Special Education Teachers' Understanding and Use of Evidence-informed Practice in the Inclusion of Children with SEN in Kuwait: Lessons for Teacher Education

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Abstract: This paper presents a study which has evaluated the extent to which a sample of elementary special education teachers in Kuwait understand and make use of evidence-informed approaches in the mainstream classroom with children with special educational needs. A questionnaire survey was developed and administered (N=150), focusing on teacher understanding of and use of two selected evidence-informed approaches, peer tutoring strategy and the JIGSAW strategy. Results revealed a good degree of understand and use of both strategies. Recommendations are made in relation to further research on the evidence-informed practice for the effective inclusion of children with special educational needs in Kuwait and internationally.

Introduction

There has been increasing international focus on the application of evidence-informed practice to educational settings. For example, Brown (2015) notes the increasing attention in United Kingdom (UK) on the use of evidence-informed practice for improving classroom practice in England. Similar trends can be seen, for example, in the United States (US). Slavin's influential work (2020) discusses the importance of and growing trend towards evidence-informed or indeed evidence-based approaches to the reform of education policy, encouraging teachers using proven practices, which can facilitate improvements in educational outcomes.

A range of authors argue that the implementation of such approaches in schools can result in a positive difference in performances of teachers and students (Stoll, Brown, Spence-Thomas, and Taylor, 2015; Greany, 2015). Sinnema and Stoll (2020) go as far as to argue that if schools, as learning organizations want to effectively serve the needs of society in the 21st century then they need to develop new models of practice as "learning organizations" which is rooted in effective engagement with evidence. This model of schools as learning organizations is associated with continuous learning opportunities across the whole organization, team learning and collaboration, linked to a culture of enquiry, innovation and exploration, (Kools, Stoll, George, Steijn, Bekkers, and Gouëdard, 2020).

There has also been specific interest in how evidence-informed approaches can be applied specifically to the area of inclusion and special educational needs (SEN). For example, Mintz and Wyse (2015), Mintz et al. (2020) and Mintz (in press) discuss how a focus on developing teacher and school capacity to engage with research evidence can lead to increased teacher knowledge and skills around effective approaches to including all children in the classroom.

In Kuwait, there has been considerable development in the last ten years in relation to curriculum development, school improvement and the introduction of competency frameworks which stress the development of teachers as autonomous reflective practitioners, under the umbrella of the Vision 2035 national reform programme (Ministry of Foreign

Affairs, n.d). One element of this is the "School Education Quality Improvement 2 (SEQI 2) Program", launched under an agreement between Kuwait Ministry of Education (KMOE)'s National Centre for Educational Development (NCED) and the World Bank (NCED, 2018). This has included a focus on school based continuous professional development (NCED, 2018), utilising action research, developing a school learning culture where teachers form a professional community of learners, and a focus on self-education, reflection and self-assessment. Our review of the academic literature on education in Kuwait indicated that there are few articles which specifically discuss evidence-informed practice. However Al-Shammari (2019a, 2019b) did report on the use of evidence informed in a limited number of mainstream classrooms. Howevergiven these still very recent reforms, it seems likely that such approaches are increasingly on the agenda for Kuwaiti schools. Al-Shammari (2020) also reports on a very recent implementation of a professional learning community toll and Louise 2007) approach to school improvement in Kuwait, which indicates positive teacher attitudes towards participation in such communities.

There have also been specific developments in relation to SEN. One element of the SEQI 2 Program was the development and implementation of a set of 21 standards for improving the education for children with SEN in mainstream schools. These standards cover the seven main components of the educational process in KMOE schools for children with SEN and in a new departure for education policy development in Kuwait, are described as being derived from reviews of international educational research. The policy focuses on the development of effective early identification and diagnostic approaches as well as on the promotion of practices designed to ensure the effective inclusion of children with SEN based on a multi-disciplinary team approach, which removes barriers to learning. There is also an emphasis on continuing professional development and skills development for teachers, and the use of appropriate strategies and interventions, including technological aids, which meet the individual needs of students. Al-Shammari and Hornby (2019) note that Kuwait was the first Arab country to pass a law (Law "No." 8, passed in 2010) concerning the rights of people with disabilities (Weber & City, 2012), which made provisions for 'Accommodations including education, transportation, employment, and health services' (Ochoa et al., 2017, p. 329). Specifically, this law states that the Government must implement the inclusion of people with disabilities and learning difficulties at all stages of education. This includes inclusion within educational and rehabilitation curricula according to their sensory, physical and mental abilities, and entitles students to inclusion in society, work and production (Kuwait Al Youm, 2010)

The Kuwaiti education system has a mixed economy of mainstream and special schools, with criteria related to IQ and other achievement measures used to determine placement for individual children (Aldaihani, 2010, Oxford Business Group 2020). Both elementary and secondary mainstream schools have special education teachers with a specific remit to work alongside general teachers providing specialist input and support and/or to work in resource classrooms (or units) for children with SEN integrated in to mainstream schools (Oxford Business Group, 2020). These teachers may have followed a specific special education teacher preparation track which would have involved elective courses on inclusion and special educational needs, alongside a specialisation in a particular subject area (e.g. Arabic, Science, Social Studies etc.).

Aldaihani (2010) had noted concerns about the level of specific content and preparation in relation to inclusion and SEN in teacher preparation programmes for both the SEN specific and general teacher preparation tracks. However, in 2010, teacher education programs in Kuwait University (KU), the major providers of teacher education programmes

in the country, underwent a major re-development across all areas of teaching specialities, with a new curriculum for 29 teacher education courses related to curriculum and instruction (KU, 2010), developed in respect of these standards set expectations in terms of syllabi, contents of study, teaching and learning practices, and school placements, and included a focus on effective inclusion of children with SEN in Kuwaiti public schools. Programmes were re-developed against the 21 standards, and the new programmes included guidance for pre-service teachers on how to design a curriculum and teach instruction for all students including those with SEN. The programmes also included a focus developing understanding and schools on inclusion and SEN whilst on school placements.

Two of these 29 newly developed education courses (KU, 2010), attended by both general and special education track teachers, had a specific focus on effective strategies for the inclusion of children with SEN and included content on the use of evidence-based practices in this area, including strategies such as peer tutoring and cooperative learning strategies, which are the key focus of this paper. The pedagogical approach used for developing understanding and skills in these approaches was micro-teaching (Ralph 2014) which provides pre-service teachers with intensive continuous experience of practicing such instructional strategies, including opportunities to directly practice use of these strategies on school placement.

However, there is little empirical work which has focused on to what extent special education teachers in Kuwait are or are not aware of evidence-based approaches in SEN and which has looked specifically at the extent to which teachers actually understand and make use of such evidence-based practice in the education of students with SEN. There is in fact relatively little substantive literature on this topic international. It is this area which this paper aims to address. Understanding how teachers are actually engaging or not engaging with evidence-informed approaches in practice in schools could allow for the development of a clearer view on how best to support teachers in developing this area of practice, for example by highlighting potential areas for pre-service or in-service teacher education.

Two Evidence-Informed Strategies

Hattie (2008; 2017), in his seminal review of evidence-based approaches in teaching and learning, categorizes evidence-informed instructional strategies according to effect size and proposes that an effect size of 0.4 and larger can be considered as above average. We took Hattie as a starting point and focused on two key strategies related to effective inclusive practice which fit his criteria, and explored teacher understanding of and use of these strategies in Kuwait.

The two selected strategies were Peer Tutoring and the Jigsaw. Hattie (2017) notes that the effect size for peer tutoring is 0.53, and for the JIGSAW approach was 1.2. As well as fitting Hattie's criteria, they are also largely theoretically rooted in the social constructivism which is often associated with effective inclusion of children with SEN in the classroom (Hulgin and Drake, 2011; Cook and Odom, 2013; Ertmer and Newby, 2013; Lenjani, 2016). As noted, of equal importance was that fact that these strategies were also a part of the revised curriculum for student special education teachers in Kuwait.

We selected these two strategies to serve as exemplars and by exploring teacher understanding and use of these particular strategies well supported by evidence, gain an overview of the broad extent to which teachers in Kuwait had an understanding of evidence-informed approaches in relation to working with children with SEN.

Peer Tutoring Strategy

Theoretically, peer tutoring has been argued for based on a number of premises. Broadly, some researchers have set out a social constructivist (or perhaps more specifically socio-cultural) argument for the approach, based on Vygotskian notions of peer mediated internalization of concepts, with a particular focus on the role of language in such internalization (e.g Barnard, 2002). Others have offered rationales based on elements of both social psychology and behaviourism, which identify links between social and academic aspects of learning. Moeyaert et al. (2019), in a review of evidence on single case studies on peer tutoring, argue precisely in this way that the approach develops pro-social behaviours and social communication. They argue additionally, from a behaviourist perspective, that the increased structure (including the use of rewards) and reminders for on task behaviour from peers lead to greater task engagement, as well as to greater verbal engagement and development, particularly with less able or younger students in the pair. According to research by Leung (2015), peer tutoring has a great effect on learner retention, with the largest impact on students in secondary schools and also showed shorter durations of frequent tutoring produces a larger effect size.

Peer tutoring, sometimes referred to as peer-assisted learning, is an established pedagogical approach designed to promote both academic and social/emotional development, and has been used across age phases from early years through to university education. Topping (2001) distinguishes between three different elements of peer-assisted learning, peer tutoring, cross-age tutoring and reciprocal peer tutoring (RPT). In this classification, peer tutoring is defined as one child teaching another child of the same age on a topic in which one is expert and the other is novice (Damon and Phelps, 1989). Cross-age tutoring, in this classification, is a variation on peer-tutoring in which older students tutor younger students, and in some cases students with typical development tutor children with SEN (Miller, Miller, Armentrout, and Flannagan, 1995). Peer tutoring include the following styles: the questioners, the informers, and motivational organizers. The questioners mainly focus upon questioning the tutees, the informers give information and answered questions, and the motivational organizers generally motivate and encourage students to participate (Berghmans, Neckebroeck, Dochy, and Struyven, 2012). And, RPT involves both students taking on the tutoring role in turn, so that each child is both tutor and tutee (Griffin and Griffin, 1997).

In practice, the use of the term peer tutoring can refer to any of these approaches. Although in more recent literature, many studies treat the term peer tutoring as meaning reciprocal peer tutoring. This may well be due to the influence of one intervention model, Class Wide Peer Tutoring (CWPT), which uses an RPT model and has been the subject of an extensive range of studies since the 1980s (Maheady and Gard, 2010). Peer tutoring models, such as CWPT, use quite highly structured approaches to the interaction of peers, with specific steps outlined for the learning task, and structured guidance for the peer role which includes the use of specified feedback approaches including the use of rewards (Utley, Mortweet, and Greenwood, 1997). As well, sessions are of specified length (usually 20 to 40 minutes) and repeated in a series over periods of 5-8 weeks (Moeyaert, Klingbeil, Rodabaugh, and Turan, 2019).

There is a considerable range of studies that have sought to bring empirical support to the effectiveness of peer tutoring in terms of both social and academic development (e.g. Bowman-Perrott, Davis, Vannest, Williams, Greenwood, and Parker, 2013). Hattie's (2008-2017) review, as noted, indicated an average effect size of 0.55 in terms stated aims of the study, for peer tutoring. There has also been longstanding interest in the potential of peer tutoring to be of specific benefit to children with SEN, another rationale for its selection for

this study. For example, Slavin (1977) explored the use of collaborative learning approaches in middle school students with EBD with an experimental/control design, and found that there were sustained significant increases in on task behaviours at 5 months follow up in students who had engaged in collaborative as opposed to traditional transmission based instructional approaches. There have been a number of reviews which have focused on higher quality studies which have included control groups (usually with standard or typical instruction), standardized outcome measures and included effect sizes. Most studies and reviews have focused on student attributes, type of peer tutoring and duration of intervention as independent variables, with academic and social development as dependent variables. Few of any studies have considered teacher attributes such as educational qualification, major or teaching experience, nor indeed specifically looked at special versus mainstream settings.

Moeyaert et al. (2019) undertook a review of single case studies for at risk students and students with disabilities. They included 46 studies. Academic performance was the key outcome in 70% of the studies and social outcomes in the remaining 30%. The areas of academic focus included literacy (oral reading fluency, reading accuracy, idiom comprehension), language and maths. Social outcomes included, for example, measures of aggression and of positive behaviours out of the classroom. A statistically significant intervention treatment effect for both academic (treatment effect = 4.18) and social outcomes (treatment effect =1.84) was found. Further analysis was done in terms of gender, age, study quality, and disability type across the studies. Peer tutoring was associated with larger effects for older student for both outcomes types. The effect for gender was large, particularly for academic outcomes with there being a marked drop in effectiveness for girls compared to boys. There were little differences in effectiveness across different categories of disability.

Kroesbergen and Van Luit (2003) presented a meta-analysis of 58 studies of interventions for mathematics for primary school students with SEN. Twenty of the studies included had an element of peer tutoring and showed positive effect sizes [e.g. Beirne-Smith et al. (1991) where d=0.82; and Fantuzzo, Davis, and Ginsburg (1995) where d was 0.52]. However, results showed that compared to other intervention methods, peer tutoring was less effective (treatment effect -1.66). The authors suggest that this may be because peers are less capable of perceiving the needs of other students when acting as tutor when compared to teacher. However given that many of the studies with peer tutoring in the review did show positive individual effect sizes, they suggest the results show the importance of the role of the teacher in ensuring that there is effective implementation of interventions to support children with SEN. Overall, the evidence suggests that there is solid support for the effectiveness of reciprocal peer tutoring to bring about both academic and social progress in students with SEN.

JIGSAW Strategy

Slavin, Hurley, and Chamberlain (2003) consider a range of theoretical supports for the benefits of cooperative learning, which as with peer-tutoring include interrelated social and academic gains, including increased executive function skills (e.g. planning ahead), social communication and pragmatics (e.g. turn taking), language development (particularly for less able students), which all contribute to greater individual academic achievement. Motivational theory suggests that task motivation is key to the learning process and that individuals subsume their own learning and other (e.g. extrinsic) goals with the work of the group as whole. Social cohesion theory indicates that the effects of cooperative learning are dependent on the cohesiveness of the group and that students help each other learn because of their social relationships with group members. Some researchers consider social cohesiveness theory to be particularly relevant to the JIGSAW technique (e.g. Turner, Hogg, Oakes, Reicher, and Wetherell, 1987). As with peer tutoring, there are also social constructivist

perspectives on cooperative learning, with emphasis again on cognitive development based on increased linguistic interaction (Slavin et al. 2003).

Cooperative learning is a learning approach in which students work in small groups in relation to a specific learning task. A key element is that students are aware of shared responsibility for completing the task, and are encouraged to co-operate in the achievement of that task. It often involves the allocation of specific roles to group members (Ural, Ercan, and Gençoğlan, 2017). A range of different cooperative learning types have been identified in the literature. Johnson, Johnson, and Stanne (2000) listed shared learning, academic conflict, student group achievements, team game tournaments, group research, jigsaw, and cooperation integrated reading and writing techniques. Ural et al. (2017) defines the JIGSAW approach as: (1) students are divided in to mixed ability groups of 3-7 students each– called the home group, (2) the teacher takes the specific learning topic and divides it in to sub-topic, each of which are assigned to different students in the home group, (3) the students learn about their topic and then breakout so that students with the same sub-topic make new groups– jigsaw groups, in which they share their ideas and learning so that they become "experts" in the sub-topic, and (4) they then return to their home group and teach their sub-topic to the rest of the home group.

In practice, a number of studies have indicated the potential impact of the JIGSAW strategy. Hattie's (2008-2017) review indicated an effect size of 1.2, which is large, and larger than any other cooperative learning approach that was reviewed There are as a number of studies focusing on the use of JIGSAW in children with SEN, which, associated with the very high effect size in studies in general education, again forms another key rationale for the selection of this strategy as a focus for this study. Rose (1991) reported on a qualitative study of the use of the JIGSAW with children with severe learning difficulties in a special school in England. Teacher reports indicated that children in the study demonstrated progress in social behaviours and social communication. A number of authors writing about best practice approaches to developing social skills and associated academic learning in children with SEN have also quite strongly recommended the use of the JIGSAW (e.g. Johnson, Johnson, and Holubec, 1987; Byers and Rose, 2012; Babbage, 2013; Farrell, 2013). They all argue that the focus of the JIGSAW on developing cooperation skills, social communication and indeed its potential to develop social cohesiveness and learner identity, all provide a strong rationale for why the JIGSAW may be of benefit to children with SEN. They also include a number of persuasive qualitative case studies drawn from practitioner reports.

Methods

This study used a questionnaire survey to investigate how well elementary special education teachers understood and made use of the two selected strategies in the education of students with special needs in Kuwait`s mainstream classrooms

Participants

A total sample of 317 special education teachers (F=296, M=21) in all 24 Kuwaiti public mainstream elementary schools were sent the survey.

A hundred and fifty (a 47.3% response rate) responded by the end of spring semester of the 2018-2019 school year. The 150 participants in this study were all female special education teachers. Their nationalities were Kuwaiti (N=95, 63.3%) and non-Kuwaiti (N=55, 36.7%). Their ages varied from 21-23 years (N=27, 18%), 24-26 years (N=28, 18.7%), 27-29 years (N=24, 16%), and 30 years and above (N=71, 47.3%). Their age distribution is shown in Table 1.

Table 1. *Special Education Teachers' Age Distribution and Nationality.*

Nationality	21-23	24-26	27-29	30 and More	Teachers	Pearson Chi-Square
Kuwaiti	22	18	17	38	95	P= 6.02 Sig 0.061
Non-Kuwaiti	5	10	7	33	55	
Total	27	28	24	71	150	

Most participants had a bachelor degree (BA) in general curriculum and instruction (N= 103, 68.7%), whereas some had a specific bachelor degree (BA) in special education (N= 47, 31.3%).

Participants' subject teaching majors were in one of 6 different teaching subjects, Science (N=11, 7.3%), mathematics (N=15, 10%), Arabic language (N=34, 22.7%), English language (N=20, 13.3%), Islamic studies (N=51, 34%), and social studies (N=19, 12.7%). Their teaching experiences were varied less than three years (N= 60, 40%), 3-5 years (N= 22, 14.7%), 6-10 years (N= 24, 16%), and more than ten years (N= 44, 29.3%). These participants worked across all of the six different educational districts in Kuwait. The teaching majors of the students and their length of teaching experience post-qualification are shown in Table 2.

Table 2. *Special Education Teachers' Teaching Majors and Teaching Experiences.*

	Teaching Experience	Arabic	Science	Social Studies	English	Mathematics	Islamic Studies	Total	Pearson Chi-Square
xp	Less than 3 Years	12	1	6	7	2	32	60	P= 6.02 Sig 0.061
	3-5 Years	4	1	9	5	0	3	22	
	6-10 Years	3	2	2	3	7	7	24	
	10 Years and More	15	7	2	5	6	9	44	
Total		34	11	19	20	15	51	150	

Development of Survey Instrument:

The survey instrument included 29 questions, which was divided into two sections. The first section focused on the demographic characteristics of participants, consisting of seven questions related to demographic variables (nationality, age, education qualification, teaching experience, major, educational district, and school gender-type). The second section focused on teachers' understanding and use of the two selected strategies, consisting of another 22 questions which divided into two dimensions. The first dimension included 12 question related to the peer tutoring strategy, while the second dimension included 10 questions related to the JIGSAW strategy. Each of the items was measured along a four-point Likert scale (from *1=rarely, 2=sometimes, 3=mostly,* to *4=always*).

Some representative items from the second section of the questionnaire are shown as follows: *"I clearly explain to my students the importance of using peer tutoring strategy in developing the skills to be learned", "I use the peer teaching strategy in my teaching to encourage students with high achievement to help their peers with low and poor achievement during the*

implementation of the lesson activities","My students with special educational needs' learning and academic achievement improved positively because of the use of cooperative learning strategy", and"I practice JIGSAW *cooperative learning strategy in my classroom instructional activities included putting them in heterogeneous groups to achieve instructional objectives".*

The final instrument was written and administered in Arabic which is the formal learning language in Kuwait's public mainstream schools, and then translated into English for the purposes of publication. The validity and reliability of the questionnaire items were assessed as follows. First, face and content validity steps were performed: (1) the questionnaire was given to seven university professors specializing in special education curriculum and instruction, and all their suggested changes were implemented as modifications in three items related to the peer tutoring strategy dimension and in four items related to and JIGSAW strategy (2) construct validity for the questionnaire was tested using a pilot study consisting of 20 elementary special education teachers who were randomly selected. This indicated a significant correlation between each of the two dimensions and the overall questionnaire. Second, the reliability of the survey was tested using Cronbach's Alpha with a score of 0.831 indicating a high level of reliability.

Data Collection and Analysis:

The questionnaire survey was distributed via an online application, Google Personal Forms, and administered for two weeks duration the end of the spring semester of the 2018-2019 school year. One hundred and fifty valid responses were received (a 47.3% response rate).

Results

This study set out to explore elementary special education teachers' understanding and use of two selected evidence-informed approaches in the education of students with SEN in Kuwait mainstream schools. As presented in Table 3, the overall mean ratings of participants on all items focusing on the peer tutoring strategy was 3.34 with an SD of 0.38 and for JIGSAW strategy was also a mean of 3.34 with an SD of 0.44. This broadly suggests that overall there was quite a high degree of understanding and use of the two selected evidence-informed approaches across the participants.

Table 3. *Means and Standard Deviations for All Items*.

Dimension	Means (M)	Standard Deviation (SD)	
Peer Tutoring Strategy	3.34	0.39	
JIGSAW Strategy	3.34	0.44	
Overall	3.34	0.38	

Further details on the individual item responses are shown in Table 4:

Table 4. *Individual Response Items, showing frequencet counts for each response category.*

Item/Response Category	Always	Mostly	Sometimes	Rarely
Peer Tutoring:				
a. I use the peer teaching strategy in my teaching to encourage students with high achievement to help their peers with low and poor achievement during the implementation of the lesson activities.	73	73	4	0
b. I use in my teaching a variety of the Peer tutoring strategies.	71	73	6	0
c. I clearly explain to my students with high achievement their roles in how to ask their peers with low and poor achievement to understand the lesson subject.	59	70	19	2
d. I distribute all my students into pair groups (tutor, learner) during each learning activity when I am using the peer tutoring strategy in the instruction.	60	79	10	1
e. I explain the skills intended to be learned to the tutor and make sure the tutor efficiently acquired the skills during the learning activity when I use of peer tutoring strategy in the instruction.	64	80	5	1
f. I ask the tutor to explain the skills intended to be learned to his learner in each learning activity during the use of the peer tutoring strategy in the instruction.	52	83	14	1
g. My role as a classroom teacher when using the peer tutoring strategy is only to guide peer-student during instructional activities.	33	80	32	5
Jigsaw Method:				

h. I practice JIGSAW cooperative learning strategy in my classroom instructional activities included putting students in heterogeneous groups to achieve instructional objectives.	43	52	15	0
i. I use the cooperative learning strategy during the lesson activities by distributing my students in homogeneous groups to work towards achieving the lesson objectives.	63	69	7	1
j. I clearly explain to all my students in cooperative learning groups their responsibilities toward the success or failure of the group work for the purpose of reinforcement the cooperation among them.	65	74	9	2
k. I encourage every individual student in cooperative learning groups to work as a one team solving intended problems in the learning activity.	68	78	4	0
l. I ask all my students to explain to their peers in each of the cooperative learning groups what each of them did individually during each learning activity in the instruction.	54	85	11	0
m. I ask all my students to answer together all questions provided in each cooperative learning activity during the implementation of cooperative learning strategy in the instruction.	61	74	14	1

Table 4 indicates that for peer tutoring, 146 out of 150 respondents (97%) indicated that they mostly or always make use of this strategy in the classroom. For the jigsaw method, the corresponding statistic was lower at 95 out of 150 respondents (63%). Further response items also indicate, for both strategies, a fair degree of understanding of the use of the methods. For example, for peer tutoring, 139 respondents (93%) indicated that they mostly or always put students in to tutor and learner pair grouping during the use of the strategy (item d in the table). As well, 139 respondents (93%) also indicated that they mostly or always explained the skills intended to be learned to the tutor and make sure the tutor efficiently acquired the skills during the learning activity when using peer tutoring strategy (item e in the table). . For the JIGSAW strategy, 146 out of 150 respondents (97%) indicated that they mostly or always encouraged each individual student in cooperative learning groups to work as a one team to solve intended problems in the learning activity (item k). As well, 139 out of 150 respondents (93%) indicated that they mostly or always ask all their students to explain to their peers in each of the cooperative learning groups what each of them did individually during each learning activity in the instruction (item l).

Analysis of Influence of Demographic Variables

When looking at the mean scores for all items for each strategy, there was no statistical difference ($p<0.05$) in terms of any of the demographic attributes, except for age. The results presented in Table 5 indicated that there were significant differences ($p<0.05$) for the mean scores of all items for the JIGSAW strategy by age. Further analysis as in Table 6 indicates that teachers who are of 24-26 years old reported higher mean ratings than those who were 21-23 years old ($p=0.01$)

Table 5. *Results of T-test for the Peer Tutoring Strategy and JIGSAW strategy according to Age*.

Strategy	Age	Sum of Squares	Df	Mean Square	F	Sig.
Peer Tutoring Strategy	Between Groups	0.66	3	0.22	1.47	.226
	Within Groups	21.73	146	0.15		
	Total	22.38	149			
JIGSAW Strategy	Between Groups	1.71	3	0.57	3.08	.029
	Within Groups	26.98	146	0.18		
	Total	28.69	149			

Table 6. *Results of Differences between Ages in the JIGSAW strategy*.

Dimension	Age	Mean	Diff.	Sig.
JIGSAW Strategy	24-26 Years	3.43	0.302	0.01
	21-23 Years	3.13		

Discussion

The results indicated that special education teachers were using the peer tutoring strategy to a greater extent than the JIGSAW strategy. Special education teachers made use of peer tutoring with a good degree of understanding, for example, as indicated by responses to items (d) and (e), which resonates with perspectives on peer tutoring reported in the extant literature (e.g. Kroesbergen and Van Luit, 2003; Bowman-Perrott et al., 2013; Moyaert et al., 2019). However, teachers also employed the JIGSAW method with a good degree of understanding, as indicated by responses to items k and l, which again resonates with perspectives on the successful implementation of the method (e.g. Rose, 1991; Byres and Rose, 2012; Babbage, 2013). There was little variation by demographic variables for peer tutoring strategy, in contrast to some other studies on the use of evidence-informed strategies in the classroom– see Hattie (2008). However, there was a variation by age for JIGSAW strategy, with teachers 24-26 being more confident than those of 21-23 years. We might speculate this is could be because teachers with more experience in school, who have passed through the "reality shock" associated with the novice teacher years, may have greater cognitive capacity to both engage with and apply evidence-based practices in the classroom (Mintz et al. 2020).

To date, no studies have explored on an empirical basis the extent to which special education teachers in Kuwait are aware of or make use of evidence-based strategies in relation to children with SEN in mainstream classrooms, nor indeed are there, as noted, many substantive studies in this area in other territories. This study has shown that, at least for the selected strategies, there was a good degree of understanding of and use of these strategies across teachers in Kuwait. We think it is reasonable to argue that if there was a good level of understanding and use of these strategies, then this tells us something about the broad level of understanding and engagement of the special education teachers in the sample about evidence-based practice in general, in relation to classroom practice for SEN in mainstream schools. There was, as noted, little variation in this across age, gender or length of classroom experience. This suggests that despite concerns over the effectiveness of pre-service teacher preparation, it may be that recent educational reforms in Kuwait (NCED, 2018), particularly the revised teacher preparation programmes with an emphasis on developing understanding and skills related to evidence-informed practice in SEN and inclusion, and a focus on using an enquiry based approach to identifying strategies that meet the needs of each child with SEN (KU, 2014), may have had an impact on awareness and implementation of evidence-based practices. As well, the focus on action research and professional learning communities in schools, may also have had an impact.

Clearly, this is a relatively small scale study and future research could focus on a range of related areas, including investigation of understanding and practice in relation to a wider range of strategies in Kuwait and more widely, the role of pre-service and in-service teacher education in supporting engagement with evidence, and the practicality of implementation in classroom settings, i.e. the relative fit between the intervention and the realities of life in the classroom (Russo-Campisi, 2017). McNeill (2019), in a study of 130 special educators in the US, identified that teachers who engaged in exploration of evidence-based approaches independently (i.e. were "self-taught") were less likely to use evidence-based approaches in practice, pointing towards the importance of structured approaches to the use of EBPs in both pre-service and in-service teacher education.

For evidence-based practice for special educational needs to be properly developed in schools, the literature points towards the need for teachers, both at pre-service and in-service stages, to have opportunities to engage in collaborative problem-based reflective enquiry which allows them to flexibly consider how evidence-based approaches can be individually applied within the local classroom context (Russo-Campisi 2017, Hick et al 2019; Mintz et

al. 2020; Csanadi, Kollar, & Fischer 2020, Mintz et al. in press). At the same time, there is also support in the literature for the potential for teachers with specific training and knowledge in the effective inclusion of children with SEN, and in specific evidence-based practices, to support generalist teacher colleagues in achieving high quality teaching, including the flexible use of evidence-based approaches, tailored to the needs of individual children (Cochran-Smith and Dudley-Marling 2012, Hornby 2020, Fitzgerald and Radford 2020). This study, focusing on two particular strategies, and the translation of their inclusion in pre-service teacher education curricula to practice in schools, provides support for the link between structured teacher education for special educational needs, knowledge about evidence-based approaches, and effective implementation of evidence-based approaches in practice. Clearly, there is scope for further research on this topic both in Kuwait and internationally, focusing on a wider range of evidence-based approaches, and which seeks to identify with greater granularity the particular models of professional learning at both pre-service and in-service stages which support the effective implementation of such approaches to support the effective inclusion of children with SEN in mainstream settings.

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