Exceptionality Education International

1-1-2010

UAE Teachers' Awareness & Perceptions of Testing Modifications

Hala Elhoweris Elhoweris
United Arab Emirates University

Negmeldin Alsheikh
United Arab Emirates University

Abstract

The objectives of this study were threefold: (a) to determine whether the Unit-ed Arab Emirates (UAE) general and special education teachers were making any specific testing modifications for students with disabilities; (b) to survey UAE general and special education teachers' perceptions of testing modifications in terms of their usefulness, easiness, and fairness; and (c) to explore possible differences between general and special education teachers' aware-ness and perceptions of testing modifications. Two hundred and eleven UAE general and special education teachers participated in this study. Results re-vealed that participants have a moderate level of awareness of testing modifications when assessing students with disabilities. Additionally, UAE teachers as a group perceived testing modifications as easy to make and fair. Statistically significant differences were found between general and special education teachers where special education teachers were found to be more informed than general education teachers.

Recommended Citation

UAE Teachers' Awareness & Perceptions of Testing Modifications

Hala Elhoweris and Negmeldin Alsheikh
United Arab Emirates University

Abstract

The objectives of this study were threefold: (a) to determine whether the United Arab Emirates (UAE) general and special education teachers were making any specific testing modifications for students with disabilities; (b) to survey UAE general and special education teachers' perceptions of testing modifications in terms of their usefulness, easiness, and fairness; and (c) to explore possible differences between general and special education teachers' awareness and perceptions of testing modifications. Two hundred and eleven UAE general and special education teachers participated in this study. Results revealed that participants have a moderate level of awareness of testing modifications when assessing students with disabilities. Additionally, UAE teachers as a group perceived testing modifications as easy to make and fair. Statistically significant differences were found between general and special education teachers where special education teachers were found to be more informed than general education teachers.

School reform efforts and the inclusion movement in several countries around the world, including the United States, the United Kingdom, Australia, Canada, China, Nigeria, and the United Arab Emirates (UAE) have paved the way for the inclusion of students with disabilities into general education classrooms (Adamowycz, 2008; Ajuwon, 2008; Avramidis, Bayliss, & Burden, 2000; National Policy on Education, 2008; UNESCO, 2008). Consequently, these reform efforts have increased the likelihood of students with disabilities receiving some or all of their instruction in general education classrooms. These efforts have also suggested making several changes in testing students with disabilities. With the enactment of the Individuals with Disabilities Education Act Amendments of 1997, greater attention to inclusion of students with disabilities on all tests has been mandated. In addition, classroom assessment modifications are now required on the Individualized Education Program (IEP; Salend, 2005). The international policies and practices on the use of testing modifications continue to grow throughout the years (Adamowycz, 2008; Ajuwon, 2008; Cawthon, 2006; Clapper, Morse, Lazarus, Thompson, & Thurlow 2005; Deng & Harris, 2008; Goh, 2004; Grise, Beattie, & Algozzine, 1982; Jayanthi, Epstein, Polloway, & Bursuck, 1996).

Although the current educational policy in the UAE states that educational goals and standards are to apply to all students, there is not a clear national policy regarding testing modification for students with disabilities. Testing modifications frequently are used with students with disabilities to facilitate their participation in various types of assessment. A review of the relevant literature indicates that the terms *accommodations*, *modification*, and *adaptation* are sometimes used interchangeably and other times have different meanings. For instance, Goh (2004) reported that testing accommodations refer to changes made in the testing environment or facility, whereas testing modifications and adaptations are associated with changes made to the actual test format or content. Furthermore, because there is no general consensus on the use of these terms, we choose to use *testing modification* throughout this paper, which refers to changes made in one or more areas: test preparation, test construction, test administration, test sites, and test feedback (Goh, 2004).

If students with disabilities are to succeed within the general education classrooms, testing modifications are essential for many students with disabilities (Goh, 2004; Jayanthi et al., 1996; Salvia & Ysseldyke, 2004). Indeed, Culbertson and Jalongo (1999) pointed out that students with disabilities are likely to use poor test-taking skills and ineffective learning strategies on tests. Furthermore, Salend (2005) indicated that the use of teacher-made tests to assess students' learning may be problematic for students with mild disabilities; therefore, teachers need to use a variety of testing modifications to accurately assess the performance of students with disabilities.

There is a general consensus among researchers and practitioners that testing modifications have positive effect on students' academic achievement (e.g., Centra, 1986; Kettler et al., 2005; Munger & Loyd, 1991; Overton, 2009; Salvia & Ysseldyke, 2004). For example, in a study aimed at examining the effects of extra time on the reading comprehension performance of 64 adults with reading disabilities, Lesaux, Pearson, and Siegel (2006) found that the participants with reading disabilities performed better under the untimed condition. Similarly, previous studies on the effect of timing modification on students' test scores revealed that timing extensions have a positive effect on the students' test scores (e.g., Munger & Loyd, 1991; Perlman, Borger, Collins, Elenbogen, & Wood, 1996; Schulte, Elliott, & Kratochwill, 2001). In another study aimed at investigating the effect of reading aloud, Fuchs, Fuchs, Eaton, Hamlett, and Karns (2000) found that read-aloud modifications on a math curriculum-based measurement were effective in boosting the scores of students with learning disabilities. Recently, Kettler et al. (2005) and Lang, Elliott, Bolt, and Kratochwill (2008) found that testing modifications had a positive impact on students with and without disabilities' reading and math scores. Additionally, in a study that investigated the impact of selected types of adaptive assistive technology on the academic achievement of a female student with mild disabilities in northeastern Ontario, Brackenreed (2008) found that assistive technology had a positive impact on the student's academic achievement.

Despite the compelling evidence of the importance of testing modifications for students with disabilities, some researchers have found that testing modifications are not always made by school teachers (e.g., Ketterlin-Geller, Alonzo, Braun-Monegan, & Tindal, 2007; Putnam, 1992). Additionally, a considerable number of researchers indicated that regular education teachers do not usually differentiate instruction to meet students' needs in regular classrooms (e.g., Ainscow, 2007; Miner & Finn, 2003). Previous studies by Hollenbeck, Tindal, and Almond (1998), Jayanthi et al. (1996), and Gajria, Salend, and Hemrick (1994) indicated that teachers have little knowledge about which modifications are appropriate for students with disabilities. They perceived certain modifications to be fairer than others, but differed individually in their judgments of what modifications are fair. Additionally, Siskind (1993) compared the level of knowledge of testing modifications between special and general education teachers. He found that both general and special education teachers lacked know-

ledge regarding some testing modifications including revised test format and revised answer mode. Recently, educators and researchers continue to ask questions about general and special education teachers' use of testing modifications (e.g., Kohler, Henning, & Usma-Wilches, 2008; Rieck & Wadsworth, 2005; Vlachou, Didaskalou, & Voudouri, 2009). For example, Ketterlin-Geller et al. (2007) investigated the consistency of modifications of assignments across 38 third grade U.S. students' IEPs. They found inconsistencies between the modifications listed on the IEP and teachers' recommendations for testing modifications. In another U.S. study that examined student teachers' ability to make instructional decisions, Kohler et al. (2008) found that student teachers relied on a limited range of formative assessment strategies and instructional modifications.

Teacher acceptability of various modifications in inclusive settings is a critical issue in understanding why modifications are made or not made for students facing difficulties (Subban, 2006). The aforementioned studies of teacher judgments of acceptability and fairness of modifications contribute to our knowledge base regarding teachers' perceptions of testing modifications in different countries (e.g., Jayanthi et al., 1996; Molto, 2003; Nenty, Adedoyin, Odili, & Major, 2007). For instance, Gajria et al. (1994) asked 64 general education teachers of grades 7 through 12 to respond to a questionnaire consisting of items pertaining to teacher knowledge of testing adaptations, common types of modifications used in general education classrooms, teachers' perceptions of integrity for specific testing modifications, and the ease of use and effectiveness of testing modifications. The results of this study indicated that most of the teachers were familiar with modifications in test format and administration. However, they were reluctant to implement those they considered ineffective, difficult to implement, and a possible threat to the academic integrity of their examinations. Moreover, teachers were more likely to accept modifications that they perceived as being effective and easy to use in terms of time and material resources. Jayanthi et al. (1996) also conducted a national survey in the United States of general education teachers' perceptions of testing modification. Their findings indicated that all the participating teachers rated the following testing modifications as most helpful for students with disabilities: providing one-on-one help with directions during test administration, reading test questions to students, and simplifying wording of test questions. Additionally, 66.6% of general education teachers indicated that it was not fair to make testing modifications only for students with disabilities. On the other hand, Lang et al. (2005) examined students', parents', and teachers' perceptions of the use of testing modifications. They found that most parents and teachers perceived testing modifications to be fair and valid for students with disabilities. Additionally, Molto (2003) examined mainstream education teachers' perceptions of instructional modifications in inclusive classrooms and the feasibility, effectiveness, and desirability of their implementation among kindergarten, elementary, secondary, and high school teachers in Spain. Results of this study indicated a moderate teacher acceptance of instructional modifications. Additionally, in a more recent study that examined Greek mainstream teachers' views concerning feasibility and desirability of routine instructional practices, Vlachou et al. (2009) found that the modifications that were deemed to be more desirable than feasible included between class grouping, activities at various levels of difficulty, diverse activities, specific sources, and computers. The modifications that were not desirable by a minority of teachers included grouping all students in pairs; providing additional teaching to certain subgroups; and using alternative material, specific resources, and computers.

Overall, previous research has indicated that teachers recommend and use modifications they perceive maintain academic integrity, are effective, are easy to use, and are feasibly implemented (e.g., Gajria et al. 1994; Gilbertson-Schulte, Elliott, & Kratochwill, 2000). If certain modifications are not acceptable to teachers, it is very likely teachers will not use them. Additionally, the success of an inclusive placement is dependent on general

education teachers' ability and willingness to make modifications to accommodate individual differences (Salend, 2005). Since there is well-established educational literature on the link between teachers' beliefs and their actions (Lieber et al., 1998), the perceptions of classroom teachers about testing modifications should be of prime concern. Understanding teachers' perceptions of testing modifications is crucial to the accomplishment of meaningful reform.

Although ranges of perceptions on the issue of testing modifications have been aired (e.g., Brackenreed, 2004, 2008; Hollenbeck et al., 1998; Ketterlin-Geller et al., 2007; Kettler et al., 2005; Lang et al., 2005; Molto, 2003; Vlachou et al., 2009), the views of UAE classroom teachers were not examined. To our knowledge no study exists that has investigated UAE teachers' awareness and perceptions of testing modifications on classroom assessment for students with disabilities. Moreover, since beliefs are likely to interfere with touted best practice, it seems necessary to examine UAE in-service teachers' perceptions of testing modifications. In 2006, the UAE adopted an official policy of educating students with disabilities alongside their peers without disabilities. Therefore, it is vitally important to determine why UAE in-service teachers implement or use some testing modifications and not others. Thus, the purpose of this study was to investigate the awareness and perceptions of general and special education teachers, particularly as they relate to making testing modifications for students with disabilities. Specifically, the objectives of this study were threefold: (a) to determine whether UAE general and special education teachers were making any specific testing modifications for students with disabilities; (b) to survey UAE general and special education teachers' perceptions of testing modifications in terms of their usefulness, easiness, and fairness; and (c) to explore possible differences between general and special education teachers' awareness and perceptions of testing modifications.

Method

Participants

Participant identification followed the cluster sampling technique guidelines. The sample included 15 randomly selected elementary and secondary schools from the seven Emirates school districts to maximize the potential of including teachers with different teaching experiences and cultural backgrounds. All teachers in those schools were asked to participate in the study. However, general education teachers who did not have students with disabilities in their class were not included. A total of 342 questionnaires were received of 600 possible, yielding a response rate of 57%. Questionnaires were excluded ($n = 131$) because they were incomplete or incorrectly completed. Exclusions reduced the sample size to 211 (84 special educators, 127 general educators) and the number of participating Emirates school districts to five. As is typical of national trends for teachers' gender representation, the majority of participants were female (92%). One hundred and twenty-three of the participants (58%) were elementary school teachers while 88 (42%) were secondary school teachers. The majority of the sample (74%) was 26 years and older. One hundred thirty-eight (65%) participants had at least 6 years teaching experience. The number of teachers per geographical area taking part in this study was 22 teachers from Dubai, 38 teachers from Ras Alkhaima, 31 teachers from Sharjah, 84 teachers from Abu Dhabi, and 36 teachers from Alfujairah.

Instrument

All survey items were derived from education textbooks (e.g., Goh, 2004; Overton, 2009; Salend, 2005; Salvia & Ysseldyke, 2004) and review of the relevant literature on test-

ing modifications for students with disabilities. Indeed, a review of the literature (e.g., Elliott, Braden, & White, 2003; Elliott, Kratochwill, & Schulte, 1999; Salend, 1995; Thurlow, Liu, Erickson, Spicuzza, & El Sawaf, 1996; Thurlow, Ysseldyke, & Silverstein, 1995) indicated testing modifications could be organized into four broad modification categories including setting, presentation format, response format, and timing and scheduling.

The survey used in this study contains 42 statements, measuring four categories of testing modifications: (1) Modification of Setting Format (MOS = 7 items), which is associated with modifications in the location, environment, or condition of testing; (2) Modification of Presentation Format (MPF = 16 items), which involves changes in the presentation format including test instructions, test items, or both; (3) Modification of Response Format (MRF = 13 items), which involves changes in the response format to allow the student to answer in his or her preferred modality of communication; and (4) Modification of Timing and Scheduling (MOT = 6 items), which involves changing the time and scheduling requirements of testing. Additionally, two items were added to assess fairness and whether testing modifications were easy to use. To determine whether general and special education teachers were making any specific testing modifications for students with disabilities, each statement was rated on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). In addition, to examine UAE teachers' perceptions of testing modifications in terms of their usefulness all participants were asked to respond to a 4-point Likert scale ranging from 1 (*least helpful*) to 4 (*most helpful*).

To assure content validity of the survey, it was assessed by sending a copy of the instrument (questionnaire) to four experts in the field of special education. Each expert assessed the intended content area. To assess the reliability of the survey, a pilot study was conducted with 22 general and special education teachers. Teachers who agreed to participate in the pilot study were asked to participate again one week later. The test-retest reliability for the questionnaire items was adequate (*r* = .79). In the pilot study, teachers were also asked to review the survey and comment on its readability, clarity, comprehensiveness, and content coverage. Additionally, Cronbach's alpha was used to assess each of the four subscales including Modification of Setting Format, Modification of Presentation Format, Modification of Response Format, and Modification of Timing and Scheduling. The values of Cronbach's alpha for the first Likert scale are as follows for each subscale respectively: .93, .91, .89, and .94. For the second Likert scale, the values of Cronbach's alpha are as follows for each subscale respectively: .94, .90, .89, and .96.

Results

To examine the first objective of this study, special and general education teachers were asked to complete the survey instrument on testing adaptation. Then the teachers' responses were analyzed for the individual strategies as well as for the four categories of the survey instrument. As Table 1 shows, the means of individual strategies reported show that the participants have a fairly moderate level of awareness of testing modification when assessing students with disabilities. The mean strategy use ranged from a high of 3.82 to a low of 2.40.

The data were further analyzed according to the four categories. The averages for these categories revealed a moderate to high strategy usage. UAE general and special education teachers reported that they most often used the Modification of Setting (*M* = 3.13), followed by Modification of Presentation Format (*M* = 3.01), Modification of Timing and Scheduling (*M* = 2.85), and Modification of Response Format (*M* = 2.59). None of the strategies in the survey were used with low frequency (mean value below 2.4).

Table 1
Testing Modifications Strategy Use by UAE Special and General Education Teachers (n = 211)

Name	Strategy	General Educators		Special Educators		F	p
		M	SD	M	SD		
MPF1	Presenting the test in written and oral format	3.33	.77	3.40	.73	.68	.517
MPF2	Using other devices in testing	2.83	.99	3.22	.94	3.77	.025*
MPF3	Presenting the test in large print	2.84	1.09	2.89	.92	2.29	.103
MPF4	Oral reading the test directions	3.35	.82	3.30	.46	2.52	.085
MPF5	Explaining test directions	3.45	.73	3.46	.77	2.76	.065
MPF6	Reducing the number of questions	3.06	.94	3.02	.49	1.44	.238
MPF7	Increasing spacing between the test items	3.14	.88	3.30	1.29	1.53	.217
MPF8	Modifying the test questions	3.28	.85	2.45	.52	1.96	.143
MPF9	Test nonnative speakers in their native language	2.41	1.03	3.00	.94	.04	.960
MPF10	Translating the test directions for nonnative speakers	2.95	.99	2.90	.93	2.82	.062
MPF11	Translating the test in student native language	2.62	1.04	3.00	.78	1.08	.341
MPF12	Offering alternative testing	2.76	.94	2.87	.77	.42	.657
MPF13	Presenting question's options vertically	2.80	.91	3.15	.71	1.21	.300
MPF14	Including multiple formats in the test	3.11	.82	3.05	.92	1.29	.276
MPF15	Including two different formats in the test	3.02	.79	3.01	.94	1.33	.265
MPF16	Providing questions and answers on the same page	3.00	.98	3.20	.74	.96	.384
MRF1	Allowing students to answer orally	2.69	.95	3.24	.90	4.01	.018*
MRF2	Allowing students to use Braille	2.61	1.15	3.00	.78	2.81	.063
MRF3	Permitting dictionary use for nonnative speakers	2.51	1.06	3.07	.67	4.83	.009*
MRF4	Permitting finger pointing to answer	2.67	.94	2.87	.77	1.51	.222
MRF5	Providing testing assistant	2.42	1.04	3.00	.71	6.88	.001*
MRF6	Permitting computer use	2.47	.99	3.53	.75	4.16	.040*
MRF7	Using model demonstration	2.41	.99	2.51	.65	1.17	.310
MRF8	Permitting use of native language in answering	2.55	1.07	2.70	.78	.41	.633
MRF9	Permitting use of Braille in answering	2.65	1.14	3.00	.77	1.81	.166
MRF10	Using prompts	2.98	.90	3.01	.91	.38	.687
MRF11	Providing helpful hints	2.95	.93	2.49	.76	1.50	.224
MRF12	Permitting the use of recorder	2.41	1.00	3.00	.87	.45	.063
MRF13	Permitting the use of calculator	2.64	1.03	3.30	.91	3.70	.001*
MOS1	Using individual test	3.02	.89	3.51	.94	.14	.239
MOS2	Using small group tests	2.92	.92	3.20	.83	3.56	.030*
MOS3	Using preferential seating	3.16	.91	3.82	.87	.08	.921
MOS4	Using special lighting	2.45	.76	3.55	.94	4.08	.018*
MOS5	Testing students in a distraction free setting	3.49	.80	2.80	.64	.54	.801
MOS6	Using amplification devices	2.89	.97	3.20	.45	1.01	.365
MOS7	Modify classroom environment	3.03	.96	3.17	.90	3.12	.046*
MOT1	Allowing additional time	3.11	.85	2.40	.93	.04	.958
MOT2	Changing the test date	2.80	.96	3.00	.81	2.06	.129
MOT3	Offering breaks during the test	2.66	1.00	3.64	.78	3.05	.049*
MOT4	Administering the test in multiple sessions	2.72	.96	3.15	.93	4.28	.015*
MOT5	Changing the test schedule	3.01	.95	2.61	.83	2.14	.120
MOT6	Changing the time requirement	2.41	.99	2.66	.88	12.08	.001*

Note. * p-value significant at .05. MPF = Modification of Presentation Format; MRF = Modification of Response Format; MOS = Modification of Setting Format; MOT = Modification of Testing & Scheduling.

Analysis of Variance (ANOVA) was used to explore possible differences between general and special education teachers' awareness of testing modifications. The differences between the general and special education teachers were statistically significant in 10 strategies as shown in Table 1 including using small group tests ($F = 3.56$, $p \leq .05$), using special lighting ($F = 4.08$, $p \leq .05$), using other devices in testing ($F = 3.77$, $p \leq .05$), allowing students to answer orally ($F = 4.01$, $p \leq .05$), permitting the use of a calculator ($F = 3.70$, $p \leq$

.05), providing testing assistant ($F = 6.88$, $p \leq .05$), permitting dictionary use for nonnative speakers ($F = 4.83$, $p \leq .05$), permitting computer use ($F = 4.16$, $p \leq .05$), offering breaks during the test ($F = 3.05$, $p \leq .05$), and administering the test in multiple sessions ($F = 4.28$, $p \leq .05$). Statistically significant differences were found between the mean scores of the general and special education teachers. Special education teachers were found to be more likely to use the following strategies than the general education teachers: using small group tests ($M = 3.20$), using special lighting ($M = 3.55$), using other devices in testing ($M = 3.22$), allowing students to answer orally ($M = 3.24$), permitting the use of a calculator ($M = 3.30$), providing testing assistant ($M = 3.00$), permitting dictionary use for nonnative speakers ($M = 3.07$), permitting computer use ($M = 3.53$), offering breaks during the test ($M = 3.64$), and administering the test in multiple sessions ($M = 3.15$).

Table 2 shows the top 10 and bottom 10 testing modification strategies, considered as being the most helpful and least helpful strategies by UAE general and special education teachers. These strategies are arranged in descending order by their means.

With regard to UAE general and special education teachers' perceptions of testing modifications in terms of their easiness and fairness, 84% reported that testing modifications were easy to make for students with disabilities and 97% considered making testing modifications for students with disabilities to be fair.

Discussion

The objectives of this study were threefold: (a) to determine whether UAE general and special education teachers were making any specific testing modifications for students with disabilities; (b) to survey UAE general and special education teachers' perceptions of testing modifications in terms of their usefulness, easiness, and fairness; and (c) to explore possible differences between general and special education teachers' awareness and perceptions of testing modifications. Two hundred and eleven special and general education teachers participated in this study. The means of individual strategies reported show that the participants have a fairly moderate level of awareness of testing adaptation when assessing students with disabilities. The mean strategy use ranged from a high of 3.49 to a low of 2.41 and from a high of 3.82 to a low of 2.40 for general and special education teachers, respectively. The results of this study corroborate the findings of Gajria et al. (1994) who found that the majority of general education teachers were familiar with modifications in test format and administration. This finding is also consistent with Putnam's (1992) study who found that on average, 52.4% of the high school teachers had modified their tests when testing students with mild disabilities. Additionally, the UAE general and special education teachers reported that they most often use the Modification of Setting, followed by Modification of Presentation Format, Modification of Timing and Scheduling, and Modification of Response Format. In other words, UAE general and special education teachers most often use modifications in test design and setting (e.g., well-spaced items, using special lighting, testing students in a distraction-free setting, including multiple formats, and oral reading test directions), which could be used with all students. Comparatively, teachers less often used modifications specific to the needs of individual students (e.g., offering breaks during testing, using computers for answering test questions). This finding is astonishing. Testing modifications are intended to help students with disabilities to effectively meet the demands of teacher-made classroom tests. Indeed, to have students with disabilities take the same tests as their peers without disabilities can place these students at a great disadvantage. Additionally, the teachers as a group considered 10 testing modifications as the most helpful modifications for students with disabilities, including presenting the test in written and oral formats, using preferential seating, using special lighting, testing students in a distraction-free setting, providing oral test

Table 2
The "Most Helpful" and "Least Helpful" Testing Modification Strategies

Name	Strategy	M
MPF1	**Presenting the test in written and oral format**	**3.69**
MOS3	**Using preferential seating**	**3.53**
MOS4	**Using special lighting**	**3.49**
MOS5	**Testing students in a distraction free setting**	**3.48**
MPF 4	**Oral reading the test directions**	**3.45**
MPF5	**Explaining the test directions**	**3.42**
MPF7	**Increasing spacing between the test items**	**3.40**
MPF8	**Modifying the test questions**	**3.32**
MPF14	**Including multiple formats in the test**	**3.30**
MOT1	**Allowing additional time to complete the test**	**3.28**
MPF12	Offering alternative testing	3.26
MPF15	Including two different formats in the test	3.22
MPF16	Providing questions and answers on the same page	3.00
MRF1	Allowing students to answer orally	2.89
MRF4	Permitting finger pointing to answer	2.86
MRF7	Using model demonstration	2.80
MPF2	Using other devices in testing	2.77
MPF3	Presenting the test in large print	2.74
MRF10	Using prompts	2.68
MRF11	Providing helpful hints	2.65
MRF13	Permitting the use of calculator	2.64
MOS1	Using individual test	2.62
MOS2	Using small group tests	2.62
MPF6	Reducing the number of questions	2.60
MOS6	Using amplifications devices	2.59
MOS7	Modify classroom environment	2.58
MOT2	Changing the test date	2.43
MOT3	Offering breaks during the test	2.42
MOT4	Administering the test in multiple sessions	2.42
MPF9	Test nonnative speakers in their native language	2.41
MPF10	Translating the test directions for nonnative speakers	2.40
MOT5	**Changing the test schedule**	**2.39**
MOT6	**Changing the time requirement to complete the test**	**2.36**
MRF12	**Permitting the use of recorder**	**2.35**
MPF13	**Presenting question's options vertically**	**2.33**
MRF8	**Permitting use of native language in answering**	**2.32**
MRF6	**Permitting computer use**	**2.30**
MRF5	**Providing testing assistant**	**2.30**
MRF3	**Permitting dictionary use for nonnative speakers**	**2.28**
MRF9	**Allowing students to use Braille**	**2.26**
MPF11	**Translating the test in student native language**	**2.23**

directions, explaining the test directions, increasing spacing between test items, modifying the test questions, including multiple formats in the test, and allowing additional time to complete the test.

The 10 strategies used the least for both general and special education teachers were changing the time schedule, changing the time requirement to complete the test, permitting the use of a recorder, presenting a question's options vertically, permitting use of native language in answering, permitting computer use, providing a testing assistant, permitting dictionary use for nonnative speakers, allowing students to use Braille, and translating the test in student's native language (see Table 2). The 10 testing modifications strategies the UAE general and special education teachers considered the most for mainstreamed students are

part of two different categories, including Modification of Presentation Format and Modification of Setting Format. This finding is consistent with Jayanthi et al. (1996) who found that general and special education teachers rated the following testing modifications as most helpful for students with disabilities: providing one-on-one help with directions during test administration, reading test questions to students, and simplifying wording of test questions.

The fact that special and general education teachers rated some effective testing modifications including assistive devices as least helpful for students with disabilities revealed that the majority of the UAE school teachers are unaware of the importance of assistive devices in assessing students with disabilities. Assistive devices can be useful for students who have muscle weakness or limited fine motor coordination. Additionally, the use of assistive technology in testing could be very helpful for all students with disabilities including students with learning disabilities, emotional and behavioural disorders, and expressive language disorders. The fact that UAE general and special education teachers rated some testing modifications as least helpful to students with disabilities confirms the findings of several investigators who indicated that teachers have little knowledge about which modifications are appropriate for students with disabilities (e.g., Gajria et al., 1994; Hollenbeck et al., 1998; Jayanthi et al., 1996).

A noteworthy finding is that 7 out of 10 strategies reported as the least useful by UAE general and special education teachers were measuring Modification of Timing and Scheduling and Modification of Response Format. The fact that UAE general and special education teachers reported Modification of Response Format as least helpful is not surprising because some of these strategies dealt with testing modifications for nonnative speakers and students with visual impairment. Indeed, the majority of the participants in this study are working in the UAE public schools where schools are homogenous in nature because the majority of the students are UAE citizens. Additionally, at the time when this study was carried out students with visual impairment were not included in the UAE public schools. Therefore, it seems logical to rate the strategies that dealt with nonnative speakers and visual impairment as least helpful. However, the fact that UAE general and special education teachers reported Modification of Timing and Scheduling as least helpful is disturbing because the UAE public schools include a significant number of students with mild disabilities who could benefit from modifications of timing and scheduling. Providing effective professional development could help UAE in-service teachers to acquire the necessary skills in testing modifications so they can accurately assess their students with disabilities.

The difference between the general and special education teachers was statistically significant in 10 testing modification strategies. Special education teachers were found to be more informed than the general education teachers about using small group tests, using special lighting, using other devices in testing, allowing students to answer orally, permitting the use of a calculator, providing a testing assistant, permitting dictionary use for nonnative speakers, permitting computer use, offering breaks during the test, and administering the test in multiple sessions (see Table 1).

With regard to UAE general and special education teachers' perceptions of testing modifications in terms of their easiness and fairness, 84% reported that testing modifications were easy to make for students with disabilities in the general education classrooms and 97% considered making testing modifications for students with disabilities to be fair. Overall, the results of this study revealed that the UAE in-service teachers perceived testing modifications as easy to do and fair. This finding corroborates the findings of Lang et al. (2005) who found that the majority of parents and teachers, within their study, perceived testing modification to be fair and valid for students with disabilities. Additionally, the UAE general and special educators were found to use more of the modifications that they considered as more useful. This result is consistent with previous researchers (e.g., Gajria et al., 1994; Gilbertson-

Schulte et al., 2000) who found that teachers were more likely to use modifications in test design which they considered effective to use with students with disabilities.

There are a few limitations in this study that should be considered when interpreting the data. The first relates to the nature of the survey instrument used which did not cover all possible modifications. Second, all information was based on teacher self-report. The study would be more reliable if there was a combination of interviews and observations to understand UAE teacher assessment practices and to understand why modifications are made or not made for students with disabilities. Overall, the UAE general and special educators tend to use testing modifications that are easy to implement and could be used uniformly with all students in class. Comparatively, teachers do not tend to use modifications specific to the needs of individual students. Teachers should receive frequent in-service training to help them in accurately assessing their students with disabilities and may need more time if they are to adapt their test.

If students with disabilities are to succeed within general education classrooms, testing modifications are essential for many students with disabilities. In a very important sense, several investigators indicated that testing modifications have a positive effect on students' academic achievement (e.g., Goh, 2004; Jayanthi et al., 1996; Lang et al., 2005). Therefore, the Ministry of Education in the UAE may need a clear written policy on testing modification use to assure mainstreamed students have equal opportunities to participate in testing situations. Indeed, assessment is the cornerstone of effective teaching and learning environments. It plays a central role in determining the quality of education. Effective assessment for students with disabilities requires adequate resources and teachers well-grounded in assessment modifications technique. Using the results of this study as a starting point to understand UAE teachers' awareness and perceptions of testing modifications, future research will need to investigate the validity of assessment practices for UAE students with disabilities.

References

Adamowycz, R. (2008). Reforming education: Is inclusion in standardization possible? *Canadian Journal of Educational Administration and Policy, 68*, 1–15.

Ainscow, M. (2007). Toward a more inclusive education system: Where next for special schools? In R. Cigman (Ed.), *Included or excluded*? (pp. 128–140). London: Routledge.

Ajuwon, P. M. (2008). *Inclusive education for students with disabilities in Nigeria: Benefits, challenges and policy implication.* Retrieved June 4, 2010, from http://www.internationalsped.com

Avramidis, E., Bayliss, P., & Burden, R. (2000). Student teachers' attitudes towards the inclusion of children with special educational needs in the ordinary school. *Teaching and Teacher Education, 16*(3), 277–293.

Brackenreed, D. (2004). Teachers' perceptions of the effects of testing adaptations. *Exceptionality Education Canada, 14*(1), 5–22.

Brackenreed, D. (2008). Assistive technology as an accommodation for a student with mild disabilities: The case of Alex. *Exceptionality Education International, 18*(2), 69–81.

Cawthon, S. W. (2006). National survey of accommodations and alternate assessments for students who are deaf or hard of hearing in the United States. *Journal of Deaf Studies and Deaf Education, 11*(3), 337–359.

Centra, J. A. (1986). Handicapped student performance on the Scholastic Aptitude Test. *Journal of Learning Disabilities, 19*, 324–327.

Clapper, A. T., Morse, A. B., Lazarus, S. S., Thompson, S. J., & Thurlow, M. L. (2005). *2003 State policies on assessment participation and accommodations for students with disabilities (synthesis report 56).* Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved June 9, 2010, from http://education.umn.edu/NCEO/OnlinePubs/Synthesis56.html.

Culbertson, L. D., & Jalongo, M. R. (1999). "But what's wrong with letter grades?" Responding to parents' questions about alternative assessment. *Childhood Education, 75*, 130–135.

Deng, M., & Harris, K. (2008). Meeting the needs of students with disabilities in general education classrooms in China. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children, 31*(3), 195–207.

Elliott, S. N., Braden, T. R., & White, A. G. (2003). Testing adaptations. *Intervention in School and Clinic, 45*(4) 18–27.

Elliott, S. N., Kratochwill, T. R., & Schulte, A. G. (1999). *Assessment adaptations checklist.* Monterey, CA: CTB/McGraw Hill.

Fuchs, L. S., Fuchs, D., Eaton, S. B., Hamlett, C., & Karns, K. (2000). Supplementing teacher judgments of test adaptations with objective data sources. *School Psychology Review, 29*, 65–85.

Gajria, M., Salend, S. J., & Hemrick, M. A. (1994). Teacher acceptability of testing modifications for mainstreamed students. *Learning Disabilities Research and Practice, 9*, 236–243.

Gilbertson-Schulte, A. A., Elliott, S. N., & Kratochwill, T. R. (2000). Educators' perceptions and documentation of testing adaptations for students with disabilities. *Special Services in the Schools, 16*, 35–56.

Goh, D. S. (2004). *Assessment adaptations for diverse learners*. Boston: Pearson.

Grise, P., Beattie, S., & Algozzine, B. (1982). Assessment of minimum competency in fifth grade learning disabled students: Test modifications make a difference. *Journal of Educational Research, 76*, 35–40.

Hollenbeck, K., Tindal, G., & Almond, P. (1998). Teachers' knowledge of adaptations as a validity issue in high-stakes testing. *The Journal of Special Education, 32*, 175–183.

Individuals with Disabilities Education Act of 1997. 20 U.S.C. 1400 *et seg.*

Jayanthi, M., Epstein, M. H., Polloway, E. A., & Bursuck, W. D. (1996). A national survey of general education teachers' perceptions of testing adaptations. *The Journal of Special Education, 30*, 99–115.

Ketterlin-Geller, L. R., Alonzo, J., Braun-Monegan, J., & Tindal, G. (2007). Recommendations for adaptations. *Remedial and Special Education, 28*(4), 194–206.

Kettler, R. J., Niebling, B. C., Mroch, A. A., Feldman, E. S., Newell, M. L., Elliott, S. N., et al. (2005). Effects of testing accommodations on math and reading scores: An experimental analysis of the performance of students with and without disabilities. *Assessment for Effective Intervention, 31*(1), 37–48.

Kohler, F., Henning, J. E., & Usma-Wilches, J. (2008). Preparing preservice teachers to make instructional decisions: An examination of data from the teacher work sample. *Teaching and Teacher Education, 24*, 2108–2117.

Lang, S. C., Elliott, S. N., Bolt, D. M., & Kratochwill, T. R. (2008). The effect of testing adaptations on students' performances and reactions to testing. *School Psychology Quarterly, 23*(1), 107–124.

Lang, S. C., Kumke, P. J., Ray, C. E., Cowell, E. L., Elliott, S. N., Kratochwill, T. R., et al. (2005). Consequences of using testing adaptations: Student, teacher, and parent perceptions of and reactions to testing adaptations. *Assessment for Effective Intervention, 31*(1), 49–62.

Lesaux, N. K., Pearson, M. R., & Siegel, L. S. (2006). The effects of timed and untimed testing conditions on the reading comprehension performance of adults with reading disabilities. *Reading and Writing, 19*(1), 21–48.

Lieber, J., Capell, K., Sandall, S. R., Wolfberg, P., Horn, E., & Beckman, P. (1998). Inclusive preschool programs: Teachers' beliefs and practices. *Early Childhood Research Quarterly, 13*, 87–105.

Miner, W. S., & Finn, A. (2003). Middle school teachers' preassessment practices and curricular/instructional modifications. *Research in Middle Level Education Online, 26*(2), 28–44.

Molto, M. C. C. (2003). Mainstream teachers' acceptance of instructional adaptations in Spain. *European Journal of Special Needs Education, 18*(3), 311–332.

Munger, G. F., & Loyd, B. H. (1991). Effect of speededness on test performance of handicapped and nonhandicapped examinees. *Journal of Educational Research, 85*, 53–57.

National Policy on Education (2008). *Section 7: Special needs education.* Abuja, Nigeria. Retrieved June 3, 2010, from http://www.internationalsped.com/documents/ Ajuwon%20Incl%20Ed%20in%20Nigeria.doc.

Nenty, H. J., Adedoyin, O. O., Odili, J. N., & Major, T. E. (2007). Primary teacher's perceptions of classroom assessment practices as means of providing quality primary/basic education by Botswana and Nigeria. *Educational Research and Review, 2*(4), 074–081.

Overton, T. (2009). *Assessing learners with disabilities: An applied approach* (6th ed.). Upper Saddle River, NJ: Pearson Education.

Perlman, C., Borger, J., Collins, C., Elenbogen, J., & Wood, J. (1996). *The effect of extended time limits on learning disabled students' scores on standardized reading tests.* Paper presented at the annual meeting of the National Council on Measurement in Education, New York.

Putnam, M. L. (1992). The testing practices of mainstream secondary classroom teachers. *Remedial and Special Education, 13*(5), 11–21.

Rieck, W. A., & Wadsworth, D. E. D. (2005). Assessment adaptations: Helping students with exceptional learning needs. *Intervention in School and Clinic, 41*(2), 105–109.

Salend, S. J. (1995). Modifying tests for diverse learners. *Intervention in School & Clinic, 31*, 1–14.

Salend, S. J. (2005). *Creating inclusive classrooms: Effective and reflective practices for all students* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Salvia, J., & Ysseldyke, S. (2004). *Assessment in special and inclusive education* (9th ed.). Boston: Houghton Mifflin Company.

Schulte, A. G., Elliott, S. N., & Kratochwill, T. R. (2001). Effects of testing adaptations on standardized mathematics test scores: An experimental analysis of the performances of students with and without disabilities. *School Psychology Review, 30*, 527–547.

Siskind, T. G. (1993). Teachers' knowledge about test modification for students with disabilities. *Assessment for Effective Education, 18*(2), 145–157.

Subban, P. (2006). Differentiated instruction: A research basis. *International Education Journal, 7*(7), 935–947.

Thurlow, M. L., Liu, K., Erickson, R., Spicuzza, R., & El Sawaf, H. (1996). *Adaptations for students with limited English proficiency: Analysis of guidelines from states with graduation exams* (*synthesis report No. 6*). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Thurlow, M. L., Ysseldyke, J. E., & Silverstein, B. (1995). *Testing adaptations for students with disabilities: A review of the literature (synthesis report No. 4)*. Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

UNESCO. (2008). *Inclusive education.* Retrieved June 2, 2010, from http://www.portal.unesco.org

Vlachou, A., Didaskalou, E., & Voudouri, E. (2009). *Mainstream teachers' instructional adaptations: Implication for inclusive responses.* Retrieved June 6, 2010, from http://www.revistaeducation.mec.es/re349/re349_09ing.pdf

Authors' Notes