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Measuring special education teachers' attitudes towards students with multiple disabilities

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With this quantitative study we aimed to develop a scale that could be used to assess the attitudes of special education needs (SEN) teachers towards students with multiple disabilities. The scale was tested in 2 stages using 2 different samples. Firstly, the scale was administered to a convenience sample of 215 teachers. For the first study, the participants responded to 39 items related to the scale and 9 demographic questions. This sample was used to perform an exploratory factor analysis (EFA), which showed that the proposed scale had 5 factors and 22 items. A revised scale was applied to 228 participants. The sample was used to complete a confirmatory factor analysis to test the fit of the data to the theoretical structure. The scale's internal consistency was found to have a Cronbach α of 0.869. With this scale it will be possible to measure special education teachers' attitudes towards students with multiple disabilities.

Keywords: attitudes; multiple disabilities; scale development; special education teachers

Introduction

Policymakers, schools, and teachers have adopted measures to support students with multiple disabilities (S-MUD) and research in the area of multiple disabilities is growing all over the world. However, there is still a need for a measure of special educational needs (SEN) teachers' attitudes towards S-MUD in their classes. SEN teachers are essential for the educational progression of S-MUD. Therefore, their attitudes towards this target group should be examined. Literature underlines that teachers' attitudes affect the degree to which students with disabilities feel included in their classes (Avramidis & Norwich, 2002; Murdaca, Oliva & Costa, 2018). According to these studies, negative attitudes may cause discrimination. If SEN teachers' attitudes towards S-MUD can be reliably determined, pre-service and in-service training can be planned to change the negative attitudes of those teachers and provide improved education for S-MUD.

SEN teachers need more educational support to improve the quality of education delivered to S-MUD. In this article we present a new scale for measuring SEN teachers' attitude towards S-MUD, which is called Special Educational Needs Teachers' Attitude towards Students with Multiple Disability (SETA-MUD). Once SEN teachers' attitudes have been determined, targeted professional development interventions for those teachers can be planned in a more detailed and effective way in order to change negative attitudes. SETA-MUD, therefore, provides a professional, specific measure of SEN teachers' attitudes towards S-MUD.

Literature Review

Even though education establishments at all levels, from pre-school to higher education, have generally become more accessible, people with disabilities worldwide still encounter difficulties. They especially experience attitudinal barriers and these negative attitudes towards any kind of disability continue to be a barrier to education. Recent literature shows that negative attitudes are very likely to cause social exclusion (Bunch & Valeo, 2004; Chen, Brodwin, Cardoso & Chan 2002; Smart, 2001). Because of this, researchers have developed various scales to measure the attitudes of key stakeholders who engage with and can have an effect on students with disabilities (e.g. social workers, educators, classmates, counsellors, etc.). Various studies have also been conducted to measure attitudes towards these students (Bunch & Valeo, 2004; Chen et al., 2002; Smart, 2001).

Measuring attitudes is not as easy as researchers might think, and is particularly difficult when researchers want to measure attitudes towards individuals with disabilities. As seen in Table 1, many scales have been developed to measure attitudes towards individuals with disabilities between 1986 and 2019 in different countries, such as Australia, China, Italy, Poland, Spain, Turkey, and the United States of America (USA). This reveals that there is a need for such a scale all over the world. These scales are listed below indicating the names, the respective publication dates, authors and participants.

Table 1 Scales developed for measuring attitudes towards disability

Name of the scale	Year	Authors	Participants
In-service Teachers' Attitudes about Inclusive Education (ITAIE)	2020	Clipa O, Mata L & Lazar I	All teachers
The Educators' Attitudes toward Disability Scale (EADS)	2018	Freer J	Educators
Community Living Attitudes Scale-Intellectual Disability (CLAS-ID)	2015	Su H, Cuskelly M, Gilmore L & Sullivan K	All individuals
Social Worker's Attitudes toward Disability Scale	2015	Cheatham LP, Abell N & Kim H	Social workers
Teachers' Attitude about Learning Disabilities (PSTALD)	2016	Shari M & Vranda MN	Primary school teachers
An Attitude Scale for Individuals with Special Needs	2015	Yaralı D	Teacher candidates
An Attitude Scale for the Education of Disabled Individuals	2013	Kösterelioğlu İ	Teacher candidates
Societal Attitudes toward Autism (SATA) scale	2013	Flood LN, Bulgrin A & Morgan BL	All individuals
Questions about University and Disability Scale (CUNIDIS)	2013	Martín AR & Arregui EA	Staff and students of higher education institutions
The Attitudes to Disability Scale (ADS)	2010	Power MJ, Green AM & The WHOQOL-DIS Group	All individuals
Multidimensional Attitudes Scale toward Persons with Disabilities (MAS)	2007	Findler L, Vilchinsky N & Werner S	All individuals
The Sentiments, Attitudes and Concerns about Inclusive Education Scale (SACIE)	2007	Loreman T, Earle C, Sharma U & Forlin C	Teacher candidates
Disability Attitudes Implicit Association Test	2006	Pruett SR & Chan F	All individuals (People with physical disabilities)
Scale of Teachers' Attitude towards Hearing Impaired Children	2001	Kargın T	All teachers
A Scale of Attitude towards Handicapped	1997	Kaner S, Öğülmüş S, Büyüköztürk Ş & Dökmen Z	All individuals
Şekowski's Scale of Attitudes towards Individuals with Disabilities	1994	Şekowski AE	All individuals
Chedoke-McMaster Attitudes towards Children with Handicaps Scale (CATCH)	1986	Rosenbaum PL, Armstrong RW & King SM	Friends of student with special needs

Table 1 shows the 17 scales that have been developed to measure the attitudes of people towards people or individuals with disabilities. Only eight of these scales (Clipa et al., 2020; Freer, 2018; Kargın, 2001; Kösterelioğlu, 2013; Loreman et al., 2007; Martín & Arregui, 2013; Shari & Vranda, 2016; Yaralı, 2015) were developed to measure the attitudes of teachers (all levels of teachers including higher education) or pre-school teachers towards disabled people or individuals. There is no scale to measure SEN teachers' attitudes towards individuals/students with disabilities. Moreover, there is also no scale to measure SEN teachers' attitudes towards S-MUD.

Conceptual Framework

Teachers of students with special needs play an essential role since they are responsible for opening the doors of knowledge and enabling future opportunities for these students. Therefore, SEN teachers' opinions and, especially, their positive attitudes are crucial for the education of these students. SEN teachers have direct contact with

these students and should be the pacemakers for the rest of society. Although research is limited, studies have been done about special education teachers' attitudes towards students with SEN in South Africa (Dada & Alant, 2002) and the training of SEN teachers in Tanzania (Tungaraza, 2014). These research findings reveal that positive attitudes may lead to equal opportunities for SEN students. We, therefore, consider that examining SEN teachers' attitudes towards these students is essential for their access to equal education opportunities.

Furthermore, examining teachers' attitudes towards disability is imperative, since teachers tend to have positive attitudes if they have had contact with disabled people in the past (Dessemontet, Morin & Crocker, 2014; Emmers, Baeyens & Petry, 2020; Thaver & Lim, 2014); if they have learned about special education policy and instructional strategies (Alfaro, Kupczynski & Mundy, 2015; Savolainen, Engelbrecht, Nel & Malinen, 2012); if they are experts in the field (Jerlinder, Danermark & Gill, 2010; Skinner, 2007); and if they participate in training related to disability (Al Shoura & Ahmad,

2020; Baker, Boland & Nowik, 2012; Lombardi, Murray & Dallas, 2013).

It is important to clarify how the concept multiple disabilities is defined for this study, since different definitions are used in the literature. In most of the literature, the child with multiple disabilities is defined as having a combination of disabilities, including physical/motor, sensory (multi-sensory), mental/intellectual, behaviour, and personality disabilities (Best, 1992; McInnes & Treffrey, 1984; Warren, 1984). A comprehensive definition may be the one put forward by Mednick (2007). According to him, “a child with multiple disabilities has more than one disability, which may include a physical, intellectual, communication, sensory and emotional difficulty” (Mednick, 2007:9). He underlines that these children may have elements of all these disabilities, so these difficulties have to be taken into consideration in a holistic approach.

No scale intended specifically to measure attitudes towards S-MUD has been found in recent literature. Moreover, no scale measuring SEN teachers' attitudes towards these students has been found. Therefore, we consider that this research will fill a gap in the literature. We aimed to develop a scale that could be used to measure the attitudes of SEN teachers towards S-MUD.

Materials and Methods

Scale Design Process

In this study we developed a scale called the SETA-MUD scale and we investigated the validity and reliability thereof. We used a 5-point Likert scale: strongly disagree (1), disagree (2), partially agree (3), agree (4) and strongly agree (5). The development process of the scale included the following steps: creating the items of the scale, seeking expert opinion for content validity, conducting an exploratory factor analysis (EFA), confirmatory factor analysis, and reliability analysis for construct validity.

Participants

The scale was tested in two stages using two different samples. Firstly, the scale was administered to a convenience sample of 215 participants (special education teachers). The questionnaire was distributed as an online survey, and participants gained access to the survey through a link that was distributed widely via social networks like Facebook, Twitter and WhatsApp. Scales with five participants per item and at least 200 participants are suitable for factor analysis (Gorsuch, 1983; Stevens, 2012). The 39-item scale was completed by 215 participants. This sample was considered sufficient for the purposes of this study and was used to conduct an EFA. The results of the EFA for this sample were used to identify the factor structure and the number of items on each factor. A revised 22-item scale was then applied to 228

participants composed entirely of special education teachers for confirmatory factor analysis (CFA). Outliers in data are unusual observations and may cause wrong and biased statistical results. The Mahalanobis distance was used to identifying such outliers. We removed the data entered by eight participants from the data set as a result of outlier research. The sample was used to conduct a CFA to test the fit of the data to the theoretical structure.

Research Method

The data collection process in this study involved two stages. Firstly, a pilot study was conducted to analyse the scale items and to determine the reliability of the scale. To find the relationship between measured variables, we applied an EFA. Among the six different methods of factor extraction (unweighted least squares, generalised least squares, maximum likelihood, principal axis factoring, alpha factoring, image factoring) in the Statistical Package for the Social Sciences (SPSS) 2021 which was used as the analysis program in this study, principal axis factoring was chosen. Fabrigar, Wegener, MacCallum and Strahan (1999) suggest using principal axis factoring (PAF) when the assumption of normality is severely violated, as it was in this case ($p < 0.0001$, for Henze-Zirkler multivariate normality test). Because of the non-normality, PFA was the chosen method of factor extraction. When researchers correlate factors with each other, ProMax rotation is preferable to avoid unclear patterns. Several authors have argued that in an EFA, PAF plus oblique rotation may be more appropriate for attitudinal data in which sub-scales are potentially correlated (Kline, P 2000).

A CFA was also performed using data from the participants in sample 2. Researchers use CFA to choose the best option that fits the subsequent participant data: either the factor structure obtained from the EFA or the hypothesised measurement structure. The maximum likelihood method was chosen as the parameter estimation method. Moreover, to assess the goodness of fit of the measurement model, various fitness indicators were operated. Among these fitness indicators were the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardised root-mean-square residual (SRMR) (Jackson, Gillaspay & Purc-Stephenson, 2009; McDonald & Ho, 2002). According to the results of some studies in the literature, the acceptable goodness-of-fit values are a CFI greater than 0.95, RMSEA less than 0.08 and an SRMR less than 0.10 (Browne & Cudeck, 1992; Hu & Bentler, 1999).

Ethical Considerations

Before starting the data collection procedure, teachers were informed about the research aims. The participants were informed that there was no risk of harm to participants. They were also kept informed

at all stages, and anonymity was ensured. Teachers' opinions were what we required, and we, therefore, avoided imposing our own beliefs.

Results

Demographic Analysis

Sample data was gathered from 215 special education teachers (149 females [69.3%] and 66

males [30.7%]) who taught students with disabilities and multiple disabilities. The participants' ages ranged from 21 to 50 years. The participants' years of teaching experience ranged from 1 to 16 and more (3.3%) years. Table 2 shows the demographic characteristics of the participants.

Table 2 The demographic characteristics of the participants

Demographic variables	Categories	n (%)
Gender	Male	66 (30.7)
	Female	149 (69.3)
Age	21–25	93 (43.3)
	26–30	65 (30.2)
	31–35	36 (16.7)
	36–40	14 (6.5)
	41–45	2 (0.9)
	46–50	5 (2.3)
Professional seniority (Year)	1–5	147 (68.4)
	6–10	36 (16.7)
	11–5	25 (11.6)
	16 and more	7 (3.3)
Educational background	Undergraduate	188 (87.4)
	Master's degree	25 (11.6)
	Doctor of Philosophy	2 (0.9)
Marital status	Married	71 (33)
	Single	144 (67)
Do you have a child?	Yes	49 (22.8)
	No	166 (77.2)
Do you have a child with special needs?	Yes	1 (0.5)
	No	214 (99.5)
Are there any children with special needs among your relatives or in your neighbourhood?	Yes	122 (56.7)
	No	93 (43.3)
How many students have multiple disabilities in the school you are currently working in?	None	21 (9.8)
	1–10	98 (45.6)
	11–20	13 (6)
	21–30	11 (5.1)
	31 and more	72 (33.5)

Content Validity

When deciding on the items to be used in the study, five field experts, two language experts, and one statistics expert worked with the researchers. These experts and the researchers discussed and scored the relevance/accuracy, clarity, and readability of the items. The items were allocated scores from 1 to 6. Score 1 indicated that the item required major revisions or had to be removed, scores 2 and 3 indicated that the item required partial revision, and scores 4, 5 and 6 indicated that the item was more or less appropriate. As an indicator of the scale's content validity, a score above 4 was used.

Results of the EFA

The data from the 215 participants in the pilot study were used for the EFA. The PAF extraction method was used to measure the covariance between the measured variables and extracted parts that contained covariance. To avoid unclear patterns, the ProMax rotation method was used, since the factors were correlated with one another. Eventually, factors with an eigenvalue greater than 1 were

chosen. We used the Kaiser-Meyer-Olkin (KMO) method to obtain sampled participant data. According to KMO results, a goodness of fit of 0.884 was obtained, which confirmed that the factor structure had goodness of fit (Kaiser, 1974). According to Bartlett's Test of Sphericity ($p < 0.0001$, Approx. Chi-Square: 2020.471), the sample of this study was suitable for factor analysis. Based on our decision criteria regarding factor loadings, 17 items were dropped. A five-factor solution was determined to be conceptually most appropriate. The final factor structure accounted for 61.34% of the variance. Costello and Osborne (2005) suggest a .50 and above threshold to identify items with strong loadings. However, we first opted for using a more liberal .35 threshold as a first pass to ensure that not too many items were discarded based on this indicator alone. Secondly, items that showed cross-loadings on multiple factors above .30 were dropped (Tabachnick & Fidell, 2001). Thirdly, items that decreased internal scale reliability coefficients were removed. Finally, following these data reduction procedures, 22 items remained. As

shown in Table 3, the factors were labelled Factor 1 (seven items), Factor 2 (four items), Factor 3 (six items), Factor 4 (three items), and Factor 5 (two items). Five factors emerged from the EFA. These factors were named (1) Effort for educational support, (2) Hopefulness regarding students' success, (3) Openness to collaboration, (4) Hopelessness regarding students' success, and (5) Support to students' socialisation.

Factor 1, Effort for Educational support, represents SEN teachers' attitudes concerning their effort to organise educational environments according to students' needs, to communicate with students, to troubleshoot, to make students feel included in the classroom, to help students participate actively, to defend students' legal rights, to teach them new knowledge, and to know students better. Factor 2, Hopefulness regarding students' success, represents SEN teachers' attitudes

concerning positive opinions about students' independence, students' chances to work, students' contribution to society, and SEN teachers' job satisfaction. Factor 3, Openness to collaboration, represents SEN teachers' attitudes concerning regular meetings with families, following up-to-date knowledge, finding peer teaching useful, learning about student's interests, learning about students' differences, and supporting students' education with relevant stakeholders. Factor 4, Hopelessness regarding students' success, represents SEN teachers' attitudes concerning students' inability to make friends easily, the need for students to study in separate settings, and students not expressing themselves sufficiently. Factor 5, Support to students' socialisation, represents SEN teachers' attitudes concerning spending time in extracurricular activities and students taking part in social activities and special days.

Table 3 Factor loading for the SETA-MUD scale (22 items)

Items	SETA-MUD scale				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I try to arrange education environments according to the needs of students with multiple disabilities.	0.955	0.170	0.248	0.093	0.084
I try to communicate with students with multiple disabilities to troubleshoot.	0.786	0.005	0.020	0.093	0.066
I try to make students with multiple disabilities feel like they belong to the class.	0.705	0.188	0.003	0.103	0.046
I feel happy when students with multiple disabilities actively participate in the lesson.	0.679	0.103	0.033	0.079	0.113
I defend the legal rights of students with multiple disabilities in the educational environment.	0.538	0.196	0.123	0.083	0.091
It makes me happy to be able to teach new knowledge to students with multiple disabilities.	0.518	0.124	0.191	0.046	0.002
I try to get to know students with multiple disabilities more closely.	0.437	0.006	0.306	0.011	0.012
I think that students with multiple disabilities can sustain their lives independently.	0.031	0.745	0.063	0.014	0.022
I think that students with multiple disabilities can work in any sector when their education is completed.	0.036	0.708	0.008	0.069	0.053
I think that students with multiple disabilities will contribute to society when necessary education is completed.	0.135	0.697	0.027	0.047	0.012
Success of students with multiple disabilities in my lesson increases my professional satisfaction.	0.108	0.462	0.283	0.042	0.082
I try to hold regular meetings with families of students with multiple disabilities.	0.018	0.164	0.734	0.074	0.011
I follow up-to-date information about students with multiple disabilities.	0.009	0.037	0.599	0.076	0.241
I find peer teaching useful in the education of students with multiple disabilities.	0.047	0.171	0.484	0.046	0.058
I make an effort to learn the interests of students with multiple disabilities.	0.335	0.100	0.456	0.113	0.009
I try to learn the individual differences of students with multiple disabilities.	0.385	0.009	0.424	0.081	0.098
Education of students with multiple disabilities should be supported with relevant stakeholders.	0.263	0.089	0.370	0.158	0.037
Students with multiple disabilities should study in separate settings.	0.019	0.069	0.324	0.657	0.217
I don't think students with multiple disabilities can easily make friends.	0.073	0.136	0.008	0.509	0.071
Students with multiple disabilities cannot express themselves sufficiently.	0.068	0.366	0.162	0.476	0.059
I like spending time with students with multiple disabilities in extracurricular activities.	0.092	0.022	0.092	0.001	0.742
Students with multiple disabilities should take more part in social activities/special days.	0.050	0.068	0.245	0.170	0.435

Note. Factor 1: Effort for educational support; Factor 2: Hopefulness regarding students' success; Factor 3: Openness to collaboration; Factor 4: Hopelessness regarding students' success; Factor 5: Support to students' socialisation.

As shown in Table 4, the correlations among the factors ranged from -0.065 to 0.647. Statistically significant correlations were found between Factor

1 and some other factors (Factor 2, Factor 3) and between Factor 2 and some other factors (Factor 3, Factor 4, Factor 5).

Table 4 Correlations among the SETA-MUD scale

SETA-MUD Scale factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1	0.451	0.647	-0.065	0.192
Factor 2	0.451	1	0.574	0.317	0.299
Factor 3	0.647	0.574	1	-0.037	0.252
Factor 4	-0.065	0.317	-0.037	1	0.091
Factor 5	0.192	0.299	0.252	0.091	1

Reliability Analysis

To examine the scale's internal consistency using the data from 215 participants, Cronbach's α was operated. A Cronbach's α of 0.869 was calculated for the scale. In respect of the subscales, the Cronbach's α for Factor 1 (Effort in providing educational support) was 0.865, Factor 2 (Hopefulness regarding students' success) was 0.802, Factor 3 (Openness to collaboration) was 0.781, Factor 4 (Hopelessness regarding students' success) was 0.653, and Factor 5 (Support to students' socialisation) was 0.613. Additionally, when item-total correlations of 22-items were examined, it was seen that they all had values greater than 0.30. Briggs and Cheek (1986) emphasise that average item-total correlation, which is a basic measure of internal consistency, is a much more useful indicator than Cronbach's α coefficient. Therefore, test developers focus on the average item-total correlation rather than reaching a certain alpha level (Briggs & Cheek, 1986; Clark & Watson, 1995). They state that a value between 0.40 and 0.50 is quite good. In this study, the mean item-total correlation was 0.49. According to these results, it can be stated that the scale developed in this study has favourable internal consistency.

Results of CFA

To identify the factor structure that best explained the data, the five-factor structure was obtained by using a CFA. We conducted a CFA on the scale using the LISREL 8.80 program (Joreskog & Sorbom, 2006) on the confirmatory sample of 220 participants. As a parameter estimation method, the maximum likelihood method was chosen in the statistical software package. In this study, we used indices of fit suggested by Hu and Bentler (1999). Confirmatory factor analyses were run through Lisrel software. The goodness of fit indices of the model were found at an acceptable level with the following values: $\chi^2/df = 2$ (should be ≤ 2), CFI = 0.95 (should be ≥ 0.90), AGFI = 0.86 (should be ≥ 0.85), RMSEA = 0.068 (should be ≤ 0.080), SRMR = 0.069 (should be ≤ 0.1), NFI = 0.90 (should be ≤ 0.95), IFI = 0.95 (should be ≤ 0.95) (Carlbäck & Wong, 2018; Hu & Bentler, 1999; Kline, RB 2011). According to these indicators, the SETA-MUD scale has a good fit to the model.

Discussion

The aim with this study was to develop the SETA-MUD scale that could be used to assess the attitudes of SEN teachers towards S-MUD. Two independent samples were used to investigate the psychometric properties of the SETA-MUD scale, which was developed to assess the attitudes of special education teachers towards S-MUD and to analyse the factor structure of the scale. We developed a 22-item scale for measuring special education teachers' attitudes towards SETA-MUD. An EFA was employed, and

the scale was simplified into a scale with a five-factor structure. Moreover, to compare the goodness of fit of the five-factor structure obtained from the EFA results, a CFA was used. The CFA shows that the factor structure had satisfactory goodness of fit. The SETA-MUD scale also had a Cronbach's α value of 0.869 which shows good internal consistency. Five factors, namely, Effort for educational support, Hopefulness regarding students' success, Openness to collaboration, Hopelessness regarding students' success, and Support to students' socialisation emerged in the SETA-MUD scale.

To provide effective support (Factor 1 – Effort for educational support), SEN teachers should help S-MUD to participate actively in lessons, defend their legal rights in the educational environment, feel happy to be able to teach new knowledge to them, and try to get to know them more closely. To achieve these, SEN teachers should prepare individual education programmes (IEPs) for their students. Moreover, it is important to emphasise the needs and expectations of S-MUD (Jansen, Van der Putten, Post & Vlaskamp, 2014) before preparing IEPs.

If SEN teachers think that S-MUD will contribute to society when the necessary education is completed, students can work in any sector, students can sustain their lives independently, and the success of students in their lessons increases their professional satisfaction (Factor 2 – Hopefulness regarding students' success), then SEN teacher will be more motivated for their classes and their attitudes will be more positive.

Trying to hold regular meetings with families of S-MUD, following up-to-date information about these students, finding peer teaching useful in the education of these students, making an effort to learn the interests of these students, trying to learn the individual differences of these students, and supporting their education with relevant stakeholders (Factor 3 – Openness to collaboration) shows that SEN teachers are open to collaboration. To achieve these, it is suggested that collaborative approaches be implemented (Horn & Kang, 2012). In collaborative approaches, it is essential to work with people who have different expertise during the educational process.

Hopelessness regarding students' success (Factor 4) also emerged in the SETA-MUD scale. The attitudes towards students with two or more disabilities should be positive for an effective education process. Unfortunately, the findings from many research studies show negative teacher attitudes towards S-MUD. For example, Sardohan Yıldırım and Sarıca (2015) reveal that when teacher candidates who studied at the Division of Visually Impaired Students' Education and the Division of Mental Disabilities Education started in the teaching profession, they did not want to work with S-MUD. Similarly, Sardohan Yıldırım (2017) determined

that teachers working at special education schools and guidance research centres judged S-MUD according to their appearances and were not interested in them. In a different study, Mooney (2011) reached a similar conclusion and states that teachers felt uneasy towards S-MUD, they did not find it necessary to change their negative attitude towards these students, and they did not prepare these students for the future.

Based on the final factor in the SETA-MUD scale (Support to students' socialisation), it is thought that S-MUD should take more part in social activities, and SEN teachers should spend time with them in extracurricular activities. These can be achieved if SEN teachers have a positive attitude. Therefore, it is important to determine the attitudes of SEN teachers, and try to change attitudes from negative to positive by taking relevant measures.

Although studies on S-MUD are available in the literature (Alias & Salleh, 2017; Bebech, Oliver, Limperos, Schade & Larwin, 2016), no scale has been developed to only measure attitudes towards persons with multiple disabilities. Seventeen scales have been developed to measure the attitudes of people towards persons with disabilities. Only eight of these scales (Clipa et al., 2020; Freer, 2018; Kargin, 2001; Kösterelioğlu, 2013; Loreman et al., 2007; Martín & Arregui, 2013; Shari & Vranda, 2016; Yaralı, 2015) were developed to measure the attitudes of teachers (all levels of teachers including higher education) or pre-school teachers towards people or individuals with disabilities. No scales to measure SEN teachers' attitudes towards individuals/students with disabilities and SEN teachers' attitudes towards S-MUD are available as comparison in the literature. Determining attitudes is essential to giving support to S-MUD, providing necessary services, revealing the strengths of these students, and determining the contents of educational programmes. With the development of SETA-MUD, the attitudes of SEN teachers towards S-MUD can be assessed, and policymakers and governments can prepare programmes and activities to change SEN teachers' negative attitudes. In this context, it is thought that the contribution of SETA-MUD to the literature is significant.

Conclusion

When all these factors are examined, it can be confirmed that the SETA-MUD scale will be an effective tool to determine the attitudes of SEN teachers. The SETA-MUD scale has 22 items and five factors to measure SEN teachers' attitudes. According to the analyses, the scales' factor structure has satisfactory goodness of fit, and a good internal consistency. As a result, the SETA-MUD scale can be used for measuring the attitudes of special education teachers towards S-MUD. It can be said that the high scores obtained from the SETA-MUD scale point to the positive attitudes towards

S-MUD. The SETA-MUD scale is expected to be an important reference for further research. More research on SEN teachers and S-MUD may be planned with the application of the SETA-MUD scale and it can be used to determine the attitudes of SEN teacher candidates towards S-MUD. It can also be applied to determine whether SEN teachers' attitudes towards S-MUD differ according to demographic factors. Conducting further research with teachers from different countries are recommended for the reliability and validity of the scale.

Limitations

Although this study offers the novel SETA-MUD scale that could be of great value for future research, there are some limitations that need to be addressed. Convenience sampling, one of the non-probabilistic sampling methods, was used in this study. This sampling approach limits the generalisability of the study and may increase potential bias. More research on larger samples will be required to increase the validity and reliability of the SETA-MUD scale. Due to the coronavirus disease (COVID-19) outbreak, the questionnaire was distributed online and participants gained access to the survey via a link. Future research on SETA-MUD should be conducted through face-to-face interviews that could eliminate this limitation.

Authors' Contributions

AESY and RB wrote the manuscript and collected data; BBA conducted all statistical analyses; all authors reviewed the final manuscript.

Notes

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