Inclusive Instruction: Perceptions of Community College Faculty and Students Pertaining to Universal Design

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Abstract

This study examined community college faculty (n =179) and student (n = 449) attitudes and actions toward inclusive teaching practices based on tenets of Universal Design. Two online surveys, the Inclusive Teaching Strategies Inventory (ITSI) and the Inclusive Teaching Strategies Inventory-Student (ITSI-S), were administered at a medium-sized Northeastern public community college. Results showed significant differences among faculty in overall action scale scores based on age and ethnicity. However, similar analyses conducted on students were not significant. Results from the study provide insights regarding attitudes toward inclusive instruction in the community college environment. Implications of these findings and recommendations for future research and disability service providers are discussed.

Keywords: Universal design, community college, college faculty, college students, inclusive instruction, diversity, college students with disabilities

Inclusive instruction based on the tenets of Universal Design (UD) shows great promise for reducing barriers in postsecondary education for an increasingly diverse student body regardless of age, gender, ethnicity, socioeconomic status, level of preparedness, and most importantly, severity of disability. The UD framework has existed for over two decades (Rao, Ok, & Bryant, 2014), providing increased opportunities for student success, however, existing research studies are focused on faculty and students at 4-year colleges and universities (Lombardi, Murray, & Dallas, 2013; Lombardi, Gerdes, & Murray, 2011). Very little, if any, research exists on supporting inclusive teaching practices in the community college environment.

College campuses report a rapid and sustained increase in student diversity, especially in the number of students requesting academic accommodations and related services (Davies, Schelly, & Spooner, 2013; Lombardi et al., 2013; McEwan, & Downie, 2013; Roberts, Park, Brown, & Cook, 2011; Stodden, Brown, & Roberts, 2011). This increasingly varied student body presents diverse needs often not addressed through mandated accommodations and services or traditional instruction (Roberts et al., 2011). Inclusive teaching practices based on tenets of UD take a holistic approach to the design of materials and instructional methods that are usable by a wide range of students in postsecondary educational environments. Using the principles of inclusive instruction in community colleges provides opportunities to reduce barriers, increase student participation and success without extensive accommodations, and benefit the learning styles and needs of all learners.

Today, community colleges enroll more than half the nation's undergraduates, the majority of which are increasingly diverse in every respect, including age, ethnicity, socioeconomic status, level of preparedness, learning English, working full time, supporting a family, and degree of disability (Boggs, 2010; Desai, 2012). Many community college students lack basic skills in reading, writing, and mathematics and are required to successfully complete remedial coursework prior to enrolling in regular college classes (Bok, 2013). Community colleges enroll the highest percentage of students with disabilities among all public postsecondary institutions (American Association of Community Colleges, 2013). Approximately 12% of community college

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students report having a disability (American Association of Community Colleges, 2013).

One of the major challenges for community colleges is promoting inclusion by reducing barriers and supporting the needs of an increasingly diverse student body (Edyburn, 2010; Zeff, 2007). As a result of the Americans with Disabilities Act (1990) (ADA) and Section 504 (1973) and 508 (1998) of the Rehabilitation Act, accommodations are guaranteed to students with verified disabilities. The manner in which these services are offered is up to each individual institution. Most colleges put the responsibility on the student with the disability to self-identify and request academic accommodations (Izzo, Murray, Priest, & McArrell, 2011). For a variety of reasons, students with disabilities choose not to identify as having a disability and therefore go without individual accommodations (Ketterlin-Geller & Johnstone, 2006).

While the increase in students with disabilities enrolling in postsecondary education is encouraging, the graduation rates are not (Shepler, & Woosley, 2012). Federal data show that 29% of students with disabilities who enroll in college receive a degree as compared to 42% of their peers without disabilities (Sanford et al., 2011). According to Izzo, Murray, and Novak (2008) students with disabilities in postsecondary education continue to face barriers in terms of participation, retention, and degree completion.

Potentially, solutions for the continually growing number of diverse students lie within the design of the curriculum and the instructional strategies and materials (Center for Applied Special Technology [CAST], 2011). Thus, there is a need to fix the curriculum rather than the learner. The application of inclusive teaching practices based on tenets of UD may allow faculty to address the learning styles of a wide variety of students, reduce the need for individual accommodations, and create inclusive classrooms that support access and participation for all learners (Meyer & Rose, 2005; Rose & Meyer, 2002). Inclusive instruction is one approach that addresses the primary barrier to education for all students, a one-size-fits-all curriculum (CAST, 2011). Learners with disabilities are most vulnerable to such barriers, but many students without disabilities also find that curricula are poorly designed to meet their learning needs. Inclusive instruction emphasizes the need for a curriculum that can adapt to student needs rather than requiring learners to adapt to an inflexible curriculum (Meyer & Rose, 2005). However, little is known of the benefits of inclusive teaching practices in postsecondary education, especially in community college environments.

Recognizing the importance of inclusive teaching practices, recent federal policy changes indicate that UD is becoming more widely accepted as an educational framework within the national policy landscape. In 2008, the U.S. Congress recognized the importance of UD where it is defined as a "scientifically valid framework for guiding educational practice" SEC. 762 (G) (SEC. 103 (C)). The HEOA also included several provisions encouraging postsecondary institutions and teacher preparation programs to incorporate the principles of UD into their teaching practices.

Although inclusive teaching practices based on UD in education have become increasingly popular in the past decade, the research base supporting its efficacy is still emerging. For example, inclusive instruction has been studied in postsecondary education environments, yet the primary focus has been on faculty and students at 4-year colleges and universities. Few, if any, studies exist that examine inclusive teaching practices based on UD in a community college environment.

In order to meet the current challenge in community colleges today, administration and faculty will need to focus their attention on positive changes in retention, success, and completion using research-based instructional practices and teaching strategies that can improve access to course content and materials for all students (McGuire, Scott, & Shaw, 2006; Orr & Hammig, 2009; Ouellett, 2004; Schelly, Davies, & Spooner, 2011). The more faculty members are able to expand their repertoire of research-based instructional strategies that meet a wide variety of student needs, the greater impact they could have on student achievement (Schelly et al., 2011). Approximately 40% of college students who received special education services seek accommodations in higher education settings (Newman, Wagner, Cameto, & Knokey, 2009). Inclusive teaching practices based on UD could benefit the learning styles and needs of all learners and may lessen the need for individual accommodations and perhaps lead to more positive student outcomes, especially for students with disabilities (Lombardi et al., 2011; Schelly et al., 2011).

By examining inclusive instruction from the perspective of faculty and students, we can gain a better understanding of the community college context. With the growing diversity of community college students, inclusive instruction is a way to improve equity and access for students who may otherwise be less

successful in the college environment (Engleman & Schmidt, 2007). Thus, the primary objective in the current study was to develop further understanding about community college faculty and student perceptions of inclusive teaching practices based on tenets of UD.

A framework derived from the field of architecture, UD originally focused on removing physical and environmental barriers that prevent access for individuals with disabilities (Lombardi et al., 2011; Roberts et al., 2011). The concept of UD evolved from one of removing physical barriers to meet the needs of individuals with disabilities to considering as many individuals as possible with designs that do not require retrofitting (Roberts et al., 2011). Recent efforts have extended UD beyond the physical environment to include educational access (Edyburn, 2010; Lombardi et al., 2011; Orr & Hammig, 2009; Roberts et al., 2011). It is important to note that several established UD frameworks exist such as Universal Design for Instruction (UDI; Burgstahler, 2009; Scott, McGuire, & Shaw, 2003), Universal Instruction Design (UID; Goff & Higbee, 2008) and Universal Design for Learning (UDL; Center for Universal Design for Learning, 2008; Rose, Harbour, Johnston, Daley, & Abarbanell, 2006). Although there are descriptive differences between the models listed above, they all seek to apply the original UD principles to the learning environment. Inclusive teaching strategies based on UD can be applied to curriculum and instruction at many levels, from lesson objectives and materials to instructional methods and assessments (Hall, Meyer, & Rose, 2012). The major frameworks provide guidelines for building in support and flexibility during the planning process and for proactively designing instruction with the objective of including the greatest number of learners possible (King-Sears, 2014). In this article, the term *inclusive instruction* will be used to encompass multiple themes that span across the major UD based frameworks. Inclusive instruction combines best teaching practices for engaging students and challenging them to meet existing expectations through a variety of instructional modalities, formats, and technologies (CAST, 2011; Izzo, 2012; Meyer & Rose, 2000).

Research Examining Students

Research on inclusive instruction and its application to postsecondary education continues to grow (Burgstahler, 2009; Edyburn, 2010; Orr & Hammig, 2009); however, to date, there have been few empirical studies to measure the perceptions of college students towards inclusive instruction (Lombardi et al., 2011; McGuire & Scott, 2003; Rao & Tanners, 2011; Schelly et al., 2011, 2013; Spooner, Baker, Harris, Ahlgrim-Delzell, & Browder, 2007). Although findings suggest that students' perceptions of their instructors' implementation of inclusive instruction are positive, results may be considered inconclusive due to differences in research design, methodology, survey instrument, and setting. Moreover, very little, if any, research on inclusive instruction has been conducted at community colleges. As student diversity increases in colleges and universities, especially community colleges, a better understanding of how student perceptions vary across institutional settings becomes even more important.

Prior efforts to understand students' perceptions towards instructional methods and strategies that promote learning, and barriers experienced in college instruction were explored through focus group research (McGuire & Scott, 2003). Findings revealed that instructor teaching methods such as establishing clear expectations, providing outlines of notes, reading guides, presenting information in multiple formats, giving frequent informative feedback, and using diverse assessment strategies as well as creating a welcoming classroom climate were effective and helpful to student learning (McGuire & Scott, 2003). In addition, these authors made connections between many of the faculty attributes and teaching methods that were found to be positive by students were also found to be similar to the principles of UD.

Recent efforts, in a response to educators calling for evidence of the benefits of inclusive instruction with regards to student learning, performance, persistence, and retention, measured the effectiveness of instructor training, as perceived by students (Schelly et. al., 2011). Results from this study indicated that students reported a significant increase in the use of inclusive instruction teaching strategies by their faculty after training.

Davies et al. (2013) continued their previous research on examining the effectiveness of instructor training (Schelly et. al., 2011) by comparing student perceptions about an intervention group of instructors who received inclusive instruction training to student perceptions from a control group of instructors who did not receive inclusive instruction training as measured by a revised survey instrument. Results of this study suggest that inclusive instruction training had a significant effect on students' perceptions of instruction in university courses as measured by student perceptions on the questionnaire. The strategies

that were most significantly impacted by the training, according to student report, included (a) presenting material in multiple formats, (b) relating key concepts to the larger objectives of the course, (c) providing an outline at the beginning of each lecture, (d) summarizing material throughout each class session, (e) highlighting key points of an instructional video, (f) using instructional videos, and (g) using well-organized and accessible materials (Davies et al., 2013).

Research Examining Faculty

LaRocco and Wilken (2013) conducted a faculty action-research project and found that faculty indicated they were at a stage of concern that was self-centered. Similarly, faculty overwhelmingly reported that they did not implement inclusive instruction with the majority at an orientation level of use for each principle. In other words, study participants were generally not applying the principles of inclusive instruction based on UD in their classes.

Lombardi, Murray, and Gerdes (2011) continued to examine faculty attitudes and actions with the development of the Inclusive Teaching Strategies Inventory (ITSI). Validity evidence for the attitude subscales had been previously established (Lombardi & Murray, 2011; Murray, Lombardi, & Wren, 2011). The ITSI measures six constructs with two response categories where faculty could indicate their attitudes as well as in-class actions. The subscales included: (a) Multiple Means of Presentation, (b) Inclusive Lecture Strategies, (c) Accommodations, (d) Campus Resources, (e) Inclusive Assessment, and (f) Accessible Course Materials. Validity evidence for the attitude subscales had been previously established through exploratory factor analysis. The overall reliability on all items ($\alpha = 0.88$) was adequate (Murray et al., 2011). The ITSI is also the only survey known to incorporate principles from the major UD frameworks (e.g., UDI, UDL; Lombardi et al., 2011). Lombardi, et al., (2013) utilized the ITSI to examine participation in prior disability-related training and training intensity and the implementation of inclusive instruction at two four-year institutions.

Sprong, Dallas, and Upton (2014) measured faculty attitudes toward UD and academic accommodations as measured by the Multiple Means of Presentation, the Inclusive Lecture Strategies, and the Accommodations subscales of the ITSI survey. The survey gathered faculty demographic information, amount of experience with people with disabilities, amount of prior disability-related training, and then asked faculty to express their attitudes toward items on three subscales. On average, all respondents had favorable attitudes toward Multiple Means of Presentation, Inclusive Lecture Strategies, and Accommodations subscales of the ITSI survey.

As researchers note, on college and university campuses, results of the studies that examined student perceptions reported increased student engagement and found that instructor training on inclusive instruction based on UD resulted in changes and improvements in instruction from a student perspective (Parker, Robinson, & Hannafin, 2007; Rao & Tanners, 2011; Schelly et al., 2011, 2013). However, to date, there are little, if any studies in the literature about the use of inclusive instruction and perceptions of community college students. Moreover, research remains limited in understanding community college faculty attitudes toward and use of inclusive instructional practices.

The purpose of this study was to measure faculty and student attitudes toward and actions associated with inclusive instruction based on UD principles and practices on a community college campus. The following research questions guided the study.

1. What are the differences in faculty self-reported attitudes toward and actions associated with inclusive instruction based upon age, gender, ethnicity, position type, academic discipline, academic rank, and amount of teaching experience?
2. What are the differences in students' attitudes toward and perceptions of faculty actions associated with inclusive instruction based upon gender, disability status, ethnicity, and age?
3. To what degree are there differences in faculty and students' attitudes and actions pertaining to inclusive instruction?

Methods

Participants

Participants in this study consisted of faculty (full-time and part-time) and students enrolled in credit courses at a medium-sized, public, community college located in the Northeast.

Faculty characteristics. Descriptive information of faculty members by ethnicity, position type, academic department, academic rank, and teaching experience is provided in Table 1. Overall, a total of 179 participants' data were analyzed. Of those, 121

(68%) were female faculty members and 55 (31%) were male faculty members. Three faculty members did not indicate gender. Faculty members in this study ranged in age from 26 to 75 (M = 52; SD = 11.82).

Student characteristics. Descriptive information of students by ethnicity, disability status, contact with the office of accessibility services, and diagnosed disability is provided in Table 2. Overall, a total of 449 participants' data were analyzed. Of those, 348 (77%) were female students and 97 (22%) were male students. Overall, at this institution, 3,432 (60%) were female students and 2,337 (40%) were male students. Four students did not indicate gender. In the sample, students ranged in age from 18 to 65 (M = 27; SD = 10.73).

Instrument

Two separate survey questionnaires were utilized in this study: the Inclusive Teaching Strategies Inventory (ITSI), which was administered to full-time and part-time faculty (Lombardi et al., 2011), and an adapted student version, the Inclusive Teaching Strategies Inventory, Student (ITSI-S), which was administered to full-time and part-time students.

Inclusive Teaching Strategies Inventory (ITSI). The ITSI is a self-report survey that measures faculty attitudes and actions with regard to inclusive teaching strategies based on UD (Lombardi & Murray, 2011). The ITSI has undergone multiple development phases and validation studies (Lombardi & Murray, 2011; Lombardi, et al., 2011; Lombardi, et al., 2013). In a recent study, Lombardi et al. (2013) examined the reliability of the ITSI subscales with Cronbach's alpha. The values ranged from .70 to .87. All values met acceptable .70 or higher criteria and indicate that the items form a scale that has good internal consistency reliability (Gliner, Morgan, & Leech, 2009). Additionally, findings from a cross-validation study using exploratory and confirmatory factor analysis confirmed the ITSI's seven-factor structure (Lombardi & Sala-Bars, 2013). Researchers also found evidence of content, convergent, and discriminant validity (Lombardi & Murray, 2011).

The ITSI measures six constructs regarding inclusive instructional practices based on the tenets of UD across several frameworks. For each item, faculty are asked to report (a) their attitudes/beliefs and (b) actions/behaviors. To preserve the item text, only the item stem was changed between the attitudes/beliefs and actions/behaviors response categories. For example, the attitude/belief item "*I believe it's important to post electronic versions of course handouts*" was also presented as an action/behavior item "*In the classroom, I post electronic versions of course handouts*." The response options for the attitudes/beliefs scale range from 1 (*strongly disagree*) to 7 (*strongly agree*). The response options for the actions/behaviors scale range from 1 (*no opportunity*) to 5 (*always*).

The first construct, Accommodations, contains eight items specific to accommodation requests from students (e.g., "provide copies of my lecture notes or outlines to students with disabilities" and "arrange extended time on exams for students who have documented disabilities"). The second construct, Accessible Course Materials, contains four items relevant to the use of a course website (e.g., "post electronic versions of course handouts: and "put lecture notes online for all students"). The third construct, Course Modifications, contains four items related to major changes in course assignments or requirements (e.g., "allow a student with a documented disability to complete extra credit assignments" and "allow any student to complete extra credit assignments"). The fourth construct, Inclusive Lecture Strategies, contains four items that measure teaching strategies specific to a typical postsecondary lecture-style class (e.g., "summarize key points throughout each class session" and "begin each class session with an outline/agenda of the topics that will be covered"). The fifth construct, Inclusive Classroom, contains nine items related to the presentation of course content with a particular emphasis on flexibility, use of technology , and various instructional formats (e.g., "use interactive technology to facilitate class communication and participation" and "present course information in multiple formats"). The sixth construct, Inclusive Assessment, contains four items pertaining to flexible response options on exams (e.g., "allow students to express comprehension in multiple ways" and all flexible response options on exams"). Along with the survey, faculty were asked to report demographic characteristics, including age, gender, ethnicity, position type, academic discipline, academic rank, and amount of teaching experience.

Inclusive Teaching Strategies-Student (ITSI-S). The Inclusive Teaching Strategies Inventory-Student (ITSI-S), an adapted student version of the ITSI, was administered to examine students' attitudes and perceptions of faculty implementation of inclusive instruction. Adaptations to the faculty version of the ITSI included: (a) adjustments to the item stems; (b) addition of student demographics and disability

information; (c) adjustment to the action response scale; and (d) minor grammatical adjustments. For each item, students are asked to report (a) their attitudes/beliefs and (b) perceptions of faculty' actions/behaviors. To preserve the item text, only the item stem was changed between the attitudes/beliefs and actions/behaviors response categories. For example, the attitude/belief item "*I believe it's important for my instructor to put his/her lecture notes online for all students*" was also presented as an action/behavior item "*My instructor puts his/her lecture notes online for all students*." The response options for the attitudes/beliefs scale range from 1 (*strongly disagree*) to 7 (*strongly agree*). The response options for the actions/behaviors scale range from 1 (*I don't know*) to 5 (*always*).

The ITSI-S was piloted with a purposive sample of community college students to examine preliminary reliability using Cronbach's α. Responses were received from 74 participants. The response rate was 34% and is comparable to response rates of similar attitudinal studies (Lombardi & Murray, 2011; Lombardi et al., 2011). Cronbach's α for the overall instrument was good, α =.83. Similarly, the subscales ranged from excellent "Accommodations" (α = .95) and "Multiple Means of Presentation" (0.90) to questionable "Course Modifications" (α= .66) and "Inclusive Assessment" (0.68). Further, the subscales "Course Modifications" and "Inclusive Assessment" had questionable internal consistency reliability. It is important to note that due to the nature and design of this study, no alternate forms or test-retest design were appropriate to further establish reliability.

In the pilot study, content validity was established in several ways: (a) all of the items were drawn from a pre-existing instrument that showed good evidence of reliability and validity (Lombardi et al., 2011); and (b) the content is consistent with major frameworks represented in the literature related to universal design in postsecondary education (Lombardi et al., 2011; Orr & Hammig, 2009). In addition, the items were reviewed by content experts in the field, including the original author of the instrument to ensure clarity and fit with the construct and intended audience being measured.

Along with the survey, students were asked to report demographic and disability related information. Demographic characteristics were gender, ethnicity, and age. Disability related information were disability status (student with a disability, yes/no), contacted initiated with the disability services office and provided documentation of disability (yes/no), and type of disability.

Procedures

Data collection in this study consisted of two online survey questionnaires that were emailed to faculty and students to gather faculty members' and students' demographic information and their perceptions of the provision of inclusive teaching practices in a community college setting. In order to attain the largest sample size possible, procedures were based on Dillman's (2011) recommendation of multiple separate contacts with potential participants. Participants responded to the survey items online through Qualtrics.com. A recruitment email containing a brief introduction to the study, the purpose, researcher and IRB contact information was sent as a pre-notice to faculty and students explaining that they would receive a link for the survey in the next couple of days. Two days after the recruitment email, an email was sent to potential participants that included a link to the survey and notice of informed consent. Following, additional email reminders were sent to faculty and students spaced approximately one week apart. The survey for faculty and students were closed after six weeks of administration.

In addition, several strategies were implemented to maximize the response rate. First, prospective respondents were informed that there was a drawing to win one of 10 ten-dollar-e-cards. Second, the survey was created with a "save and continue" option that allowed respondents to return to the survey if they desired to finish the survey at a later time. Finally, potential respondents were provided multiple reminders to participate in the survey. At the conclusion of data collection, all data were exported into SPSS 22 for analysis.

Data Analysis

This study utilized a quantitative, cross-sectional online survey research design. Data analysis for each research question consisted of descriptive and inferential statistics. For each research question, a series of Multivariate Analyses of Variances (MANOVA's) were conducted. We selected a series of MANOVA's in order to measure faculty and student attitudes toward and actions associated with inclusive instruction based on UD from a global perspective.

The independent variables for faculty were age, gender, ethnicity, position type, academic discipline, academic rank, and amount of teaching experience. The independent variables for students were age, gender, ethnicity, and disability status. A new independent variable "academic status" (i.e., faculty, student) was determined based the new data set. The two overall attitude and action scale scores were again used as dependent variables for this analysis.

Results

The data consisted of responses to the ITSI and ITSI-S distributed to a total sample of 500 faculty members and 5,796 students. Overall, 197 faculty members and 588 students responded to their respective surveys. Participants leaving large portions of the survey incomplete (over 80%) were removed from the analysis. Therefore, 18 faculty participants' and 139 student participants' responses were removed from the analysis. Thus, 179 faculty and 449 student surveys were used in the data analysis with a response rate of 36 % and 7% respectively.

Missing data were treated with imputation using the expectation-maximization (EM) algorithm (Dempster, Laird, & Rubin, 1977). Because violations of the missing completely at random assumption do not change experimental results in many settings and because the percentage of missing data was relatively small, data were analyzed using imputed values. Data were checked for normality and all variables were approximately normally distributed with no items or variables markedly skewed.

Reliability

To assess whether the constructs from the ITSI and ITSI-S formed reliable overall scale scores, Cronbach's α were calculated. For the ITSI, the overall α for attitude subscales (6 subscales, 33 items) was .88, which indicates that the average associations among overall attitude scores have good internal reliability. The α for action subscales (6 subscales, 33 items) was .90, which indicates that the average associations among overall action scores have good internal reliability. The overall internal consistency for the entire ITSI (66 items) was .92. These α were consistent with previous studies of faculty attitudes and inclusive instruction (Lombardi et al., 2013; Lombardi & Murray, 2011).

For the ITSI-S, the overall α for attitude subscales (6 subscales, 33 items) was .75, and the α for action subscales (6 subscales, 33 items) was .79. Both α values of indicate good internal reliability. The internal consistency for the entire ITSI (66 items) was .84. These alphas were consistent with the pilot study previously conducted, with the overall instrument (α =.83), and subscales ranging from excellent "Accommodations" (α = .95) and "Multiple Means of Presentation" (0.90) to questionable "Course Modifications" (α= .66) and "Inclusive Assessment" (0.68).

Faculty Results

The results below outline faculty self-reported attitudes toward and actions associated with inclusive instruction based upon age, gender, ethnicity, position type, academic discipline, academic rank, and amount of teaching experience regarding mean scores on the overall scale score for attitudes and actions consisting of the six attitude subscale scores (i.e., accommodations, accessible course materials, course modifications, inclusive lecture strategies, multiple means of presentation, inclusive assessment).

Due to insufficient sample size in some independent variables, age, ethnicity, academic department, and teaching experience were regrouped. The variable age was regrouped from a continuous item into three groups (i.e., 18-24, 25-34, 35-44+). The variable ethnicity was regrouped from 8 options into two groups (i.e., people of European descent and people of color). The variable academic department was regrouped from 21 items into three academic divisions (i.e., Business, Math, Science, Health Professions, Liberal Arts). The variable teaching experience was regrouped from a continuous item into three groups (i.e., 0-9, 10-19, and 20+). In order to check whether the assumptions of MANOVA were met, preliminary assumption testing for normality, linearity, univariate and multivariate outliers, homogeneity of variance/covariance were conducted. No significant violation was found. There was a statistically significant difference found between age and ethnicity on the combined dependent variables, $F(6, 322) = 2.15$, $p = .047$, Wilks' $\lambda = .924$, multivariate = .04.

When the results for the dependent variables were considered separately, the only difference to reach statistical significance, using a Bonferroni adjusted alpha level of .025, was overall action scale score for $F(9, 162) = 3.41$, $p = .019$. An inspection of the mean scores indicated that white 35-44 year old faculty members reported slightly higher levels of action ($M = 3.77$, $SD = .719$) than non-white ($M = 2.63$, $SD = 1.71$).

Student Results

The results below outline students' attitudes toward and perceptions of faculty actions associated with inclusive instruction based upon gender, disability status, ethnicity, and age regarding mean scores on the overall scale score for attitudes and actions consisting of the six attitude subscale scores (i.e., accommodations, accessible course materials, course modifications, inclusive lecture strategies, multiple means of presentation, inclusive assessment). Similar to faculty variables, due to insufficient sample size, age and ethnicity were regrouped. The variable age was regrouped from continuous item into three groups (i.e., 18-24, 25-34, 35+). The variable ethnicity was regrouped from 8 items into two groups (i.e., people of European descent and people of color).

In order to check whether the assumptions of MANOVA were met, preliminary assumption testing for normality, linearity, univariate and multivariate outliers, homogeneity of variance/covariance were conducted. No significant violations were found. There were no statistically significant differences between the results.

Faculty and Student Results

The results below outline the differences in faculty and students' attitudes and actions pertaining to inclusive instruction. The overall attitude and action scale scores for faculty and students were again used as dependent variables for this analysis. In order to check whether the assumptions of MANOVA were met, preliminary assumption testing for normality, linearity, univariate and multivariate outliers, homogeneity of variance/covariance were conducted. No significant violations were found. There were no statistically significant differences between the results.

Further, there was an examination of faculty and students' attitudes towards inclusive instruction and whether they differed from their actions. Since items on the attitude and action scores were scaled differently, the attitude and action responses were recoded to resemble No/Maybe/Yes categories. For the attitude response scale, responses were coded 1 (*strongly disagree*) and 2 (*somewhat disagree*) as 1 (*no*) responses. Responses 3 (*somewhat disagree*) and 4 (*somewhat agree*) were coded as 2 (*maybe*), and responses 5 (*agree*) and 6 (*strongly agree*) were coded as 3 (*yes*). For the action response scale, responses 1 (*I don't know*) to 2 (never) were coded as 1 (*no*) because these responses indicated that students did know if the instructor carried out the specific action represented by the item. Response 3 (*sometimes*) was coded as 2 (*maybe*), and responses 4 (*most of the time*) and 5 (*always*) were coded as 3 (*yes*). This variable coding is consistent with a previous study with similar objectives (see Lombardi et al., 2011). Table 3 and 4 shows the frequencies and percentage of faculty and students' attitude and action responses on *ITSI and ITSI-S* subscales and results of chi-square analysis response category.

Discussion

The current study was the first to examine community college faculty and student attitudes toward and actions associated with inclusive teaching to determine whether discrepancies exist and whether certain demographic characteristics were significant predictors. The results showed a statistically significant difference in overall action scale scores based on faculty age and ethnicity. Participants who reported as 35-44 years old and of European decent had slightly higher overall action scale scores than faculty members of color. These findings suggest that faculty demographic characteristics, specifically age and ethnicity, play a small role in predicting faculty actions in the classroom regarding inclusive instruction at this institution. These findings are not reflected in previous research on four-year college faculty (Lombardi et al., 2013; Lombardi et al., 2011; Lombardi & Murray, 2011).

Non-significant findings on faculty attitudes and actions toward inclusive instructional practices at this institution showed obvious disagreement. For example, faculty reported more favorable attitudes that inclusive instruction was important yet reported they rarely carry out these practices in the classroom. Potentially, faculty members believe these practices are important, yet they lack the knowledge and practical skills necessary to implement inclusive teaching practices in the classroom. Furthermore, there is no specific explanation why these results differed from previous studies (Lombardi et al., 2013; Lombardi et al., 2011; Lombardi & Murray, 2011) except to consider the different environmental context (two-year vs. four-year college) as a major factor in influencing faculty actions towards inclusive instruction. This finding suggests the importance of further inquiry as to the specific barriers faculty might encounter and if and when they attempt to carry out actions related to inclusive instruction, and confirm whether or not these barriers differ in two- and four-year college settings.

This study demonstrated that the ITSI-S can be used as a tool for examining students' attitudes and perceptions of faculty actions associated with inclusive instruction. Most importantly, this is the first study to use the ITSI-S to examine community college students' attitudes toward and perceptions of faculty actions associated with inclusive instruction. Previous research on comparing student perceptions of instructor teaching methods report that undergraduate students at a large research university located in the Midwest reported a positive change in instructors' use of inclusive teaching strategies after five hours of instruction on the use of UD principles and strategies (Schelly et. al., 2011, 2013). This study demonstrated the first step towards examining students' attitudes and perceptions towards inclusive instruction on a community college campus. Such assessment can lead to new understanding and targeted interventions that will enhance overall quality of education received by all students, including those with diverse learning needs, especially those with disabilities.

There were no statistically significant differences in overall attitude and action scale scores based on academic status. Consistent with previous findings, results showed a discrepancy between overall attitude and action scale scores toward inclusive instructional practices. For example, faculty and students' positively endorsed or agreed that inclusive instruction was important yet reported they only sometimes implement these practices in the classroom. Further comparison of subscale scores showed consistent results for attitudes and actions on Accommodations, Accessible Course Materials, Inclusive Lecture Strategies, and Multiple Means of Presentation. This suggests that many faculty and students believe these practices are both important and implemented in the classroom. A different pattern emerged from the Course Modifications and Inclusive Assessment subscales. Results showed that many faculty reported they did not believe these practices were important yet many students' reported the opposite view. Both faculty and students reported these practices were not carried out in the classroom. This result may be due to the fact that Inclusive Assessment subscale included items that faculty may perceive as more challenging to integrate into their teaching practices. For example, Inclusive Assessment items asked about alternate exam formats, an area where faculty may feel that the standards of their course would be compromised. These findings are consistent with previous studies on faculty attitudes toward inclusive instruction and accommodations (Lombardi & Murray, 2011; Lombardi et. al., 2011) that found faculty were resistant to carry out actions related to inclusive assessment.

This study is the first to utilize the ITSI and ITSI-S to compare faculty and students perceived the importance of and specific behaviors related to inclusive instruction. While findings were limited, further research of this nature is needed on these two different major stakeholder groups. Because research on community college faculty and students is so limited in the area this study provides a platform for future research and discussions.

Implications for Practice

The results of this study have a variety of implications for postsecondary education environments, especially community colleges. Results add to the literature and discussion of inclusive instruction in postsecondary education. Using these instruments to examine community college faculty and students could be useful to other researchers interested in examining the overall feel for the campus climate, and attitudes and actions toward inclusive instruction at their own institutions. Regardless of 2-year or 4-year institutions, this study was the first of its kind in comparing the overall faculty and students' attitudes and actions toward inclusive instruction. Furthermore, results could be used to share with disability services providers who are largely responsible for faculty development and training. In this study, the ITSI was administered across all departments and the data were analyzed using overall attitude and action subscale scores. However, the survey could easily be administered at the academic division or departmental level in college settings, which may be useful for disability services providers who wish to assess departments in order to better target outreach efforts in promoting inclusive instruction through collaborative efforts with faculty. Educating faculty in not only the implementation of inclusive teaching techniques but also assessment of learning is essential.

Postsecondary stakeholders, such as Deans and Administrators, in an era of budget cuts and reduced public funding for postsecondary education, must make practical decisions when allocating resources for faculty training. Information from the survey instruments may be helpful when proceeding with targeted faculty on inclusive instruction, especially community colleges. The type of targeted training to increase faculty knowledge and promote inclusive practices can take various formats, such as on-campus

workshops, online self-paced courses, webinars, video tutorials and local or national conferences.

Limitations

Although there are many promising findings to consider, this study had several limitations. First, the survey instruments used for the study were distributed one time, electronically, at one specific community college located in the northeast of the United States. Therefore, results may not generalizable to other community colleges. Second, the ITSI and ITSI-S are self-report surveys, which allow for the potential of response bias or even dishonest responses. Thus, faculty and students may have misunderstood or chosen to misrepresent their beliefs or actions, even if it was not the most honest response. Third, unlike previous research on faculty perceptions of inclusive instruction (Lombardi et al., 2011; Lombardi et al., 2013; Sprong et al., 2014) this study did not report subscale scores but rather regrouped them into overall attitude and action scale scores. Although the results provided a global sense of faculty and students' attitudes and perceptions toward inclusive instruction, much of the detail of this information was outside of the scope of this study. A fourth limitation is the use of a new quantitative instrument, the ITSI-S, of which psychometric properties have not been established. The ITSI-S was developed to measure student attitudes and perceptions toward inclusive instruction. Thus, like the ITSI, the ITSI-S should undergo similar evaluation of its psychometric characteristics. A fifth limitation is the low response rates for both faculty and students. Future research in a broader number of community colleges and strategies for increasing the response rages of faculty and students are needed. Finally, this study did not have the capacity to match faculty to the students in their classrooms. Efforts to address such challenges were beyond the scope of this study.

Recommendations for Future Research

It is hoped that the current study will stimulate future research. Further research is recommended in order to further understand the potential benefit of inclusive instruction to all students across postsecondary education, especially community colleges. Due to the lack of research on faculty and student beliefs and behaviors in community college environments, replication of the current study is recommended at other community colleges. Similar studies could include comparisons of faculty and students at different institutions (i.e., rural, suburban; public, private). Although not examined in this study, future research in community college environments could match faculty with the students they are currently teaching.

While the literature reviewed seems to support the idea that faculty has favorable attitudes towards UD principles, there is not much research on whether this translates into action in the classroom. In the study mentioned on faculty attitudes versus actions, the results indicated that they do not follow through (Lombardi, Murray, & Gerdes, 2011). There is a need for more research on whether favorable attitudes translate into action.

Examining differences between faculty and student groups, as well as comparing faculty and student perceptions may lead to new findings regarding effectiveness of inclusive instruction for improving outcomes for all postsecondary students, including those with diverse learning needs and disabilities. Moreover, by examining community college classroom instructional environments from the perspective of students, we can gain a better understanding of the benefits of inclusive instruction on student outcomes.

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Table 1

Number and Percentage of Faculty Characteristics

Faculty Characteristics	Population		Sample	
	N	%	N	%
Ethnicity				
African American/Black (non-Hispanic)	30	6	2	1
Asian	10	2	1	0.6
Caucasian/White (non-Hispanic	420	84	167	94
Hispanic/Latino	30	6	4	2
Multi-ethnic	10	2	2	1
Other, please specify	5	1	1	0.6
Position Type				
Full-time	275	55	91	51
Part-time	225	45	88	49
Academic Department				
Applied Technologies	*		4	2
Arts and Communication	*		7	4
Behavioral Science	*		12	7
Biology	*		13	7
Business	*		14	8
Criminal Justice	*		7	4
Dental Hygiene	*		3	2
Diagnostic Imaging	*		5	2
Education	*		4	2
English	*		30	17
Global Studies	*		4	3
Laboratory Technology	*		2	1
Mathematics	*		16	9
Movement Science	*		9	5
Nursing	*		24	14
Occupational Therapy Assistant	*		7	4
Other, please specify	*		5	3
Academic Rank				
Assistant Professor	*		49	28
Associate Professor	*		20	11
Instructor	*		69	39
Professor	*		21	12
Other, please specify	*		19	10

Teaching Experience			
0 – 4 yrs.	*	26	15
5 – 9 yrs.	*	42	24
10 – 14 yrs.	*	34	19
15 – 19 yrs.	*	10	6
20 – 24 yrs.	*	13	7
25 + yrs.	*	52	29

Note. For ethnicity, "Other" respondent indicated South Asian/Indian Subcontinent; Two respondents did not indicate ethnicity; For academic department, "Other" respondents indicated: Library and Academic Advising; Thirteen respondents did not indicate academic department; For academic rank, "Other" respondents indicated: Adjunct, Coordinator, Administrator, Librarian, Technical Lab Assistant, and Professor Emeriti; One respondent did not indicate academic rank; Two respondents did not indicate teaching experience.
* data is incomplete or missing at this institution.

Table 2

Number and Percentage of Students Characteristics

Student Characteristics	Population		Sample	
	N	%	N	%
Ethnicity				
African American/Black (non-Hispanic)	687	34	43	10
American Indian/Alaskan Native	20	1	2	0.4
Asian	146	7	11	2
Native Hawaiian/Pacific Islander	9	0.45	1	0.2
Caucasian/White (non-Hispanic)	3,347	167	264	59
Hispanic/Latino	1,379	69	79	18
Multi-ethnic	158	8	36	8
Other, Please specify	35	2	13	3
Disability Status				
I am a student with a disability	*		59	13
I am a student without a disability	*		386	86
Contact with OAS				
Yes, I have contacted the OAS and submitted the appropriate documentation	*		29	14
Yes, I have contacted the OAS but have not submitted the appropriate documentation	*		6	3
No, I have not contacted the OAS	*		180	84
Diagnosed Disability				
ADD, ADHD	*		20	32
Chronic Health Impairment	*		4	6
Developmental Disability	*		1	2
Learning Disability	*		23	37
Psychiatric Disability	*		7	11
Visual Impairment, Blind	*		1	2
Other, please specify	*		7	11

Note. For ethnicity, "Other" respondents indicated Caribbean American, Persian, West Indian, Irish American, Pakistan, Unknown, Caucasian and Hispanic, Native American and Caucasian; Four participants did not indicate disability status; 234 respondents did not indicate contacting the OAS; For diagnosed disability, "Other" respondents indicated Anxiety, Asperger's, Asthmatic/Hypothyroidism, PDD with Autistic Tendencies, GAD, and never tested due to no insurance; 386 respondents did not indicate diagnoses of a disability.
* data is incomplete or missing at this institution.

Table 3

Frequencies and Percentages of Faculty and Students Attitude Responses on ITSI and ITSI-S Subscales and Results of Chi Square Analysis.

	Faculty Attitudes			Student Attitudes			
Subscale	No	Maybe	Yes	No	Maybe	Yes	χ^2
Accommodations	78 (44%)	13 (7%)	88 (49%)	131 (29%)	43 (10%)	275 (61%)	11.98*
Accessible Course Materials	40 (22%)	14 (8%)	125 (70%)	51 (11%)	28 (6%)	370 (83%)	13.71**
Course Modifications	91 (51%)	11 (6%)	77 (43%)	35 (8%)	28 (6%)	386 (86%)	150.20**
Inclusive Lecture Strategies	1 (<1%)	2 (1%)	176 (98%)	10 (2%)	30 (7%)	409 (91%)	10.52*
Multiple Means of Presentation	4 (2%)	8 (5%)	167 (93%)	24 (5%)	34 (8%)	391 (87%)	5.17
Inclusive Assessment	93 (52%)	22 (12%)	64 (36%)	91 (20%)	61 (13%)	297 (66%)	64.59**

Note. df=2 for all chi-square tests ; * *p.*< .05, **p.*< .001.

Table 4

Frequencies and Percentages of Faculty and Students Action Responses on ITSI and ITSI-S Subscales and Results of Chi Square Analysis.

	Faculty Attitudes			Student Attitudes			
Subscale	No	Maybe	Yes	No	Maybe	Yes	χ^2
Accommodations	100 (56%)	25 (14%)	54 (30%)	303 (68%)	54 (12%)	92 (20%)	8.23*
Accessible Course Materials	40 (22%)	55 (30%)	83 (46%)	110 (25%)	149 (33%)	190 (42%)	.986
Course Modifications	77 (43%)	54 (30%)	48 (26%)	201 (45%)	115 (26%)	133 (29%)	1.42*
Inclusive Lecture Strategies	3 (2%)	19 (11%)	157 (88%)	40 (9%)	132 (29%)	277 (62%)	41.09**
Multiple Means of Presentation	12 (7%)	38 (21%)	129 (72%)	70 (16%)	127 (28%)	252 (56%)	15.52**
Inclusive Assessment	121 (68%)	32 (18%)	26 (14%)	253 (56%)	127 (21%)	103 (23%)	7.65*

Note. df=2 for all chi-square tests ; * *p.*< .05, **p.*< .001.