the need to participate on assistive technology interdisciplinary teams to make decisions about the purchase of assistive technology devices for their students. The occupational therapist plays the role of interface specialist providing information on the types of systems and devices available and computer access adaptation necessary. The occupational therapist is often called upon to train the child on the device, train the staff how to use the device and provide ongoing monitoring of the progress of the student using the device Swinth (1994).

PURPOSE OF THE STUDY

The purpose of this research study is to understand the level of instruction provided in assistive technology at the entry level in occupational therapy academic curricula.

NEED FOR THE STUDY

Few studies and literature addresses the use of how assistive technology competencies are addressed in occupational therapy entry level curriculum. This review of literature will analyze existing literature in an effort to highlight how to determine the types and ways to determine if a program is providing adequate training for occupational therapy students in this area.

RESEARCH QUESTIONS

Based on the review of the literature, two articles on university programs that outline their approach to instruction on assistive technology are analyzed to provide information on their methodologies.

What are the methods used to analyze the program?

What are the methods used to incorporate the instruction?

Assumptions

1. Occupational therapy entry level programs provide assistive technology instruction.
2. Occupational therapy entry level programs align their instruction on assistive technology with AOTA competencies.

Limitations

The following limitations underlie the study:

1. The information obtained is limited to programs that appear in literature.

2. The goal of the study is not to provide generalizable data but rather a brief snapshot of examples of assistive technology instruction and methodology used.

Delimitations

The following delimitations may underlie the study.

1. The articles about university programs appear in only the most recent literature.

Definition of Terms

Assistive technology is defined as “any item, commercially off the shelf, modified, or customized that is used to increase or improve functional capabilities of individuals with disabilities” Case-Smith (2001)

REVIEW OF THE LITERATURE

The need for a variety of AT educational offerings still exists. In the study by Gitlow (2002) a survey questions was mailed to 105 practitioners in the state of Maine. With a 20% return rate Gitlow collected data on the level of current knowledge and information needed as well as the respondents’ perceived level of competency in AT. Training options were considered along with incentives to attend AT courses and travel time to training. “The conclusion was that few respondents saw themselves as highly competent in the areas of AT presented, and most saw themselves as having at least a moderate need for information in most areas. Clearly, a need exists to develop programs to meet the AT educational needs of the occupational therapy practitioners who responded to the survey. Any course should cover a wide variety of issues related to AT provision and should incorporate both distance and hands on learning opportunities. Additionally sufficient interest exists to support the course work related to various specialty topics.”

Breines (2002) discussed the necessity for students in Occupational Therapy

Professional Programs must learn assistive technology in order to adequately prepare to assume the role of occupational therapy practitioner. Breines stated that technology instruction should be included in OT curriculum. The curriculum at Seton Hall uses technology based learning that is infused into the curriculum and increased in complexity and application as the program advances “to build their skills as educated consumers they explore the uses of technology in public systems and private enterprises.”

Luebben (1996) described how University of Southern Indiana redesigned their curriculum around a core of technology related content. The students spent 56% of their classroom contact hours in technology related content. They put technology as one of eight curriculum strands. The curriculum at Seton Hall uses technology based learning that is infused into the curriculum and increased in complexity and application as the program advances “to build their skills as educated consumers they explore the uses of technology in public systems and private enterprises.”

The recent research of Gitlow and Brienes described both the need for more educational experiences for OTPs and an innovative program at Seton University to provide a graded approach to integrating technology competencies within the curriculum.

PROPOSED METHODOLOGY

I would like to survey occupational therapy programs to determine the amount of instruction that students receive in the areas of assistive technology. As part of this survey I would like to determine the type of service delivery in terms of instructional methods such as distance, hands on or a combination of both. It would be interesting to determine if the technology skills are embedded, infused or provided in a stand alone course along with the number of hours devoted to technology instruction.

In addition, a qualitative approach should be utilized because the topic needs to be explored and not all the variable can be easily identified. A more detailed view of this topic needs to be presented Creswell (2002). The type of qualitative approach that would be recommended would be the case study approach. The case study approach would use extensive, multiple sources of information for data collection to provide a more in depth picture of the situation. Multiple sources of information frequently used in case studies are document, archival records, interviews, observations and physical artifacts.

Sample. The proposed sample is the entry level occupational therapy programs that are listed as accredited through the American Occupational Therapy Association.

Study. The study would consist of both a survey for quantitative data and a qualitative study using multiple case study methodology.

Research Procedures. The first phase consisted in use of email to elicit responses to questions about the assistive technology curriculum at each university. Email data collection was chosen due to the easy, cheap and fast qualities of this approach. The costs are very low and the return speed is fast. The questions are seen by the respondent all at once. The respondents are able to change their answers at any point. The elimination of geographic barriers is an important feature as the occupational therapy programs are throughout the United States. The drawbacks of using email data collection are that there is no ability to screen at unqualified respondents. No visual or auditory cues, responses online can be less in depth Swett, C. & Walkowski (2000).

The next phase would be to determine several programs and do a case study on each. This would include but not be limited to interviews of faculty, students and recent graduates. Study of web site presence of each university and copies of past and present

syllabi on courses being offered or have been offered. A personal visit to the assistive technology facilities and equipment used to teach assistive technology would be informative to document physical artifacts. Attending classes on assistive technology as a participant observer would provide valuable information.

Implications for future based on research. It is clear that professional preparation and continuing education of OTs is necessary to equipment them to apply their skills in the treatment of clients in a modern world. Technology as an integral part of the occupation of persons with disability makes it imperative that training programs of OT consider these options.

CONCLUSIONS AND RECOMMENDATIONS

My recommendations are that the credential body or the OT profession (ACOTE) looks at revising the standards to require that professional education institutions of OT incorporate both general technology use and technology for persons with disability to a larger degree. This can be achieved through updating the standards to reflect this need. I believe that assistive technology should take a more centralized position as one of the key areas of OT practice instead of as an addition for those individuals that participate in continuing education activity. As the profession looks at performance and occupation in the future we need to consider the use of technology and adaptations and development of assistive technology as a cornerstone of our practice. More occupational therapists need to be involved in the research, development and marketing of assistive technology devices.

SUMMARY

To compete in the future as a profession I think that competency in specialized assistive technology needs to be provided to effect a change in the preparation of occupational therapists. In an effort to determine the prevalence of instruction I would like to survey a sampling of occupational therapy educational programs and research several using a survey and case study method to determine to what extent do the OT programs address technology competencies and how they address them.

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Appendix A

Technology Competencies for Occupational Therapy Practitioners From Technology and Occupational Therapy: A Link to Function Preface, Foreword and Resources by Hammel, J. et al, 1996.

Following is an outline summarizing technology competencies for OT Practitioners (OTPs). The competencies were revised based on two levels of national reviews by COTAs, OTRs and Assistive Technology Practitioners (ATPs) through AOTA.

OTPs can review the table to determine their level of competency and identify areas in which additional education, training, and /or experience are needed.

Note that the competencies reflect minimum recommendations for OTPs (OTR and COTA); practitioners may exceed these given specified site protocols. Individuals primarily working as specialized assistive technology practitioners (ATPs) rather than OTPs may operate at higher levels of competency in specific technology areas and may not need supervision. ATPs should also refer to RESNA companies for advanced AT knowledge and skills.

A. Evaluation

1. Upon referral for services and in collaboration with consumer and significant others, identify functional needs, screen for functional limitations, and identify if the need for a comprehensive OT evaluation exists.

2. In collaboration with consumer, significant others, and evaluation team, determine AT needs as part of a comprehensive OT evaluation.
 - a. Evaluate the individual's functional abilities in performance areas (ADL, work and productive activities, and play or leisure activities) and in performance components (sensorimotor component, cognitive integration and cognitive component, and psychosocial skills and psychological component).
 - b. Evaluate the individual's performance contexts, including (temporal, chronological, developmental, life cycle, and disability status) and environmental (physical, social and cultural) aspects.
 - c. Evaluate and analyze the tasks and functional demands of the context.
 - d. Screen and identify the level of AT needed. May range from none to basic to complex.

3. In collaboration with consumer, significant others and evaluation team, conduct a basic AT evaluation.

- a. Administer AT evaluation of basic technology solutions (e.g., adaptive equipment in homemaking).
 - b. Interpret basic evaluation results and integrate into intervention plan, reevaluating as needed.
 - c. Develop functional intervention goals and plan, incorporating basic AT as appropriate.
 - d. Integrate basic AT theoretical information from OT and other disciplines into intervention plan (leg., physical therapy, speech and language pathology, engineering, education, ergonomics, psychology, sociology, anthropology).
4. In collaboration with consumer, significant others and AT team, conduct a specialized complex AT evaluation (assumes A.1-3 met).
- a. Administer specialized evaluation of complex AT needs (e.g., computer access, seating, mobility, augmentative communication).
 - b. Interpret complex AT evaluation results and integrate into intervention plan, reevaluating as needed.
 - c. Coordinate evaluation of occupational therapy related AT needs with the interdisciplinary AT service delivery team.
 - d. Develop functional intervention goals and plan, incorporating complex AT and services as appropriate.
 - e. Integrate complex AT theoretical information from OT and other disciplines into intervention plan.
5. Refer consumers and significant others to appropriate OT and AT resources when functional needs exceed those provided by OTP.

B. Intervention

1. In collaboration with the consumer, significant others and the intervention team, provide AT interventions as part of a comprehensive occupational therapy plan.
- a. Provide basic interventions which optimize the individual's functional abilities in performance areas and performance components. Examples include daily living skills training, cognitive retraining, strengthening, ergonomic practice, visual/perceptual training, and energy conservation.
 - b. Provide basic interventions which optimize the individual's performance context, including temporal and environmental aspects. Examples include environmental modifications, ergonomic design, ADA training, and disability awareness training.
 - c. Alter and/or adapt tasks to meet the functional demands of the context. Examples include rewriting job descriptions, rearranging class schedule, sharing job duties, comparing level of assistance to do task (attendant vs. technology).
2. In collaboration with the consumer, significant others and the intervention team, provide basic AT interventions.

- a. Perform product trials, recommend product specifications, order technologies, install and train individuals in use, maintenance, and repair of appropriate basic AT.
 - b. Participate in the design fabrication, and customization of basic AT within a defensible level of competence as appropriate to the case and the level of expertise required.
3. In collaboration with the consumer, significant others and the AT team, provide specialized complex AT interventions (assumes B. 1-2 met).
- a. Perform product trials, recommend product specifications, order technologies, install and train individuals in use, maintenance, and repair of appropriate complex AT.
 - b. Perform product trials, coordinate delivery of, recommend, install, and train consumer and others in the use of an integrated AT solution (e.g., wheelchair, environmental control and augmentative communication integrated into functional school base intervention)
 - c. In collaboration with rehabilitation engineer and AT team, participate in the design, fabrication, and customization of complex AT within a defensible level of competence as appropriate to the case and the level of expertise required.

C. Resource Coordination

1. In collaboration with the consumer and significant others, provide and coordinate OT and basic AT resources to consumers and significant others.
- a. Describe resources which link consumers with AT information (e.g., product databases, vendors, funding/reimbursement, AT services, general advocacy/support organizations, conferences, continuing education).
 - b. Describe the role of OTPs in providing a global functional perspective encompassing AT use and delivery to consumers, significant others and other team members.
 - c. Describe the contributions of other disciplines to functional AT use and their roles on an AT team (e.g., physical therapy, speech and language pathology, engineering, education, vocational rehabilitation, etc.).
 - d. Describe mechanisms for reimbursement of OT and basic AT.
 - e. Justify the provision of OT and basic AT for reimbursement
 - f. Operate within relevant OT and AT service delivery systems (e.g., schools, hospitals, ATAs, AT clinics).
 - g. Discuss AT legislation impact with service delivery systems (e.g., ADA, IDEA, and Tech Act).
 - h. Participate in consumer advocacy activities related to AT on an individual case level.
 - i. Participate in OT and AT program evaluations.
 - j. Participate in OT and basic AT research studies.
 - k. Participate in functional outcome and research studies to justify OT services including the use and adaptation of basic AT.

1. Critically analyze and apply current research related to OT and AT service delivery.

2. In collaboration with consumer, significant others and member of the AT team, provide and coordinate complex AT resources to consumers and significant others (assumes C.1 met).
 - a. Describe mechanisms for obtaining reimbursement of OT and complex AT and AT services.
 - b. Justify the provision of OT and complex AT and AT services.
 - c. Integrate AT legislative guidelines into service delivery.
 - d. Design, summarize and present results of OT and complex AT program evaluations.
 - e. Participate in OT and complex AT research studies.
 - f. Participate in functional outcome and research studies to justify OT and AT services including the use and adaptation of complex AT.