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Inclusive attitudes: typically developing students and students with disabilities in UAE classrooms

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Introduction: Research on students' attitudes toward inclusive education in the UAE is limited, with a focus on qualitative investigations of parents and teachers.

Methods: This study addresses this gap by developing the Students' Attitude Scale to measure attitudes toward inclusive education. We examined the impact of age, grade level, nationality, educational placement, and gender on inclusive education using a sample of 355 students from diverse UAE districts.

Results: Findings reveal that female students scored significantly higher than males on the scale. While Emirati nationals showed higher scores, the difference was not statistically significant. Notably, students in the "All Day in Regular Classroom with the Necessary Support" placement had higher scores. Grade level and UAE district did not significantly influence attitudes.

Discussion: Our study emphasizes the positive influence of gender and increased interaction with students with disabilities on fostering favorable attitudes toward inclusive education. These insights can inform efforts to enhance inclusive practices in the UAE.

KEYWORDS

inclusive education, educational placement, age, grade, UAE

Introduction

Several studies have investigated the various strategies employed by both general and special education teachers to implement inclusive education, such as differentiated instruction, co-teaching models, and individualized support plans (Hernandez et al., 2016; Ozokcu, 2018; Tan et al., 2021). These approaches have been shown to contribute significantly to the successful inclusion of students with disabilities in mainstream classrooms, albeit with certain challenges (Frederickson et al., 2007; Hodkinson, 2007; Lindsay, 2007). However, the majority of studies agree that inclusive education is an approach to education that aims to provide equal access and opportunities for all students, regardless of their cultural backgrounds, country of origin, race or abilities. This includes students of all ages, from early childhood through to tertiary education.

Educational placement for students with disabilities refers to the process of determining the appropriate educational setting for students who require additional support to meet their

academic, social, or emotional needs (Kauffman and Badar, 2014). This process considers factors such as the student's abilities, strengths, and challenges, as well as the resources and support services available at different types of educational settings (Morningstar et al., 2015).

Students with disabilities may have a range of conditions that impact their learning, including physical disabilities, cognitive or developmental delays, learning disabilities, and emotional or behavioral disorders (Cole et al., 2021; De Bruin, 2019; Parekh and Brown, 2019). Depending on the severity and nature of their needs, students with disabilities may require additional support services to ensure they can fully participate in the educational environment and make progress toward their academic goals. The goal of educational placement for students with disabilities is to find the setting that will best meet their unique needs and enable them to succeed academically and socially. Overall, educational placement for students with disabilities is a critical process that aims to ensure that every student has access to the resources and support they need to succeed in their education and beyond.

Inclusive education

Inclusive education has been a debatable topic, as some policy makers, teachers, parents, among others are concerned that students with disability may face discrimination and bullying (Al Attiyah and Lazarus, 2007; Bunch and Valeo, 2004; Didaskalou et al., 2009; Fisher, 1999). However, others argue that inclusive education will increase awareness of disabilities as well as social cohesion between students with and without disabilities (Ghosh, 2021; Meijer, 2010). Importantly, it has been reported that despite efforts to increase educational integration, many schools still treat students with disabilities differently, thus hindering the integration of students with and without disabilities (York and Tundidor, 1995).

Inclusive education is quite important for both typically developing students as well as students with disabilities. However, it is important to note that the success of inclusive education does not only depend on top-down policies. Rather, the success of inclusive education relies on all stakeholders' (including typically developing students as well as students with disabilities) acceptance of inclusive education (Hodkinson, 2007; Warnock, 2005). Ironically, some studies (De Boer et al., 2012; Nowicki and Sandieson, 2002). Argue against the importance of students' view on inclusive education, as they could be different from adults' view on the matter (Greig et al., 2012). Accordingly, in this article, we investigate the attitude of typically developing students to inclusive education.

Most of the existing research on inclusive education primarily focuses on the attitudes of teachers and parents toward inclusive practices (Alkahtani, 2022). One study revealed that teachers' attitudes toward inclusive education vary depending on the type of student disability (Jury et al., 2021). Another study found that previous interactions with individuals with disabilities increased the likelihood of teachers accepting a class that includes students with disabilities (Kunz et al., 2021); however, as we will explore further, some studies present conflicting evidence on this matter (Alkahtani, 2022). One study teachers' attitudes toward inclusive education depends on the type of student disability (Jury et al., 2021). Another study found that prior contact with people with disabilities was related to teachers'

likelihood to take on a class with students with disabilities (Kunz et al., 2021); however, as we discuss below, there are some conflicting results regarding this finding. While the current study investigates students' attitudes toward inclusive education, parents' and teachers' views on inclusive education is important as they may influence their children/students (De Boer et al., 2012).

Typically developing students' attitudes to inclusive education

The attitudes of typically developing students toward including students with disabilities in the regular classroom have been studied in the past (Bowers, 1997; Hall and McGregor, 2000; Lewis and Lewis, 1988; Naraian, 2010; Peck et al., 1990; Spörer et al., 2020; Staub et al., 1994). Research suggests that while some students are accepting and inclusive of their peers with disabilities, others hold negative attitudes and may engage in exclusionary behaviors. A recent review has shown that among 14 studies, most typically developing students have held negative view of students with disabilities and special educational needs (Bates et al., 2015). Along these lines, one study found that negative attitudes toward students with disability start as early as in 4-year-old typically developing students (Diamond et al., 1993). Another recent review found that attitudes toward inclusive education vary depending on several factors, such as age and gender (Freer, 2021).

In another qualitative study, Bunch and Valeo (2004) found students in inclusive schools are more supportive to students with disability than in students in special education schools. However, other studies reported different and opposing results (Young, 1997). Fisher (1999) found that high school students were accepting of inclusive education and that the inclusion of students with disabilities increase diversity in the classroom. However, in another study, it was found that students expressed lack of knowledge and anxiety regarding interactions with students with disabilities (Whitehurst and Howells, 2006). Based on the above-mentioned studies, there are conflicting findings regarding students' attitudes toward inclusive education of students with disabilities.

Factors underlying students' attitudes to inclusive education

We here argue that it is possible that different factors (e.g., age, gender, among others) may impact students' attitudes, which we discuss in this section.

To the best of our knowledge, there are few studies investigating the impact of age on attitude toward inclusive education. For example, Brook and Galili (2000) found that as students get older, their acceptance of inclusive education increases. Similar findings were reported by Al-Kandari (2015) that older age students are more accepting of students with disabilities than younger age students. However, some studies have reported the opposite results that younger students are more accepting of inclusive education and disabilities than older students (Armstrong et al., 2016; Blackman, 2016).

As for gender, most studies found that girls are more accepting toward students with disability than boys (Olaleye et al., 2012; Schwab, 2017). However, for conflicting findings see Magnusson et al. (2017) and

McKay et al. (2021); these studies did not find gender differences in attitudes toward accepting students with disabilities. As for socio-economic status, there have been conflicting results. One study did not find any relationship between socio-economic status and attitudes toward inclusive education (Armstrong et al., 2016). However, one study found that a lower socio-economic status is associated with positive attitudes toward people with disabilities (Hurst et al., 2012). The exact explanation of these results are not clear. However, it is possible that individuals with low socioeconomic status suffer from discrimination and may thus feel the problems individuals with disabilities face. In terms of cultural factors, one study conducted in the UK found that British South Asians students were less accepting of inclusive education than British White students (Sheridan and Scior, 2013).

It is not clear why there are conflicting findings regarding impact of age, gender, socio-economic status on attitudes toward inclusive education. It is possible that these factors interact with type of disability. For example, Kofidou and Mantzikos (2017) reported that students have more positive attitudes toward students with physical disabilities than learning or intellectual disabilities, but for different results see Adibsereshki and Salehpour (2014), Bellanca and Pote (2013), and Hellmich and Löper (2018). It is possible that as students get older, they may understand intellectual disabilities more and then show positive attitudes toward students with these disabilities.

Inclusive education in the Arab world and in the United Arab Emirates

To the best of our knowledge, there are very few studies in the Arab Gulf that have investigated students' attitude toward the inclusion of students with disabilities (Al-Kandari, 2015; Al Attiyah and Lazarus, 2007). In Al Attiyah and Lazarus (2007) study, 8–10 year old students were found to be very accepting of students with disability and they see them as just normal children like themselves. One study was conducted in Kuwait and found that contact between students with and without disabilities increased cohesion and inclusion (Al-Kandari, 2015). There is also another study on inclusive education conducted in Saudi Arabia; however, the participants in this study

were teachers (Alkahtani, 2022). There is, thus, a dearth of studies on inclusive education in the Arab Gulf.

Theoretical framework

Our theoretical framework is shown in Figure 1. Here, we argue that demographic factors (e.g., age, gender, grade, and nationality) may impact attitudes toward inclusive education of students with disabilities.

Inclusive education in the Arab world

Inclusive education recognizes that students of different ages may have different learning needs and styles and aims to provide a flexible and responsive learning environment that accommodates these differences. For example, in an inclusive classroom, teachers may use a variety of teaching strategies to cater to the different learning needs of students of different ages. They may also use technology and other resources to help students access learning materials and participate in class activities. All of these depend on students' abilities (i.e., with and without disability) and typically developing students' acceptance of inclusive education.

One of the challenges to implementing inclusive education in the Arab world is the lack of awareness and understanding of the concept among policymakers. However, there have been some efforts to promote inclusive education through training programs, workshops, and conferences. For example, in Egypt, the Ministry of Education has launched a program to train teachers in inclusive education (Ghoneim, 2014). In Saudi Arabia, the government has launched an initiative to promote inclusive education in public schools, and there have been efforts to increase the participation of students with disabilities in higher education (Allothman, 2014). In addition to these efforts, there are several organizations and NGOs in the Arab world that are working to promote inclusive education. These organizations provide support and resources to educators and families, and advocate for policies and practices that promote inclusion and equity in education.

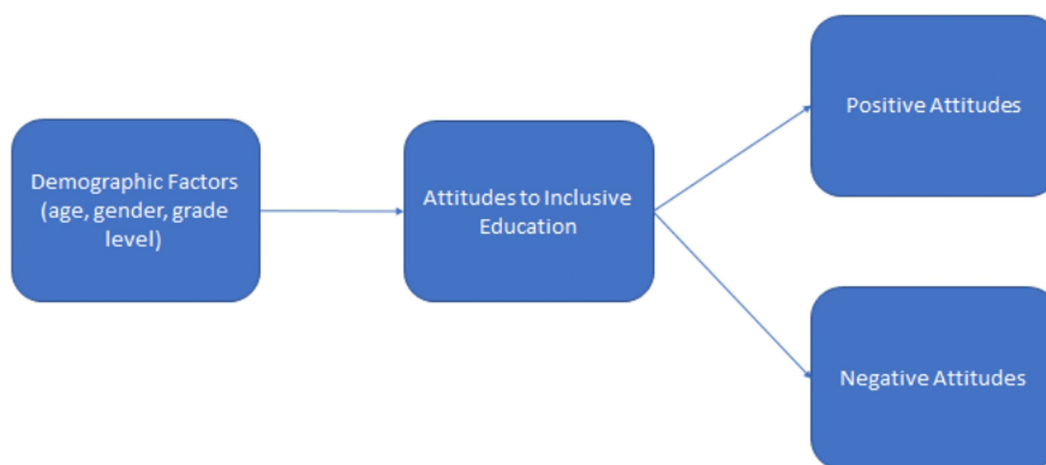


FIGURE 1

A theoretical models of potential factors impacting attitudes toward inclusive education of students with disabilities.

Despite these efforts, there are still many challenges to implementing inclusive education in the Arab world, including the empowerment of people with disabilities. These challenges include the lack of resources and infrastructure to support inclusive practices, as well as cultural attitudes and beliefs that may be resistant to change.

The United Arab Emirates (UAE) has made significant progress in promoting inclusive education in recent years. The government has developed policies and initiatives to support the inclusion of students with disabilities and other diverse needs in the education system. In 2017, the UAE government approved a policy on inclusive education, which aims to promote inclusive practices in all public and private schools. The policy outlines a range of measures to support inclusive education, including training for teachers and school leaders, accessible learning materials and facilities, and partnerships with parents and community organizations. In addition to the national policy, the UAE has established several centers and programs to support inclusive education. The Zayed Higher Organization for Humanitarian Care and Special Needs is a government agency that provides support and services for students with disabilities, including education and vocational training (Gaad, 2013). The Dubai Inclusive Education Development Centre is another initiative that provides training and resources for educators to promote inclusive practices in the classroom (Calderon, 2013). The UAE has also made efforts to increase the participation of students with disabilities in higher education. Several universities have implemented policies and practices to support the inclusion of students with disabilities, including accessible facilities and academic accommodations.

Despite these efforts, there are still challenges to promoting inclusive education in the UAE, including the need for further training and resources for educators and school leaders, and the need to address students' attitudes and beliefs that may be resistant to inclusion. In other words, UAE's directions toward increasing inclusive education did not so far take into account psychological findings regarding the acceptance of students with disabilities.

Current study

The current study attempts to answer the following questions: (a) What are the attitudes of typically developing students toward including students with disabilities in the regular classroom?; (b) Does the students' demographic information such as age, gender, nationality (Emirati vs. Expatriate), grade level (elementary, middle, high school), and area of living affect their attitudes toward educational inclusion?; (c) Is there any relationship between the type of disability and its educational placements?; (d) Is there any relationship between students' attitudes toward disabilities and their responses to the educational placement in general (students' total attitudes & item 10 in the second scale)?

Methods

The methodology of the current study employed a quantitative approach to examine students' attitudes toward inclusive education in UAE classrooms. A structured survey, the Students' Attitude Scale (SAS), was developed specifically, for this study to assess the behavioral, emotional, and cognitive components of students'

attitudes. The survey was administered to a sample of 355 typically developing students from nine education zones across the UAE. The research team coordinated with the Ministry of Education for school access, and trained data collectors were assigned to distribute the questionnaires in selected mainstream schools. Descriptive statistics were used to analyze the demographic data, including age, gender, nationality, and grade level. Further analyses, such as independent *t*-tests and ANOVAs, were conducted to assess the influence of these demographic variables on students' attitudes toward inclusive education. Post-hoc tests were performed where necessary to explore significant differences between groups. The quantitative approach provided a comprehensive understanding of how demographic factors impacted students' perspectives on inclusive education.

Procedure

The following steps were taken prior to data collection: (a) Communicating with the Ministry of Education offices in all areas of the UAE to inform them about the project and ask them to facilitate access to schools for data collection, meeting with school principals and teachers, and asking them to provide data collectors with the necessary statistics, including the number of typically developing school students (male and female) and the number of primary schools in the country; (b) Selecting assistants to visit the selected schools and gather data from the target groups; (c) Selecting the mainstream school sample in each emirate to be visited by the data collectors for the purpose of gathering data from the target group; and (d) Selecting the target group sample (typically developing students). Following these preparations, we assigned special education supervisors working in each education zone of the UAE to collect data from the target group of students. There are nine education zones in the UAE: Abu Dhabi, Dubai, Sharjah, Um Al Quwain, Ajman, Ras Al Khaima, Fujairah, the Western and Eastern Education Zones. Each zone has three or four special education supervisors, each of which is responsible for supervising the special education teachers in five public schools in the region. Their main task was to visit the schools in their respective zones and distribute the study questionnaires to typically developed school students, asking them to complete the questionnaires and then to return them to school. The study's principal investigator met with 10 of these supervisors (representing their colleagues in their education zones) to introduce them to the research project and to train them in data collection. The principal investigator received written authorization from the Ministry of Education to meet with the supervisors and to collect data from the school sample. The principal investigator obtained the sample students' consent to participate in the research after they had been informed about the project by the school principal and before sending them the questionnaires. The special education teachers in the selected mainstream schools helped and supported the supervisors in collecting the data.

Participants

Table 1 presents the sample's demographic characteristics, including mean and standard deviation for the Students' Attitude Scale total score.

TABLE 1 Demographic characteristics of the sample (N = 355).

| Characteristic | Full sample |
|--------------------------------------------------------------|-----------------|
| Age (in years) ^{a,c} | 13.50 (2.84) |
| GPA ^{a,c} | 262.44 (320.45) |
| Students Attitude Scale (SAS) total Score ^{a,c} | 75.42 (14.20) |
| Gender^{b,c} | |
| Male | 231 (65.1%) |
| Female | 122 (34.4%) |
| Grade level^{b,c} | |
| Elementary school (1–5 grades) | 91 (25.6%) |
| Intermediate school (6–8 grades) | 78 (22%) |
| High school (9–12 grades) | 177 (49.9%) |
| District^{b,c} | |
| Dubai | 46 (13%) |
| Abu Dhabi | 57 (16.1%) |
| Sharjah | 33 (9.3%) |
| Fujairah | 27 (7.6%) |
| Ras Al-Khaimah | 36 (10.1%) |
| Ajman | 23 (6.5%) |
| Umm Al Quwain | 31 (8.7%) |
| Eastern area | 39 (11%) |
| Western area | 60 (16.9%) |
| Nationality^{b,c} | |
| Emirati | 250 (70.4%) |
| Expatriate | 101 (28.5%) |
| Educational placement^{b,c} | |
| Special Education Services Outside the Mainstream School | 92 (25.9%) |
| Most Day in Special Education Classroom in Mainstream School | 79 (22.3%) |
| Regular Classroom with Resource Room Services | 99 (27.9%) |

SAS, Students' Attitude Scale.

^aMean value along with standard deviations are reported in parenthesis.

^bDemographic data are reported as the number of participants along with percentages in parentheses.

^cAge data of 14 participants was missing. GPA data was missing for 88 participants. Gender and Educational Placement data were missing for 1 participant, respectively. Grade data was missing for 9 participants. Nationality and District data were missing for 3 participants, respectively.

Measures

Students' attitude scale

We have developed the students' attitude scale to gather information from school's students on their attitudes toward including students with disabilities in the regular school system in the United Arab Emirates. The scale was developed to measure three components: behavioral, emotional and cognitive attitudes. Initially 39 items were developed by the authors of the current study but after their review, the number of the items was reduced to 36 items after the experts' review. Following factor analysis, the research teams reduced

TABLE 2 The research scale and its internal consistency and test–retest reliability.

| Scales | No. of items | Internal consistency | | Test–retest reliability | |
|----------------------------------|--------------|-----------------------|-----|-------------------------|----|
| | | α -coefficient | N | r | N |
| Students' attitudes to inclusion | 32 | 0.96 | 171 | 0.82 | 61 |

the number of items to 32. Test–retest reliability for the scale was examined on a sample of 61 school students and the reliability coefficient was 0.82. The internal consistency of the scale was also studied on a sample of 171 school students and Cronbach's Alpha was 0.96 (Table 2). Some of the items in this scale include the following (in which participants choose between Strongly Agree, Agree, Strongly Disagree): Students with disabilities have the right to study with me in the same class; Teaching students with disabilities in the same class as me does not cause me any concern, I will participate with my peers with disabilities in class and group activities if they are taught in the same class as me, and The inclusion of pupils with disabilities in my class does not reduce the quantity or quality of the information I am expected to acquire.

Best placement for students with disabilities checklist

This checklist has been developed to study the opinion of the research target groups about the best placement for students with various types of disabilities. Initially 10 items were developed by the researchers. After their review and the experts' review, the number of the items remained the same (10 items). The first 9 items include checklist for the type of disability and its educational placements, as follows: (a) Intellectual disability = ID; (b) Emotional and behavioral disability = EBD; (c) Autism Spectrum Disorder = ASD; (d) Hearing impairment = HI; (e) Other Health Impairment = OHI; (f) Specific Learning Disability = SLD; (g) Visual Impairment = VI; (h) Language and Speech Disorder = LSD; and (i) Physical Disability = PD. Item number 10 in the second scale is a general question. It is worded as follows: "In general, what is the educational placement for students with disabilities?"

Research design and data analysis

The following statistical procedures were employed to analyze the data: (a) Descriptive statistics, which involved calculating the means and standard deviations of participants' scores on scale; (b) An analysis of variance as well as independent sample *t*-test were performed to examine the main effects of the demographic data for the typically developing students on their attitudes toward teaching students with disabilities with their peers in an inclusive classroom; (c) A *post hoc* test was used to examine the significance of the differences between pairwise means for any analysis of variance results which showed significant effects.

For this study, data were analyzed using IBM SPSS Statistics (Version 28), and bar graphs were designed using GraphPad Prism (Version 9.5.1). In the final analyses, data from 355 participants were included. The information about the missing data is presented

in the results section. Before carrying out primary analyses, the data were comprehensively screened for outliers and normality. The assumption of normality was examined for all the variables using Shapiro–Wilk’s test of normality. This normality test was significant for all the variables ($p < 0.001$), including age, GPA, and the Students’ Attitude Scale (SAS) score. In practice, this assumption is rarely met using formal inference tests, and it is usually recommended to assess normality using skewness and kurtosis values for medium-sized samples ($50 \leq N \leq 300$) (Kim, 2013; Tabachnick and Fidell, 2013). Therefore, z -scores ($z_{skewness}$ and $z_{kurtosis}$) were calculated by dividing the skewness or excess kurtosis values by their standard errors, respectively. Here, *excess kurtosis* refers to the value provided by subtracting 3 from the original kurtosis value, which is directly provided by SPSS (Kim, 2013; Tabachnick and Fidell, 2013). Further, data is considered non-normally distributed when the skewness and/or kurtosis z -scores are greater than 3.29 (Kim, 2013). Thus, using this criterion, the normality assumption was met for age, but not for GPA and the Students’ Attitude Scale score. However, the robust sample size reduced the likelihood that this violation would impact the accuracy of the results (Hills, 2011; Tabachnick and Fidell, 2013), and therefore, parametric tests were used for the comparisons.

For descriptive purposes, the mean estimates and standard deviations were calculated age, GPA, and Students’ Attitude Scale total score along with frequency data for categorical variables (e.g., nationality, district, and grades). Two independent t -tests were conducted separately to compare the gender and nationality differences in the Students’ Attitude Scale scores. Two one-way ANOVAs were run separately to compare attitude scores between grade levels and areas of living (district) separately. Finally, Spearman’s rank correlation was conducted to assess the relationships between age and Students’ Attitude Scale scores. Spearman rank-order correlation technique was used because it maintains the Type I error rate and high power compared to Pearson’s correlation technique for non-normally distributed data (Bishara and Hittner, 2012).

Results

First, we show attitudes’ scores separated by demographic data (Table 3).

Attitudes toward disability

Gender differences

The Students’ Attitude Scale scores were not normally distributed for male and female students (based on the absolute z -values for kurtosis and skewness values). However, the robust sample size reduced the likelihood that this violation would impact the accuracy of the results (Hills, 2011; Tabachnick and Fidell, 2013). Gender differences in the attitude scores were compared using an independent t -test for unequal variances because of a violation of the homogeneity of variance assumption. Results revealed that, on average, female students scored higher on the Students’ Attitude Scale ($M = 78.53$, $SE = 1.4$) as compared to male students ($M = 73.84$, $SE = 0.87$) (Figure 2). This difference was indeed significant, $t(215.19) = -2.84$, $p = 0.005$, $d = 0.04$.

TABLE 3 Attitude scores based on the demographic data.

| Characteristic | M(SEM) |
|--------------------------------------------------------------|--------------|
| Gender | |
| Male | 73.84 (0.87) |
| Female | 78.53 (1.40) |
| Grade level | |
| Elementary school (1–5 grades) | 76.74 (1.62) |
| Intermediate school (6–8 grades) | 74.75 (1.71) |
| High school (9–12 grades) | 75.11 (1.01) |
| District | |
| Dubai | 76.63 (2.34) |
| Abu Dhabi | 75.21 (1.83) |
| Sharjah | 76.36 (2.58) |
| Fujairah | 81.63 (1.82) |
| Ras Al-Khaimah | 70.94 (2.77) |
| Ajman | 74.39 (2.60) |
| Umm Al Quwain | 75.71 (2.32) |
| Eastern area | 77.87 (2.15) |
| Western area | 72.22 (1.83) |
| Nationality | |
| Emirati | 76.26 (0.90) |
| Expatriate | 73.14 (1.39) |
| Educational placement | |
| Special Education Services Outside the Mainstream School | 71.34 (1.74) |
| Most Day in Special Education Classroom in Mainstream School | 73.66 (1.39) |
| Regular Classroom with Resource Room Services | 75.73 (1.46) |
| All Day in Regular Classroom with the Necessary Support | 81.29 (1.11) |

Emirati versus Expatriate

The Students’ Attitude Scale scores were normally distributed for Expatriate, but not for Emiratis (based on the absolute z -values for kurtosis and skewness values). However, the robust sample size reduced the likelihood that this violation would impact the accuracy of the results (Hills, 2011; Tabachnick and Fidell, 2013). Differences in attitude scores based on nationality status were compared using an independent t -test. The homogeneity of variance assumption was met for the data. Results revealed that, on average, Emirati nationals scored higher on the Students’ Attitude Scale ($M = 76.26$, $SE = 0.90$) than Expatriates ($M = 73.14$, $SE = 1.39$) (Figure 3). However, this difference was not significant, $t(349) = 1.88$, $p = 0.061$, $d = 0.01$.

Grade level differences

Attitude scores between students of different grade levels were compared using a one-way ANOVA. The Students’ Attitude Scale scores were normally distributed for each grade level (absolute z -values for kurtosis and skewness were less than ± 3.29) (Kim, 2013).

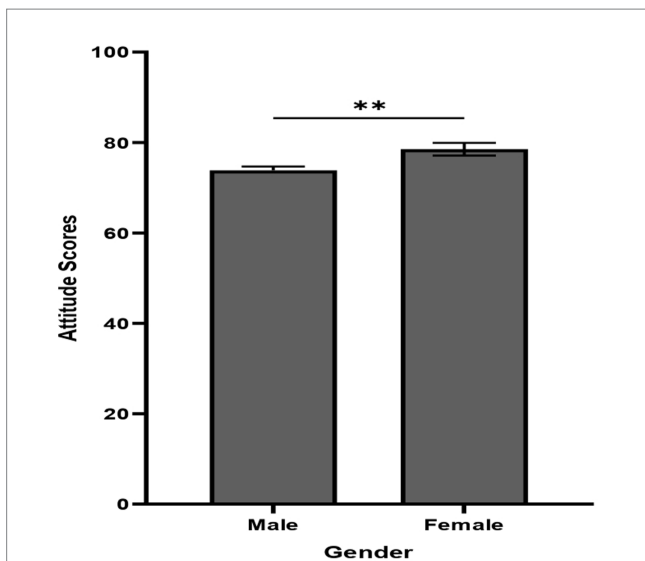


FIGURE 2
Gender differences in the attitude scores. The gray bars indicate the mean attitude scores and the error bars indicate the standard error of the mean of male and female students. The significant difference between the scores is denoted by asterisks (** $p = 0.005$).

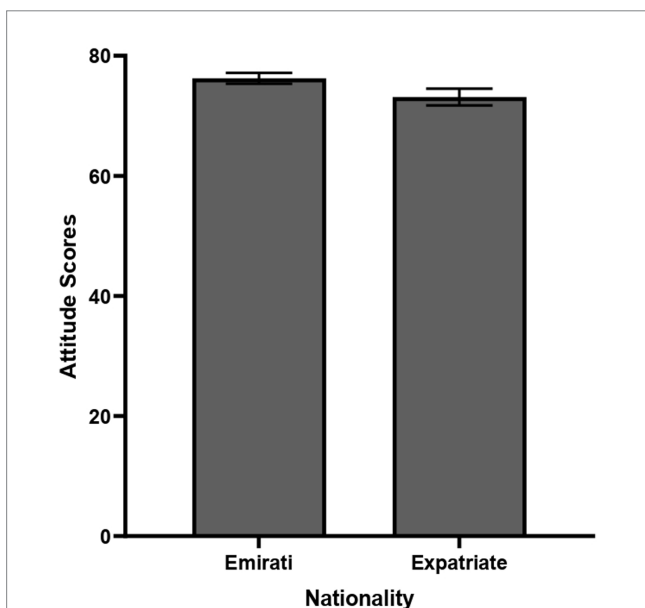


FIGURE 3
Attitude scores of Emirati and Expatriate. The gray bars indicate the mean attitude scores, and the error bars indicate the standard error of the mean of Emiratis and Expatriates.

Levene’s test of Homogeneity of Variance indicated an unequal variance among the groups, $F(2, 343) = 3.21, p = 0.041$. Therefore, a Brown and Forsythe-variance weighted ANOVA was used. We observed that there were no significant differences in attitude scores of students with different grade levels, $F(2, 244.97) = 0.56, p = 0.571$ (Figure 4).

District differences

Attitude scores of students residing in different districts were compared using a one-way ANOVA. The Students’ Attitude Scale

scores were normally distributed for every district, except for Dubai and Umm Al Quwain. However, the robust sample size reduced the likelihood that this violation would impact the accuracy of the results (Hills, 2011; Tabachnick and Fidell, 2013). Levene’s test indicated that the homogeneity of variance assumption was met $F(8, 343) = 1.56, p = 0.135$. ANOVA results revealed no significant attitude differences regarding district, $F(8, 343) = 1.72, p = 0.092, \eta_p^2 = 0.039$ (Figure 5).

Educational placement

Attitude scores of students in different types of educational placements were compared using a one-way ANOVA. The Students’ Attitude Scale scores were normally distributed for each educational placement type (absolute z-values for kurtosis and skewness were less than ± 3.29). Levene’s test of Homogeneity of Variance indicated an unequal variance among the groups, $F(3, 350) = 6.48, p < 0.001$. Therefore, a Brown & Forsythe-variance weighted ANOVA was used. Results revealed a significant difference in attitude scores of students in educational placements, $F(3, 322.11) = 8.41, p < 0.001$ (Figure 6). Tamhane *post hoc* comparisons revealed that students in “All Day in Regular Classroom with the Necessary Support” placement scored higher on the Students’ Attitude Scale as compared to students in other educational placements, including “Special Education Services Outside Mainstream School” ($M_{diff} = 9.95, SE = 2.07, p < 0.001$), “Most Day in Special Education Classroom School” ($M_{diff} = 7.63, SE = 1.78, p < 0.001$), and “Regular Classroom with Resource Room Services” ($M_{diff} = 5.56, SE = 1.83, p = 0.017$). On the contrary, there were no significant differences among attitude scores of students in “Special Education Services Outside Mainstream School,” “Most Day in Special Education Classroom,” and “Regular Classroom with Resource Room Services” placements, respectively ($p > 0.05$).

Correlation between age and attitude toward disability

No significant correlation was observed between age and the Students’ Attitude Scale total score, $r_s(339) = -0.03, p = 0.537$.

Additional analyses

Further, we now address the following question: Does the attitude toward teaching students with disabilities in mainstream schools mediate the relationship between type of disability and its educational placements? To assess the seize and direction of the linear relationship between attitudes toward teaching students with disability and total levels of disability, a bivariate Pearson’s product-movement correlation coefficient (r) was calculated. The bivariate correlation between these two variables was positive and strong $r(343) = 0.200, p < 0.001$. Furthermore, 4% of the variability in participants’ attitude scores can be predicted by variability in levels of disability.

In addition, we now address the following question: Is there any relationship between students’ attitudes toward teaching students with disabilities in mainstream schools and their responses to the educational placement in general (students’ total attitudes & item 10 in the checklist)? To assess the seize and direction of the linear relationship between attitudes toward teaching students with disability and educational placement for students with disability, a bivariate Pearson’s product-movement correlation coefficient (r) was calculated. The bivariate correlation between these two variables was positive and strong $r(351) = 0.248, p < 0.001$. In addition, 6.15% of the variability in participants’ attitudes toward students with disabilities is accounted for by variability in their level of education placement for disabled students.

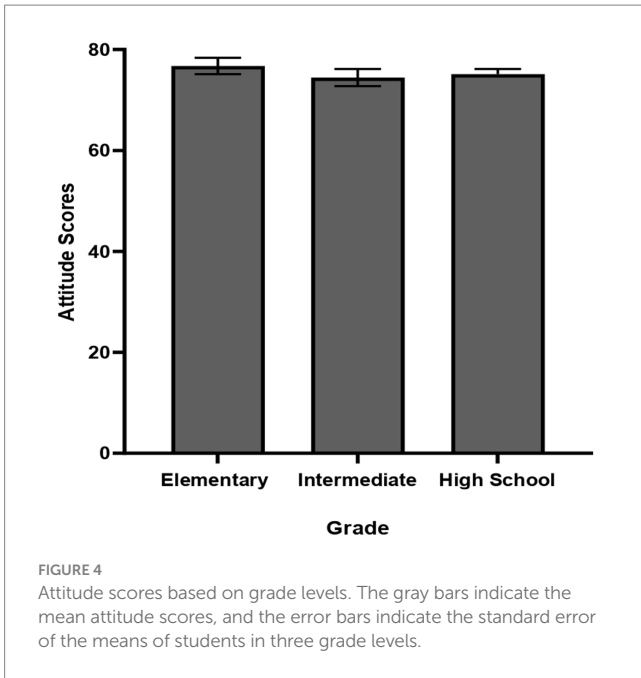


FIGURE 4 Attitude scores based on grade levels. The gray bars indicate the mean attitude scores, and the error bars indicate the standard error of the means of students in three grade levels.

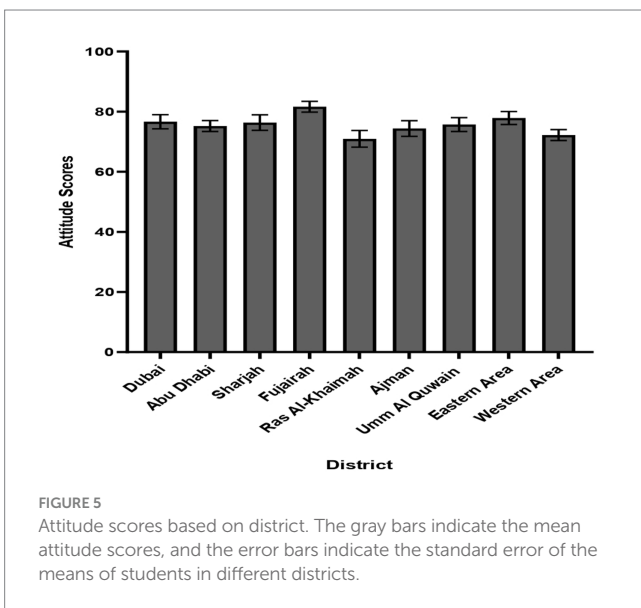


FIGURE 5 Attitude scores based on district. The gray bars indicate the mean attitude scores, and the error bars indicate the standard error of the means of students in different districts.

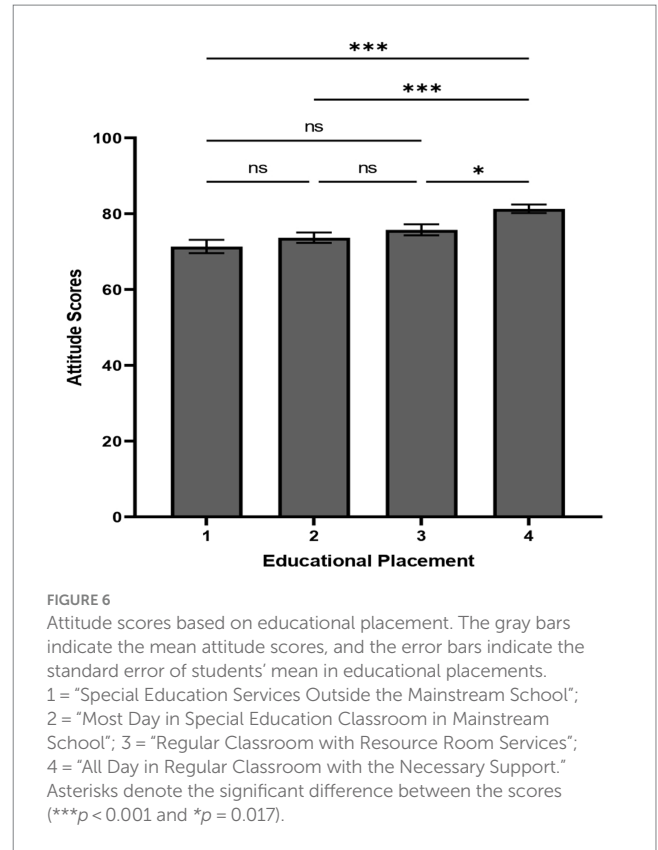


FIGURE 6 Attitude scores based on educational placement. The gray bars indicate the mean attitude scores, and the error bars indicate the standard error of students' mean in educational placements. 1 = "Special Education Services Outside the Mainstream School"; 2 = "Most Day in Special Education Classroom in Mainstream School"; 3 = "Regular Classroom with Resource Room Services"; 4 = "All Day in Regular Classroom with the Necessary Support." Asterisks denote the significant difference between the scores (** $p < 0.001$ and * $p = 0.017$).

education regarding different districts in the UAE; and (e) students in "All Day in Regular Classroom with the Necessary Support" placement scored higher on the Students' Attitude Scale as compared to students in other educational placements, including "Special Education Services Outside Mainstream School," "Most Day in Special Education Classroom School," and "Regular Classroom with Resource Room Services." Along the same lines, there were no significant differences among attitude scores of students in "Special Education Services Outside Mainstream School," "Most Day in Special Education Classroom," and "Regular Classroom with Resource Room Services" placements, respectively. The main novel findings of our studies are related to differences to inclusive education between Emirati and non-Emirati individuals as well as differences in attitudes in relation to educational placement type. Further, we found a positive correlation between students' attitudes toward teaching students with disability and total levels of disability. We have also found a positive correlation between students' attitudes toward teaching students with disabilities in mainstream schools and their responses to the educational placement in general.

Gender differences results in our data is in agreement with other findings, showing that female students are accepting toward students with disabilities than male students (Olaleye et al., 2012; Schwab, 2017), but also see Magnusson et al. (2017) and McKay et al. (2021). However, future research should explore why this is the case. It is possible that differences in emotional intelligence between males and females can explain this finding. Many studies have found that females score higher than males on measures of emotional intelligence (Cabello et al., 2016; Deng et al., 2023; Fernández-Berrocal et al., 2012; Fischer et al., 2018; Mkhlesi and Patil, 2018; Soni and Bhalla, 2020). If this is the case, future work should attempt to use emotional intelligence training (Hodzic et al., 2018; Mattingly and Kraiger, 2019) to increase inclusive

Discussion

The current study investigated the attitudes of typically developing students toward including students with disabilities in the regular classroom and whether students' demographic information including age, gender, nationality (Emirati vs. Expatriate), grade level (elementary, middle, high school), and area of living impact their attitudes toward inclusive education.

Our main findings are as follows: (a) female students scored significantly higher than male students on the Students' Attitude Scale; (b) While Emirati nationals scored higher on the Students' Attitude Scale than non-Emirati individuals, this approached significance, but was not significant; (c) there were no significant differences in attitude scores of students with different grade levels; (d) there were no significant differences in attitude toward inclusive

education. While emotional intelligence has been used in the past with teachers and students (Hen and Sharabi-Nov, 2014; Hodzic et al., 2018), it was not applied to improve inclusive education.

Interestingly, we found that although non-significant, the attitudes toward inclusive education were higher in Emirati than in non-Emirati individuals. It is not clear why this is the case. One possible factor that may explain this finding is belongingness. Belongingness refers to the state of feeling one belongs to a certain group (Ma et al., 2019). Several studies show that belongingness increase social cohesion and productivity at work, military services, and other activities (Arslan and Duru, 2017; Cockshaw et al., 2013). Future work should investigate whether Emirati individuals score higher than non-Emirati individuals on measures of belongingness, and whether this difference significantly impact inclusive education. One novel aspect of our study is investigating the impact of grade on inclusive education. We did not find any significant results regarding impact of grade on inclusive education. It is possible that this is the case due to closeness in age among grades included in the current study. However, it is important to note that there are conflicting results regarding the impact of age on inclusive education in prior research, with some studies showing older students are accepting of inclusive education (Al-Kandari, 2015) but others showing that younger students are more accepting of inclusive education and disabilities than older students (Armstrong et al., 2016; Blackman, 2016). Further, we did not find any differences related to the impact of districts in UAE on inclusive education. This could be related to cultural and economic similarities among all UAE districts. Finally, we found that educational placement impacts inclusive education, with students in “All Day in Regular Classroom with the Necessary Support” placement scored higher on the Students’ Attitude Scale than students in other placement. This is possibly due to time spent together. Along these lines, one study found that positive attitude and acceptance of students with disabilities is related to time spent together and similarities in interest with students with and without disabilities (Kalymon et al., 2010). Another study has reported similar results in Kindergarten students in both Greece and the United States (Nikolarazi et al., 2005).

Conclusion and limitations

In sum, among all factors investigated, we found that nationality (Emirati vs. Expatriate), type of educational placement, and gender were related to attitudes toward inclusive education. However, grade level and UAE districts did not impact attitudes toward inclusive education. The main limitation of our study is the small sample size. Another limitation is not including other scales, such as measures of belongingness and emotional intelligence, to study whether these can explain our findings.

Implications and future directions

There is a dearth of intervention studies to modify students’ negative attitudes toward students with disabilities. One exception, however, is a study by Hodkinson (2007) which shows that play with a fictitious turtle with down’s syndrome significantly changed attitudes of first-grade students. Another intervention study also reported positive outcome of intervention to manage attitudes related to inclusive education (Magnusson et al., 2017). Future research should investigate whether personal beliefs and values play any role in shaping attitudes toward inclusive education. It is possible that negative

attitudes toward inclusive education among teachers may result in the exclusion of students with disabilities from mainstream classrooms, and that negative attitudes toward inclusive education among students may impact forming friendship with them. Future research should also investigate whether positive attitudes toward inclusive education among students would increase academic achievement and social integration of students with disabilities. Future research should investigate whether negative attitudes toward inclusive education is related to a lack of understanding or awareness of disabilities.

As mentioned above, most prior studies focus on parents’ and teachers’ views on inclusive education. There are also few studies on students’ views on inclusive education. However, to the best of our knowledge, no study has investigated the relationship between teachers’, parents’, and students’ views on inclusive education. We predict that parents’ views on inclusive education may impact children’s views as well. This should be tested in future work.

Kalymon et al. (2010) that adult behaviors toward students with disability also impacted their attitudes toward the students. This is also related to teachers’ and parents’ attitudes toward students with disabilities, as this may provide a role model for students as well. Accordingly, future research should take into account these factors in order to increase inclusive education.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Al Ain University, UAE (AMD-16475, 22 March 2021). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

SD: Data curation, Formal analysis, Writing – original draft. EA: Conceptualization, Methodology, Validation, Writing – review & editing. RA: Data curation, Formal analysis, Investigation, Writing – review & editing. WD: Investigation, Writing - review & editing. DB: Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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