



The Internet Journal of Allied Health Sciences and Practice

A Peer Reviewed Publication of the College of Health Care Sciences at Nova Southeastern University

Dedicated to allied health professional practice and education

<http://ijahsp.nova.edu> Vol. 11 No. 2 ISSN 1540-580X

Online Occupational Therapy Program Assessment: Application of the Sloan Consortium's Model

Jan Stube, PhD, OTR/L, FAOTA¹
Sonia Zimmerman, PhD, OTR/L, FAOTA²
Debra Hanson, PhD, OTR/L²
Janet Jedlicka, PhD, OTR/L, FAOTA²
LaVonne Fox, PhD, OTR/L²
Charles Hosford, PhD, PT³

1. Professor, Department of Occupational Therapy, UND School of Medicine and Health Sciences, Grand Forks, North Dakota
2. Associate Professor, Department of Occupational Therapy, UND School of Medicine and Health Sciences, Grand Forks, North Dakota
3. Assistant Professor/Statistician, Office of Medical Education, UND School of Medicine and Health Sciences, Grand Forks, North Dakota

United States

CITATION: Stube J, Zimmerman S, Hanson D, Jedlicka J, Fox L, Hosford C. Online Occupational Therapy Program Assessment: Application of the Sloan Consortium's Model. *The Internet Journal of Allied Health Sciences and Practice*. April 2013. Volume 11 Number 2.

ABSTRACT

Purpose: In order to assess outcomes of an online Transitional Masters of Occupational Therapy (TMOT) degree program, the Sloan Consortium's Five Pillars Model of Quality was applied to: 1) student assessment of learning and programmatic satisfaction; and 2) faculty satisfaction with the online teaching context. **Method:** Two surveys were used for post-programmatic data collection; one survey was specifically developed to measure TMOT graduates' learning and satisfaction with programmatic parameters. The Online Faculty Satisfaction Survey (OFSS) was used to measure teaching faculty's perspectives. **Results:** Graduates' responses indicated a moderate to strong support for learning effectiveness, satisfaction with online learning, institutional commitment, and cost-effectiveness. Faculty noted concerns with the time-intensity of online teaching, yet were satisfied with teaching self-efficacy, student participation, and learning outcomes. **Conclusion:** While this survey research suggests the online learning environment is a viable method to accomplish outcomes in occupational therapy education, the study findings also illustrate the structural and integrative value of the Sloan Consortium's Five Pillars Model for program assessment across allied health disciplines. The Five Pillars Model's value encompasses both the student perspective and faculty satisfaction, as well as other aspects of the online context for higher education.

INTRODUCTION

For bachelor-level practicing occupational therapists, the opportunity to earn the entry-level masters of occupational therapy degree at a distance is an attractive option. Practitioners, as adult learners, want to be competitive and competent in occupational therapy in order to remain contemporary and responsive to the needs of their clients.¹ Online learning provides the means by which therapists can continue their employment and concurrently engage in higher education without a geographical move. Students are able to interact with peers who are working in diverse geographical areas and practice specialties as part of the learning process.

Programs of academic study offered to practicing therapists are by their very nature designed to meet the needs of adult learners. Andragogy, the theory of adult learning developed by Malcolm Knowles, presents the adult learner as unique from the younger learner.² Adult learners face learning experiences with a desire to understand why they need to know followed by a readiness to learn, a sense of being responsible and capable of self-direction in their learning, and a desire to use their experience as part of integrating the new learning to real-life experience. While the adult learner is responsive to the external motivators such as job promotion or increased salary, the stronger motivators are more internal including job satisfaction, self-esteem, or quality of life.² Online learning, as a form of distance education, taps into a long history of providing education to adults who otherwise would find accessing continuing and higher education difficult.³

As higher education programs are increasingly providing online courses, the benefits of online instruction and learning for occupational therapy are becoming recognized as well. Online technology provides multiple opportunities for application of subject material to real-life situations, thereby contributing to positive learning outcomes.⁴ Richardson et al conducted a survey of graduates from an online post-professional master's degree program in occupational therapy and found that respondents articulated enhanced development of critical thinking and leadership skills as well as increased professional confidence and commitment to the profession as beneficial learner outcomes.⁵ Jedlicka et al found that comfort levels with distance education methods increased from pre- to post-course for occupational therapy students; however, they recommended further study is needed relative to distance learner outcomes.⁶ A recent outcome study of an online post-professional doctorate degree program in occupational therapy reported that graduates possessed improved confidence for evidence-based practice decision-making with the potential for practice leadership and scholarly endeavors after graduation.⁷

Assessment of higher educational programs offered in the online environment presents new challenges. A search for assessment models to inform online programmatic assessment revealed few options. Assessment has often focused on student responses to quality of instruction, course organization, and delivery methods using revisions of existing institution-specific course evaluation procedures.⁸ Effective program evaluation of higher education programs offered online calls for a more comprehensive view. Palloff and Pratt suggested program evaluation be outcome and competency based.⁹ Evaluation at the program level needs to assess the student experience working online including ease of access, delivery systems utilized, and availability of immediate support from faculty or the institution.¹⁰ Law et al raised the additional issues of measuring retention rates, student and faculty satisfaction, and analysis of cost-effectiveness.¹¹ Roberts et al also noted the importance of evaluating the effectiveness of instructional strategies aimed at creating social interaction online.¹² Although specific to community college online programs of study, Hirner and Kochtanek researched quality indicators and stakeholders' perceived importance of the indicators and identified the importance of program review to evaluate courseware, instructional philosophy and methods, faculty use of technology, student retention and attrition, and student learning outcomes.¹³ Roberts et al listed The Western Interstate Commission for Higher Education's five components of institutional context and commitment, curriculum and instruction, faculty support, student support, and evaluation and assessment as descriptive of best practices in online education.¹⁴

There are many directions in which a program evaluation could proceed, but it would clearly be inefficient to attempt to address them all. Consequently, The Sloan Consortium's (or Sloan-C) Five Pillars Model of Quality developed by Janet C. Moore, Ph.D., of The Sloan Consortium was selected as a promising framework for this research.^{15,16} The Sloan Consortium includes a number of institutions of higher education and other organizations which are committed to achieving quality in online education (<http://www.sloanconsortium.org/>), of which the University of North Dakota (UND) is a member institution. The Five Pillars Model is specifically intended for assessment and continuous quality improvement of online courses or programs.¹⁵ The five pillars of assessment include 1) learning effectiveness, 2) student satisfaction, 3) access, 4) cost effectiveness, and 5) faculty satisfaction. The pillars are categories providing structure and serving to guide evaluators to prioritize important aspects of learning in the online environment beyond student attitudes at the course level. Laumakis et al used the Five Pillars Model to evaluate a 500-section of an introductory psychology course with a blended learning focus.¹⁷ Their findings supported use of the Five Pillars Model in blended learning environments as well as for asynchronous learning.

Using The Sloan-C Five Pillars Model of Quality as the guiding framework merged with the programmatic goals, the UND's Occupational Therapy Department faculty developed an online post-graduation survey to evaluate its 24-month transitional Masters of Occupational Therapy (TMOT) online degree program.^{16,18} A post-graduation survey was designed to measure four of the five Sloan-C pillars of: learning: effectiveness, cost effectiveness, access, and student satisfaction. Faculty satisfaction, the fifth pillar, was measured through use of the Online Faculty Satisfaction Survey (OFSS) which was developed to align with the Sloan-C Five Pillars Model of Quality.¹⁹ Table 1 presents a summary of the focus of each of the pillars for the TMOT Program.

Table 1. Sloan Consortium's (Sloan-C) Five Pillars Model of Quality with OT Programmatic Goals

Sloan-C Pillar	Summary of Each Pillar's Intent & OT Programmatic Goal
1. Learning Effectiveness	<ul style="list-style-type: none"> Online learning outcomes meet or exceed traditional program outcomes
2. Student Satisfaction	<ul style="list-style-type: none"> Students are successful and pleased with learning experiences online
3. Access	<ul style="list-style-type: none"> Access to learning is reliable; support services are available
4. Cost Effectiveness	<ul style="list-style-type: none"> Services are continually improved while containing costs
5. Faculty Satisfaction	<ul style="list-style-type: none"> Faculty identify positively with teaching online; feel supported in their efforts
The Five Pillars Model is from the Sloan Consortium and its website: http://sloanconsortium.org/5pillars . The summary of each pillar intent was integrated with each programmatic goal for the TMOT program.	

This research paper was planned toward a two-fold purpose: 1) report the program assessment research findings, and 2) illustrate practical application of the Sloan-C Five Pillars Model of Quality to assist in program review. This research study demonstrates use of the five pillars to guide development of data collection tools, as well as to guide discussion of research findings. As such, the following research questions were addressed: 1) To what degree was the graduate student's perception of proficiency influenced by the TMOT Program (i.e., addressing programmatic areas of OT theory, management, research, ethics, and communication)?; 2) To what degree are students satisfied with their learning experience?; 3) How do students experience the learning environment (specifically, use of technology and support services)?; 4) Is the TMOT Program perceived by students to be a valued personal investment (tuition cost, time, career development)?; and 5) What is the faculty's perception of their satisfaction with teaching in the online environment?

METHODOLOGY

Design and Measurement

A survey research design was used for programmatic assessment, including: 1) a post-graduation online survey developed by the UND teaching faculty to measure perceptions of learning and satisfaction from graduates of the TMOT program at UND, and 2) the Online Faculty Satisfaction Survey (OFSS) for gathering TMOT faculty perceptions of online teaching.¹⁹

A 36-item post-graduation online survey was developed collaboratively by the TMOT teaching faculty team, using the Sloan-C Five Pillars Model of Quality as a useful framework.^{16,18} The survey began with demographic items and an open-ended section where graduates described their initial goals for entering the TMOT program. Subsequent items related to the programmatic content areas of theory, management, research, ethics, and communication, the online learning environment; institutional support; and personal investment in learning. Specific survey items within each category were designed to measure graduate perceptions of their learning of particular curricular content (see Appendix A). A Likert-type response format of 1 (very minimal influence) to 5 (very strong influence) was utilized on the survey items pertaining to influence of the TMOT learning experience, with a 3 being moderate influence. Items describing the learning environment, institutional support, and personal investment asked graduates to rate level of agreement using the Likert-type response format of 1 (strongly disagree) to 5 (strongly agree) with 3 being a neutral response. Qualitative data were solicited by means of an open-ended comment section following each grouping of survey items. Participants were invited to narratively describe their reactions to survey items. The TMOT post-programmatic survey of graduates' perceptions of online learning and satisfaction was initially validated through OT practitioner external expert review; feedback provided by the first cohort of graduates also contributed to its content validity. The TMOT quantitative online survey items are presented within Table 2.

The Online Faculty Satisfaction Survey (OFSS) is a 28-item survey developed by Bollinger with Wasilik who tested both reliability and construct validity of faculty satisfaction as one of the Sloan Consortium's Five Pillars of Quality.¹⁹ The OFSS consists of a 4-point Likert-type rating scale of Strongly Disagree, Disagree, Agree, and Strongly Agree. There are four survey subscales identified for the OFSS: general online teaching satisfaction, satisfaction with student interaction, satisfaction with one's own instruction efficacy in an online teaching environment, and satisfaction with institutional or contextual variables such as time for course preparation.

Participants

After approval by the university's Institutional Review Board for this study, 39 TMOT graduates were contacted by telephone to gather current e-mail addresses and to invite them to participate in the online post-graduation survey. Subsequently, graduates were sent an informational e-mail from the graduate director providing the online survey web-address link with informed consent information and assurances of respondent anonymity. All respondents were graduates of the TMOT online program at UND as of May, 2009. Twenty-five of the 39 graduates responded to the online outcomes survey resulting in a 64% response rate. Of the TMOT teaching faculty, all were invited to participate in the OFSS survey. A letter of informed consent and assurances of anonymity were provided prior to OFSS survey completion. Eight of nine online teaching faculty members in the TMOT program responded to the survey, yielding an 88% response rate.

Analyses

Quantitative post-graduate online survey item responses were downloaded from the aggregate, anonymous online format into IBM® SPSS® (version 18) for subsequent quantitative analyses; anonymous OFSS data were also entered directly into SPSS (version 18) for analyses. Descriptive statistics were obtained for the data from these two surveys; means were calculated for all Likert-type survey items. Two student survey items allowed for pre- and post-programmatic comparison, resulting in the calculation of effect size and performance of a Wilcoxon Signed-Ranks Test of Difference. Responses to open-ended questions were de-identified and compiled into a Microsoft® Word document allowing for increased accuracy and validity of descriptive data analyses. The combination of Likert-type responses and open-ended description sections on both student and faculty surveys not only allowed the opportunity for participant voice and explanation but resulted in a richer and more complete analysis of each Pillar of study.

RESULTS AND DISCUSSION

Demographics

Of the 25 TMOT post-graduate respondents, most had practiced occupational therapy for either 6 to 10 years (48%) or greater than 21 years (24%). Of the 28% remaining, practitioners with 11 to 15 years of experience comprised 12% of the sample; 12% had 16 to 20 years of experience and only 4% were practitioners with 5 or fewer years of practice. The vast majority of respondents were staff occupational therapists (64%). In order of frequency, the most common practice settings were hospitals (non-mental health), skilled nursing facilities, early intervention settings, school systems, home health, private practice, and rehabilitation hospital settings. The sample of respondents primarily consisted of occupational therapists practicing in the Midwestern/Central United States (U.S.) region (48%). Other respondents were from the West Coast/Rocky Mountain region (36%), East Coast (8%), or Southern/Southeastern region (4%). One individual (4%) did not indicate a geographic region. Data regarding gender were not collected.

In the following paragraphs, the results of the two surveys utilized in this study will be presented within the respective Sloan-C Pillar. To present a complete picture of the Pillar of interest, reporting of results will include presentation of quantitative analyses, as well as descriptions of open-ended, narrative responses to survey items for each category. Discussion follows with reference to the utility of the Sloan-C Pillar model, primary findings, and programmatic recommendations. Readers are directed to Table 2 and Table 3 for specific results.

Sloan-C Pillar: Learning Effectiveness

The achievement of learning outcomes and the continuous improvement of learning are hallmarks of learning effectiveness. In this study, measurement of learning effectiveness is evident in the respondents' evaluation of the degree to which participation in the online program influenced proficiency in program competencies.

Thirteen survey items focused on research question #1: "In which TMOT programmatic areas do our students experience the greatest learning (i.e., OT theory, management, research, ethics, and communication)?" Survey items answering research question #1 utilized a Likert-type response format of 1 (very minimal influence on learning) to 5 (very strong influence on learning) with a 3 indicating moderate influence. Response means for the learning outcome survey items, as reported in Table 2, ranged from 3.32 (understand the types of research and levels of evidence) to 4.04 (demonstrate effective communication skills). Although mean responses of proficiency of learning indicated moderate to strong support, a number of the content items were given the highest ranking available.

The high mean proficiency rating on analyzing and critiquing the literature was somewhat surprising in that evidence-based practice (EBP) was not the focus of a specified TMOT course. Because respondents were required to utilize professional literature in their capstone scholarly project, it is possible that these skills were recognized by students as an expected outcome

of the master's degree program. A heightened intentional focus on understanding tools for EBP and levels of evidence would further strengthen the EBP skills of future graduates.^{20,21}

Management principles were an intentional focus of at least two courses within the program and were embedded within others. Although survey respondents acknowledged their proficiency in this content, descriptive comments suggest that those graduates not directly employed in management positions placed less value on this knowledge-base. This study's research data underscores the need for engagement of the learner in student-centered application of knowledge in relation to therapist practice.

Moderate to strong ratings in application of theory to OT evaluation and intervention are aligned with respondent comments suggesting increased professional confidence and a renewed sense of professional identity due to broader theoretical knowledge. Findings are consistent with previous survey research attributing increased critical thinking, professional confidence and knowledge, and commitment to the profession to post-professional OT online education.^{5,7}

Quality and availability of interaction with instructors and peers are also considered in measures of learning effectiveness. Several authors support the importance of designing online learning activities to allow the adult learner to critically reflect, discuss, compare, and articulate points of view with others.²²⁻²⁵ Study results illustrate that learning effectiveness is enhanced through the use of activities that engage students in the learning process and foster a sense of community. Use of written course assignments coupled with online discussion hold potential to foster the student's ability to articulate points of view in multiple formats.

Sloan-C Pillar: Student Satisfaction

Student success and adequacy of their perception of learning experiences were measured through a number of items on the post-graduation survey and related descriptive comments. Using the Sloan-C description of measurement for this category, student satisfaction was primarily measured and reported in the Learning Environment survey category items.

Thirteen survey items focused on our programmatic goal of student satisfaction and success, as well as research question #2: "Are students satisfied with their learning experience?" Survey items pertained to such TMOT activities as the online orientation, faculty effectiveness, faculty feedback, depth of content, and peer learner collaboration (see Table 2). Response means ranged from 4.24 (orientation to online learning) to 4.84 (advisor feedback to scholarly project) on a Likert-type response format of 1 (strongly disagree) to 5 (strongly agree) with 3 being a neutral response.

These item response results reflected the valuing of the interpersonal connection with the faculty as individual instructors and also the faculty advisor for development of the scholarly project (i.e., the capstone project within the program). Collaborative learning with peers was highly valued, as substantiated through not only the survey responses, but also through the open-ended comments contributed by the respondents. Respondents were likely accustomed to peer collaboration in the workplace and valued interpersonal contact between instructors and peers. Consistent with the literature, descriptive comments further supported the value of peer discussion as online assignments provided opportunity for students to network with and learn from colleagues across a large geographic area.^{4,22} Similarly, positive perceptions of quality and availability of faculty interaction contributed to overall satisfaction and positive learning outcomes.²⁵⁻²⁷

Study results demonstrated that regular and timely feedback from the advisor and faculty set a positive tone for faculty and student interactions. The student's learning experience is also enhanced by online courses which include variety in instruction formats and flexibility in time requirements. Allowing adult learners the access and opportunity to maximize time available during weekends or evenings encourages a balancing of life and education requirements. Careful consideration of how much content interaction is expected in regard to time requirements and credit given for the course positively influences student satisfaction with learning.

Further, assignments that engage the student in collaborative learning and capitalize on opportunities for peer interaction positively impact student's satisfaction. In keeping with the literature, recommended assignments include sharing of resources, group learning projects, various forms of online discussion, and creation of new applications for OT practice.^{26,28}

Sloan-C Pillar: Access

Access refers to reliability of the technological learning environment and the presence of support persons in the student's learning environment. TMOT program access and institutional support were measured primarily by five survey items addressing

research question #3: "How do the students experience the learning environment (i.e., use of technology and support services)?" (see Table 2).

Institutional support items response means ranged from 3.96 (business office) to 4.71 (TMOT coordinator). An additional item under the previously mentioned Student Satisfaction and Learning Environment pillar (i.e., online technology was useful to improve my learning), achieved a mean rating of 4.40. These results indicate moderate to very strong agreement that institutional support (i.e., OT program commitment and institutional support) was provided.

The students appreciatively relied on the TMOT coordinator and individual course faculty to answer technology access questions. Although this was accomplished to the best of the OT faculty/staff capabilities, there were many technologically complex questions that were referred to the university (i.e., institutional) technology support staff for answers.

Online learning technology was initially a challenge to the TMOT online graduate student during the introductory course and first full semester online course, but many quickly adapted. Others improved their technological skills and confidence over time. These technological skills improvements were measured via two survey items in the personal investment portion of the survey. (see the Wilcoxon Signed-Ranks Test of Difference results in Table 2).

TMOT student online access was achieved through the asynchronous nature of this online program along with the availability students had to individuals in the program or university who provided technological support, guidance, and/or resources. Further, respondent comments conveyed the asynchronous nature of the program to be beneficial and accommodative to the adult learner lifestyle. In summary, the online learning technology and institutional technological support cannot be overlooked as important to online programmatic success; however, the human connection and collaboration is highly valued by online learners. Program developers would be wise to consider both aspects as important to program success.

Sloan-C Pillar: Cost Effectiveness

Cost effectiveness is inferred when tuition rates provide a fair return to the organization, best value to learners, and result in a stable, high quality education.¹¹ Five survey items, again using a Likert-type response format of 1 (strongly disagree) to 5 (strongly agree) were used to address the concerns of research question # 4: "Is the TMOT Program perceived by students to be a valued personal investment (tuition costs, time, career development)?" Items were designed to measure the TMOT graduates' estimation of overall personal investment outcomes, therefore addressing The Sloan-C's pillar for Cost Effectiveness (see Table 2).

Because computer skills are of great importance to online learning, two items of the personal investment section of the survey measured students' self-perception of their technological skills at program onset and completion. Unlike other survey items, these items were designed to allow comparison of pre- and post-programmatic ratings. The respondents' rating of their initial technology skills at the start of the TMOT online program (response mean of 3.84) was significantly lower than their rating of technology skills possessed at the conclusion of the TMOT program (response mean of 4.64). The effect size of r equals -0.46 indicates a moderate to strong effect. The two technology skills survey items were analyzed via a Wilcoxon Signed-Ranks Test of Difference (see Table 2).

Costs (i.e., time and tuition) and benefit toward meeting career goals were assessed by the additional three survey items in this section of the survey. Respondents indicated agreement with both the level of time commitment ($M = 4.32$) and tuition costs ($M = 4.20$) as being fair and reasonable. The overall TMOT program was rated highly as a valuable investment toward meeting career goals ($M = 4.52$).

Evaluation of program cost effectiveness is involved in consideration of graduates' career advancement or increased quality of participation in current employment. A minority of respondents indicated that their education had already paid for itself in salary schedule adjustments or promotion; a majority emphasized the value of attaining personal goals, such as feeling parity with new graduates of master's level OT programs or acquiring leadership positions in professional organizations.

Graduates of the program considered tuition costs as reasonable and fair, particularly in view of flexible time requirements and the opportunity to continue in full-time employment and family participation while completing coursework. Responses to open-ended items were very positive, reflecting that tuition and time expenditures were appropriate for the value gained by participation in the program. Although high tuition costs may be a barrier to engagement of occupational therapists in online coursework, this study's results suggest this obstacle is offset by flexibility of time and space for learning and the value of education to professional development.²⁸

Table 2. TMOT Online Survey: Categories and Item Response Results

Learning Effectiveness Survey Category and Item (n = 25)		M	SD		
Theory:					
1. Describe & analyze theories to guide OT evaluation/intervention		3.64	0.99		
2. Apply occupation-based theories to selected case scenarios		3.56	1.00		
3. Apply the AOTA's OT Practice Framework to intervention		3.68	1.07		
Management:					
4. Understand and apply management principles to selected contexts		3.44	0.96		
5. Plan, develop, and organize the delivery of OT services		3.68	1.07		
6. Develop a professional plan for innovative management		3.54	1.29		
Research:					
7. Understand the types of research and levels of evidence		3.32	1.07		
8. Understand and apply basic research methodologies		3.52	1.05		
9. Analyze and critique research and professional literature		3.84	1.03		
Ethics:					
10. Understand and appreciate OT values and ethics		3.52	1.05		
11. Demonstrate understanding of OT ethical responsibilities		3.60	1.19		
Communication:					
12. Demonstrate effective written and verbal communication skills		4.04	1.02		
13. Use communication skills for effective working relationships		3.92	1.08		
Student Satisfaction with Learning Environment Survey Category and Item (n = 25)		M	SD		
1. Orientation to online learning met my needs		4.24	0.72		
2. OT faculty were effective instructors		4.52	0.65		
3. OT instructors provided regular and timely feedback		4.48	0.65		
4. Instructor feedback promoted my learning		4.72	0.46		
5. Depth of course information was appropriate for my learning		4.32	0.63		
6. Adequate opportunity for peer collaboration was provided		4.44	0.87		
7. I was satisfied with the quality of online discussion		4.36	0.76		
8. Online technology was useful to improve my learning		4.40	0.65		
9. The sequence of TMOT courses promoted my learning		4.28	0.84		
10. Library resources were adequate to meet my needs		4.52	0.82		
11. My advisor provided timely feedback		4.56	1.04		
12. My advisor's feedback was helpful to the scholarly project process		4.84	0.47		
13. The scholarly project was an effective measure of my knowledge		4.60	0.65		
Access and Institutional Support Survey Category and Item (n = 25)		M	SD		
1. TMOT coordinator provided needed information		4.71	0.46		
2. OT support staff were helpful in meeting my needs		4.68	0.48		
3. UND Graduate School was responsive to my requests		4.42	0.65		
4. UND Business Office was helpful in meeting my needs		3.96	0.98		
5. Campus Connection facilitated my online student needs		4.12	1.13		
Cost Effectiveness and Personal Investment Survey Category and Item (n = 25)		M	SD		
1. Time commitment for degree was reasonable and fair		4.32	0.48		
2. Tuition costs were fair and reasonable for this degree		4.20	0.87		
3. Program was a valuable career investment		4.52	0.77		
4. I had the technological skills to complete the required course work <u>at the start</u> of this program		3.84	1.14		
5. I had the technological skills to complete the required course work <u>at the completion</u> of this program		4.64	0.57		
Wilcoxon Signed-Ranks Test of Difference in Self-Rated Technological Skills Initially to Program Completion (n=25)		Median	Z	r	p
I had the technological skills initially		4.00			
I had the technological skills at program completion		5.00	-3.256	-0.46	.001

Sloan-C Pillar: Faculty Satisfaction

The Online Faculty Satisfaction Survey (OFSS) used in this study was developed by Bollinger and Wasilik to measure faculty satisfaction as one of The Sloan Consortium's Five Pillars of Quality.^{15,19} The OFSS uses Likert-type rating and item statements worded in the positive and negative to avoid response set answering on the part of the respondent. Therefore, for analysis purposes, a higher rating of a survey item indicated a greater degree of agreement with the item statement (e.g., Strongly Disagree = 1 and Strongly Agree = 4) on the Likert-type scale. Table 3 presents the four OFSS subscales with corresponding survey results.

Faculty respondents indicated disagreement on the general satisfaction with online teaching subscale items; this was exemplified by the item related to satisfaction with online teaching compared to other delivery methods (mean of 1.57 of 4). Further, they agreed with and, therefore, expressed concern for the institutional or contextual elements of online teaching (mean of 2.81 of 4); specifically, they agreed with a reality of increased preparation time needed for an online versus a traditional, face-to-face course (mean of 3.85 of 4). On the satisfactory side, the faculty respondents had a trend toward agreement regarding satisfaction with online student interaction (mean of 2.81 of 4). Additionally, there was positive faculty satisfaction with their own online teaching capacities or self-efficacy in methods used (mean of 2.75 of 4). It is presumed that faculty who are seasoned with traditional classroom teaching may prefer these conditions over the online teaching-learning context. Further exploration is likely warranted. Please refer to Table 3.

Table 3. Results of Online Faculty Satisfaction Survey (OFSS)

OFSS Survey Subscale and/or Item Example (n= 8)	Mean (on 4-point scale)
1. General online teaching satisfaction	2.28
<u>Item example:</u> I am more satisfied with online teaching as compared to other delivery methods	1.57
2. Satisfaction with student interaction	2.81
3. Satisfaction with one's online teaching instructional efficacy	2.75
4. Satisfaction with institutional or contextual variables	2.81
<u>Item example:</u> It takes me longer to prepare for an online course on a weekly basis than for a face-to-face course.	3.25
The Online Faculty Satisfaction Survey (OFSS) was developed by Bollinger & Wasilik. ¹⁹	

Online teaching faculty satisfaction as measured by the OFSS in this study indicated overall agreement with the literature that teaching online courses requires upfront preparation time and a certain teaching skill set differing from face-to-face instruction, including dependence upon technology and institutional support services.^{19,22,29,30} Although the faculty had concerns about the time-intensive nature of their preparation for teaching online courses, they were generally positive and felt self-efficacious about their online technological capabilities and with their perception of positive student outcomes. Of the two items on the OFSS pertaining to general satisfaction, the TMOT online teaching faculty felt that they looked forward to teaching their next online course (mean 3.0 of 4.0), yet were not able to rate greater satisfaction with online teaching compared to other delivery methods (1.6 of 4.0), thus indicating a mixed degree of satisfaction that paralleled the validation findings of the OFSS.¹⁹

Our study's results also concur with other research of higher education faculty related to online teaching. In a comparative study of different undergraduate teaching modes, 86% of faculty reported that classroom delivery was more efficacious than technology delivery (i.e., online or video conferencing).³¹ Shea et al found four factors to be associated with faculty satisfaction

with online teaching: having a positive experience overall in teaching the online course, teaching a course within their area of content expertise, receiving technical support for teaching when necessary, and experiencing a positive level of interaction with and among students in the online environment.³²

Speaking generally, the UND TMOT faculties prefer other methods of teaching over online instruction, yet were pleased with their own teaching efficacy, the students' outcomes, and the quality of student interaction and communication. A substantiating faculty comment provided on the OFSS summarized this sentiment: "Teaching to practicing therapists is a true joy! The level of motivation for learning is high, both from faculty and each other".

As faculty become increasingly capable in online course management and teaching skill, it is likely that some faculty will choose to make online teaching their area of expertise. Expansion of faculty opportunities for online orientation, professional development, and ongoing peer collaboration or mentorship will contribute to faculty self-efficacy and strengthening of faculty commitment to teaching in the online environment. Provision of reliable teaching technology and support services is essential to faculty satisfaction. Availability of institutional support including adjustment of teaching workloads and adequate time for course planning should also be considered.

Limitations

Several limitations are noteworthy. The post-graduate survey tool was developed specifically for the transitional masters program at this university and is therefore limited in application to other programs. However, the program evaluation method demonstrates effective use of the Sloan-C Five Pillars Model of Quality as an example for other online programs.¹⁵ A small number of TMOT graduates self-selected to complete the electronic survey and provide feedback regarding their educational experience. The majority of the respondents completed their undergraduate degree at the University of North Dakota which may indicate a greater sense of motivation to be a part of program improvement efforts, also known as the Hawthorne effect. A larger sample with greater diversity in undergraduate preparation would have enhanced overall validity of the results enabling wider applicability to similar online programs.

A post-graduation survey research design limits understanding of the strength of actual changes in learner proficiency and satisfaction. Use of a control group would permit greater comparative analyses of various aspects of online instruction including teaching methods and learner outcomes, delivery and access, institutional supports and faculty satisfaction to further validate the Sloan-C Five Pillars Model.¹⁵ Because of the lack of a control group, the results of the study, although interesting, need to be considered with caution. Despite the methodological limitations, this study's results do suggest a positive outcome from the participation in an online program delivery mode to obtain a graduate-level degree.

CONCLUSION

This study illustrates the positive influence of the Sloan Consortium's Five Pillars Model of Quality in assessment of an online program in occupational therapy.^{15,16,18} The Model provided useful structure in identifying key elements for study as well as a solid, yet interconnected, framework for recommending program improvements. Study findings support use of the online learning environment as a viable method for accomplishment of content outcomes in occupational therapy with translation potential for other allied health areas. Collaborative learning opportunities, quality and timeliness of instructor communication, and support in accessing technology were found to contribute positively to student satisfaction with learning. Satisfaction with program outcomes is directly related to student consideration of both time and monetary cost investment. Issues of importance to faculty satisfaction were also investigated; these included enjoyment of fostering student learning and necessities of time to prepare and teach, as well as institutional support.

As more graduate-level programs are offered in allied health in an online versus face-to-face context, the opportunity to advance the level of programmatic assessment to include larger sample sizes and to work toward more experimental and comparative research designs exists. Ultimately, this information will enhance the satisfactory outcomes for many stakeholders: graduate students, the online teaching faculty, and the allied health disciplines themselves.

This study's results help allied health educators gain understanding of learning outcomes in online educational programs through the utility of the Sloan-C Model to guide program assessment.^{16,17} Through our programmatic study, others may see the value of traditional program assessment (i.e., beginning with programmatic goals) merged with an assessment model, such as the Sloan-C, to strengthen interpretation of programmatic assessment findings. Future program development and assessment of online education is vital in meeting a growing need for flexible, cost-effective education of students, practicing therapists, and potentially, various client audiences.

REFERENCES

1. Moyers Cleveland PA, Hinojosa J. Continuing competence and competency. In: Jacobs K, McCormack GL, eds. *The Occupational Therapy Manager*. 5th ed. Bethesda, MD: American Occupational Therapy Association; 2011:485-501.
2. Knowles MS, Holton III EF, Swanson RA. *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development*. San Diego, CA: Elsevier;2005.
3. Merriam SB, Caffarella RS, Baumgartner LM. *Learning in Adulthood: A Comprehensive Guide*. San Francisco, CA: Jossey-Bass;2007.
4. Trujillo L. Distance education pedagogy and instructional design and development for occupational therapy educational programs. *Occupational Therapy in Health Care*. 2007;21(1/2):159-74.
5. Richardson P, MacRae A, Schwartz K, Bankston L, Kosten C. Student outcomes in a postprofessional online master's-degree program. *American Journal of Occupational Therapy*. 2008;62(5):600-10. [PMID 18826022]
6. Jedlicka JS, Brown SW, Bunch AE, Jaffe LE. A comparison of distance education instructional methods in occupational therapy. *Journal of Allied Health*. 2002;31(4):247-51. [PMID 12491955]
7. Salls J, Provident I, Dolhi C. Outcomes of an online post professional doctorate degree in occupational therapy. *The Internet Journal of Allied Health Sciences and Practice*. 2012;10(2):1-8. Available from <http://ijahsp.nova.edu>. Accessed April 19, 2012.
8. Distance Education Report. *Is your instructor training program working? Here's how to tell*. 2011;15(19):6-7.
9. Palloff RM, Pratt K. Effective course, faculty, and program evaluation. Paper presented at: 24th Annual Conference on Distance Teaching & Learning; 2008; University of Wisconsin; Madison, WI.
10. Palloff RM, Pratt K. *Building Learning Communities in Cyberspace: Effective Strategies for the Online Classroom*. San Francisco, CA: Jossey-Bass;1999.
11. Law J, Hawkes L, Murphy C. Assessing the on-line degree program. *New Directions for Teaching and Learning*. 2002;91:83-88. Available from <http://onlinelibrary.wiley.com/doi/10.1002/tl.v2002.91/issuetoc>. Accessed May 16, 2012.
12. Roberts TG, Irani TA, Telg RW, Lundy LK. The development of an instrument to evaluate distance education courses using student attitudes. *The American Journal of Distance Education*. 2005;19(1):51-64.
13. Hirner L, Kochtanek T. Quality indicators of online programs. *Community College Journal of Research and Practice*. 2012;36:122-30.
14. Roberts TG, Irani T, Lundy LK, Telg R. Practices in student evaluation of distance education courses among land grant institutions. *Journal of Agricultural Education*. 2004;45(3):1-10.
15. The Sloan Consortium (Sloan-C). [Internet]. Sloan-C quality framework. Available from <http://sloanconsortium.org/5pillars>. Accessed November 13, 2012.
16. Jorgenson H. Evaluate and improve distance programs with Sloan-C's Five Pillars of Quality. *Distance Education Report*. 2003;7(24):1-3.
17. Laumakis M, Graham C, Dziuban C. The Sloan-C Pillars and boundary objects as a framework for evaluating blended learning. *Journal of Asynchronous Learning Networks*. 2009;13(1):75-87. Available from http://sloanconsortium.org/publications/jaln_main. Accessed May 16, 2012.
18. The Sloan Consortium (Sloan-C) [Internet]. Effective practices. Available from <http://www.sloan-c.org/>. Accessed November 26, 2007.
19. Bollinger DU, Wasilik O. *Distance Education*. 2009;30(1):103-16.
20. Scott PJ, Altenburger PA, Keen J. A collaborative teaching strategy for enhancing learning of evidence-based clinical decision-making. *Journal of Allied Health*. 2011;40(3):120-7. [PMID 21927777]
21. Powell CA, Case-Smith J. Information literacy skills of occupational therapy graduates: promoting evidence-based practice in the MOT curriculum. *Medical Reference Services Quarterly*. 2010;29(4):363-80. [PMID 21058179]
22. Conrad R, Donaldson JA. *Engaging the Online Learner: Activities and Resources for Creative Instruction*. San Francisco, CA: Jossey-Bass, Inc.;2004.
23. Gallew H. Brief or new: the benefits of on-line learning in occupational therapy. *Occupational Therapy in Health Care*. 2004;18(1/2):117-25.
24. Palloff RM, Pratt K. *Collaborating Online: Learning Together in Community*. San Francisco, CA: Jossey-Bass;2005.
25. Smith A. Off campus support in distance learning: how do our students define quality? *Quality Assurance in Education*. 2004;12:28-38.
26. Abdel-Moty A, Lewis D. Innovative technologies for promoting learning. *Education Special Interest Section Quarterly*. 2009;19(1):1-2.
27. Tiene D. Online discussions: a survey of advantages and disadvantages compared to face-to-face discussions. *Journal of Educational and Multimedia and Hypermedia*. 2000;9:371-84.
28. Pui M, Liu L, Warren S. Continuing professional education and the Internet: views of Alberta occupational therapists. *Canadian Journal of Occupational Therapy*. 2005;72(4):234-44.

29. Bender T. *Discussion-Based Online Teaching to Enhance Student Learning: Theory, Practice, and Assessment*. Sterling, VA: Stylus;2003.
30. Palloff RM, Pratt K. *Lessons from the Cyberspace Classroom: The Realities of Online Teaching*. San Francisco, CA: Jossey-Bass;2001.
31. Koenig RJ. Faculty satisfaction with distance education: a comparative analysis on effectiveness of undergraduate course delivery modes. *Journal of College Teaching & Learning*. 2010;7(2): 17-24. Available from <http://journals.cluteonline.com/index.php/TLC/article/view/85>. Accessed November 16, 2012.
32. Shea P, Pickett A, Li CS. Increasing access to higher education: a study of the diffusion of online teaching among 913 college faculty. *International Review of Research in Open and Distance Learning*. 2005;6(2):1-27. Available from <http://www.irrodl.org/index.php/irrodl> . Accessed November 16, 2012.