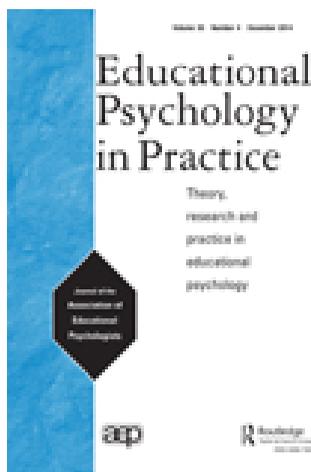


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### Utility of the International Classification of Functioning, Disability and Health (ICF) for educational psychologists' work

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## Utility of the International Classification of Functioning, Disability and Health (ICF) for educational psychologists' work

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Despite embracing a bio-psycho-social perspective, the World Health Organization's International Classification of Functioning, Disability and Health (ICF) assessment framework has had limited application to date with children who have special educational needs (SEN). This study examines its utility for educational psychologists' work with children who have Autism Spectrum Disorders (ASD). Mothers of 40 children with ASD aged eight to 12 years were interviewed using a structured protocol based on the ICF framework. The Diagnostic Interview for Social and Communication Disorder (DISCO) was completed with a subset of 19 mothers. Internal consistency and inter-rater reliability of the interview assessments were found to be acceptable and there was evidence for concurrent and discriminant validity. Despite some limitations, initial support for the utility of the ICF model suggests its potential value across educational, health and care fields. Further consideration of its relevance to educational psychologists in new areas of multi-agency working is warranted.

**Keywords:** ICF; reliability; validity; autism; special education; children

It has long been the case that a sure way to insult an educational psychologist (EP) is to describe some aspect of their practice as “medical model”. Perhaps this is not surprising given the critical use of the term over many decades to refer to a focus on “intrapyschic dysfunction” (Minor, 1972) or “psychopathology” (Jones, 2003), while failing to consider the role of systems factors such as “the teacher, the curriculum and the schools” (Kavanaugh, 1994). Given this longstanding, and ongoing (for example, Farrell, 2010) antipathy, it may seem that any attempt to advocate for the potential value of a medical model in educational psychology practice would be doomed from the outset. However it is the objective of this paper to make an initial appraisal of the utility of one particular medical model, the International Classification of Functioning, Disability and Health (ICF) for EPs' work with children who have autism. The ICF is very different from the medical models that have been characterised earlier. Furthermore the current context of practice in the UK created by the implementation of the Children and Families Act (2014) embodies new expectations for better joined-up practice, particularly in assessment of special educational needs (SEN) and disabilities across education, health and care. In this context a shared framework could play a valuable role.

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The ICF (WHO, 2001) has been described as a tool to “identify components of health” and provide “a standard language” which “enables users to record individual’s functioning, disability and health in various domains in a similar way across cultures” (WHO, 2001, p. 7). It is of interest that its development has been driven by criticisms of traditional medical models very similar to those levelled at such models by EPs. Firstly, research findings in the health care sector increasingly indicated that diagnosis alone does not predict service needs, length of hospitalisation, level of care, or outcomes; diagnosis *per se* is not a reliable predictor for receipt of disability benefits, work performance or the likelihood of social integration. Secondly, there was recognition that a purely medical classification does not provide the information required for evaluating, planning and managing needs. It was argued that the predictive power and understanding of needs are enhanced when diagnostic information is augmented by data on functioning (WHO, 2001).

Important implications of the ICF model have been identified for assessment practice in school psychology in the United States, and anticipated impacts on assessment within school settings delineated (Carlson, Benson, & Oakland, 2010). However, progress in embracing the ICF model in education appears to be slow. An investigation of SEN assessment across seven European countries found that only one country, Portugal, made any use of the ICF model, while in others static standardised psychometric testing was instead identified as the dominant approach (Lebeer et al., 2011). More broadly, a systematic literature review of the applicability of the ICF across education systems internationally concluded that, despite clear potential, current incidence of use in the field of SEN is low compared with the medical and rehabilitation fields (Moretti, Alves, & Maxwell, 2012).

### ***Description of the ICF***

The ICF provides, firstly, a model for understanding an individual’s level of functioning and disability and, secondly, an evaluation system, including an assessment checklist, that is, the ICF checklist (CAS, WHO, 2002). In its theoretical orientation, the ICF model reflects the “bio-psycho-social” perspective where functioning and disability are outcomes of an interaction between health conditions and environmental factors. Within this framework, disability is defined as a decrease in functioning involving one or more of these aspects: body impairment, activity limitation and participation restriction. Table 1 outlines the components included in the ICF checklist.

Data from the initial field trials of the ICF checklist showed high inter-rater agreement for all domains (Ustun, Chatterji, Bickenbach, Kostanjsek, & Schneider, 2002; CAS, WHO, 2002). Reports of its validity from field-trials indicated that the ICF checklist was able to capture the profile of patients with different types of musculoskeletal conditions, and good concurrence was found between the ICF ratings and assessments of functioning based on the Short Form 36 Body Function subscale (Stucki et al., 2003; CAS, WHO, 2002).

Since its publication in 2001, the ICF has received varied responses. On the one hand, its potential usefulness has been commended in many areas of research on disability and rehabilitation. Its role in providing a universal framework for assessing the impact of a disability, that is, across all health conditions and cultures (Stucki, Ewert, & Cieza, 2002; Stucki et al., 2003), has also been welcomed. On the other hand, several questions have been raised concerning the adequacy of the ICF framework in reflecting subjective and social dimensions of disability (Morris, 2009;

Table 1. Components of the ICF.

Components	Domains
Body Function and Structure	<ul style="list-style-type: none"> <li>• Body Function (for example, mental, sensory, voice and speech, genito-urinary, reproductive, neuromusculoskeletal, and movement-related functions);</li> <li>• Body Structure (for example, eye, ear and related structures; structures involved in voice and speech; structure of the cardiovascular, immunological, nervous and respiratory systems)</li> </ul>
Activities and Participation	(for example, learning and applying knowledge, communication, mobility, self-care, domestic life, interpersonal interactions and relationships, community, social and civic life)
Environmental Factors	(for example, products and technology; natural environment and human-made changes to environment; support and relationships; attitudes; services, systems and policies)

Reindal, 2009; Ueda & Okawa, 2003), its feasibility as a practical tool for clinical practice (Stucki et al., 2003), and its applicability for special populations, for example, young children (Simmeonsson et al., 2003).

There have been broadly positive appraisals of the potential practical utility of the ICF in psycho-educational contexts: in working with parents of children with cerebral palsy (Wright, Rosenbaum, Goldsmith, Law, & Fehlings, 2008), in guiding multi-professional service delivery in educational settings for children with specific language impairments (Campbell & Starakis-Doyle, 2007), in multi-disciplinary team management of young people with cerebral palsy (Mandrusiak, MacDonald, & Watter, 2009), and in ascertaining SEN (Florian et al., 2006); although studies demonstrating the treatment validity of many of these uses have yet to be reported.

### *Use of the ICF with children who have Autism Spectrum Disorders (ASD)*

The potential value of the ICF for individuals with Autism Spectrum Disorders (ASD) has been identified by Zwaigenbaum (2008), who highlighted the particular relevance of the distinction drawn between difference and disability and the importance ascribed to the impact of the social environment on the health and well-being of individuals. The potential applicability of the framework to categorising the severity of impairments in functioning of pre-school age children with ASD has also been positively appraised (Di Rezze, Rosenbaum, & Zwaigenbaum, 2012) and a questionnaire based on the ICF model was found to have good reliability and reflect the functional profile of pre-school children with ASD in Taiwan (Gan, Tung, Yeh, & Wang, 2013). However, to date no studies have been located that have conducted any empirical evaluation of the utility of the ICF framework for school aged children with ASD. Children with ASD are characterised by marked impairments in reciprocal social interaction and communication, and by repetitive and restricted interests and behaviours [International Classification of Disability – Version 10 (ICD-10), WHO, 1995]. Given the reported marked increase in the incidence of ASD in many countries (Fombonne, 2003; MRC, 2001), the potential for use of the ICF with children with autism is high.

It is common practice to assess the functioning of children with ASD using measures which have been designed and validated specifically for autism or related

developmental disorders, such as the Diagnostic Interview for Social and Communication Disorder (DISCO; Wing, 1999). One potential comparative advantage of the ICF over these measures may be its inclusion of environmental factors in influencing functionality. Additionally, as the ICF is intended for use as a universal measure (“common ruler”) across different health conditions, arguably its use may enable a more objective comparison to be made about the functionality and support needs in different groups of disability conditions. This would have utility for monitoring and for planning of inclusive support provisions and services.

### *The present study*

The objective of the present study is to make an initial appraisal of the utility of the ICF evaluation system for use by EPs with children with ASD. It was designed to add to the existing literature by applying the ICF framework for the first time both in the assessment of children who have ASD and in the evaluation of SEN. Internal consistency and inter-rater reliability are investigated. Concurrent validity is assessed following the recommendations of the Standards for Educational and Psychological Testing (APA, AERA, & NCME, 1999) by examining the convergence of evaluations based on the ICF with measures of functioning based on an established autism-specific assessment tool.

Discriminant validity is assessed in relation to a pre-existing, independent indicator of children’s SEN, namely school placement. In most national education systems where inclusive educational policy is well established, the variations in the level of support for individual children are inextricably linked to the individual characteristics of the child, as well as his/her immediate learning environment, for example, the intensity of support that a child receives is directly linked to his or her level of need, regardless of the educational setting in which the child is enrolled (Farrell, 2004; Anderson, Klassen, & Georgiou, 2007). However, this is not the situation in Singapore where inclusive practices are newly emerging (Cline & Frederickson, 2014). In Singapore there are quite clear distinctions between the type of support that is available in particular educational settings, and hence the levels of need of the students who are placed in each type of setting. For children with autism in Singapore, two types of SEN support can be identified, which coincide with school placements: children with low SEN are supported in mainstream schools, while those with high SEN who need a highly customised curriculum, individualised intervention and additional specialised support are enrolled in alternative specialised school settings, for example, special schools.

## **Methods**

### *Participants*

Participants were the mothers of 40 children from Singapore, aged 8 years 0 months to 11 years 11 months: these children had pre-existing diagnoses of ASD from appropriately qualified professionals in Singapore following assessment protocols recommended by the Singaporean Clinical Practice Guidelines for ASD (AMS-MOH, 2010). They were recruited through schools and the Autism Resource Centre. The children attended either mainstream schools ( $n = 21$ ) or special schools ( $n = 19$ ). The two groups were comparable in terms of their mean age [Mainstream:

mean ( $M$ ) = 101 months, standard deviation (SD) = 24; Special School:  $M$  = 97 months, SD = 21], and sex ratio, with an over-representation of boys (19:2 in mainstream school and 16:3 in special school). None of the children recruited in the sample was reported to have co-morbid physical/physiological disorders.

## **Measures**

### *The ICF-based interviews*

Much of the research on ICF has focused on establishing the profiles of patients with chronic medical conditions using a 125 item checklist derived from the ICF classification system (CAS, WHO, 2002; Ewert et al., 2004). In these studies the emphasis has been on profiling the extent and locus of bodily impairment and activity limitations for individuals who were diagnosed with the same conditions, so the key aims were to identify which specific aspects of functioning were impaired as a result of the disability condition and to what degree. In contrast, the assessment of SEN requires a more comprehensive assessment of all aspects of a child's functioning, regardless of whether an aspect is a likely consequence of the disability condition, or simply reflective of individual variations.

In the present study, for the ICF interviews, from the total pool of items in the two-level classification system of the ICF, 204 items were selected, grouped under the following three components: Impairments in Body Function (94 items); Activity Limitation and Participation Restriction (72 items); and Environmental Facilitator/Barriers (38 items). Items not relevant to the age group (for example, pertaining to marriage, child-rearing, intimate relationships, employment) or socio-geographical contexts in Singapore (for example, changes in seasonal weather conditions, use of domesticated animals for work) and items related to sensory and physical disabilities (for example, use of Braille, sign language) were excluded. Given the absence of co-morbid physical/physiological disorders in the children with ASD in the sample, ICF items reflecting impairments in "body structures" (that is, anatomical parts of the body such as organs, limbs) were also excluded.

To ensure consistency in judgments an investigator-based interview protocol was developed which provided specific questions and relevant probes that could be used to elicit parents' descriptions of target behaviours defined in the ICF manual, together with the relevant developmental milestones for the Singapore population. Following the ICF checklist rating framework (CAS, WHO, 2002), for each item a rating of the magnitude of any impairment/the extent to which environmental factors operate as facilitators or barriers was made and recorded using a five point rating scale ranging from zero (no impairment/facilitator/barrier) to four (complete impairment/facilitator/barrier). Table 2 shows a sample item from the investigator-based protocol for illustration. This methodology is consistent with the recommendations of the ICF developers, where the professionals' role in completing the ICF is not merely to obtain "yes" or "no" answers from respondents, but rather to obtain information or reports on behaviours, through questioning or probing, that will enable the interviewer to make a judgment about the existence of an impairment, and its level of severity (CAS, WHO, 2002). The use of this five point scale gives a total score range on each component from zero to four times the number of items, hence for example on the Impairments in Body Functions component the total score from the 94 items could range from 0 to 376. (The interview checklist and protocol used in this study are available from the first author.)

Table 2. Investigator-based interview protocol: sample items (d1, d2 and d3).

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*d1 Basic Learning d130 Copying*

Imitating or mimicking as a basic component of learning, for example, copying a gesture, sound or letters of alphabet.

Probe and Rating Guidelines for d130

Can X copy/imitate a gesture, an action or copy alphabet independently? Does he imitate actions spontaneously? Does he need any verbal prompting or physical assistance/assistance? How often/in what contexts are these problems present?

- 0 No difficulty. Child copies/imitates spontaneously.
- 1 Mild difficulty. Problem present less than 25% of the time; child imitates independently, if directed/led by others (that is, not spontaneous).
- 2 Moderate difficulty. Problem present less than 50% of the time; child needs verbal prompting/guidance to perform imitation/copying tasks.
- 3 Severe difficulty. Problems present more than 50% of the time; child needs physical prompting and much/extended repetition.
- 4 Complete difficulty. Problems present more than 90% of the time; child engages in repetitive or self-stimulatory behaviour only.

*d2 General Tasks and Demands d230 Carrying out daily routines*

Carrying out simple and coordinated actions in order to plan, manage and complete requirements of day-to-day procedures or duties. Inclusions: managing and completing daily routines. Exclusions: undertaking multiple tasks.

Probe and Rating Guidelines for d230

Does X have difficulties managing daily routines independently? For example getting ready for school, following routines in school. How often/in what contexts (for example, how much assistance does he need) does he face these difficulties?

- 0 No difficulty. Can manage daily routine independently (appropriate to age).
- 1 Mild difficulty. Difficulties present less than 25% of the time, for example, can manage daily routine but sometime needs reminders (achieved by six years).
- 2 Moderate difficulty. Difficulties present less than 50% of the time, for example, can start/initiate daily routine (may need reminders) but needs help to complete them.
- 3 Severe difficulty. Difficulties present more than 50% of the time, for example, needs prompting to start and complete daily routine.
- 4 Complete difficulty. Difficulties present more than 90% of the time, for example, completely reliant on others to initiate and complete daily routine.

*d3 Communication d335 Producing non-verbal messages*

Using gestures, symbols and drawings to convey messages.

Probe and Rating Guidelines for d335

Does X have difficulties using non-verbal gestures? What are the range/type of non-verbal gestures that X uses, if any? Give example of descriptive, imperative gestures.

- 0 No difficulty. Uses a wide range of gestures (imperative, descriptive) and some non-verbal cues (rubs eyes to mean "tired", looks at watch to mean "bored").
  - 1 Mild difficulty. Difficulties present less than 25% of the time, e.g. uses a wide range of gestures (descriptive & imperative), but not social cues.
  - 2 Moderate difficulty. Difficulties present less than 50% of the time, e.g. uses simple imperative gestures, e.g. "keep quiet", "go away", "Come here".
  - 3 Severe difficulty. Difficulties present more than 50% of the time, e.g. beginning to use nods and shaking head to mean "yes" and "no". Points to objects from a distance.
  - 4 Complete difficulty. Difficulties present more than 90% of the time, e.g. does not use gestures, rarely use pointing.
- 

*Diagnostic Interview for Social and Communication Disorder (DISCO, Wing, 1999)*

The DISCO was used as a concurrent measure of functioning and disability levels. The DISCO is an autism-specific assessment measure which contains a comprehensive list of over 200 items, including developmental and atypical behaviours. The reliability and validity of the DISCO with children who have autism has been

established (Wing, Leekam, Libby, Gould, & Larcombe, 2002; Leekam, Libby, Wing, Gould, & Taylor, 2002). For the purpose of the present study, a three-point rating scale was used to record children's developmental functioning: zero for "no concern/delay"; one for "mild concern/delay"; and two for "marked concern/delay".

### ***Procedure***

Approval for the study was obtained from the University College London research ethics committee. Written informed consent was obtained from all parents involved. Additional checks were made with the schools to ensure that, at the time of the study, the children's educational placements and provisions were deemed appropriate by parents and relevant professionals. All parental interviews were carried out by the first author. To establish inter-rater reliability nine interviews were randomly selected and video recorded and a second rater completed the ICF checklists independently from the video recordings. Both raters were qualified EPs experienced in conducting interviews with parents of children with special needs and familiar with the language used in the interview, that is, Singapore English. A two-day training session, which included joint-rating sessions by the two raters, was undertaken.

A sub-sample of 19 children, 10 from special and nine from mainstream schools, were randomly selected for a second interview using the DISCO. Interviews using the DISCO were carried out by the first author who is a certified user of the DISCO. The order of the ICF and DISCO interviews were counterbalanced, with an interval of three to five weeks.

### **Results**

Ratings for individual items were totalled to obtain the following component scores: Impairments in Body Function; Activity Limitation and Participation Restriction; Environmental Facilitator/Barriers. In addition, the Functioning and Disability index (WHO, 2001) was derived by totalling ratings from Impairments in Body Function and Activity Limitation and Participation Restriction components.

#### ***Internal consistency reliability of the ICF-based interviews***

Reliability analyses were carried out for each of the component and composite scores, using Cronbach's alpha, based on items with variance greater than zero. As shown in Table 3 the alpha values for the Impairments in Body Function, Activity Limitation and Participation Restriction, and Functioning and Disability composite scores were high, while for the components with fewer items, that is, Environmental Facilitator/Barriers, they were adequate.

#### ***Inter-rater reliability of the ICF-based interviews***

Due to the small sample size ( $N = 9$ ) the correlation between the total ICF component scores given by the first and second raters were evaluated using non-parametric analysis (Spearman's rho). As indicated in Table 4, the correlations were high for all components of the ICF. Kappa coefficients were calculated for all items with variance greater than zero. Following Landis and Koch (1977) the kappa values were interpreted as follows:  $\geq 0.75$  indicating "excellent reliability";  $\geq 0.65$  indicating

Table 3. Internal reliability (Cronbach's alpha) of ICF component and composite scores.

	Number of items included in reliability analyses <sup>a</sup> (%)	Alpha
<i>Component score</i>		
1. Body Functions	67 (76.12%)	0.88**
2. Activity and Participation	74 (100.00%)	0.98**
3. Environmental Barriers	23 (54.76%)	0.61*
4. Environmental Facilitators	26 (61.90%)	0.74*
<i>Composite score</i>		
Functioning & Disability Index (Composite from Body Functions, and Activity and Participation)	141 (80.11%)	0.97**

<sup>a</sup>Only items with variance greater than zero were included in the analyses.

\*Exceeds the 0.6 levels for "adequate reliability".

\*\*Exceeds the 0.8 levels for "high reliability".

"good reliability" and  $\geq 0.40$  indicating "adequate reliability". Reliability was at least adequate for 95.6% of items.

### ***Correlation between ICF-based interviews and an autism-specific interview protocol***

To evaluate the degree of concurrence between levels of functioning and disability reflected by the ICF and the DISCO correlation analysis was carried out using Pearson's  $r$ . A high correlation was obtained ( $r = 0.87$ ,  $n = 19$ ,  $p < 0.01$ ) between the ICF Functioning and Disability Index score and the DISCO total score. This indicates good agreement between the two measures.

### ***Distinguishing children with low and high SEN***

To evaluate the extent to which the ICF was able to distinguish between children with low SEN in mainstream, and those with high SEN in special schools, ICF scores of children with ASD in these two groups were compared. As can be seen from Table 5 the mean Functioning and Disability Index of the special school group was significantly higher than that of the mainstream school group, indicating that the children in special schools have more severe impairments in functioning and greater limitations in activity and participation. The special school group also scored higher on Environmental Facilitators, indicating the receipt of greater levels of support.

Table 4. Correlation (Spearman's  $\rho$ ) between ratings of first and second raters.

ICF components	Spearman's $\rho$
Body Functions	0.82**
Activity and Participation	0.78*
Environmental Facilitators	0.93**
Environmental Barriers	0.80**

\* $p \leq 0.05$ . \*\* $p \leq 0.01$ .

## Discussion

The results of this study offer initial support for the utility of the ICF for children with ASD. Interviews based on the ICF produced internal consistency reliabilities that were adequate across all the ICF components. The finding that the Environmental Facilitator/Barriers components had slighter lower internal consistency values than Disability and Functioning and SEN indices is consistent with findings obtained in ICF field-trials involving patients with muscular-skeletal disorders (WHO, 2000), where internal consistency reliability was likewise reported to be generally high, with indices for the Environmental factors slightly lower than for the other ICF components. The greater diversity and smaller number of items in the Environmental components may each contribute to the reduced internal consistency values observed.

Measures of inter-rater reliability indicated adequate to high levels of agreement, suggesting consistency of ICF-based evaluations across raters. It is likely that the use of a standard rating protocol, and intensive training contributed to the high consistency across the two raters. Concurrent validity was indicated by significant correlations between children's scores on ICF Functioning and Disability and their DISCO scores on developmental functioning and atypical characteristics. This suggests that there is good concurrence between the ICF-based interviews, which is an evaluation system developed generically for all disability conditions, and interviews based on measures of functioning specifically designed for children with autism.

Discriminant validity was assessed by examining the extent to which scores on the ICF-based interviews differed between two groups of children with ASD whose different levels of SEN had been independently established. Children's placement in mainstream or special school was used as a pre-existing independent index of children's level of SEN. In Singapore children are placed in special schools following establishment by multi-professional assessment that the child's impairment is severe, such that his/her needs cannot be met in mainstream schools, but require the higher levels of specialised support only available in special school settings. Compared with those in mainstream schools, children with autism in special schools showed higher levels of Impairments in Body Function, Activity Limitation and Participation Restriction. They also required higher levels of Environmental Facilitation. At the same time, children in special schools also had higher scores for Environmental Barriers, which suggests that although they were receiving additional specialised support and provisions, these were inadequate to completely overcome the difficulties arising from the Impairments in Body Functions, and limitations in Activity and Participation.

Table 5. Mean (*M*) and standard deviation (SD) values of ICF component scores for children with ASD in mainstream and special schools.

	Mainstream		Special School		<i>t</i> Value
	<i>M</i>	SD	<i>M</i>	SD	
Body Functions	32.95	10.58	68.16	17.79	-7.69**
Activity and Participation	58.14	18.87	152.05	41.29	-9.40**
Environmental Barriers	6.62	5.34	10.00	4.31	-2.15*
Environmental Facilitators	25.81	8.29	39.31	6.33	-5.74**
Functioning and Disability Index	91.09	24.81	220.21	53.72	-9.92**

\* $p \leq 0.05$ . \*\* $p \leq 0.01$ .

A number of limitations and methodological issues relating to this study should be acknowledged. While the ICF and DISCO interviews were based on structured protocols, both sets of interviews were conducted by the same person, who was not blind to the educational placement of the children. Given the nature of the investigator-based interviews, where specific questions were asked about the child's functioning in his or her current school context, and the environmental support provided, it was not feasible to request that parents did not disclose their child's school during the interview. While the second rater was blind to the study hypotheses and high inter-rater reliabilities were obtained, second rating was only carried out on a subsample. Mothers, as the children's primary caregivers, were selected as the single source best placed to provide the breadth of information required by the ICF model (Carlson et al., 2010). However, despite the recognised challenges involved in obtaining the views of children with ASD, it should be acknowledged that those involved in this study may well have been able to report on their experiences of activities, participation, environmental supports and provision, given appropriately adapted interview techniques (Barrow & Hannah, 2012; Symes & Humphrey, 2010).

The generalisability of the present findings could be limited by the particular sample selected for the study, which is small in size and limited in age range (8–12 years). The study was conducted in one country and with children from English speaking, middle to high social and economic status homes. Items from the ICF that were not relevant to the child sample or the context in which the study was conducted were omitted. The study was designed to make an initial assessment of the utility of the ICF model for EPs' assessment practice with complex cases. It was not intended to identify the profile of functioning and disability of children with autism; hence the findings cannot be used to establish which items in the ICF classification emerged as significant indicators of SEN in children with autism. This could be an area for future research, that is, to seek to establish the "core-sets" (Stucki et al., 2002) of the ICF classification system that typify children with autism. Such a study would enable comparisons to be made between the ICF core-sets for autism and other conditions that have been reported in the literature (Stucki & Grimby, 2004).

In conclusion, the results of this initial, small-scale investigation provide clear support for the potential utility of the ICF framework for EPs' work with children who have ASD. It may have particular value for assessment of children who have ASD and other co-occurring conditions, by virtue of its broad applicability. There may also be important practical implications if the improvements in multi-professional service delivery to children with language impairments and cerebral palsy following the implementation of the ICF framework (Campbell & Starakis-Doyle, 2007; Mandrusiak et al., 2009) can be replicated for children with ASD, where need for improvement has been identified cross-nationally (Keenan, Dillenburger, Doherty, Byrne, & Gallagher, 2010; McClure & Le Couteur, 2007). School-based multi-professional teams have diverse perspectives (Guva & Hylander, 2012) and require shared frameworks to support effective practice. This is likely to be equally true of multi-professional teams from Education, Health and Social Care working with young people aged 19–25 years and their families. Genuinely multi-disciplinary in both development and application, the ICF framework embodies the bio-psycho-social model of disability, highly compatible with interactional models of assessment and ecological systems' practice frameworks espoused by EPs internationally (Annan & Priestley, 2012; Bartolo, 2010; Engelbrecht, 2004; Farrell, 2010). It certainly warrants further attention from UK EPs as a potentially valuable,

positive framework likely to be acceptable to all involved in the forging of new partnerships across Education, Health and Social Care for the benefit of children and young people with complex needs.

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