Comparison of Level of Satisfaction between Distance Education and On-campus Programs

Dae Shik Kim
Western Michigan University, dae.kim@wmich.edu

Helen Lee
Western Michigan University, helen.lee@wmich.edu

Annette Skellenger
Arizona School for the Deaf and Blind, annette.skellenger@gmail.com

Comparison of Level of Satisfaction between Distance Education and On-campus

Programs

Dae Shik Kim

Assistant Professor

Western Michigan University

1903 W. Michigan Avenue

Kalamazoo, MI 49008-5218

dae.kim@wmich.edu

Helen Lee

Assistant Professor

Western Michigan University

1903 W. Michigan Avenue

Kalamazoo, MI 49008-5218

helen.lee@wmich.edu

Annette Skellenger

Itinerant Teacher of the Visually Impaired and O&M Specialist

Arizona School for the Deaf and Blind

annette.skellenger@gmail.com

Abstract

The study compared the satisfaction level of 101 graduates with a distance-education vs. an on-campus program. There was no significant difference in overall program satisfaction between the two groups, but the graduates from the on-campus program indicated higher level of faculty-student and student-student interactions.

Distance education with a variety of instructional designs (correspondence courses, broadcasting courses via radio or television, etc.) has been in use for many decades by the students in rural areas and those who could not afford to leave their jobs, homes, or families (Howard, Ault, Knowlton, & Swall, 1992; Ludlow & Lombardi, 1992). With the advent of internet in the 1990s and a series of technological innovations such as online discussion boards, audio and video conferencing, and streaming videos, an increasing amount of literature in higher education started discussing the need to use distance education for personnel preparation in wide variety of curricular areas (Bullock, Gable, & Mohr, 2008; Gallagher & McCormick, 1999; McDonnell et al., 2011).

The academic performance of traditional and distance learners have been examined through a number of studies. Comparisons of the two instructional models have produced mixed results. Some studies have indicated that the students in distance education programs performed better academically than those in traditional face-to-face programs (Iverson, Colky, & Cyboran, 2005; Navarro & Shoemaker, 2000; Williams, 2006), while others have reported no significant difference in academic performance between traditional and distance learners (Haynes & Dillon, 1992; McDonnell et al., 2011; Woo & Kimmick, 2000). In respect to satisfaction, the majority of the studies reported that there was no significant difference in satisfaction between the traditional and distance learners (Abdous & Yen, 2010; Skylar et al., 2005; Thurmond, Wambach, & Connors, 2002).

The shortage of professionals trained to meet the needs of individuals with visual impairments (Kirchner & Diament, 1999), coupled with the capability of distance education (DE) to reach students in broader geographic areas (Howard et al., 1992:

Ludlow & Lombardi, 1992), has spurred university personnel preparation programs in the

discipline of blindness and low vision to offer online and other types of distance

education courses since the late 1990's (DeMario & Heinze, 2001). The surveys of

personnel preparation programs in visual impairment reported that more than 100

programs offered some form of distance education in 2008 and they employed several

different models of distance education as well as a variety of online tools (Ambrose-

Zaken & Bozeman, 2010; Silberman et al., 2004). For example, although most of the

distance education programs continued to require on-campus sessions during the summer

semester, some programs used online learning platforms simply to supplement the

instruction that was primarily provided on campus. In addition, these programs used a

wide array of distance education tools, including WebCT, streaming video, EDNET,

personal webcams, and e-mail among others.

A few studies have attempted to document the effectiveness of distance education

in personnel preparation programs in blindness and low vision. Koenig and Robinson

(2001) reported that an online braille course allowed a high-quality instruction in braille

code skills when the students had adequate technology and independent learning skills.

Ajuwon and Craig (2007) stated that self-assessed competencies of 8 participants who

took the courses online (except for the "blindfold course," which was taken face to face)

showed significant gains in key competencies for teaching children with visual

impairments (TVI) and orientation and mobility (O&M). In addition, McLinden et al.

(2010) reported that even though few of the participants had prior experience using

WebCT or a similar online learning platform, most of them found WebCT's discussion

board adequate for completing case scenario activities that require specific role-playing.

We found only one published study that directly compared the perceptions (quality of course experiences) between distance education and traditional classroom students enrolled in visual impairment personnel preparation programs. Trief, Decker, and Ryan (2004) examined the difference in level of satisfaction between the on-site students at a main university campus and those who took the same O&M and TVI courses via video teleconferencing. Within the sample of 24 students, 67% of the students who took the courses via video teleconferencing reported technical difficulties as an interfering factor in their learning while none of the on-site students did. However, a similar percentage of students (83% for on-site and 75% for teleconferencing) reported that they had the opportunity to participate in discussions as much as they wanted.

Although Trief et al.'s (2004) study allowed us to get a glimpse of how satisfied distance education students were compared to traditional on-campus students, it was a purely descriptive study with no inference to the corresponding population. Furthermore, in the absence of control for possible confounding variables such as student characteristics, the findings of Trief et al. (2004) should be considered as tentative. Given such paucity of research on students' level of satisfaction with distance education programs as compared to that with traditional on-campus programs in blindness and low vision personnel preparation, the present study investigated whether there is a difference in level of satisfaction between the graduates from a distance education program and those from a traditional on-campus program. Additional efforts were made to control for some of the possible confounding variables to identify independent predictors of program satisfaction.

Method

Participants and Program Description

As part of a program assessment effort by Western Michigan University's (WMU) Department of Blindness and Low Vision Studies (BLS), surveys (called Graduate Survey) with postage paid return envelopes were mailed to the individuals who graduated from one of the programs offered by the BLS Department between the fall of 2004 and the summer of 2009. All surveys were mailed in print format initially, but they were also provided in an alternative format upon request. The survey participants included individuals who graduated from the on-campus program as well as those who graduated from the distance education program. On-campus students took all the courses face-to-face, while the distance education students took the majority of the courses online (approximately 70% of the required credit hours) while taking hands-on courses (e.g., blindfold courses, low vision lab, etc.) face-to-face during one or two intensive six-week on-campus summer sessions. Blackboard Vista was the online learning platform used in all online courses. Recorded lectures were embedded in Blackboard Vista as streaming videos or provided to the students as DVDs. Although there was a small synchronous component (e.g., chat room), the platform was designed for predominantly asynchronous delivery of information. A majority of the online courses included at least two conference calls with the students during the semester, but the frequency of such calls varied widely from course to course. Although available in some courses, use of Blackboard Vista by on-campus students was minimal. The same instructors who taught the on-campus courses also taught the corresponding distance education courses albeit with occasional exceptions.

Out of the 241 surveys mailed out, 139 were returned; 101 of these surveys were

complete and used for analyses (response rate of 57.7% according to the standard

definitions by American Association for Public Opinion Research, 2009). Response rate

for the distance education graduates was 60.7%, while that for the on-campus graduates

was 53.5%. In addition, recent graduates (2007-2009) responded at a higher rate (62.4%)

than those who graduated earlier (52.3%). The study was approved by the University's

Human Subjects Institutional Review Board (HSIRB).

Measures

The survey included General Program questions, Core Program questions, and

Course-of-study questions, along with some demographic questions. Only the responses

to the relevant General Program Questions were examined in this study. The

questionnaire items were developed and piloted based on the existing standardized

instruments on higher education instructional and program evaluation (Cashin, 1992;

Centra, 1993).

Demographic information, including age, gender, and presence of disability

(none, visual, other disability), was collected. The questionnaire also asked 1) whether

the survey participant was enrolled in an on-campus or distance education program, 2)

whether he/she was employed after graduation in a position that provided service in the

program area for which he/she was most recently prepared (yes, no), and 3) the name of

the program he/she most recently completed at WMU [O&M for Children (OMC),

Teacher of Children with Visual Impairments (TCVI), OMC/TCVI dual, O&M for

Adults, Vision Rehabilitation Therapy (VRT), VRT/Rehabilitation Counseling (RC) dual,

and other]. These program areas were grouped into the following three categories for

analyses based on similarities and differences in their coursework: 1) OMC and/or TCVI, 2) VRT or VRT/RC, and 3) O&M for Adults (OMA).

Survey participants' satisfaction with the program was assessed in six main areas: 1) faculty-student interaction, 2) student-student interaction, 3) course organization, 4) student performance evaluation, 5) course difficulty, and 6) practicum/internship experience. A Likert scale of 1 to 5 was used for the assessment, with "1" being strongly disagree and "5" being strongly agree.

Participants' perception of faculty-student interaction was measured by the responses to the following two statements: "There was sufficient interaction between faculty and students," and "I was able to ask questions and receive answers from faculty members." In addition, responses to the following two statements were used to assess the participants' perception of student-student interaction: "There was sufficient interaction between students," and "There were effective mechanisms to facilitate interaction with other students."

Answers to the following three statements were used to assess how well the courses were organized and delivered: "Faculty members were well organized in the delivery of their courses," "Faculty members were well prepared for their courses," and "The faculty exhibited excellent scholarly and professional standards." Data regarding fairness of evaluation were collected through the responses to the following two questionnaire items: "I was evaluated fairly," and "The evaluation tools were fair."

Responses to the following two statements were used to assess course difficulty: "The program was intellectually stimulating," and "The program was adequately challenging." Finally, perceived quality of practicum/internship experience was measured

by the answers to the following three statements: "The internship provided new learning

experiences," "The variety of assignments and activities on internship was instrumental in

helping with preparation for practice," and "Local supervision on the internship was

helpful."

Statistical Analyses

Frequencies were run on overall level of satisfaction as well as the questionnaire's

six subareas. Once we conducted confirmatory analyses to test the study's primary

hypotheses on overall level of satisfaction, we performed exploratory analyses to

examine six subarea scores. We reported uncorrected p-values for the exploratory

analysis results in deference to their widespread use in such analyses in social sciences.

Therefore, results of our exploratory analyses should be interpreted as preliminary and

are not appropriate for inferential interpretation (Schochet, 2008).

Following conventional practice in social sciences, composite Likert scale scores

were treated as interval scale data although the scores were actually measured in ordinal

scale (Tabachnick & Fidell, 2007). Our sample size, couple with the Central Limit

Theorem, allowed us to analyze the data using parametric procedures (Tabachnick &

Fidell, 2007).

Independent-measures t-tests were conducted for preliminary comparisons of

satisfaction between the distance education and on-campus graduates. Subsequently,

multiple linear regression analyses were performed to identify independent predictors of

program satisfaction. The model was built with the forced entry method. All variables

significantly associated with program satisfaction from bivariate analysis ($p < .10$) were

first included and then the non-significant variables were removed in backwards fashion,

albeit with exceptions based on their potential significance in program assessment. The *a priori* statistical power of the primary t-test was .67 when a medium effect size ($d = .5$) was assumed (Cohen, 1988; Erdfelder, Faul, & Buchner, 1996). The *a priori* statistical power of the primary multiple regression procedure was .80 when a medium effect size and six predictors in the final model were assumed (Green, 1991). All statistical analyses, except for power analyses (G*Power version 3.0.10), were conducted with SPSS version 16.0.

Results

Demographic Characteristics of the Participants

The sample consisted of 101 graduates with 88% being female. Participants' ages ranged from 23 to 62 (median = 33.0). Twelve percent of the participants had visual impairments, 5% had other disabilities, and the rest had no disabilities. Sixty-three percent obtained their degrees via distance education while the rest completed their degrees on campus. All but 9 participants were employed in a position that provided service in the program area for which they were most recently prepared. The most recently completed degrees of the participants were as follows: 18% for OMC, 14% for TCVI, 14% for OMC/TCVI dual, 18% for O&M for Adults, 27% for VRT, 4% for VRT/Rehabilitation Counseling dual, and 1% for other.

Comparison of Program Modality

As shown in Table 1, overall satisfaction score was significantly higher for the participants who graduated from the on-campus program ($M = 4.51$, $SD = .48$) than for those who graduated from the distance education program ($M = 4.25$, $SD = .49$), $t(99) =$

2.551, $p = .012$. The subsequent exploratory analyses showed that the on-campus

graduates rated their programs significantly higher than the distance education graduates

in the following three subareas,: 1) faculty-student interaction (OC group $M = 4.72$, SD =

.47; DE group $M = 4.24$, SD = .62), $t(99) = 4.052$, $p < .001$, 2) student-student interaction

(OC group $M = 4.53$, $SD = .54$; DE group $M = 3.91$, $SD = .86$, $t(99) = 4.445$, $p < .001$),

and 3) practicum/internship experience (OC group $M = 4.64$, $SD = .49$; DE group $M =$

4.26, $SD = .77$, $t(99) = 3.052$, $p = .003$). However, there was no significant difference

between the two groups in respect to fairness of evaluation ($p = .150$), course

organization ($p = .981$), and adequacy of course difficulty ($p = .779$).

-- Insert Table 1 about here --

Regression Analyses

In order to control for possible confounding variables, linear multiple regression

analyses were conducted. For each analysis, outliers were first identified (standardized

residual values greater than 2), then the Cook's statistic and standardized DFBeta values

were checked to determine whether there were unduly influential cases. In addition, VIF

values for all predictors were checked to determine whether the level of multicolinearity

between the predictors was acceptable. No unduly influential cases or unacceptable level

of multicolinearity were observed in any of the linear multiple regression models we

constructed.

As shown in Table 2, program modality did not turn out to be a significant

predictor of overall program satisfaction once we controlled for the confounding

variables, including age, program area, and presence of visual impairments (-.277 – .226,

95% CI). Age was a significant independent predictor of overall satisfaction. That is,

program rating was lowered by .01 for each year in graduates' age (-.020 – -.001, *95% CI*). A graduate's program area was also a significant independent predictor of the outcome. Specifically, the OMC/TCVI group rated the program .35 lower than the O&M for Adults group (-.621 – -.082, *95% CI*).

<center>-- Insert Table 2 about here --</center>

We subsequently conducted exploratory regression analyses for each subarea of overall program satisfaction. Program modality turned out to be a significant independent predictor for faculty-student interaction ($p = .042$) and student-student interaction ($p = .021$) (see Tables 3 & 4). However, program modality was not a significant independent predictor for the remaining composite areas, including fairness of evaluation ($p = .880$), course organization ($p = .192$), adequacy of course difficulty ($p = .092$), and practicum/internship experience ($p = .833$).

<center>-- Insert Table 3 about here --</center>

<center>-- Insert Table 4 about here --</center>

<center>**Discussion**</center>

There was no significant difference in overall level of satisfaction between the on-campus and distance education graduates once some of the confounding variables—age, program area, and presence of visual impairment—have been controlled for. However, although preliminary in nature, even after controlling for these confounding variables, individuals who graduated from the on-campus program rated the level of interaction (faculty-student and student-student) significantly higher than those who graduated from the distance education program.

Interpretations of the Findings

       Our finding of no significant difference in overall level of satisfaction between the graduates from the on-campus program and those from the distance education program is consistent with the findings of similar previous studies across different disciplines (Abdous & Yen, 2010; Skylar et al., 2005; Thurmond et al., 2002). Yet, our secondary finding of higher level of perceived interaction by the on-campus graduates than the distance education graduates may be a result of less frequent face-to-face interactions experienced by distance education students. In other words, e-mail communications and online discussions via Blackboard may not have been perceived as helpful as face-to-face interactions. We obtained this result despite the fact that all distance education students attended one or two six-week summer sessions held on campus, which provided an opportunity for the distance education students to get to interact with the faculty and other students in person. One possible hypothesis for this result is that on-going in-person contact throughout the student's program is valued more than the limited time distance education students spend face-to-face during their six-week campus experience.

       Contrary to anecdotal evidence, presence of visual impairment was a significant independent predictor of neither the overall level of satisfaction nor any of its composite area ratings. Although this study was not designed to determine why no significant difference was obtained in this regard, it is possible that the BLS Department faculty and staff were familiar with the accommodations needed by visually impaired students and made adequate efforts to accommodate their needs. It was also interesting to note significantly lower satisfaction ratings from older students than from younger students

COMPARISON OF PROGRAM SATISFACTION   14

even after controlling for the confounding variables. This finding is not consistent with

the results of some of the previous surveys on this topic (British Columbia Outcomes

Working Group, 2003; McDowell Group, Inc., 2009; Strayhorn, 2011). One of the

possible explanations may be found in the lifestyle of younger students who tend to

incorporate computer and internet-related technologies extensively into their everyday

life and were more comfortable with the technologies used for online learning than their

older counterparts. It is also possible that older students tend to have more

responsibilities (jobs and families), which often result in less time available for studying

and consequent cramming-induced stress.

Practical Implications

Given the findings of this study, prospective students who are interested in

university personnel preparation programs in blindness and low vision may consider

distance education programs as an option that may satisfy them, particularly if they are

already working in a related field. Similarly, university personnel preparation programs

in blindness and low vision may also consider continuing their distance education

programs as a satisfactory option for many students. However, lower level of faculty-

student and student-student interactions perceived by distance education graduates may

suggest a need to ensure a mechanism that facilitates such interactions more effectively.

Although purely anecdotal, well planned incorporation of rapidly advanced synchronous

communication technologies such as web conferencing tools (e.g., Adobe Connect,

Elluminate, etc.) may promote easier and more effective faculty-student and student-

student interactions in many online courses.

Strengths and Limitations

To our knowledge, this study was the first attempt to compare the level of satisfaction of on-campus and distance education modalities in university personnel preparation programs in blindness and low vision with an effort to control for some of the possible confounding variables. One of the limitations of the study is related to the use of the survey instrument that had not been systematically validated. Although the survey items were developed based on the existing standardized instruments, the survey instrument used in this study had not been validated against a gold standard. Another limitation of the study results from the failure to include some of the additional predictor variables that may be closely related to graduates' level of satisfaction with their programs, including level of proficiency in computer technology, previous work experience, and previous experience in online courses. In addition, generalizability of the study findings may be limited due to the fact that the sample of this study consists of the individuals from a single university. In particular, the findings of the study may not generalize to other programs that employ different distance education models and technologies. Last, although this study's overall response rate of 57.7% is generally considered as acceptable for mail surveys in social sciences (Babbie, 1995), possible bias due to less than desired response rate might have affected the study results.

Recommendations

Inclusion of additional variables related to program satisfaction may allow us to identify independent predictors of program satisfaction with more confidence. In addition, examination of certification exam scores and pass rates may provide an objective measure of program effectiveness. Furthermore, identifying specific courses that are particularly unsatisfactory may help university personnel preparation programs

address the underlying issues in those courses. Last, in order to determine whether

university personnel preparation programs have succeeded in their aim to produce

qualified teachers and rehabilitation professionals in the field of blindness and low vision,

it is necessary to investigate how the graduates' employers rate the graduates in respect to

their job preparedness.

References

Abdous, M., & Yen, C. (2010). A predictive study of learner satisfaction and outcomes in face-to-face, satellite broadcast, and live video-streaming learning environments. *Internet and Higher Education, 13*, 248-257.

Ajuwon, P. M., & Craig, C. J. (2007). Distance education in the preparation of teachers of the visually impaired and orientation and mobility specialists: Profile of a new training paradigm. *Re:view: Rehabilitation Education for Blindness and Visual Impairment, 39*, 3-14.

Ambrose-Zaken, G., & Bozeman, L. (2010). Profile of personnel preparation programs in visual impairment and their faculty. *Journal of Visual Impairment & Blindness, 104,* 148-169.

American Association for Public Opinion Research (2009). Standard definitions: Final dispositions of case codes and outcome rates for surveys. Retrieved from http://www.aapor.org/Content/NavigationMenu/ResourcesforResearchers/Standar dDefinitions/StandardDefinitions2009new.pdf

Babbie, E. R. (1995). *The practice of social research* (7th ed.). Belmont, CA: Wadsworth.

British Columbia Outcomes Working Group (2003, Autumn). Understanding student satisfaction. BC College & Institute Student Outcomes. Retrieved from http://www.uas.alaska.edu/student_services/docs/retention-study-mcDowell09.pdf

Bullock, L. M., Gable, R. A., & Mohr, J. D. (2008). Technology-mediated instruction in

      distance education and teacher preparation in special education. *Teacher*

      Education and Special Education: The Journal of the Teacher Education Division

      of the Council for Exceptional Children, 31, 229-242.

Cashin, W. E. (1992). Student Ratings: The need for comparative data. *Instructional*

      Evaluation and Faculty Development, 12, 1-6.

Centra, J. A. (1993). *Reflective faculty evaluation: Enhancing teaching and determining*

      faculty effectiveness. San Francisco, CA: Jossey-Bass Publishers.

DeMario, N. C., & Heinze, T. (2001). The status of distance education in personnel

      preparation programs in visual impairment. *Journal of Visual Impairment &*

      Blindness, 95, 525-532.

Gallagher, P. A., & McCormick, K. (1999). Student satisfaction with two-way interactive

      distance learning for delivery of early childhood special education coursework.

      Journal of Special Education Technology, 14, 32-47.

Green, S. B. (1991). How many subjects does it take to do a regression analysis?

      Multivariate Behavioural Research, 26, 499-510.

Haynes, K. J., & Dillon, C. (1992). Distance education: Learning outcomes, interaction,

      and attitudes. *Journal of Education for Library and Information Studies, 33*, 32-

      42.

Howard, S. W., Ault, M. M., Knowlton, H. E., & Swall, R. A. (1992). Teacher Education

      and Special Education: *The Journal of the Teacher Education Division of the*

      Council for Exceptional Children, 15, 275-283.

Iverson, K. M., Colky, D. L., & Cyboran, V. L. (2005). E-learning takes the lead: An

    empirical investigation of learner differences in online and classroom delivery.

    Performance Improvement Quarterly, 18, 5-18.

Kirchner, C., & Diament, S. (1999). Estimates of the number of visually impaired

    students, their teachers, and orientation and mobility specialists: Part 1. *Journal of*

    Visual Impairment & Blindness, 93, 600-606.

Koenig, A. J., & Robinson, M. C. (2001). Online instruction in braille code skills for

    preservice teachers. *Journal of Visual Impairment & Blindness, 95,* 543-557.

Ludlow, B. L., & Lombardi, T. P. (1992). Special education in the year 2000: Current

    trends and future developments. *Education and Treatment of Children, 15,* 147-

    162.

McDonnell, J., Jameson, J. M., Riesen, T., Polychronis, S., Crocket, M. A., & Brown, B.

    E. (2011). Comparison of on-campus and distance teacher education programs in

    severe disabilities. *Teacher Education and Special Education, 34*, 106-118.

McDowell Group, Inc. (2009). University of Alaska Southeast student retention study.

    Retrieved from http://www.uas.alaska.edu/student_services/docs/retention-study-

    mcDowell09.pdf

McLinden, M., McCall, S., Hinton, D., & Weston, A. (2010). Developing authentic

    online problem-based learning case scenarios for teachers of students with visual

    impairments in the United Kingdom. *Journal of Visual Impairment & Blindness,*

    104, 30-42.

Navarro, P., & Shoemaker, J. (2000). Performance and perceptions of distance learners in

    cyberspace. *American Journal of Distance Education, 14,* 15-35.

Schochet, P. Z. (2008). Technical methods report: Guidelines for multiple testing in

impact evaluations (NCEE 2008-4018). Washington, DC: U.S. Department of

Education.

Silberman, R. K., Ambrose-Zaken, G., Corn, A. L., & Trief, E. (2004). Profile of

personnel preparation programs in visual impairments and their faculty: A status

report. *Journal of Visual Impairment & Blindness, 98,* 741-756.

Skylar, A. A., Higgins, K., Boone, R., Jones, P., Pierce, T., & Gelfer, J. (2005). Distance

education: An exploration of alternative methods and types of instructional media

in teacher education. *Journal of Special Education Technology, 20,* 25-33.

Strayhorn, T. L. (2011). Traits, commitments, and college satisfaction among black

American community college students. *Community College Journal of Research

and Practice, 35*, 437-453.

Tabachnick, B., & Fidell, L. (2007). *Using multivariate statistics* (5th ed.). Boston, MA:

Allyn and Bacon.

Thurmond, V. A., Wambach, K., & Connors, H. R. (2002). Evaluation of student

satisfaction: Determining the impact of a web-based environment by controlling

for student characteristics. *The American Journal of Distance Education, 16*, 169-

189.

Trief, E., Decker, L. M., Ryan, D. J. (2004). Student satisfaction: A distance learning

model for training teachers of students with visual impairments in New York

State. *Journal of Visual Impairment & Blindness, 98,* 367-372.

Williams, S. L. (2006). The effectiveness of distance education in allied health science

    programs: A meta-analysis of outcomes. *The American Journal of Distance*

    Education, 20, 127-141.

Woo, M. A., & Kimmick, J. (2000), Comparison of internet versus lecture instructional

    methods for teaching nursing research. *Journal of Professional Nursing, 16*, 132-

    139.

Table 1

Program satisfaction measured by composite area scores in distance education and on-

campus program graduates (N = 101)

	On-campus Program ($n = 37$)		Distance Education Program ($n = 64$)		Effect Size	
	M	*SD*	*M*	*SD*	*d*	*p*
Faculty-student Interaction	4.72	.47	4.24	.62	.84	< .001[a]
Student-student Interaction	4.53	.54	3.91	.86	.82	< .001[a]
Fairness of Evaluation	4.50	.60	4.33	.56	.30	.150[a]
Course Organization	4.28	.64	4.28	.67	.00	.981[a]
Adequacy of Course Difficulty	4.44	.78	4.45	.58	.02	.779[a]
Practicum/Internship Experience	4.64	.49	4.26	.77	.56	.003[a]
Overall Program Satisfaction	4.51	.48	4.25	.49	.53	.012

Note. Independent t-tests were conducted to compare means between the two groups.
[a]Exploratory analyses were performed for comparing six subarea scores (uncorrected p-values were reported). Therefore, results of the exploratory analyses should be interpreted as preliminary and are not appropriate for inferential interpretation.

Table 2

Multivariable Analysis of Factors Associated with Overall Program Satisfaction (N = 101)

Variables	B	SE B	β	CI (95%)	
				Lower	Upper
Constant	4.423	.357		3.714	5.132
Age	-.011	.005	-.240	-.020	-.001
Presence of Visual Impairment[a]	-.074	.156	-.049	-.384	.236
Distance Education Modality[b]	-.025	.127	.024	-.277	.226
Employed in Program Area[c]	.313	.168	.178	-.020	.645
VRT/RC Program[d]	-.210	.142	-.195	-.493	.072
OMC/TCVI Program[d]	-.351	.136	-.349	-.621	-.082

Note. R^2 = .187 (adjusted R^2 = .136), F (6, 94) = 3.613 (p = .003), Durban-Watson = 2.189. VRT/RC = vision rehabilitation therapy/rehabilitation counseling. OMC/TCVI = orientation and mobility for children/teaching children with visual impairments. All variables shown in the table are included in the final model.
[a]Reference group is the graduates with normal vision. [b]Reference group is those who graduated from the on-campus program. [c]Reference group is those who were not employed in the program area. [d]Referecne group is those who graduated from the O&M for Adults program.

Table 3

Multivariable Analysis of Factors Associated with Perceived Faculty-Student Interactions (N = 101)

Variables	B	SE B	β	CI (95%)	
				Lower	Upper
Constant	5.029	.429		4.177	5.881
Age	-.007	.006	-.126	-.018	.005
Presence of Visual Impairment[a]	.091	.188	.050	-.282	.463
Distance Education Modality[b]	-.314	.152	-.250	-.616	-.012
Employed in Program Area[c]	.193	.201	.091	-.207	.593
VRT/RC Program[d]	-.313	.171	-.240	-.652	.027
OMC/TCVI Program[d]	-.288	.163	-.237	-.611	.036

Note. R^2 = .195 (adjusted R^2 = .143), F (6, 94) = 3.787 (p = .002), Durban-Watson = 2.239. *Exploratory analyses were conducted for each subarea of overall program satisfaction, including faculty-student interaction (uncorrected confidence internals were reported). Therefore, results of these exploratory analyses should be interpreted as preliminary and are not appropriate for inferential interpretation. VRT/RC = vision rehabilitation therapy/rehabilitation counseling. OMC/TCVI = orientation and mobility for children/teaching children with visual impairments. All variables shown in the table are included in the final model.* [a]*Reference group is the graduates with normal vision.* [b]*Reference group is those who graduated from the on-campus program.* [c]*Reference group is those who were not employed in the program.* [d]*Referecne group is those who graduated from the O&M for Adults program.*

Table 4

Multivariable Analysis of Factors Associated with Perceived Student-Student Interactions (N = 101)

Variables	*B*	*SE B*	*β*	CI (95%)	
				Lower	Upper
Constant	4.995	.570		3.864	6.126
Age	-.015	.008	-.210	-.030	.001
Presence of Visual Impairment[a]	-.365	.249	-.151	-.859	.130
Distance Education Modality[b]	-.474	.202	-.282	-.875	-.073
Employed in Program Area[c]	.286	.267	.100	-.245	.817
VRT/RC Program[d]	-.038	.227	-.022	-.488	.413
OMC/TCVI Program[d]	-.027	.216	-.017	-.457	.403

Note. R^2 = .209 (adjusted R^2 = .158), F (6, 94) = 4.130 (p = .001), Durban-Watson = 2.137. Exploratory analyses were conducted for each subarea of overall program satisfaction, including student-student interaction (uncorrected confidence internals were reported). Therefore, results of these exploratory analyses should be interpreted as preliminary and are not appropriate for inferential interpretation.VRT/RC = vision rehabilitation therapy/rehabilitation counseling. OMC/TCVI = orientation and mobility for children/teaching children with visual impairments. All variables shown in the table are included in the final model. [a]Reference group is the graduates with normal vision. [b]Reference group is those who graduated from the on-campus program. [c]Reference group is those who were not employed in the program. [d]Referecne group is those who graduated from the O&M for Adults program.