Abstract
Two hundred and forty-five university faculty responded to a survey questionnaire that assessed their attitudes toward providing different accommodations related to instructional delivery, examination, and other assistance to students with disabilities in the classroom. The influence of gender, professional rank, department affiliation, experience teaching students with disabilities, personal contact with persons with disabilities, and legislative knowledge on attitudes toward providing accommodations were assessed. Department affiliation, previous teaching experience, and legislative knowledge significantly impacted willingness to provide accommodations.

Introduction
Section 504 of the Vocational Rehabilitation Act of 1973, a federal civil rights statute, holds that “No otherwise qualified individual with a disability in the United States shall, solely by reason of his or her disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or any activity receiving Federal financial assistance” (Section 504, 29 U.S.C. 794(a)). In addition to elementary, secondary, and post-secondary schools that receive direct federal financial assistance, schools or programs that receive indirect federal financial aid (e.g., colleges where students receive federal education grants) are also covered under the statute (Section 504 Regulations, 28 C.F.R. 41.3(e)). The Americans with Disabilities Act (ADA) follows Section 504 in defining those individuals protected by law. Therefore, the Section 504 definition of persons with disabilities applies to ADA as well (ADA, 42, USC 12102(2)). Private schools from “nursery to postgraduate school” are specifically covered under Title III (ADA, 42 U.S.C. 12181(7)). Section 504 and ADA cover most American colleges and universities.

Section 504 delineates specific responsibilities of institutions in providing an equal educational opportunity for students with disabilities. Length of time permitted for completion of degree requirement or adaptations in the way specific courses are conducted (section 84.44[a]), availability of auxiliary aids such as typed texts, interpreters, or readers (section 84.44[d]), and conducting course examinations or other procedures for evaluating students’ academic achievement in a fashion that reflects student achievement rather than area of disability, unless such skills are factors that the test is intended to measure (section 84.44[c]).

Bourke, Strehorn, & Silver (2000) recommended a team approach involving the student, learning disabilities service providers, and faculty members for implementation of instructional accommodations. Participants in a Denny and Carson (1994) study suggested that acceptance of disabilities could be enhanced by cooperative work in the classroom and by others’ modeling acceptance through friendliness and assisting with special accommodations required in the classroom or on campus. A recurring theme in the response of the subjects was that education about disabilities was needed. Vogel, Leyser, Wyland, & Brulle (1999) reported that the factors students with learning disability identified that contributed to their success included understanding their disability by faculty, developing and using compensatory strategies, having mentors and using tutoring assistance, and counseling services periodically.

Lewis (1998) called for rapid adjustment by faculty in their teaching methods given the increase in college students with special needs. Dodd, Hermanson, Nelson, and Fischer (1990) recommended that comprehensive postsecondary programs for students with learning disabilities provide (a) personal or social, academic program, and career or vocational counseling, (b) instructional accommodations...
provided to students by the institution or individual faculty, and (c) administrative accommodations. Other recommendations in Nelson, Dodd, and Smith (1990) include assessment procedures to identify and evaluate the individual needs of the student, special admission policies, a variety of support services, and faculty that are trained and informed about the needs of students with learning disabilities. In a recent study (Foster, 2001), recommendations made included making Web sites accessible and ensuring the hardware, software, machines, and computer programs universities and colleges purchased could be adapted for people with disabilities.

Nelson et al. (1990) listed twelve accommodations suggested in different studies that can be provided by faculty: (1) untimed tests; (2) readers for objective exams; (3) essay exams instead of objective exams; (4) taking exams in a separate room with a proctor; (5) rephrasing questions; (6) oral, taped, or typed responses to exams instead of written exams; (7) alternative methods for demonstrating mastery; (8) avoiding complex sentences, double negatives; (9) alternatives to computer scored sheets; (10) adequate lined paper for poor handwriting; (11) analyzing process and final solution; and (12) allowing multiplication table, calculator, and desk reference for examinations.

Senge and Dote-Kwan (1998) study in the area of accommodations offered alternative formats of communication. These included audiotapes; materials in Braille or raised images; and computer storage media, such as magnetic and optical disks. These alternative formats could be used for materials, ranging from college catalogs, campus maps, and financial aid information to course syllabi, class handouts, and examinations.

A number of other studies in the area in the past two decades (Bourke et al., 2000; Dodd et al., 1990; Harmon, 1997; King & Satcher, 2001; Kleinsasser, 1999; Matthews et al., 1987; McCarthy & Campbell, 1993; McGee, 1989; Nelson, Dodd, & Smith, 1990; Satcher, 1992; Scott, 1997; Vogel et al., 1999; Williamson, 2000) focused on the important issue of providing accommodations to students with different disabilities in classrooms in higher education. These studies investigated the effects of different variables on faculty willingness to provide accommodations. These included: gender, professional rank, academic discipline or the departments where the faculty worked, nature of accommodations, knowledge regarding characteristics and needs of students with different disabilities, experience teaching students with disabilities, previous contact with persons with disabilities, disability type, knowledge about the mandatory nature of provision of accommodation, and attitude toward persons with disability.

Studies that assessed effect of gender (Bourke et al., 2000; Dodd et al., 1990; King & Satcher, 2001; Vogel et al., 1999) did not find any significant effect. Experience included current and/or any previous experience faculty had with people with disabilities. Six studies (Bourke et al., 1999; Dodd et al., 1990; Harmon, 1997; King & Satcher, 2001; Lewis, 1998; Satcher, 1992) assessed effect of experience on faculty willingness to provide accommodations. However, none of the studies found a significant effect of experience on faculty attitude towards or willingness to provide accommodations.

One of the variables that studies included to assess how faculty perceived the provision of various accommodations requested was faculty academic position. Different studies that included this variable however, took slightly different approaches while analyzing the data. Bourke et al. (2000) collapsed the different ranks as tenure track and nontenure track. Nontenure track faculty had a significantly better attitude and higher level of understanding for the need to provide accommodations.

Nontenure track faculty had a significantly better attitude and higher level of understanding for the need to provide accommodations. Similarly part-time faculty reported a significantly better understanding than full time faculty. Vogel et al. (1999) included faculty from instructors to full professors in their study, but analyzed the response as faculty with doctorate and faculty without doctorate. They found that faculty without a doctorate had more positive attitude and were more willing to provide accommodations. Other studies (Dodd et al., 1990; King & Satcher, 2001) also assessed influence of this variable, but did not find significant differences between attitudes of faculty members who were part-time and full time (Dodd et al., 1990), and instructors, assistant professors, associate and full professors (King & Satcher, 2001).

Three studies (Bourke et al., 2000; King & Satcher, 2001; Vogel et al., 1999) included the departmental affiliation along with rank. King and Satcher reported no significant effect of the variable. However, Bourke et al. and Vogel et al. found that it significantly affected the results. Faculty from Arts and Humani-
ties found it easier to provide accommodations than faculty from College of Natural Sciences and Mathematics in Bourke et al.’s study. Vogel et al. found faculty from College of Education to be more willing to provide examination accommodation than other faculty. Nelson et al. (1990) and Lewis (1998) also reported the faculty from College of Education to be significantly more willing to provide accommodations than other faculty from different departments.

Faculty knowledge about disability laws was one of the independent variables of interest in King and Satcher’s (2001) study and Vogel et al.’s (1999) study. Both studies however found no significant effect of the knowledge on faculty willingness or their attitude toward providing accommodations.

Purpose of Study
The purpose of this study was to investigate attitudes of university faculty at a south-central land-grant university toward provision of accommodations related to instructional delivery, examination, and other assistance in classroom and study possible influence of gender, professional rank, previous experience with persons with disabilities, previous contact with persons with disabilities, academic discipline, and knowledge about the legislation requiring them to provide accommodations.

Method
Design
This study utilized a survey research design with a combination of descriptive and explanatory categories of this method (Ary, Jacobs, & Razaveigh, 1990). Purpose of explanatory survey is to explain attitudes and behaviors on the basis of data gathered at a single point in time. The population for this study was 763 full-time instructional faculty employed by a south central university. Faculty included full-time, teaching, and nonteaching faculty from the following academic disciplines: Education and Health Professions (EDUC), Engineering (ENGR), Agricultural, Food, and Life Sciences (AFLS), Arts and Sciences (ARSC), Business (WCOB), Architecture (ARCH), Law (LAW). Taro (1967) recommended a formula to calculate the sample size (n) when the population (N) is known, n = \[\frac{N}{1 + N(e)^2}\]. With a 95% confidence level, and a precision level (e) of ± 5%, the sample size obtained was 260. However, considering a response rate in other studies reviewed between 35-64%, the study sent a total of 500 survey packets to the faculty. It was hoped that with a modest 40% expected response a sample of 200 would give a precision level of ± 7%. The university had a total of 800 students with known disabilities out of the 15,400 students enrolled at the time of this study.

Instrument
This study used ‘Willingness to Provide Accommodations’ scale (see Table 2) used in the other studies (Lewis, 1998; Matthews et al., 1987; Nelson et al., 1990). Lewis and Nelson et al. used the dichotomous ‘would/would not’ scale. Matthews et al. used a third category ‘don’t know’. This study used a dichotomous scale with ‘would’ and ‘would not’ as choices for the responses. A composite score for the ‘would’ responses for the accommodations indicated the overall response for each respondent. A higher number of ‘would’ responses indicated a higher willingness to provide different accommodations. Responses for each item/accommodation were studied individually. The demographic profile section asked for professional rank, academic discipline, gender, teaching experience, previous contact, and legislative knowledge regarding Section 504, ADA, and reasonable accommodations. The survey included one open-ended question that asked the faculty to note any suggestions and/or recommendations they would have. A pilot study was carried out with 20 faculty members about two months before the questionnaires were sent to the faculty from different colleges on campus.

Results
This study followed a prescribed contact sequence (Dillaman, 2000) with a prenotice letter, the survey, an electronic mail reminder after three weeks, a second mailing of the survey, and a ‘thank you’ note. A total of 245 complete, usable surveys yielded a return rate of 49% and using the formula recommended by Taro (1967), this study had a precision level of ± 5.2% with a 95% confidence level. The 245 respondents were from seven different colleges. The highest response (77.6%, 45 responses from 58 sent) was from EDUC and the lowest response (12.4%, 41 responses from 113 sent) was from AFLS. Responses from other colleges were 63.6% for ARCH, 57.6% for ENGR, 55.5% for LAW, 47.1% for ARSC, and 41.1% for WCOB.

Table 1 reports descriptive statistics for the Willingness to Provide Accommodations scale according to the academic disciplines, median, as well as the reliability coefficient Cronbach’s Alpha (.68) for the scale. Faculty who were willing to provide all 18 accommodations would score an aggregate of 18. The overall mean score on this scale was 12.12 with a standard deviation of 2.98. Scores for different colleges ranged from 10.22 (the
lowest) for LAW to 13.51 (the highest) EDUC.

One-way analysis of variance (ANOVA) assessed the influence of academic discipline on faculty willingness to provide accommodations. There was a significant difference \( F(6, 233) = 5.185, p = .000, d = .297 \) indicating a significant effect of academic discipline. A post hoc test indicated that Faculty of College of Education and Health Professions were significantly more willing (\( M = 13.51, SD = 2.51 \)) compared to all other colleges combined (\( M = 11.80, SD = 12.99 \)), \( t(238) = 3.55, p = .000 \) (one-tailed), \( d = .573 \). Faculty from College of Engineering (\( M = 10.59, SD = 2.5 \)) compared to other colleges combined (\( M = 12.33, SD = 2.96 \)), \( t(238) = -3.01, p = .001 \) (one-tailed), \( d = .583 \), and School of Law (\( M = 10.22, SD = 2.98 \)) compared to other colleges combined (\( M = 11.79, SD = 3.07 \)), \( t(238) = 2.31, p = .022 \) (one-tailed), \( d = .279 \). Familiarity with the term reasonable accommodations had no significant effect on faculty willingness to provide accommodations.

The Independent Samples \( t \)-test that was conducted assessed the influence of gender, previous experience teaching students with disabilities, personal contact with people with disabilities, familiarity with Section 504, ADA and familiarity with the term reasonable accommodations on scores on willingness to provide accommodations did not indicate a significant effect.

Table 1
Descriptive Statistics for Willingness to Provide Accommodations by Academic Discipline and Cronbach’s Alpha

<table>
<thead>
<tr>
<th>College</th>
<th>Accommodations Scale</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC</td>
<td>137.27 13.51 2.51 .373</td>
<td>45</td>
</tr>
<tr>
<td>ENGR</td>
<td>120.82 10.51 2.50 .464</td>
<td>29</td>
</tr>
<tr>
<td>AFLS</td>
<td>130.09 12.88 3.03 .474</td>
<td>41</td>
</tr>
<tr>
<td>ARSC</td>
<td>131.09 11.79 2.94 .317</td>
<td>86</td>
</tr>
<tr>
<td>WCOB</td>
<td>131.05 11.55 3.39 .723</td>
<td>22</td>
</tr>
<tr>
<td>ARCH</td>
<td>129.40 13.17 1.79 .680</td>
<td>7</td>
</tr>
<tr>
<td>LAW</td>
<td>139.00 10.22 2.53 .800</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>131.17 12.12 2.98 .192</td>
<td>240</td>
</tr>
</tbody>
</table>

Median 12.00
Alpha .68

Note: EDUC=Education and Professional Health; ENGR=Engineering; AFLS=Agriculture, Food, & Life Sciences; ARSC=Arts & Sciences; WCOB=Business; ARCH=Architecture; LAW=Law.

Discussion
Out of the 245 returned usable surveys, 98 surveys (40%) had comments on the scales and / or general comments about campus access for students with disabilities. Some comments are summarized below.

’It depends on the type of disability—for some I would have to do more adjustments.’

’Willing to make accommodations that support student learning in individual situation’
Table 2
Willingness to Provide Individual Accommodations

<table>
<thead>
<tr>
<th>No</th>
<th>Accommodation</th>
<th>Response: Would</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Allow student to tape record classroom lectures.</td>
<td>97.6%</td>
</tr>
<tr>
<td>2.</td>
<td>Provide copies of instructor’s lecture notes after they attend lectures.</td>
<td>69.8%</td>
</tr>
<tr>
<td>3.</td>
<td>Extend deadlines for completion of class projects, papers etc.</td>
<td>68.6%</td>
</tr>
<tr>
<td>4.</td>
<td>Allow student to complete alternative assignments.</td>
<td>60.4%</td>
</tr>
<tr>
<td>5.</td>
<td>Allow student to do extra credit assignments when this option is not available to others.</td>
<td>18.8%</td>
</tr>
<tr>
<td>6.</td>
<td>Provide student with a syllabus before the term begins to give ample time to complete reading and writing assignments when this option is not available to other students.</td>
<td>74.3%</td>
</tr>
<tr>
<td>7.</td>
<td>Allow student to give oral presentations or tape-recorded assignments rather than complete written projects.</td>
<td>71.8%</td>
</tr>
<tr>
<td>8.</td>
<td>Allow student to take alternative form of examination (example computer-scored answer sheets or multiple-choice tests instead of essay tests or vice versa).</td>
<td>55.5%</td>
</tr>
<tr>
<td>9.</td>
<td>Allow a proctor to rephrase test questions that are not clear to students (example a double negative may need to be clarified).</td>
<td>77.6%</td>
</tr>
<tr>
<td>10.</td>
<td>Allow student extra time to complete class tests.</td>
<td>93.5%</td>
</tr>
<tr>
<td>11.</td>
<td>Allow student to dictate answers to a scribe.</td>
<td>94.3%</td>
</tr>
<tr>
<td>12.</td>
<td>Allow student to respond orally to essay questions.</td>
<td>82.0%</td>
</tr>
<tr>
<td>13.</td>
<td>Analyze the process as well as the product (giving partial credit if the correct mathematical computation was used although the final answer was wrong) when this option is not available to others.</td>
<td>37.1%</td>
</tr>
<tr>
<td>14.</td>
<td>Allow student to use basic calculator during the test.</td>
<td>76.7%</td>
</tr>
<tr>
<td>15.</td>
<td>Allow misspelling, incorrect punctuation, and poor grammar on tests without penalizing the student.</td>
<td>46.0%</td>
</tr>
<tr>
<td>16.</td>
<td>Allow use of proofreaders to assist in correction of grammar and punctuation in student’s first draft of written assignment.</td>
<td>73.0%</td>
</tr>
<tr>
<td>17.</td>
<td>Allow use of proofreaders to assist in reconstruction of student’s first draft of a written assignment</td>
<td>59.5%</td>
</tr>
<tr>
<td>18.</td>
<td>Allow use of proofreaders to assist the student in substitution of higher-level vocabulary for original wording.</td>
<td>37.8%</td>
</tr>
</tbody>
</table>

Note: n=245

‘All depends upon proven need.’
‘It is unfair if students with disabilities have to master material at 50% of the required level to get the same grade.’
‘Answers under ‘would’ are assuming that these accommodations are necessary for their disability.’
A comment made by many on allowing extra time for tests for their examinations and tests
was interesting. On this accommodation 93% had indicated a 'would’ response. However, even those who had indicated 'would’ response asked if that would prepare students with disabilities for the 'real world’ situation. Faculty questioned if the employers would be willing to give them extra time to complete a project.

The scale had 18 accommodations. Scales with similar accommodations have been used in other studies (Bourke et al., 2000; Curran, 1995; Dodd et al., 1990; Kennedy, 1996; King & Satcher, 2001; Lewis, 1998; Matthews et al., 1987; Nelson et al., 1990; Satcher, 1992; Vogel et al., 1999). The first three items had a 76% to 97.6% ‘would’ response as compared to the fourth item, which had 46% ‘would’ response. Some faculty indicated that they would provide some accommodations if the Center for students with Disabilities (CSD) asked for the same. This was a comment made to clarify the reason why they chose ‘would not’ option. The lowest percentage willingness was on Item 5: 'Allow student to do extra credit assignment’ with only 18.8% willing. Other items that scored low on agreement (< 50%) were ‘Allow use of proof-readers to assist in substitution of high-level vocabulary’(Item 18, 37.8%), ‘Analyze process as well as the product...(Item 13, 37.1%),’ and ‘Allow misspelling, poor grammar, and punctuation without penalizing student’ (Item 15, 46%). These findings were consistent with other studies (Bourke et al., 2000; Lewis, 1998; Nelson et al., 1990) that reported percentage breakdown of similar 18 accommodations used in their questionnaire. On Items 16-18, that involved allowing proofreaders’ assistance on assignments, comments included, ‘I offer to read and comment student’s draft myself and then refer them to writing center, as I otherwise have no way of knowing the extent to which the final product reflected the student’s own work.’ Faculty may have perceived some items that had less than 60% ‘would’ response as lowering academic standards and academic integrity if they allowed these accommodations. The overall less score on ‘would’ items by faculty from College of Engineering and faculty from School of Law calls for additional research to see what other accommodations they might consider as reasonable and helping the faculty as well as the students.

Most respondents answering the open-ended question commented that accommodations they would provide were

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**Some faculty expressed dissatisfaction over the services provided to students with disabilities despite an increase in the tuition fees.**

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disability specific and also depended on the severity of disability. Generally, faculty would provide a specific accommodation if a particular disability called for it. Some faculty were happy a study of this kind was done. They felt the survey was good and wanted to know the outcome of the study. Some faculty expressed dissatisfaction over the services provided to students with disabilities despite an increase in the tuition fees. They felt that the CSD should be more active and take on more responsibility especially during examinations when students are given double time for completion, as it was too demanding on faculty time. Some faculty needed more information from CSD about students’ disabilities.

**Recommendations for Future Research and Practice**

Making faculty aware of legal aspects may help both, faculty and students. It is recommended that a study using a survey be carried out to measure faculty knowledge of disability laws in higher education. Thompson and Leslie (1997) designed a survey with 25 items that assessed faculty knowledge in this area, including key legal requirements in providing reasonable accommodations for accommodating the needs of students with disabilities. Faculty surveyed indicated a resource guide to provide training and understanding disability laws. Such resource guides and newsletters used on this campus may help faculty in understanding disability laws and knowing what accommodations are necessary, as well as what accommodations may be refused. Expertise of faculty from the department of special education may be tapped for the purpose. Alternatively, individual departments from different schools may have one or two faculty members work with the CSD and/or Special Education Department and then distribute the knowledge to other faculty in their respective departments. CSD could distribute articles, have seminars, symposiums, and panel discussions in collaboration with University Administration and various departments and schools. As suggested by Thompson and Leslie (1997), the method of surveying the faculty first, then educating them using newsletters and/or resource guides has the potential to reach a large percentage of faculty who may not find time to attend training workshop because of scheduling conflicts.

Scheduling and time was one concern some faculty sur-
veyed in this study indicated as frustrating and unfair in asking faculty to proctor students needing extra time during tests and examinations, sometimes twice the time given to other students. A training program that could address the issue of time and flexibility and at the same time serve the purpose of providing knowledge and information necessary, would be an online training program. Junco (2002) described one such online training program that used two modalities for attitude change—information and contact. The contact component included video interviews of students with disabilities. This format could be used to impart pertinent information regarding disability laws and court cases that involved provision of accommodations to students with disabilities in higher education. As stated by Junco (2002) online training provides individuals the ability to take training on their own pace, and to arrange work in segments. Such training can be provided by CSD to faculty in all departments.

This study was undertaken to help enhance the effort of the university CSD and commitment by the university to provide accessible programs for individuals with disabilities. Findings would have important ramifications for other universities and community colleges in the state and in the region as well. Though the area has been studied in other parts of the United States, this study was one of the first in the geographic location where it was conducted. In this respect the study would (a) fill a void, (b) replicate, (c) extend, and (d) develop new ideas in the scholarly literature. The above recommendation would help towards this end.

Another suggestion for future research would be to conduct a qualitative study on this campus. Qualitative methods can be used to ‘explore’ substantive areas about which little is known or about which not much is known, to gain novel understandings. Qualitative methods can also be used to obtain the intricate details about phenomenon such as feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional research methods. A fundamental characteristic of qualitative research is its in-depth exploration of a phenomenon and its context. Studies reviewed, as well as this study reported different levels of faculty members’ willingness to provide accommodations for students with disabilities. These studies identified typical accommodations for students with disabilities and then asked faculty members to indicate the accommodations they would or would not provide. These studies did not investigate what information and support services faculty required to provide these accommodations. Few studies provided an insight into the needs of the faculty members and then investigated why, what, and how the faculty actually provided accommodations, or did not provide. These studies did not investigate what information and support services faculty required to provide these accommodations. Few studies provided an insight into the needs of the faculty members and then investigated why, what, and how the faculty actually provided accommodations, or did not provide.

Another intriguing finding was effect of departmental affiliation. Faculty from LAW and ENGR to provide accommodations. The overall less score on ‘would’ items by faculty from ENGR and faculty from LAW calls for additional research to see why they were not willing and what other accommodations they might consider as reasonable. This would help faculty as well as the students. A study using a qualitative paradigm could explore needs of faculty members in providing different accommodations. Such a study could also find out the feelings/ perceptions of the faculty regarding teaching students with disabilities that may involve making accommodations. Findings and action taken may lead to satisfying and successful experiences for both, faculty and students. Such a study may also help with concerns/issues discussed under influence of departmental affiliation and influence of prior experience teaching students with disabilities on attitudes and willingness to provide accommodations.

Finally, it is recommended that new scales to measure willingness to provide accommodations should be developed. The scale could be more disability specific based on comments by many faculty. Findings of a qualitative study through interviews and observations could help with development of new scales.

High percentages reported in terms of previous experience teaching students with disabilities, general willingness to provide accommodations, generally favorable attitudes, but lack of familiarity with Section 504 coupled with some comments on problems faced providing accommodation however, was a cause for concern. All faculty members have a legal responsibility to provide reasonable accommodations to qualified students with disabilities. Therefore, it is important to study what the faculty feel about teaching these students with different disabilities in their classrooms and the faculty’s willingness to provide reasonable accommodations to qualified students with disabilities. Faculty needs to be better informed of their obligation, students’ obligation, and in general, the legal mandates that govern education of students with disabilities in higher education.
References


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