Reported Prevalence by Australian Special Educators of Evidence-Based Instructional Practices

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This research examined the reported level of implementation of eight practices in a national sample of Australian special education teachers, replicating the North American study of Burns and Ysseldyke (2009). The 194 respondents reported extensive use of a number of evidence-based practices, such as direct instruction and applied behaviour analysis. Conversely, a number of practices that have very weak empirical foundations or can be considered disproven, such as perceptual-motor training and modality instruction, continue to be used at moderate-to-high levels. In addition, compared to their North American counterparts, Australian special education teachers used a number of evidence-based practices significantly less frequently and used perceptual-motor programs more frequently. Implications of these results are discussed.

Keywords: evidence-based practices, implementation, teacher development

While many questions certainly remain, research has provided clear indications on effective instructional practices in special education (Carnine, 2000; Heward, 2003; Kavale & Forness, 1999; Swanson, 2001; Swanson & Hoskyn, 1998; Vaughn & Linan-Thompson, 2003), and the profession has moved past the point where most decisions need to be made on the basis of what we 'think might work' (Boardman, Arguelles, Vaughn, Hughes, & Klingner, 2005). Further, over the past decade or so evidence-based practice has received increasing emphasis in special education (e.g., Carter & Wheldall, 2008; Cook, Cook, Landrum, & Tankersley, 2008; Gersten et al., 2005; Horner et al., 2005; Odom et al., 2004; Tankersley, Harjusola-Webb, & Landrum, 2008), so it could be argued that teachers should be receiving clearer guidance on practices that are supported by evidence. Nevertheless, it is commonly asserted that knowledge regarding effective instructional practices has not necessarily been implemented by special education teachers on the ground and there has been ongoing discussion of a research-to-practice gap (Abbott, Walton, & Greenwood, 1999; Cook, Tankersley, Cook, & Landrum, 2008; Duchnowski, Kutash, Sheffield, & Vaughn, 2006; Heward, 2003; Jeffrey, McCurdy, Ewing, & Polis, 2009; Kutash, Duchnowski, & Lynn, 2008; Kutash, Duchnowski, & Lynn, 2009; Vaughn & Linan-Thompson, 2003).

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Given the often-repeated claim of a research-to-practice gap in special education, there appears to be limited data on instructional strategies used by special education teachers. One exception has been in the area of working with students with severe disabilities where there has been considerable interest. A series of studies have been conducted in North America examining reported implementation of 'best practice' by special education teachers. Reasonably high levels of agreement with these practices were reported (Ayres, Meyer, Erevelles, & Park-Lee, 1994; Eichinger & Downing, 1992; Izen & Brown, 1991; Williams, Fox, Thousand, & Fox, 1990), but levels of implementation were lower than might be expected based on agreement, or else significant barriers to implementation were described by teachers (Ayres et al., 1994; Williams et al., 1990). It should be noted that these practices were primarily derived from subjective literature reviews and/or expert consensus, rather than systematic analysis of empirical data (Chalmers, Carter, Clayton, & Hook, 1998). Further, respondents were not asked about practices that were not considered to represent 'best practice'.

Hess, Morrier, Heflin, and Ivey (2008) conducted an Internet survey of the intervention and treatment strategies used by teachers working with children with autism spectrum disorders in the state of Georgia in the United States. Approximately 79% of the 185 respondents were special educators, although data were not analysed separately for this group. Hess et al. reported that the five most frequently used strategies (including sensory integration and Gentle Teaching) did not have a sound scientific basis according to the review of Simpson (2005). Further, several strategies that were considered to have solid research support were used at low frequency.

In a recent paper, Burns and Ysseldyke (2009) examined the level of implementation of various instructional practices by special education teachers in North America. The effectiveness of practices was identified from previous syntheses of meta-analyses (see Forness, 2001). One issue for determining educational effectiveness is deciding on a threshold for effect sizes. Various thresholds for instructional practices and programs have been suggested, typically around a quarter to a third of a standard deviation (e.g., Lloyd, Forness, & Kavale, 1998; What Works Clearinghouse, 2008). Recently, in the largest synthesis of meta-analyses relevant to education conducted to date, Hattie (2009) concluded that most studies of educational interventions demonstrated effectiveness in the sense that they produced positive effect sizes. Since maturation and the simple provision of teaching could result in effect sizes of up to 0.4, Hattie suggested this as a 'hinge point' for judging educational effectiveness. That is, interventions above this hinge point should be considered likely to be educationally significant and those below the hinge point should not be regarded as valuable educational interventions unless inexpensive and simple to implement.

Burns and Ysseldyke (2009) randomly sampled special educators from the teaching membership of the Council for Exceptional Children in the United States. They asked these teachers to indicate the frequency at which they used eight instructional practices. Three of these practices were considered effective (mnemonic strategies, applied behaviour analysis, direct instruction), with effect sizes ranging from 0.84 to 1.63, and one was rated as moderately effective (formative evaluation), with an effect size of 0.70. Four practices were considered ineffective (psycholinguistic training, social skills training, modality instruction, perceptual-motor training), with effect sizes below Hattie's (2009) 0.40 hinge point. Frequency was rated on a 5-point scale from *Almost never* to *Almost every day*. While Burns and Ysseldyke (2009) found that some well-validated instructional strategies were used frequently (direct instruction, applied

behaviour analysis), other interventions with strong (mnemonic strategies) or moderate supporting evidence (formative evaluation) were used relatively infrequently. Further, some ineffective interventions such as modality instruction were used at relatively high frequency.

This finding was not surprising in the light of a number of studies examining reading practices and decision-making of teachers. Rudland and Kemp (2004) reviewed research on the professional habits of teachers, including special educators, and concluded that teachers engaged in relatively little professional reading compared to other professions, and that the reading undertaken tended to be of a pragmatic nature. Landrum, Cook, Tankersley, and Fitzgerald (2002) examined the views of 127 trainee teachers nearing the end of their courses in midwestern universities in the United States. Landrum et al. reported that the opinions of colleagues, workshops and in-service programs were rated as more accessible, usable and trustworthy than professional journals by both regular and special education teachers. Boardman et al. (2005) conducted focus groups with 49 special educators working with students who had learning difficulties and behaviour problems. Boardman et al. (2005) reported that research evidence was not a major consideration in selection of instructional practices. While research is limited, there is at least a prima facie case that special education teachers do not access research frequently and place limited value on research.

While some aspects of the North American and Australian teacher preparation systems are similar, there are important differences. For example, while formal qualifications in special education are desirable in Australia, only one state teacher registration board (Victoria) actually certifies special educators. Further, a significant proportion of teachers in Australia do not have such qualifications (Thomas, 2009).

There is limited research on practices used by teachers in North America but there appears to be even less data in Australia. Again, available research has been focused on students with severe disabilities. A series of studies (Carter, Chalmers, Clayton, & Hook, 1998; Chalmers et al., 1998; Stephenson & Carter, 2005) found that Australian teachers and teacher trainees reported agreement and implementation of practices that were considered to represent best practice for students with severe disabilities. The researchers found that respondents strongly agreed with most practices but found a variety of barriers hampered implementation. As with the corresponding North American research, these practices were primarily derived from expert consensus rather than empirical data. Further, the structure of the questionnaire was such that teachers were not asked about agreement with or implementation of practices that were not considered to represent best practice.

Thus, there appears to be a paucity of data on the level of implementation of evidence-based practice and, in particular, a lack of data on Australian special education teachers. The present study was an initial attempt to address this gap and involved a replication of the research of Burns and Ysseldyke (2009) with a national sample of special education teachers in Australia. The primary question of interest was the extent to which teachers reported implementing instructional practices supported by research versus practices that do not have strong empirical support. A second question was whether the reported patterns of implementation varied across teacher demographic characteristics such as their location, type of child served and qualifications. Finally, it was of interest to determine whether there were differences in the patterns of reported implementation between the current sample and those described by Burns and Ysseldyke (2009).

Method

Survey Construction

The survey consisted of two parts. The first part addressed demographic information. Respondents were asked to provide information on their gender, state(s) in which they worked, whether they taught in metropolitan or rural areas, current position(s) (classroom teacher, itinerant or support teacher, executive staff or administrator [e.g., Principal], other), where they currently taught (special school, support unit in regular school [i.e., special class], regular class, other) and types of student(s) taught (learning disabilities/ difficulties, emotional/behavioural problems, physical disability, mild intellectual disability, moderate intellectual disability, severe/multiple disability, autism, other). The subsequent questions addressed the respondents' highest academic qualification in any field (diploma, bachelor degree, coursework masters, research degree, other) and highest qualification in special education (no formal qualification in special education, diploma in special education, bachelor degree in special education, coursework masters degree in special education, research degree in special education, other). In each case where an 'other' response was allowed, a space was provided for respondents to complete details. Respondents were then asked to write the name of the institution from which their qualification in special education was obtained, asked to indicate their total number of years of teaching experience and the number of years teaching in special education.

The second part of the survey was a replication of the research of Burns and Ysseldyke (2009). Respondents were presented with a list of the eight practices along with a brief description and asked to circle the response that best reflected their use of each (almost every day, at least once a week, once or twice a month, rarely, almost never). The descriptions of the eight practices were as follows:

- Applied behaviour analysis: Systemic application of behavioural principles (e.g., antecedent, behaviour, consequence) to change student learning and behaviour to a meaningful degree.
- Direct instruction: Academically focused, teacher-directed learning with sequenced, structured materials and high levels of student responding.
- Formative evaluation: Systematically measuring student progress to instructional goals during instruction and modifying instruction as necessary (e.g., curriculum-based measurement).
- Mnemonic strategies: Using elaborative learning strategies (e.g., keywords) to improve memory of facts.
- Modality training: Providing instruction for individual children based on their preferred modality (visual, auditory, kinesthetic).
- Perceptual-motor training: Programs designed to improve academic skills by enhancing perceptual-motor abilities.
- Psycholinguistic training: Determining difficulties in auditory and visual-motor receptive, integrative, and expressive abilities and improving academic skills by remediating the weakness.
- Social skills training: Programs that remediate social skills deficits through observation, practice, and reinforcement of appropriate social behaviours.

Distribution

The survey was distributed with an accompanying letter indicating the purpose of the research, giving details of human ethics consent and requesting that the survey be

returned within three weeks in the supplied reply paid envelope. It was originally intended that the survey would be distributed to all members of the Australian Association of Special Education (AASE) as an insert in the journal *Special Education Perspectives*. Due to an administrative error, it was initially only distributed in the journal to New South Wales members, so the survey was posted separately to members in other states. For administrative convenience the survey was distributed to both individual and group members (e.g., libraries) but responses were not anticipated from group members. A total of 902 surveys were distributed and, based on membership percentage estimates subsequently provided by AASE, this included approximately 664 individual full members and 32 individual student members at the time of distribution.

Analysis

Data were entered into a custom designed FileMaker Pro database. The ratings of practices were converted to ranks from 1 (*Almost every day*) to 5 (*Almost never*) to facilitate inferential analysis. Further, levels of qualification were ranked, with 1 being assigned to the highest level (research degree).

Results

Return Rate

A total of 193 surveys were returned representing 29.1% of the targeted individual non-student members.

Participants

Demographic characteristics of participants are summarised in Table 1. Respondents were primarily female (90.3%) and approximately 60% were from the three largest states, New South Wales, Victoria and Queensland. Approximately three quarters of participants worked in metropolitan areas and there was a fairly even distribution of respondents across regular classes, support classes and special school settings. The most common category of children taught were those with autism, although most teachers taught children from several diagnostic groups. With regard to students currently taught, 20 of the 45 respondents who indicated 'other' reported teaching children with sensory impairments. Slightly over a third of respondents had a coursework master's degree as the highest qualification in any field and a similar proportion had a bachelor's degree. A total of 14% of respondents indicated that they did not have a formal qualification in special education, and slightly under a third of respondents reported their highest qualification as a coursework master's degree. Approximately 23% of respondents reported having a bachelor's degree in special education.

Reported Implementation

Data on the overall reported use of each intervention are presented in Table 2. A Friedman two-way analysis of variance (Stricker, 2008) was conducted to determine whether interventions were ranked differently by participants. There were significant differences in the rankings, $\chi^2(7, N = 171) = 253.76$, $p < .001$, so Conover post hoc comparisons (Stricker, 2008) were completed. The results of these paired comparisons and mean ranking differences between interventions is presented in Table 3. All differences were significant with the exception of the comparison between social skills and direct instruction, formative evaluation and modality training, and mnemonic training and psycholinguistic training.

TABLE 1

Demographic Characteristics of Participants

Characteristic	n	%
Gender		
Female	174	90.2
Male	18	9.3
Unspecified	1	0.5
State or Territory		
Australian Capital Territory	8	4.1
New South Wales	61	31.6
Northern Territory	18	9.3
South Australia	15	7.8
Tasmania	11	5.7
Queensland	28	14.5
Victoria	29	15.0
Western Australia	20	10.4
Other	1	0.5
Area		
Metropolitan	143	74.1
Rural	54	28.0
Current position		
Classroom teacher	57	29.5
Itinerant support	50	25.9
Executive staff or administration	62	32.1
Other	48	24.9
Current location		
Special school	64	33.2
Support unit	56	29.0
Regular class	46	23.8
Other	53	27.5
Students currently taught		
Learning disabilities/difficulties	136	70.5
Emotional/behavioural problems	142	73.6
Physical disability	114	59.1
Mild intellectual disability	133	68.9
Moderate intellectual disability	133	68.9
Severe/multiple disability	91	47.2
Autism	166	86.0
Other	45	23.3
Highest academic qualification in any field		
Diploma	14	7.3
Bachelor degree	68	35.2
Coursework master's	71	36.8
Research degree	13	6.7
Other	23	11.9
Uncodable	4	2.1
Highest qualification in special education		
No formal qualification	27	14.0
Diploma	26	13.5
Bachelor degree	44	22.8
Coursework master's	60	31.1
Research degree	9	4.7
Other	20	10.4
Uncodable	7	3.6

TABLE 2

Number and Percentage of Responses to Interventions

	Almost every day		At least once a week		Once or twice per month		Rarely		Almost never		Uncodable	
	n	%	n	%	n	%	n	%	n	%	n	%
ABA	83	43.0	44	22.8	23	11.9	23	11.9	14	7.3	6	3.1
Direct instruction	129	66.8	29	15.0	12	6.2	13	6.7	6	3.1	4	2.1
Formative	91	47.2	43	22.3	36	18.7	12	6.2	4	2.1	7	3.6
Mnemonic	48	24.9	40	20.7	32	16.6	43	22.3	24	12.4	6	3.1
Modality	96	49.7	48	24.9	15	7.8	21	10.9	9	4.7	4	2.1
Perceptual motor	37	19.2	51	26.4	19	9.8	45	23.3	30	15.5	11	5.7
Psycholinguistic	51	26.4	40	20.7	25	13.0	51	26.4	19	9.8	7	3.6
Social skills	125	64.8	41	21.2	10	5.2	7	3.6	5	2.6	5	2.6

Implementation and Demographic Characteristics

As delivery of school education is largely controlled at the state level in Australia, it was of interest to examine rankings of instructional practices across states. These data are presented in Table 4. The three states that had more than 25 respondents were examined and mean differences of more than 0.4 in mean ranking were noted. There was a similar mean ranking for direct instruction across these states. Applied behaviour analysis was reported as being used less in Queensland than Victoria. Both formative evaluation and mnemonic strategies were used less in Victoria and Queensland than in New South Wales. With regard to practices that were not supported by research, very similar mean rankings were apparent for modality training, psycholinguistic training and social skills training. Perceptual-motor training was reported to be used more in Queensland than in New South Wales.

Interventions may vary in their utility across different types of students. For example, mnemonic strategies rely on language proficiency and may have less application to children with severe disabilities than those with learning disabilities. Examination of the demographic data indicated that teachers generally taught children from several diagnostic categories. Therefore, a decision was taken to compare mean rankings for teachers working with the highest incidence condition (learning disabilities) and the lowest incidence condition (severe and profound disability). A comparison was made between two mutually exclusive groups: (1) teachers who taught children with learning disabilities but not severe and profound disability; (2) teachers who taught children with severe and

TABLE 3

Friedman Post Hoc Analysis and Mean Rank Differences for Interventions

	ABA	Direct instruction	Formative	Mnemonic	Modality	Perceptual motor	Psycho-linguistic
Direct instruction	1.11***	—	—	—	—	—	—
Formative	0.42*	-0.69***	—	—	—	—	—
Mnemonic	-0.91***	-2.02***	-1.33***	—	—	—	—
Modality	0.50*	-0.61**	0.08	1.41***	—	—	—
Perceptual motor	-1.37***	-2.48***	-1.79***	-0.46*	-1.87***	—	—
Psycholinguistic	-0.92***	-2.04***	-1.34***	-0.01	-1.43***	0.44*	
Social skills	1.26***	0.15	0.85***	2.17***	0.76***	2.63***	2.19***

Note: *$p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 4

Mean (*SD*) Rank of Practices Across States

	ABA	Direct instruction	Formative	Mnemonic	Modality	Perceptual motor	Psycho-linguistic	Social skills
ACT	2.57	1.63	1.5	3.38	2.75	3.5	3.86	1.25
(*n* = 8)	(1.40)	(1.06)	(0.53)	(1.19)	(1.39)	(1.69)	(1.46)	(0.46)
NSW	2.03	1.52	1.64	2.46	2.03	3.09	2.57	1.59
(*n* = 61)	(1.34)	(1.08)	(0.92	(1.41)	(1.31)	(1.42)	(1.42)	(0.9)
NT	2.12	1.76	2.59	3.12	1.59	2.35	2.5	1.24
(*n* = 18)	(1.27)	(0.97)	(1.18	(1.5)	(0.87)	(1.41)	(1.41)	(0.56)
SA	3.0	1.33	1.67	2.6	2.27	3.0	2.6	1.93
(*n* = 15)	(1.36)	(0.9)	(0.9	(1.24)	(1.22)	(1.2)	(1.3)	(0.96)
TAS	2.0	1.45	1.45	2.7	1.82	2.9	2.73	1.55
(*n* = 11)	(0.89)	(0.82)	(0.82	(1.06)	(1.17)	(0.99)	(1.1)	(0.69)
QLD	1.82	1.5	2.26	2.89	1.93	2.62	2.61	1.5
(*n* = 28)	(1.16)	(1.07)	(1.38	(1.37)	(1.39)	(1.47)	(1.34)	(1.0)
VIC	2.36	1.75	2.23	2.96	1.89	2.75	2.54	1.54
(*n* = 29)	(1.28)	(1.14)	(0.99)	(1.40)	(1.07)	(1.35)	(1.35)	(1.07)
WA	2.1	2.0	1.65	2.9	1.45	3.05	3.3	1.6
(*n* = 20)	(1.59)	(1.29)	(0.88	(1.55)	(0.83)	(1.65)	(1.53)	(1.35)

profound disability but not those with learning disabilities. These data are presented in Table 5. Again, differences of 0.4 or more in mean ranking were noted. Direct instruction, mnemonic and psycholinguistic training were used more with children with learning disabilities. Only social skills training was reported as being used more with children who had severe and profound disabilities.

Finally, Spearman rank correlations were performed between the rank of each of the eight practices and the ranking assigned to qualifications in special education to examine possible relationships between these variables. The resulting correlations were all small ranging from 0.10 to -0.14 and none were statistically significant.

Comparison with North American Research

Initially two-tailed Mann–Whitney U tests (Stricker, 2008) were conducted to compare the ranks assigned by teachers in the Burns and Ysseldyke (2009) and the current study using a Bonferroni corrected alpha value (i.e., 0.006). Differences were nonsignificant for the use of applied behaviour analysis (U = 15011.5, p = .17), formative evaluation (U = 15123.5, p = .39), modality training (U = 14862, p = .15), psycholinguistic training (U = 14068, p = .04) and social skills instruction (U = 14117, p = .01). Significant differences were found for direct instruction (U = 13733.5 p = .0007), mnemonic strategies (U = 12998.5, p = .0009) and perceptual-motor training (U = 12817.5, p = .004).

In order to further compare the magnitude of differences, the percentage of participants nominating each response in the Burns and Ysseldyke (2009) study was deducted from comparable data in the present study. These data are presented in Table 6. Thus, negative values indicate Australian special educators nominated a response less frequently than their North American counterparts and positive values the converse. Overall, Australian teachers appeared to use direct instruction and mnemonic training less frequently than their North American counterparts but used perceptual-motor training more frequently. While rank differences did not reach statistical significance, there was a trend toward less frequent use of applied behaviour analysis by Australian teachers, where

TABLE 5

Mean (*SD*) Rank of Practices Across Teachers working with Students with Learning Disabilities and Severe/Profound Disability

	ABA	Direct instruction	Formative	Mnemonic	Modality	Perceptual motor	Psycho-linguistic	Social skills
Learning difficulties (*n* = 80)	2.24 (1.3)	1.52 (0.96)	1.74 (0.99)	2.42 (1.22)	2.0 (1.18)	3.14 (1.29)	2.58 (1.3)	1.89 (1.17)
Severe/profound disability (*n* = 35)	1.94 (1.17)	2.0 (1.44)	2.09 (1.31)	3.32 (1.53)	1.85 (1.35)	2.88 (1.63)	3.25 (1.55)	1.29 (0.72)

fewer used the strategy on a daily basis but more used it on a weekly basis. An inverse trend was evident for formative evaluation where more Australian teachers reported using it daily but considerably fewer on a weekly basis. Australian teachers also reported using social skills training more frequently on a daily basis.

Discussion

This study examined the reported implementation of a range of instructional practices in an Australian sample of special education teachers. The level of reported implementation, variation across demographic characteristics and comparison with data from North America will now be considered.

Reported Implementation

There was clear evidence of difference in the reported use of interventions in the responding teachers. There was a high level of use of well-verified practice such as applied behaviour analysis and direct instruction but mnemonic training was used much less frequently. Formative evaluation, which has a moderately strong research base, was also widely employed. This suggests that based on teacher report, most of these evidence-based practices had penetrated to a substantial degree into teaching. With regard to practices with a poor evidence base, perceptual-motor programs and psycholinguistic training were employed but at much lower levels than the majority of evidence-based practices. Nevertheless, they were still used weekly or more by almost half of teachers. There was a high level of use of modality training, comparable with the

TABLE 6

Differences in Percentage of Australian (*N* = 193) and North American (*N* = 174) Teachers Nominating Responses

	Almost every day	At least once a week	Once or twice per month	Rarely	Almost never	Uncodable
ABA	-11.6	7.3	0.4	2.7	-1.9	3.1
Direct instruction	-16.5	8.7	3.9	1.5	1.4	0.9
Formative evaluation	10.4	-17.4	2.0	2.2	1.0	1.9
Mnemonic	-4.4	-12.1	-6.4	11.4	9.0	2.5
Modality	-7.2	1.9	0.3	4.6	0.1	0.3
Perceptual motor	2.5	11.5	0.0	-8.3	-9.2	3.4
Psycholinguistic	1.1	5.8	-0.8	5.1	-13.8	2.5
Social skills	9.1	1.1	-5.1	-5.0	-2.6	2.6

Note: Positive values favour Australian teachers.

level of use of applied behaviour analysis and formative evaluation. This is probably not surprising given that modality training is conceptually appealing (Kavale & Forness, 1999) and continues to be a prominent belief among educators (Geake, 2008). In fact, modality training is even a recommended practice at the tertiary level (e.g., University of New South Wales, 2004). There was also a high level of reported use of social skills training in the teachers responding to the survey.

In interpreting the preceding findings we need to look more closely at the interventions. Applied behaviour analysis, direct instruction and formative evaluation are interventions that have very general application. Mnemonic instruction is well supported by evidence but has more limited application, essentially the recall of facts by learners with substantive language abilities. Thus, it is not unexpected that mnemonic training would be used at a lower level than interventions with broader application. To some extent this interpretation is confirmed by the observation that mnemonic training was used to a substantially lower degree by teachers of children with severe and profound disability compared to those working with children with learning disabilities.

The term 'direct instruction' can be used to refer to general teaching behaviours (e.g., Rosenshine & Stevens, 1986) as well as more specific scripted instructional programs (i.e., DISTAR and derivative programs). While Kavale and colleagues view the latter as evolving from the former (see Kavale & Forness, 1999), the description provided by Burns and Ysseldyke (2009) arguably relates more to scripted programs. Nevertheless, it should be acknowledged that respondents may have interpreted this item differently.

Social skills training warrants specific consideration. Social skills training stands out among interventions selected by Burns and Ysseldyke (2009) in that it primarily describes a curriculum area rather than a specific instructional methodology. In addition, social skills are often a significant problem for a range of children, including those with significant intellectual disability (Westling & Fox, 2004), learning disabilities (Kavale & Forness, 1996) and a defining feature for individuals with autism (American Psychiatric Association, 1994). Given this, even in the absence of well-verified instructional practices, it seems more than reasonable that teachers would continue to target this important curriculum area with the means at their disposal. Further, while omnibus analyses of group (Kavale & Forness, 1996; Kavale, Mathur, Forness, Rutherford, & Quinn, 2007) and single-subject studies (Bellini, Peters, Benner, & Hopf, 2007; Kavale et al., 2007; Mathur, Kavale, Quinn, Forness, & Rutherford, 1998) have typically yielded unimpressive results with regard to social skills intervention, analyses of some specific types of intervention may yield more positive findings. For example, Wang and Spillane (2009) recently examined a number of specific social skills interventions used with children with autism. There was considerable variation in the apparent effectiveness of these strategies but they concluded that one strategy, video modelling, met the criteria for being both evidence-based and highly effective. Thus, while the evidence base for social skills interventions could not be considered strong, there is a case to be made for teachers continuing to target instruction in this area.

It appeared that several evidence-based practices are well established in teachers' repertoires, but a number of unproven and disproven practices continue to be widely employed. The question arises as to why this may be the case? It should be noted that some state education departments passively condone, and in some cases actively promote, non-research based practices such as perceptual-motor programs (Stephenson, 2009; Stephenson, Carter, & Wheldall, 2007) and this may well contribute to the level of

use of such practices. It is also possible that while tertiary teacher preparation programs may stress the use of research-based practices, they may not adequately address practices that are not research-based. This would be understandable as time is limited in special education preparation programs, there is substantial material to cover, and expending valuable time on interventions that are ineffective may seem difficult to justify. Nevertheless, the widely reported use of non-evidence-based interventions identified in this research suggests such time may be a worthwhile investment. In addition, non-evidence-based interventions may fade from visibility, only to resurface at a later time in a slightly different form (Kavale & Mattson, 1983). Thus, providing special educators with a solid understanding of the research base and characteristics of these programs may assist in inoculating them against future iterations of such interventions.

Implementation Across Demographic Characteristics

State-based comparisons were problematic as numbers in subsamples were very small. There was some evidence of differences in patterns of use of practices in the larger states. Conclusions, however, should not be drawn without the leverage of larger samples. In addition, there was no evidence of differences in patterns of use of instructional practices across levels of qualification. There was, however, evidence of differences in patterns of use of interventions between teachers working with high incidence and low incidence conditions. While most of the evidence-based practices have a high degree of generic utility, differences in emphasis are reasonable.

Comparison with North American Research

Comparison of the present sample with that of Burns and Ysseldyke (2009) revealed some interesting differences. In particular, there was significantly lower use of direct instruction in the Australian sample, although it should be noted it was still the most frequently used practice on a daily basis. Consistent with this finding was a non-significant trend toward less use of applied behaviour analysis by Australian teachers although, counterintuitively, there was also a trend towards higher use of formative evaluation in the Australian sample. There was significantly lower use of mnemonic strategies in the Australian sample. Perceptual-motor programs were the only non-evidence-based intervention that was used significantly more by Australian teachers. This is probably not surprising given the previously discussed passive tolerance, and in some cases active promotion, of these programs by state education departments.

Limitations

A number of limitations of the present study need to be acknowledged. First, the return rate was approximately 30% of the target members. While this is a low return rate, it is not inconsistent with other questionnaire research involving special education teachers (see Burns & Ysseldyke, 2009). Teachers in the current study were drawn from the membership of the Australian Association of Special Education and thus were a selective sample comprising educators with an interest in joining this organisation. Further, approximately 86% of teachers responding to the survey held formal qualifications in special education. By comparison, in a recent survey of Australian special schools, where qualification rates would presumably be relatively high, Thomas (2009) reported that the overall percentage of teachers with formal qualifications was 70%, and in the most populous state, New South Wales, it was only 60%. Thus, it would appear that the respondents were highly qualified and almost certainly not representative of special education teachers in this regard. It should also

be stressed that the current research was limited to examining reported implementation of interventions and did not examine actual levels of use in classrooms.

Future Research

The present study provides a baseline to examine future changes in the reported levels of implementation of instructional practices by special education teachers. Obviously, a larger scale study of a more representative sample of Australian special educators would be of assistance in clarifying the level of use of evidence-based practice. More broadly, existing research on the level of implementation of practices with varying levels of research support by special educators appear to have been conducted almost exclusively in North America and Australia. It would certainly be of interest to determine how practices were implemented in other countries. Existing research on implementation of instructional practices by special educators has been exclusively survey-based. While challenging, research to examine actual levels of implementation, as well as the match between self-reported and actual practice, would be extremely valuable.

Conclusion

The present research delivers both good and bad news. While Australian special education teachers reported high levels of use of a number of evidence-based practices, they also reported moderate-to-high levels of use of a number of interventions with poor research support. These findings highlight the need for tertiary training institutions as well as state departments of education to actively promote evidence-based practices and to discourage use of disproven and questionable interventions.

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