STUDENTS WITH DISABILITIES IN TEACHER EDUCATION: CHANGES IN FACULTY ATTITUDES TOWARD ACCOMMODATIONS OVER TEN YEARS

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There is an increase in the number of students with disabilities in higher education. This study examined changes in faculty knowledge, attitudes and willingness to make accommodations for these students in teacher training colleges in Israel. Two samples of faculty members were studied. One study was conducted in 1996/7 and the second ten years later. Faculty responded to a questionnaire about knowledge, attitudes and adaptations. Data revealed some differences in the background variables. Faculty in the later study reported more knowledge and contact with the office of support services for students with disabilities. No significant group differences were found in faculty willingness to provide instructional, technological and testing adaptations. Attitudes toward students with disabilities in teacher education were positive in both studies, although faculty in the 2006/7 study was more stringent in their admission requirements. Background variables including personal contact with persons with disabilities, training in disabilities, academic rank and area of teaching were related to attitudes and willingness to provide adaptations in the 2006/7 study. A discussion of practical and research implications is provided.

The proportion of students with documented disabilities in institutions of higher education, in particular students with learning disabilities, is increasing in many countries around the world. In the United States the number of students with disabilities has grown almost four times since three decades ago, when it was estimated at 2.3%. Today the estimated proportion of these students in all years of undergraduate education represents approximately 9% of the total college population (Burgstahler & Doe, 2006; Henderson, 2001; Skinner, 2004; Vogel, Holt, Silgar, & Leake, 2008). Similarly Increases in the number of students with disabilities have also been reported in Canada (Laucius, 2008), Australia (Ryan, 2007) the U.K, especially among students with dyslexia (Pumfrey, 2008), and other European countries (Powell, Felkandorff, & Hollenweger, 2008). In Israel, Margalit, Breznitz, & Aharoni (1998) reported that between 1.5%-3% of students in higher education have learning disabilities. Similarly, Him-Yunis & Friedman (2002) reported an average of 2.8% of students with learning disabilitiesin their study of 34 institutions. Sharoni & Vogel (2004) found that 8.5 % of students who took the standardized entry examination required by teacher education colleges were students with certified learning disabilities. Increases are also reported for students with sensory impairments.

The increase in the number of students with disabilities in higher education has been explained by several factors. Special education legislation has resulted in the placement of young pupils with disabilities in general classrooms. Many of these pupils graduate from high school and aspire to enter higher education (Finkelstein, 2005; Rath & Royer, 2002). A second factor is the civil rights legislation that has been passed with the goal of preventing discrimination against individuals with disabilities. Section 504 of the rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 in the United States, the Equal Rights of People with Disabilities Law (1998) in Israel (Feldman, 2007), and the Disability Discrimination Act (DDA) (1995) in England (Marshall, 2008) are examples of such legislation. In Israel, a recent law entitled the *Rights of Students with Learning Disabilities in Post*

secondary Institutions (Ministry of Justice, 2008) deals directly with discrimination in institutions of higher learning.

Economic factors have also contributed to the increase in enrollment of students with disabilities. Colleges and universities have been under pressure to expand their recruiting efforts because the pool of eligible students has been shrinking. This has led to the active recruitment of students with disabilities as a source of revenue for these institutions (Sweener, Kundert, May, & Quinn, 2002). Other factors include the increased use of computer and compensatory technology (Raskind & Higgins, 2003), the increased physical accessibility of campuses, and the establishment of offices of support services for students with disabilities (Finkelstein, 2005; Rath & Royer, 2002). Several researchers have noted that critical factors for the success of students with disabilities include faculty knowledge, attitudes and willingness to provide reasonable academic modifications and accommodations (Burgstahler, 2005a; Dona & Edmister, 2001; Leyser, Vogel, Brulle, & Wyland, 1998; Scott & Gregg, 2000; Skinner, 2004; Vogel, et al., 2008). The literature reports a growing number of studies that have focused on attitudes and perspectives of faculty regarding students with disabilities and their willingness to provide requested accommodations. Several reported that faculty hold non-supportive attitudes (Houck, Asselin, Troutman, & Arrington, 1992, Minner & Prater, 1984) and that students perceive that faculty often are lacking sensitivity and awareness of their needs and report a sense of intimidation and rejection (Hill, 1996; Wilson, Getzel, & Brown, 2000; Kruth & Mellard, 2006). Reports also indicated that the faculty are especially skeptical and mistrusting of students with non-visible disabilities such as students with learning disabilities, an attention deficit hyperactivity disorder, and psychiatric disabilities (Beilke & Yssel, 1999; Jensen, McCrary, Krampe, & Cooper, 2004). Many other studies, however, reveal that faculty hold positive attitudes toward students with disabilities and are willing to provide teaching and examination accommodations (Bigaj, Show, & McGuire, 1999; Leyser, 1989; Leyser et al., 1998; Nelson, Dodd, & Smith, 1990; Norton, 1997; Vasek, 2005; Vogel, Leyser, Burgstahler, Sligar, & Zecker, 2006; Vogel et al., 2008). Despite the willingness to provide accommodations reported in these studies, findings also indicated that there were certain accommodations that the faculty were less willing to make. These included overlooking spelling errors, incorrect punctuation and poor grammar, permitting substitutions for required courses, providing copies of lecture notes and giving extra credit assignments (Leyser et al., 1998; Nelson et al., 1990; Sweener et al., 2002). These studies suggest that faculty are less comfortable in providing accommodations they perceive will lower course standards or give an unfair advantage to some students, yet are willing to implement accommodations that are easy to provide, require little extra time and which facilitate the integration of students into the planned course activities (Burgstahler, 2005a; Bigaj et al., 1999).

Other studies examined faculty familiarity with legislation as well as their knowledge about disabilities and their personal experience with students with disabilities. Many reported limited familiarity with disability laws, limited contact with campus support services and limited experience in teaching students with disabilities (Baggett, 1994; Burgstahler & Doe, 2006; Leyser et al., 1998; Leyser, Vogel, Wyland, Brulle, Sharoni, & Vogel, 2003; Vasek, 2005; Vogel et al., 2008).

The literature reports several demographic variables that impact faculty attitudes and willingness to make accommodations. Although results are sometimes inconsistent, data seems to suggest the impact of the following background variables:

(a) Gender - Female faculty express more positive attitudes toward individuals with disabilities (Baggett, 1994; Sharoni & Vogel, 1998) and are more willing to provide accommodations (Bigaj et al., 1999; Leyser et al., 2003) than male faculty.

(b) Teaching experience – Faculty with more experience teaching students with disabilities have more positive attitudes and are more comfortable allowing accommodations than are those with less experience (Fichten, Amsel, Bourdon & Creti, 1988; Leyser et al., 2003; Satcher, 1992).

(c) Training and participation in staff development – Faculty with more training and information about disabilities hold more positive views, and are more willing to make accommodations than those with less training (Bigaj et al., 1999; Leyser,1989).

(d) Academic rank –Instructors who do not have a doctorate are more willing to provide several of teaching accommodations than their colleagues with a doctorate (Leyser et al., 2003; Vogel, Leyser, Brulle, & Wyland, 1999).

(e) Academic discipline –Faculty in the College of Education are more willing to provide accommodations than faculty in other colleges (Nelson et al., 1990; Vasek, 2005; Vogel et al., 1999).

Questions as to whether or not students with disabilities and, in particular, students with learning disabilities should be encouraged to enter programs leading to teacher certification, and whether or not they can be successful as teachers, have been discussed in several publications (Brulle, Leyser, Vogel, & Wyland, 1998; Wertheim, Vogel, & Brulle, 1998; Williams, 1998). Such a discussion is especially timely now with the growing pressure to better ensure teacher quality. Many countries and professional organizations have developed more rigorous standards for the preparation of teachers, with regard to knowledge (i.e., subject matter, content), instructional skills and strategies, as well as dispositions toward all students (Friend & Bursuck, 2009).

In Israel, a study about faculty attitudes, knowledge and willingness to provide accommodations for students with disabilities in a teacher training college, was conducted in 1996/97 by Sharoni & Vogel (1998). A second study, ten years later in 2006/7 by Leyser and Greenberger (2008) examined faculty attitudes and practices in seven teacher training colleges in Israel.

The similarities in the questionnaires utilized in the 1997 and 2007 studies afforded the opportunity to examine changes in faculty attitudes and practices that occurred over the course of a decade. Findings of the 2006/7 study were compared to those reported in the study conducted in 1996/7. Specifically, the questions asked were whether changes occurred in the following areas:

1) faculty familiarity, knowledge and teaching experience with students with disabilities,
2) faculty willingness to provide instructional, technological and examination accommodations,
3) faculty attitudes toward students with disabilities in teacher education, and
4) their reported needs for training. An additional goal was to examine and compare the impact of selected demographic variables such as gender, experience, training, and rank on attitudes and willingness to provide accommodations.

Background

In Israel, teacher training takes place in both teacher education colleges and universities. The colleges prepare and certify teacher to work in kindergartens through junior high school, while universities prepare teachers to work in high schools. There are 28 teacher training colleges throughout the country. These colleges are now four-year academic institutions offering a B.Ed degree and a teaching certificate. Faculty are expected to hold a doctorate degree. All colleges offer a similar core curriculum and field experiences which are mandated by the National Council of Higher Education. The colleges serve different sectors of the population such as the Jewish sector (secular state and religious schools) and the Arab sector.

Participants

In the 1996/7 study (Sharoni & Vogel, 1998) 400 questionnaires were distributed to faculty at B.B Teacher Training College. The response rate was 30% (116 questionnaires). B.B is one of the largest teacher training colleges in Israel, and is located near the center of the country.

In the 2006/7 study, 500 questionnaires were distributed to faculty in seven teacher training colleges. Four of these institutions (including B.B College) prepare teachers for teaching in the public Jewish schools (one in the area of physical education), one prepares teachers for the Jewish religious schools and two prepare teachers for teaching in the Arab sector. A total of 188 questionnaires were received (37.6%). Thirty-seven of the questionnaires (17%) returned were from B.B. College. The questionnaires in both studies were distributed in faculty mail boxes and respondents were asked to return their completed questionnaire to a designated mail box. Demographic information of faculty in both studies is presented in Table 1 (next page).

Instruments

The earlier 1996/7 study utilized a survey entitled *A Faculty Survey on Students with Disabilities* (Leyser, 1989; Leyser, Vogel, Brulle, & Wyland, 1998) which was translated from English into Hebrew and adapted to respondents in Israeli colleges. The scale was composed of 49 items. The instrument was composed of five parts: 1). background information (8 items), 2). faculty contact and knowledge regarding individuals with disabilities (11 items), 3.) willingness to provide specific accommodations (no ratings of actual provision were included) (19 items), 4.) attitudes toward teacher certification candidates with learning disabilities and fairness questions (10 items), and 5.) faculty needs for training (one multiple choice item). The questionnaire was composed of 4 point Likert-type scales (1= low level of support or willingness to accommodate and 4= high level of support or

willingness to accommodate). Several multiple-choice items and open-ended questions regarding other posted accommodations that faculty made and their recommendations were included as well.

In the 2006/7 study most of the items included in the questionnaire administered in the earlier study were retained. The instrument title was *A Questionnaire of College Faculty Attitudes towards Students with Learning Disabilities and Physical and Sensory Disabilities*. The earlier instrument was modified by adding and deleting several items based on a later edition of the original English version of the questionnaire (Vogel et al., 1999; 2006). The instrument included 47 items, divided again into five parts. These parts are: 1.) background information (7 items), 2.) contact and knowledge regarding individual with disabilities (12 items), 3.) willingness to provide and actual provision of accommodations and fairness questions (22 items), 4.) attitudes toward teacher certification candidates with disabilities (5 items) and 5.)faculty needs for training (one multiple-choice item). The last part of the questionnaire included an open-ended question which asked for faculty suggestions and comments. The Cronbach alpha coefficient reliability for these parts ranged from .73 to .91. In this questionnaire items were presented on a 6 point Likert-type scale (1-not at all or do not agree, 6= to a very large extent, or strongly agree)Statistical analyses were performed only on items that appeared in both the original and the follow-up studies. In order to make these comparisons, ratings on the four point Likert-type scale (from the 1996/7 study) were converted to a six point scale (the scale that was used in 2006/7 study), utilizing a mathematical formula[1] suggested by statistician A. Aczel (2005).
The statistical analysis utilized t-tests to compare the mean scores of faculty responses to the scale items in the two studies. Non parametric chi-square tests were applied to the categorical data.

Table 1:
Faculty Demographic characteristics

Item	Study 1996/7 (N=116)		Study 2006/7 (N=188)	
	N	%	N	%
Background Variables				
Gender				
Female	84	74.3	128	69.9
Male	29	25.7	55	30.1
Academic Degree				
Doctoral	36	31.9	100	54.6
M.A	75	66.4	78	42.6
B.A (BEd)	2	1.8	4	2.2
Rank*				
Teacher	-	-	51	28.0
Lecturer	-	-	104	57.1
Senior Lecturer	-	-	23	12.6
Professor	-	-	4	2.2
Age Group				
35-25	9	8.1	14	7.6
45-36	41	36.9	36	19.5
55-46	65	41.5	70	37.8
+ 56	15	13.5	63	34.1
Years College Teaching				
5-1	36	32.7	18	9.8
10-6	24	21.8	47	25.5
15-11	19	19.1	37	20.1
+16	29	26.4	82	44.6
% Time				
Full Time (over 50%)	79	75.2	99	53.5
Part Time (less than 50%)	26	24.8	86	46.5
Discipline**				
Special Education	-	-	33	18.4
Sciences				
Social Sciences	-	-	31	17.3
Education/Psychology	-	-	56	31.3
Physical Education	-	-	39	21.8
Faculty Supervision	-	-	20	11.2
Yes	-	-	68	38.9
No	-	-	107	61.1

*No data reported, **No specific disciplines reported

Results

Demographic data

Demographic data on participating faculty in both studies are presented in Table 1 (previous page). Statistical tests revealed that faculty in the 2006/7 study were older than faculty in the earlier study (χ^2_2=21.36 p< .001). Faculty in the later study had more years of teaching experience (χ^2_3=26.56 p< .001) and had a higher academic degree (doctorate) (χ^2_1=14.95 p< .001), when compared to their counterparts in the earlier study. Also, significantly fewer faculty in the second study, were employed on a full time basis (χ^2_1= 13.34 p< .001). As can be seen, there were slightly more male faculty in the second study, although the difference was not statistically significant.

The demographic data in the 2006/7 study contained some information not available in the older study. Most faculty were at the rank of teacher or lecturer. The respondents represented several disciplines including education, special education, the humanities and the natural and social sciences

Contact, Familiarity, Knowledge and Training in Disabilities

A large percentage of faculty in both the 1996/7 study (51.3%) and in the 2006/7study (57.0%) reported having personal contact with individuals with disabilities. Mean scores were (M=3.62 SD=1.69), in the 1996/7 study, and (M=3.84 SD=1.76) in the 2006/7 study. Respondents in the earlier study reported contact with an immediate family member slightly more frequently than in the later study (30.2% as compared to 27.1%). Contact with an extended family member was 12.9 % as compared to 12.8% in the 2007 study. Contact with a co-worker was 7.8% as compared to 14.4% and contact with a friend with disabilities was 10.3% as compared to 24.5% in the 2006/7 study.

The percentage of faculty reporting that they taught students with learning disabilities was 60.3% in the first 1997 study as compared to 78.2% in the 2006/7 study. The percentage who encountered, students with attention deficit disorder (ADD) rose from 10.3% to 42.6%. The percentage who taught students with physical disabilities increased from 19.8% to 33%, the percentage who reported that they taught students with hearing impairments grew from 19.0% to 35.1%, students with visual impairments increased from 13.8% to 16%, students with psychiatric illness grew from 6.9% to 9% and students with chronic health impairments, 13.8% compared to 13.8%. As can be seen, there was an increase in the percentage of students with all types of disabilities in the 2006/7 study, especially of students with learning disabilities, students with attention deficit disorder, students with hearing impairments and physical disabilities.

Table 2:
Faculty Contact, Knowledge and Training (Means, SD's and t tests)

Item	Study 1996/7 (N=116)			Study 2006/7 (N=188)			
	N	M	SD	N	M	SD	t
1. Students discussed and requested accommodations	95	3.90	1.93	175	3.99	1.66	0.04
2. I am willing to respond to student requests	87	4.65	1.61	179	5.35	1.05	4.25[a]
3. I have knowledge and skills to make accommodations	110	3.38	1.78	181	3.77	1.68	1.87[b]
4. I spend extra time assisting these students	90	2.39	1.76	170	4.49	1.53	9.99[a]
5. I am knowledgeable regarding the office of special services (OSS)	109	2.25	1.70	180	4.26	1.86	9.19[a]
6. This year I had contact with OSS	107	1.58	1.25	173	2.46	1.85	4.34[a]
7. Training in the area of disabilities	103	2.83	2.09	179	2.98	2.08	0.58

a p< .001, b p< .10

Table 2 shows that faculty in both studies reported that students with disabilities contacted them (Mean = 4.00) to request accommodations. No significant difference was found between the two groups on this item. In the 1997 study 57.9% of respondents reported that they were contacted often or very often as compared to 64.0% in 2006/7. Significant group differences were observed on several items. More faculty in the 2006/7 study reported that they were willing to provide requested accommodations (t264=4.25 p< .001) and that they had the necessary knowledge and skills to make accommodations

(t289=1.87 p<.10). More faculty in the second study were willing to spend extra time helping students with disabilities (t258=9.99 p<. 001). Significant differences were found in connection with the support centers. Although faculty in both studies had limited contact with support center providers, more faculty in the 2006/7 study reported being knowledgeable about these centers (t287=9.19 p< .001) and communicating with support service providers (t278=4.34 p< .001). No significant group differences were found on the question regarding the amount of training faculty had in the area of disabilities and faculty in both studies reported that they had limited training this area. Over half of respondents reported very limited training, while only 23.3% in the 1996/7 study and 32.4% of faculty in the 2006/7 study reported much or very much training.

Willingness to provide accommodations

Table 3 shows responses to the questions regarding faculty willingness to provide specific accommodations for students with disabilities.

Table 3:
Willingness to provide accommodations (Means, SD's and t tests)

Item	Study 1996/7 (N=116)			Study 2006/7 (N=188)			
	N	M	SD	N	M	SD	t
Instructional accommodations							
1.Copy of lecture outline	103	3.37	2.07	181	4.88	1.60	6.85 [a]
2.Copy of the overhead	100	5.16	1.67	172	5.24	1.41	0.42
3.Clarify/review assignments	103	5.66	0.69	180	5.61	0.85	0.71
4.Comments on drafts of papers	104	5.65	1.02	175	5.43	107	1.69 [d]
5.Complete assignments of papers in alternative formats	103	5.51	1.15	181	5.31	1.20	1.37
Total Score	103	5.08	1.32	172	5.29	1.23	1.33
Technological accommodations							
1.Use of word processor	99	5.75	1.01	174	5.70	0.83	0.44
2.Use of electronic spell checker	98	5.64	1.05	171	5.67	.87	0.25
3.Use of calculator	94	5.73	0.88	157	5.71	0.84	0.18
4.Tape recording of lecture	104	5.76	0.97	178	5.76	0.69	0.00
Total score	99	5.72	0.98	170	5.71	0.81	0.09
Examination accommodations							
1.Assist in preparing for exam	102	4.72	1.41	175	5.18	1.21	2.87[b]
2.Allow additional time to complete exam	101	5.90	0.61	170	5.81	0.63	-1.15
3. Allow exam to be proctored at another location	99	5.63	1.05	169	5.63	1.00	0.00
4. Alternative format of exam	94	4.72	1.65	165	4.98	1.47	1.31
5. Allow a taped version that has been pre-recorded	98	5.42	1.35	161	5.11	1.54	-1.60
6. Allow oral or tape recorded responses	96	5.49	1.18	166	5.41	1.07	-0.56
7. Consider the process as well as the final solution	105	4.92	1.32	166	5.30	1.19	2.45 [c]
Total score	99	5.25	1.22	167	5.35	1.16	0.66

a p< .001 b p< .01 c p< .05 d p< .10

As can be seen, faculty in both studies expressed strong willingness (high mean scores) to provide teaching adaptations, technological adaptations (allow the use of basic technology by students) and testing accommodations. The comparison of the total mean scores for each of these three categories of accommodations, revealed no significant differences between the groups for willingness to provide

teaching accommodations (t273=1.33, n.s.) technological accommodations (t217=0.09, n.s.) and testing accommodations (t270=0.66, n.s.). Findings however, revealed a few significant group differences on specific items. Faculty in the 2006/7 study expressed more willingness to provide students with a copy of the lecture outline (t287=6.85 p< .001), assist in preparing for tests (t 270=2.87 p< .01), and consider the process as well as the final solution when grading exams (t267=2.45 p< .05). On the other hand faculty in the 1996/7 study expressed more willingness to provide assistance in preparing drafts of papers. This response however, was only marginally significant (t277=-1.69 p<.10). Faculty in both groups were less willing to provide certain accommodations in comparison to others, such as providing students with a copy of the lecture outline and providing an alternative format for exams.

Perception of Fairness of accommodations

As can be seen in Table 4, faculty in both studies perceived the instructional and the examination accommodations for students with disabilities as being fair to other students (mean scores were high). However, the mean scores of the faculty in the 1996/7 study were significantly higher than those of the faculty in the 2006/7 study (t283= - 4.48 p< .001) and (t275=-4.30 p< .001) respectively. On the other hand, faculty in the 2006/7 study perceived the accommodations as being significantly more effective in facilitating the academic achievement of students with disabilities, when compared to faculty in the earlier study (t191=4.55 p< .001).

Table 4:
Perception of fairness and effectiveness of accommodations (Means, SD's and t tests)

Item	Study 1996/7 (N=116)			Study 2006/7 (N=188)			
	N	M	SD	N	M	SD	t
1.Instructional accommodations are not unfair	107	5.61	0.87	178	5.04	1.13	4.48[a]
2. Examination accommodations are not unfair	105	5.45	0.97	172	4.83	1.27	4.30[a]
3. Accommodations improved success rate	66	3.70	1.88	127	4.66	1.05	4.55[a]

a p< .001

Attitudes toward students with disabilities in teacher education programs

Table 5 presents responses to the questions exploring attitudes toward students with disabilities who opt for teaching as a career choice.

Table 5:
Attitudes toward students in Teacher Education (Means, SD's and t tests)

Item	Study 1996/7 (N=116)			Study 2006/7 (N=188)			
	N	M	SD	N	M	SD	t
1.Demonstration competencies in ways other than standardized tests	96	4.57	1.55	169	5.17	1.22	3.48[a]
2. Minimum great point average maybe lowered	92	4.12	1.67	164	2.96	1.70	-5.27[a]
3.Assignments given early field experience	101	5.24	1.30	167	4.83	1.33	-2.47[b]
4.Allow assistive technology in field experiences	97	5.64	1.06	169	5.32	1.18	-2.21[c]
5.Teachers with disabilities may be as effective	90	4.85	1.48	166	4.96	1.35	0.60

a p< .00 b p< .01 c p< .05

As can be seen, faculty in the 2006/7 study were more supportive of the option of allowing students with disabilities who enter teacher education programs to demonstrate their competencies in ways other than standardized tests (t263=3.48 p< .001). However, faculty in the 1996/7 study were more supportive of the idea of modifying the grade point average (GPA) required for entry into teacher education (t254=-5.27 p< .001). They also expressed more support for providing accommodations during clinical experiences. They supported making assignments available earlier (t266=-2.47 p< .01)

and allowing students with disabilities to use assistive technology during clinical experiences (t264=-2.21 p< .05).

Faculty in both studies believed that individuals with disabilities may be as effective as teachers who do not have disabilities. Only about 10% in both studies expressed a negative view.

Faculty interest in disability related topics
Table 6 presented the number (and percent) of faculty who were interested in obtaining training in selected topics on disabilities.

Table 6:
Topics of interest

Item	Study 1996/7 (N=116)		Study 2006/7 (N=188)	
	N	%	N	%
1.Information about disabilities	61	52.6	55	29.3
2.Legal mandates	20	17.2	55	29.3
3 .Instructional accommodations	57	49.1	88	46.8
4.Examination accommodations	34	29.3	45	23.9
5.Disability programs and services on campus	57	49.1	79	42.0

As can be seen, faculty in the earlier study expressed more interest in receiving more background information about disabilities than did faculty in the later study. The difference between the groups was statistically significant (χ^2_1=15.91 p< .001). On the other hand, faculty in the later study wanted more information about legal mandates. This difference was statistically significant (χ^2_1 =5.57 p< .02) as well. No differences were noted in faculty interest in the other three topics (examination accommodations, Instructional accommodations and disability programs and services on campus).

Factors impacting attitudes and willingness to make accommodations
Data in the 1996/7 study revealed that years of teaching experience were related to attitudes toward students with disabilities, namely faculty with less than five years of experience expressed more positive attitudes compared to those with five and more years of experience. Another factor related to attitudes was gender. Women expressed more positive attitudes than men. No other relationships between background variables, attitudes and willingness to make accommodations were found.
In the 2006/7 study, years of experience were not found to be related to the two dependent variables. Gender, once again, was found to be related to willingness to make accommodations, with women expressing more willingness to make instructional and examination accommodations. In addition, several other demographic variables were associated with attitudes and willingness to make accommodations. These are briefly presented here (for a detailed description and statistical analysis see Leyser & Greenberger, 2008).

Personal contact with individual with disabilities
Faculty with extensive personal contact with individuals with disabilities expressed more willingness to provide instructional, technological and examination accommodations and expressed more positive attitudes toward students with disabilities in teacher training programs compared to those with limited contact.

Training in the area of disabilities
Faculty with much or very much training in the area of disabilities was more willing to provide instructional, technological and examination accommodations than faculty with no or little training. They also reported actually providing significantly more instructional accommodations.

Academic discipline
Faculty in special education and the humanities were more willing to provide instructional accommodations than faculty in the social sciences. The latter were more willing to provide technological accommodations than the faculty in education.

Academic degree and rank
Faculty who did not have doctoral degree (those with a bachelor or masters' degree) expressed more positive attitudes toward students with disabilities in teacher education and reported more training and

skills for making accommodations compared to faculty with doctoral degrees. Faculty at a lower rank- teachers and lecturers as compared to faculty at a higher rank- senior lecturers and professors reported significantly, more training in the area of disabilities.

Analysis of data related to B.B faculty
We conducted two additional analyses on the data for faculty of B.B as a subgroup (N=37) of the later study. First, we compared their responses to those of their peers studied earlier in 1996/7. These analyses yielded very similar results as those reported for the comparison of the total sample of 2006/7 with the 1996/7 group. On those few items where differences were found, they were not statistically significant and they followed the same trend as did changes in the larger sample.

The second comparison compared the responses of B.B. faculty in the 2006/7 study to those of their cohorts from the other six institutions in the study. This was done in order to ascertain whether this group was in any way different from the total sample studied. Findings revealed that a somewhat higher percentage of B.B faculty were older, had doctoral degrees and reported that they taught more students with learning disabilities, hearing impairments and psychiatric illness than the other respondents. However, no significant differences were found on items regarding faculty willingness to make accommodations, fairness items and attitudes except on one item. Faculty at B.B. was less supportive of allowing students to enroll in teacher education by demonstrating their skills in ways other than by standardized tests.

Discussion
The purpose of this article was to examine changes in faculty knowledge, willingness to provide accommodations for students with disabilities in teacher education and attitudes over a ten year span. The data from a study in 1996/7 at one teacher training college (B.B) was compared to data collected from seven colleges in 2006/7, including B.B College.

Data presented revealed several differences in the demographic characteristics of faculty over the years. The proportion of faculty with doctoral degrees has grown, reflecting the growing demand for academization in teacher training colleges in Israel (see background section). The data is also an indication of the impact of economic hardships and policies which have resulted in a reduction in the recruitment of new faculty members. This has led to an increase in the number of older faculty, with more years of experience and of more faculty being employed on a part-time basis.

Data from the 2006/7 study revealed an increase in the number of students with disabilities, as reported by faculty, over the ten year span. The increase was noted in particular in the number of students with learning disabilities and attention difficult disorder (ADD) and also of students with sensory impairments. Although many faculty, particularly in the 2006/7 study, reported that students with disabilities discussed their needs for accommodations, more than one third reported that students did not contact them at all, or that they were contacted only by a few students. It seems that a large number of students with disabilities were still reluctant to approach their instructors, probably because they were uncertain about attitudes toward them or were not sure whether faculty members had the knowledge and skills to make accommodations. They may have also been concerned about their privacy (Burgstahler & Doe, 2006).

Several significant differences were noted between faculty members in the 1996/7 and the 2006/7 studies. More faculty in the later study expressed willingness to respond to student requested accommodations, spend more time assisting students with disabilities, and had the necessary knowledge and skills to make accommodations. Nonetheless, about one fourth of the faculty in 1996/7 and one third of the faculty in the 2006/7 reported not having this knowledge. Faculties in the 2006/7 study were more knowledgeable regarding the office for support services (OSS) and had more frequent communication with service providers. Nonetheless, in both studies, contact with the OSS was limited (about 50% reported no knowledge or limited knowledge of the OSS). It seems that the directors of OSS and their staff members spend most of their time in providing direct assistance to students (i.e. offering counseling sessions, tutoring, peer support groups, strategy training workshops), but are much less involved in faculty awareness training, professional development activities and one to one meetings with faculty. Other investigations have also found that faculty members have limited knowledge and contact with OSS (Burgstahler, 2005a; Leyser et al., 1998; Vogel et al., 2006).

Faculty in both studies expressed a high degree of willingness to provide a variety of specific instructional, technological and examination accommodations. This finding is corroborated by data from other studies (Houck et al., 1992; Leyser et al., 1998; Sweener et al, 2002; Vogel et al., 2006). There were however some significant differences between faculty in the two studies. Faculty in the later study expressed more willingness to provide students with lecture outlines assist them in preparing for exams and to consider the process as well as the final solution when grading exams.

Contrary to our expectations, although ten years had passed between the two studies, no significant differences were found in faculty willingness to provide accommodations as indicated by the total scores for willingness to provide instructional, technological and examination accommodations. This perhaps is due to the high level of willingness to make accommodations that already existed in 1996/7.

Examination of the mean scores of these three categories of accommodations revealed that faculty expressed a higher level of willingness to provide technological accommodations as compared to instructional and examination accommodations. The technological accommodations examined here, namely, allowing students to use several low level technologies, do not require investment of effort or of time by faculty as compared to instructional and examination accommodations. Furthermore, technologies such as tape recorders, calculators, word processors and electronic spell checkers, are widely used and accepted (Vogel et al., 2006).

Faculty in the later study expressed more concern than faculty in the earlier study regarding the fairness of accommodations for students with disabilities vis a vis students without disabilities. This response reflects a conflict they have between their expressed willingness to provide accommodations, and their uncertainty as to whether they are being fair to other students. Faculty seems also to be uncertain and conflicted on several other issues. For example, they were opposed to lowering the required grade point average (GPA) for students with disabilities who are entering teacher education and were not supportive of the idea that during clinical experiences these students should be provided with assignments early in order to allow extra time to complete them, or to allow the use assistive technology. On the other hand they were supportive of allowing students with disabilities to demonstrate competencies in ways other than standardized tests when they enter teacher education. Furthermore, faculty gave strong support to the statement, that individuals with disabilities can be as effective on the job as teachers without disabilities. These inconsistencies can be explained by the fact that the faculty view themselves as gatekeepers who are responsible for upholding academic standards (Jensen et al., 2004) and as a reaction to the growing demand by the Ministry of Education and the public for more stringent criteria for entry into teacher education on the one hand, while on the other hand they are aware of the rights of students with disabilities to equal educational opportunities, This change underscores the importance of reassessing faculty attitudes periodically.

Findings revealed that several demographic variables (mainly in the 2006/7 sample) were associated with willingness to make accommodations and/or attitudes. These included firsthand experience with individuals with disabilities and training in the area of disabilities. Also, special education faculty who are trained in the field and committed to serving individuals with disabilities expressed more willingness to make accommodations. Finally, faculty at a lower rank (teachers as compared to senior lecturers/professors) and those with a lower academic degree (B.A and M.A as opposed to a Ph.D), reported more training in disabilities and reported more willingness to make accommodations. This faculty probably had fewer years of college teaching experience and was more recently exposed to information and pupils with disabilities as classroom teachers before entering a college teaching career. On the question of faculty interest in disability related training, findings revealed that less than 50% of respondents (in both studies) expressed interest in obtaining more information. A comparison of the areas for which faculty did express interest was revealing. In the earlier study, there was interest in learning about disabilities, while in the later study more faculty expressed interest in legal mandates, probably because of the passage of recent legislation and the need to understand the implications for them and for their college. Two other topics, where both groups expressed a similar degree of interest were information about instructional accommodations and support services.

In summary, faculty attitudes and willingness to make accommodations have remained positive over the ten year span. There seems to be some impact of educational policy and the introduction of more stringent criteria for enrollment in teacher training programs on these attitudes. The continued lack of contact between OSS and faculty remains of some concern, as does the reluctance of students to approach faculty members to discuss their disabilities.

This study has both practical and empirical implications. The findings revealed that many faculty members still report limited training in the area of disabilities, limited knowledge and skills for making accommodations and limited knowledge and contact with OSS. Furthermore, about half of them expressed interest in acquiring more disability related information. These findings demonstrate an obvious need for faculty development activities. Disability service directors and their staff have a major responsibility in the planning, coordination, implementation and evaluation of these activities. It needs to be reiterated that faculty members have very busy schedules: teaching, advising, conducting research, writing and serving on committees. Therefore, they may not have the time to participate in lengthy presentations or workshops. Furthermore, as several experts have noted, the design of faculty training programs should be tailored to the individual needs preferences, time limits, stages of professional development (younger vs. older faculty), as well as to the available resources of each institution (Burgsthaler, 2005b; Salzberg, Peterson, Debrand, Blair, Carsey, & Johnson, 2002). Conducting surveys of faculty in each institution will provide input about their needs, interests and preferences regarding training.

The authors recommend that this study be replicated in other institutions of higher education as an ongoing assessment of changes in faculty attitudes and practices especially following faculty development activities (Vogel et al., 2008). Ongoing assessment is also necessary to follow the impact of changes in educational policy and admission criteria that affect faculty attitudes.
Researchers may also use other procedures of data collection such as interviews with faculty, focus groups, analysis of syllabi and classroom materials and possibly observations. Data obtained from faculty could be corroborated by assessing student perspectives of their college classroom experiences in the same institutions.

The study has several limitations. The first is related to possible differences between the two samples. The sample in the later study included faculty from seven colleges including a sub-sample of faculty from B.B College. The sample in the earlier study included only faculty from B.B. College. Statistical analysis revealed however, that the responses of the subgroup of B.B faculty in the later study were very similar to those of their cohorts in the other colleges.

The second limitation is related to the instrument. The scale used in the later study was a modified version of the scale used earlier. It was modified based on several more recent scales, yet most items of the two scales were identical. As noted, only items included in both scales were analyzed. Despite these possible limitations the study has offered a unique picture of change and stability of faculty knowledge, practices and attitudes, a topic of inquiry not widely explored in previous studies.

Notes

1. The formula is standard mathematical tool for mapping one interval scale into another. By first subtracting one from all points on the original study scale of (1 to 4) we map it into a temporary scale whose left endpoint is zero. This is necessary in order to *stretch* the 4-scale into a 6-scale in a continuous manner (in the only way that is mathematically correct, technically we turn an interval scale into a ratio scale). Next we multiply the resulting scale by five and divide it by three so that its length (now zero to three) will continuously expand to length five (scale zero to five). Finally, we need to add back the one, turning a (0-5 scale) into the desired (1 to 6) interval scale.

   The standard deviation of a linear function of random variable, X, where the function is Y=a + bX is equal to: SD(Y) =b (SD(X)). Since here b=5/3, SD(Y) = (5/3) SD(X). (Based on personal interview with prof. Amir Aczel statistician and author from Boston with the first writer, September 4, 2007 and March 26, 2010).

References

Aczel, A.D., & Sounderpandian, J. (2005). Complete business statistics (Seventh Ed.). Burr-Ridge, IL. McGrow-Hill Irwin.

Americans with Disabilities Act (ADA) of 1990, P.L. 101-336 , 42 U.S.C 12101. Retrieved October 4, 2010. From: *http://www.access-board.gov/about/laws/ada.htm*

Baggett, D. (1994). A study of faculty awareness of student with disabilities. Paper presented at the annual meeting of the National Association for Developmental Education. Kansas city, MO (March 4). (ERIC Document Reproduction Service No. ED 369208).

Beilke,, J. R., & Yssel, N. (1999). The chilly climate for students with disabilities in higher education. *College Student Journal, 33* (3), 364-371

Bigaj, S. J., Shaw, S. F., & McGuire, J. M. (1999). Community- technical college faculty willingness to use and self reported use of accommodation strategies for students with learning disabilities. *Journal of Vocational Special Needs Education, 21* (2), 3-14.
Brulle, A. R., Leyser, Y., Vogel, S.A., & Wyland, S. (1998). Competencies and accommodations: Faulty attitudes toward students with learning disabilities in teacher preparation. *Critical Issues in Teacher Education, 7*, 24-32.
Burgstahler, S. (2005a). Accommodating students with disabilities: Resources for faculty instructional and organizational development professional development needs of faculty. *To Improve the Academy, 21*, 179-195.
Burgstahler, S. (2005b). Preparing faculty to make their courses accessible to all students. *Journal of Excellence in College Teaching, 16* (2), 69-86.
Burgstahler, S., & Doe, T. (2006). Improving postsecondary outcomes for students with disabilities: Designing professional development for faculty. *Journal of Postsecondary Education and Disability, 18* (2), 135-147.
Dona, J., & Edmister, J. H. (2001). An examination of community college faculty members' knowledge of the Americans with Disabilities Act of 1990 at the fifteen community colleges in Mississippi. *Journal of Postsecondary Education and Disability, 14* (2), 91-103.
Feldman, D. (2007). The human rights of children with disabilities in Israel-the vision and the reality. In Reiter, S., Leyser, Y. & Avissar, G. (Eds.) Inclusiveness-Learners with Disabilities in Education (pp: 89-142). Haifa, Ahava Publishers (Hebrew).
Fichten, C. S., Amsel, R., Bourdon, C. V., & Creti, L. (1988) Interaction between college students with a physical disability and their professors. *Journal of Applied Rehabilitation Counseling, 19* (1), 13-21.
Finkelstein, G. (2005). The rights of students with learning disabilities in institutions of higher education: A proposal for a new law presented to the Knesset by MP Zevulun Orlev, 2002. *Issues in Special Education and Rehabilitation, 20* (1), 37-43 (Hebrew).
Friend, M., & Bursuck, W. D. (2009). Including students with special needs: A practical guide for classroom teachers (5th Edition). Boston, MA: Allyn & Bacon/Pearson.
Henderson, C. (2001). College freshmen with disabilities: A biennial statistical profile. Washington DC: American Council on Education Heath Research Center. Department of education.
Hill, J.L. (1996). Speaking out: Perceptions of students with disabilities regarding adequacy of services and wiliness of faculty to make accommodations. *Journal of Postsecondary Education and Disability, 12* (1), 22-43.
Him-Yunis, A., & Friedman, Y. (2002). The treatment of students with learning disabilities in institutions of higher education: Report to the Center of Research and Information- Israel Knesset, Jerusalem: Sold Institute.
Houck, C. K., Asselin, S. B., Troutman, G. C., & Arrington, J. M. (1992). Students with learning disabilities in the university environment: A study of faculty and student perceptions. *Journal of learning disabilities, 25* (10), 678-684.
Jensen, J., M., McCrary, N., Krampe, K., & Cooper, J. (2004). Trying to do the right thing: Faculty attitudes toward accommodating students with learning disabilities. *Journal of Postsecondary Education and Disability, 17* (2), 81-90.
Kurth, N., & Mellard, D. (2006). Student perceptions on the accommodation process in postsecondary education. *Journal of Postsecondary Education and Disability, 19* (21), 71-84
Laucius, J. (2008). Universities, colleges see students with disabilities as a growth market. *The Ottawa Citizen, November, 27*.
Leyser, Y. (1989). A survey of faculty attitudes and accommodations for students with disabilities. *Journal of Postsecondary Education and Disability, 7*, (3 & 4), 97-108.
Leyser, Y., & Greenberger, L. (2008). College students with disabilities in teacher education: Faculty attitudes and practices. *European Journal of Special Needs Education, 23*, 237-251.
Leyser, Y., Vogel, S., Brulle, A., & Wyland, S. (1998). Faculty attitudes and practices regarding students with disabilities: Two decades after implementation of Section 504. *Journal of Postsecondary Education and Disability, 13* (3), 5-19.
Leyser, Y.; Vogel, S; Wyland, S., Brulle, A., Sharoni, V., & Vogel, G. (2003). American and Israeli faculty attitudes and practices regarding students with learning disabilities: A cross-cultural study. In, S.A Vogel, G. Vogel, V. Sharoni, & O. Dahan (Eds.) Learning Disabilities in Higher Education and Beyond. An International Perspective .(pp: 201-225). Baltimore, York Press.
Margalit, M., Breznitz, Z., & Aharoni, M. (1998). Examination of the treatment of students with learning disabilities in institutions of higher education. Report for the Committee of Planning and Budgeting of Higher Education (in Hebrew).

Marshall, K. (2008). The reasonable adjustment duty for higher education in England and Wales. In S. Gabel. & S. Danforth (Eds.). Disability & the Politics of Education: An international reader (pp: 541-560). New York, Peter Lang.

Ministry of Justice (2008). *The law of students with learning disabilities in Postsecondary institutions, rehabilitation number 3581*. Law Book*:* Jerusalem: Jerusalem Israel. (in Hebrew)

Minner, S., & Prater, G. (1984). College teachers' expectations of LD students. *Academic Therapy, 20* (2), 225-229.

Nelson, R.J., Dodd, J.M., & Smith, D.J. (1990. Faculty willingness to accommodate students with learning disabilities: A comparison among academic divisions. *Journal of Learning Disabilities, 23* (3), 185-189

Norton, S. M. (1997). Examination accommodations for community college students with learning disabilities: How are they viewed by faculty and students? *Community College Journal of Research and Practice, 21*(1), 57-69.

Powell, J. J. W., Felkandorff, K. F., & Hollenweger, J. (2008). Disability in German, Swiss and Austrian higher education systems. In, S. Gabel & S. Danforth (eds.) Disability and the Politics of Education: An International reader (pp, 517-540), New York: Peter Lang.

Pumfrey, P.D. (2008). Moving toward inclusion? The first –degree results of students with and without disabilities in higher education in the UK: 1998-2005. *European Journal of Special Need Education, 23* (1), 31-46.

Raskind, M., & Higgins, E. (2003). Assistive technology for students with learning disabilities in higher education. In, S. A. Vogel, G. Vogel, V. Sharoni, & O. Dahn (eds). Learning disabilities in higher education and beyond. An international perspective. (pp, 173-199). Baltimore, MD :York Press.

Rath, K., A., & Royer, J. M. (2002). The nature and effectiveness of learning disability services for college students. *Educational and Psychology Review, 14* (4), 353-381.

Rehabilitation, Act of 1973,PL 93-112, 29 U.S.C Sec 701.October, 2010. From: *http://www.fema.gov/oer/reference/rehah-act-1973.shtm*

Ryan, J. (2007). Learning disabilities in Australian universities: Hidden, ignored and unwelcome. *Journal of Learning Disabilities, 40* (5), 436-442.

Salzberg, C. L., Peterson, L., Debrand, C., Blair, R.J., Carsey, A.C., & Johnson, A. S. (2002).Opinions of disability service directors on faculty training: The need, content issues, formats, media and activities. *Journal of Postsecondary Education and Disability, 15* (2), 101-114.

Satcher, J. (1992). Community college faculty comfort with providing accommodations for students with learning disabilities. *College Student Journal, 26* (4), 518-524.

Scott, S. S., & Gregg, N. (2000). Meeting the evolving education needs of faculty in providing access for college students with LD. *Journal of Learning Disabilities, 33* (2), 158-167.

Sharoni, V., & Vogel, G. (1998). Attitudes of college faculty toward students with disabilities and in particular students with learning disabilities, *Dapim, 27*, 59-77 (Hebrew).

Sharoni, V., & Vogel, G. (2004). Candidates for teacher training with learning disabilities. Accommodations in entry exams and their impact on their admission and continued education. Research Report. Tel Aviv, Mofet Institute. (in Hebrew).

Skinner, M. E. (2004). College students with learning disabilities speak out: What it takes to be successful in postsecondary education. *Journal of Postsecondary Education and Disability, 17* (2), 91-104.

Sweener, K., Kundert, D., May, D., & Quinn, K. (2002). Comfort with accommodations at the community college level. *Journal of Developmental Education 25* (3), 12-14, 16, 18, 42.

Vasek, D. (2005). Assessing the knowledge base of faculty at a private, four year institution. *College Student Journal, 39* (2), 307-315.

Vogel, S. A.; Holt, J. K., Sligar, S., & Leake, E. (2008). Assessment of campus climate to enhance student success. *Journal of Postsecondary Education and Disability, 21* (1), 15-31.

Vogel, S. A., Leyser, Y, Burgstahler, S. Sligar, S. R., & Zecker, S. G. (2006). Faculty knowledge and practices regarding students with disabilities in three contrasting institutions of higher education. *Journal of Postsecondary Education and Disability, 18* (2), 109-123.

Vogel, S. A., Leyser, Y., Brulle, A., & Wyland, S. (1999). Students with learning disabilities in higher education: Faculty attitudes and practices. *Learning Disabilities Research and Practice, 14* (3), 173-186.

Wertheim, C., Vogel, S. A., & Brulle, A. R. (1998). Students with learning disabilities in teacher education programs. *Annals of Dyslexia 48*, 293-309.

Wilson, K., Getzel, E., & Brown, T. (2000). Enhancing the post- secondary campus climate for students with disabilities. *Journal of Vocational Rehabilitation, 14* (1), 37-50.

Williams,S.J. (1998). Accommodating the disabilities of future teachers: Impact of section 504 and the American with disabilities act and the legal responsibilities for teacher education programs and policy development. Paper present at the AACTE 50th Annual Meeting. Feb, 25-28. New Orleans, Louisiana ED 417166.