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Conceptualizing Special Educational Needs Using a Biopsychosocial Model in England: The Prospects and Challenges of Using the International Classification of Functioning Framework

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This conceptual paper examines the issues in the use of term "special educational needs" in England over the last 40 years and from this identifies what kind of additional needs' principles are required for educational services. The paper then examines to what extent the child and youth version of the International Classification of Functioning, Disability and Health (ICF-CY) has the potential to meet these assessment principles. The paper illustrates that the potential of the ICF-CY by reference to studies that show how the ICF has been used to enhance assessment relevant to program planning. Several studies showed how assessment instruments designed for diagnostic assessment could be linked to ICF dimensions. Other projects illustrated how the ICF framework can also provide the basis for designing dependable measurement questionnaires. But, measurement issues still need to be addressed by further development research. There has been relatively little use of the ICF-CY in educational settings and for eligibility decisions about scarce education provision, despite the ICF's use in Portugal and parts of Italy and Switzerland. Research in these countries show the usefulness of the ICF as a resource for decision-making, but analyses of Individual Educational Programs show fidelity issues in the ICF use and the need for enhanced teacher training. The Swiss conceptual expansion of the ICF-CY takes account of an educational perspective, and its implementation with procedures and materials has direct relevance to England. The Swiss development brings out the importance of understanding the different aspects of the ICF and how it can be adapted for different purposes. In adopting the ICF for an additional needs framework in education, eligibility decisions will require norms about functioning and the environment. It is concluded that these norms should be negotiated with service users who are to be treated as having rights to participate in assessment and decision-making. It is concluded that there is potential for the development and use of an ICF-informed approach to assessment and decision-making in England.

Keywords: International Classification of Functioning, ICF, biopsychosocial model, special educational needs, SEN, IEPs, functional assessment

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INTRODUCTION

The aim of this conceptual paper is, first, to examine how the term "special educational needs" (SEN) has been used in England and second, to consider the assessment prospects and challenges of the children and youth version of the International Classification of Functioning, Disability and Health (ICF-CY) (WHO, 2007). The ICF-CY is a classification of human functioning and disability, which can be used to guide holistic and interdisciplinary approaches to assessment and intervention. Though the analysis in this paper is situated in England, the issues that arise in this specific national context will also be relevant to issues that arise in other countries, as the literature about the ICF-CY draws on international sources.

The paper will start by discussing how and why the term SEN came to be introduced in the 1970s. How the SEN term has been used will then be summarized as will some current problems connected to its use. Arising from this analysis will be a discussion of what kind of additional needs assessment principles are required. The paper then moves into its second section; by considering to what extent the ICF – Child Youth (CY) addresses some of these requirements. This entails an account of the purposes, content, and uses of the ICF-CY, with some review of recent international development and research studies using the ICF. This will focus specifically on its relevance to school and educational use in an interprofessional context. The final section will consider why the ICF has been overlooked in the UK, some of the criticisms of the ICF, and prospects for future development and use.

SEN CONCEPT

Original Concept

The SEN concept was introduced into English education legislation in 1981 following the recommendations of the Warnock Report (DES, 1978). The use of the term "need" made it possible to link children's characteristics with provision that was required for the child's learning and education. The term marked the introduction of a different way of thinking about a child's difficulties or deficits. It was no longer about characterizing these difficulties in general terms, what has come to be called the deficit model, it was now about thinking about individual children in terms of required provision that enabled them to progress with their learning. The SEN term came into use in a social and political context, which was anti-labeling and anti-medical categories.

As argued at greater length elsewhere (Norwich, 2013), the assumptions associated with the concept of SEN addressed many of the issues during that period and that continue to confront us currently in the field. SEN replaced deficit or difficulty terms that came to be seen as devaluing and stigmatizing. Identifying someone's SEN was about their individual functioning and needs, not just about fitting them into a general category, often a disability or disorder diagnostic category. Such categories tended to ignore variations of functioning in different children said to have the category, e.g., dyslexia. SEN was also associated with the idea of a continuum of difference with no clear-cut divide between typical and atypical needs. Assessing SEN therefore could be holistic by taking account of a child's other personal characteristics, their strengths, and difficulties, which deficit diagnosis might overlook. Implicit in the significance of the term SEN was an interactive casual model of disability that took account of strengths and difficulties within a child as well as supports and barriers in the environment (Wedell, 1993).

However, having a framework of thinking is one thing, but how it is put into operation and used is another. The English legislative framework introduced a very general and vague definition of SEN (learning difficulties greater than the majority of children of an age that required additional or different provision than generally provided). This definition raises the question: when does a difficulty in learning require additional or different provision? This key question called for specifications in terms of assessment procedures and criteria, but there has been little professional or Government clarity about what counted as special provision.

Though there have been successive legislative changes since 1981, these have not altered the basic framework of definitions about SEN. In 2001 legislation introduced the disability discrimination legislation into education (National Archives, 2001). This legislation was not connected with the SEN framework, so establishing a dual system of legislation about for pupils with difficulties and disabilities. In the disability framework, a disability is an impairment that affects the person's ability to carry out normal activities. As part of the 2010 Equality legislation (National Archives, 2010), this now provides for protection against discrimination and for reasonable adjustments for disabled people. Recent English research shows that though there is an overlap between how the term disability and SEN are used, they are not interchangeable. For instance, Porter et al. (2011) found that for over half the children identified as having SEN in schools, parents did not see them as meeting the disability definition.

SEN in Practice

Since the introduction of the 1981 SEN framework, there has been a gradual reintroduction of the categories that were supposed to be abandoned. However, these were defined as categories of SEN and referred to as the four dimensions of SEN in 2003: cognition and learning, sensory and physical, communication and interaction, and behavior, social, and emotional. Within these four areas were categories, like specific learning difficulties, dyslexia, autistic spectrum disorder, etc. Originally, this system was introduced with the justification that they were needed for national statistical monitoring purposes. The definitions were for schools to report data about the pupils' characteristics. However, the language used in this scheme was a mixture of terms such as, difficulties, needs, medical conditions, and impairments. SEN was defined in these terms without any consistency of usage that respected their differing meanings and origins. This represented a move back to a deficit type model of attributing characteristics to pupils, ignoring that SEN was about a holistic individual representation and also about needed provision, not just child characteristics in simple general category terms. The effect of this trend was to reinforce that SEN was about a child characteristic and about having one or more of these categories.

What Has Happened to SEN?

There has been a polarizing of perspectives on the SEN term. Some have argued against the category, even from its original use, from a social model perspective that SEN was a deficit super-category. From this perspective, SEN renewed the within-child causal model of disability, what is widely known as the medical model (Booth and Ainscow, 2011). This perspective has been argued by some advocates of the inclusion movement who prefer the language of barriers as alterable external factors to the language of impairment and disorder (see social model in **Figure 1**). On the other hand, there has been a medicalization of SEN as shown in the introduction of mental health into the new category of Social, Emotional, and Mental Health difficulties (DFE/DOH, 2014); renewed parental and voluntary group interest in category defined needs as a way of accessing additional provision and as a social identity (Lewis, 2010).

Figure 1 shows the current dual model operating in England, on the left hand side of the figure, SEN [that excludes English as an Additional Language (EAL)] and disability. This contrasts with the social model, on the right hand side of the figure, which avoids within-child causal factors. The other three models that cover a wider scope of SEN are represented in the middle column; (i) the OECD model of SEN, which covers disability, difficulties, and social disadvantage (OECD, 2007), (ii) the Scottish concept of additional support needs, which includes EAL and the needs of other vulnerable children (SEED, 2003), and (iii) the additional needs concept during the Labor period of Government's Every Child Matters (ECM) initiative (DfES, 2006).

As part of the ECM initiative, there was an attempt to construct a Common Assessment Framework (CAF) as part of the integration of various children's services. The CAF was a standardized approach for a range of practitioners in Children's Services to conduct an assessment of a child's "additional needs" and decide how those needs should be met. The CAF distinguished between children with (i) no "additional needs," (ii) with "additional needs," and (iii) with "complex needs" who are part of the broader group of those with additional needs. "Additional needs" was introduced to cover a wider range of "vulnerable" children that included those with SEN and disabilities, but extended to other groups, such as those showing disruptive or antisocial behavior; lacking parental support, and so on.

One of the features of the CAF was the common assessment templates for use by different professionals on which they recorded using scales a range of person and environmental factors. However, though the CAF represented a more inclusive concept of need, in line with international developments, little progress was made in integrating the SEN system into the CAF system. When the Government initiated reforms of the SEN system in 2011, which led to the most recent legislation (National Archives, 2014), these developments were shelved and ignored.

What Is Needed?

In an international analysis of how decisions about additional/different provision for pupils with SEN are made, Peters (2003) identified that the system in most countries involves a two-part process, sometimes called a diagnostic–education program planning model:

> first, diagnose disorder/condition, e.g., autism, intellectual disability; this is about whether the child is assessed to be worthy of additional and specialized resources and
> second, education program planning; this is about planning an individual educational program (IEP).

What has made this model so widespread is that it enables relatively clear procedures for assessment based on existing classifications of difficulties and disabilities, mostly using standardized psychometric tests mainly for program placement decisions

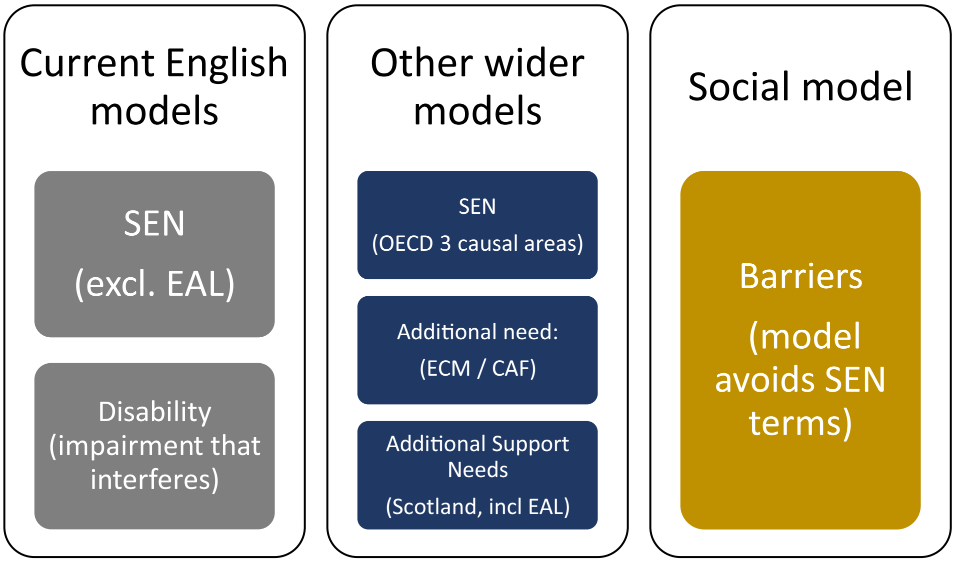

FIGURE 1 | **Some different models of SEN/disability**.

(Lebeer et al., 2011). But, as Lebeer et al.'s international survey showed, there has been some professional dissatisfaction with these assessment practices. Though most parents were satisfied with this style of assessment to obtain disability benefits (financial, special education resources, and recognition), they were less satisfied with the negative outlook of assessments. For parents and teachers the main complaint was about the poverty of recommendations on how to work with the child. These aspects of the diagnostic–educational planning model arise from the use of medical categories that are generalized in their level of analysis with no direct relevance to individual education planning. These disorder/impairment categories focus on the person being assessed and not the educational and social contexts of functioning; assessments are done outside a teaching and learning context.

An alternative to the diagnostic–education program planning model has been the response to instruction (RTI) model (Ridgeway et al., 2012). This class level model often involves the use of three tiers of intervention. At the first tier (universal), all children's learning progress is monitored regularly and those children not responding as expected are identified for more targeted interventions at tier 2 (targeted). For a child who continues to not progress at tier 2, more intensified teaching is considered at tier 3 (specialized). This is the tier usually associated with what is called special education provision. In England, the three tier (or wave) model was not integrated with SEN procedures. Though assessment procedures associated with this model have been adopted in some States in the USA, there have been some questions about whether it can fully replace aspects of the diagnostic–education program planning model. The RTI model has mostly been used with specific learning difficulties/disabilities, not other areas of difficulties in learning and disabilities, and there are continuing debates about whether diagnostic assessments will still be needed (Reynolds and Shaywitz, 2009).

Assessment Principles

To address the issues raised so far in this paper about identifying SEN, there is a need for a set of principles for assessing and identifying SEN. These are summarized briefly below:

1. Assessment and identification is to be underpinned and strongly informed by values associated with the human rights of those being assessed.These are rights to adequate and relevant educational assessment and their participation in decisions that affect them. This perspective is often framed in terms of the United Nations (2006) Convention on the Rights of Persons with Disabilities (CRPD).
2. Impairments and environment factors are assumed to interact to affect functioning and so disabilities.The concept of disability implied by the CRPD is one which assumes that there is more to disability than simple diagnostic (deficit) categories. But, to reject a deficit-only model of disability does not specify a concept of disability that recognizes social factors. There are different concepts of disability that include the social. Underlying this difference is whether a model of disability is being used as a causal model, that explains the factors giving rise to disability, or as a model to guide political action to improve the conditions of disabled people (Norwich, 2013). For example, Hollenweger (2014) suggests that disability is the "result of an interaction between characteristics of the environment and the person" that focuses on "the interaction of impairments with barriers in the environment that hinder full and effective participation in society" (p. 11). This interactive casual perspective contrasts with another common view that presents the medical model ("barriers faced by people with impairments as a direct consequence of their impairments") as contrasting with and opposed to the social model ["disabilities can be seen as barriers to participation for people with impairments, chronic pain and illness" (Booth and Ainscow, 2011, p. 42)]. Those who propose this social–medical model dichotomy can be seen as aiming to preserve the priority of the social model as a social–political tool over a casual model. Following Shakespeare (2006), I assume in this paper that it is possible to adopt a political approach to disability, while also holding onto a casual interactionist model (Shakespeare, 2006).
3. Assessment covers a range of related areas of functioning, not just the specific areas where there are concerns about functioning.An aspect associated with the medical model that is relevant to these principles is a recognition of the usefulness of taking the clustering of areas of functioning into account when identifying SEN, as done in medical classifications. For example, the new DSM5 category of "specific learning disorder" (SLD) can be specified in three forms, reading, writing, and arithmetic. Each form involves several features or functions, including, for example, word reading, accuracy, reading rate or fluency, and so on. To identify SLD, all these areas are assessed, not just specific areas of learning, such as reading accuracy. This reflects a holistic approach to assessment.
4. Assessment examines other personal characteristics beyond the functional difficulties.This also reflects a holistic principle of assessing personal strengths and difficulties in interaction with social and context factors (supports and barriers).
5. Assessment uses a language, which is common to different professional groups and makes sense to users (parents and teachers).

Assessment needs to support interprofessional collaboration and be accessible to the parents and children for whom the framework is being used.

THE ICF-CY

Background and Structure

The ICF was introduced by the World Health Organization (WHO) in 2001 as part of the family of international classifications. It sits alongside the much older and more established International Classification of Diseases (ICD), which focuses on diseases, disorders, and injuries, in terms of diagnostic categories, and the International Classification of Health Interventions. The WHO has defined health for more than half a century in the very broad terms of physical, mental, and social well-being, not just the absence of disease and disorder. In introducing the ICF, the WHO aimed to encompass "all aspects of human health and health-relevant components of well-being, including for example having meaningful relationships and enjoying high-quality education" (Hollenweger, 2014).

The ICF is based on, what has come to be called, a biopsychosocial model, combining aspects of the "social" and "medical" models. As Hollenweger (2014) explains, functioning and disability are understood in the ICF as the result of complex interactions between biological, psychological, and social factors. The ICF also provides a common language to study the dynamics of these factors and so can act as the basis for improving the life situation of people experiencing disabilities.

The ICF-CY was derived from the original ICF to apply to children aged below 18 years. It has been designed to apply to four age ranges; 1–2, 3–6, 7–12, and 13–17 years (WHO, 2007, 2013). Simeonsson (2009), who has been involved in the ICF-CY development, describes it as offering a "new paradigm and taxonomy of human functioning and disability, which can be used to guide holistic and interdisciplinary approaches to assessment and intervention" (p. 70). Its relevance to assessment and intervention practices in special and inclusive education comes from its use of a dimensional framework (rating the degree of functioning). In this paper, I will refer to the ICF-CY for its specific use with this age range and ICF when referring to the general ICF framework that applies cross-age.

Figure 2 shows the basic ICF framework in which disability is defined in terms of the interaction of body functions and structures, activities and participation which takes place in a context as represented by environmental and personal factors. Activities involve the execution of a task or action by an individual, while Participation is about a person's involvement in a life situation. Impairments are problems in body function and body structure such as a significant deviation or loss. Activity limitations are difficulties that an individual may have in executing activities, while participation restrictions are problems an individual may experience in her/his involvement in life situations. The domains for Activities and Participation are given as a single list of life areas from basic learning to social tasks. These functions are identified in terms of two qualifiers, capacity and performance qualifiers. The performance qualifier describes what an individual does in her/his current environment and so depends on environmental factors, while the capacity qualifier identifies the highest probable level of functioning at a given moment (being measured in a uniform or standard environment).

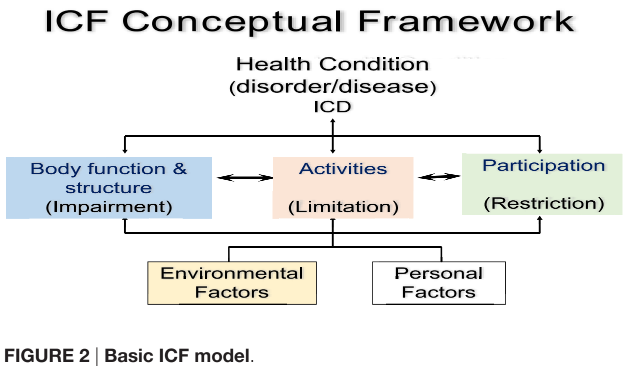

FIGURE 2 | **Basic ICF model**.

As **Table 1** below shows, the four broad domains have alphabetic codes, which are at the highest level in a nested structure where categories have numeric codes, e.g., self-care is d5 (codes refer to the ICF descriptors). There are four levels nested within these domains, for example,

- *d5 self-care* (first/chapter level)
- *d570* looking after one's health (second level)
- *d5702* maintaining one's health (third level)
- *d57021* seeking advice or assistance from caregivers (fourth level).

ICF Rationale for Use

In giving a rationale for the ICF, Lollar and Simeonsson (2005) have summarized the key issues with the traditional disease/disorder classifications like the ICD and DSM from a functional and intervention perspective. First, diagnosis can mask the functional and situation characteristics of different children, for example, in an ASD diagnosis. **Table 2** below shows an ICF-based summary of two cases of children with an ASD diagnosis [based on Gray et al. (2008)] with different functional and contextual aspects, which are relevant to their education, health, and care needs.

How the use of the ICF-CY provides a broad and rich account of a child's needs has been illustrated by a case study informed by the ICF framework of boy with specific learning difficulties in terms of emotional and cognitive functioning, academic and social activities, and participation and relationships, attitude and support factors in the environment (Riva and Antonietti, 2010). In another recent study, Fulcher et al. (2015) used the ICF framework to identify factors that might influence speech and language outcomes for children with severe-profound hearing loss.

The second issue with disorder/disease classifications is that a difference in diagnostic category, e.g., ADHD and SLD could mask their functional commonalities that might have planning and intervention implications. For example, two children with different diagnoses might share the following problems in these functions:

- b 1401 shifting attention; mental functions that permit refocusing concentration from one stimulus to another.
- b 1304 impulse control: mental functions that regulate and resist sudden intense urges to do something.
- d 1501 acquiring skills of numeracy such as counting and ordering: learning elementary skills to acquire the concept of numeracy and concepts of the sets.
- d 1401 acquiring skills to sound out written words: learning elementary actions of sounding out letters, symbols, and words (Lollar and Simeonsson, 2005).

The third issue is the disconnection between diagnostic assessment and the nature of the interventions needed for individual children with different functional and contextual profiles. This issue relates to the position that traditional diagnostic

TABLE 1 | Four ICF domains and nested chapters.

Body structure (s)	Body function (b)	Activity/*participation* (d)	Environmental (e)
1. Nervous system	1. Mental	1. Learning and applying knowledge	1. Products and technology
2. Eye, ear, and related structures	2. Sensory	2. General tasks and demands	2. Natural environment and human-made changes to the environment
3. Voice, speech structures	3. Voice, speech	3. Communication	3. Support and relationships
4. Cardiovascular, immunological, and respiratory structures	4. Cardiovascular, immunological, and respiratory	4. Mobility	4. Attitudes
5. Digestive, metabolism, and endocrine	5. Digestive, metabolism, and endocrine	*5. Self-care*	5. Services, systems, and policies
6. Genitourinary structures	6. Genitourinary and reproductive	*6. Domestic life*	
7. Movement-related structures	7. Neuromusculoskeletal and movement-related functions	*7. Interpersonal interactions and relationships*	
8. Skin and related structures	8. Skin and related functions	*8. Major life areas (education, work and employment, economic life)*	
		9. Community, social, and civic life	

TABLE 2 | Comparison of two children with autism in terms of ICF domains [based on Gray et al. (2008)].

	3-year-old girl with autism and visual disability	4-year-old boy with autism
Pathophysiology	26 week completed gestation; severe retinopathy of prematurity	Initially with hypotonia and communication delays
Impairment	Visual, cognitive, communicative, and neurobehavior dysfunctions	Fragile X syndrome diagnosed at 4 years
Functional challenges; difficulties with activities	Difficulty with running, restricted visual fields, non-verbal, and self-injurious	Difficulty with activity, eye contact
Functional strengths	Climbing	Cartoon watching, love Thomas the Tank engine
Participation	Horse riding	Goes to playgroup
Environment: supports and technology	Special education supports, low vision aides, bilateral ankle–foot orthoses, intense behavior management program	Quality preschool services and behavior management program
Societal limitations	Lack of respite services and weekend supports	Because mother works outside home, she cannot attend genetic support group
Contextual factors	Church members request child kept at home during services	Denied life insurance policy

assessment is weak on school relevant recommendations (Lebeer et al., 2011), and the ICF framework makes it possible to organize the varied areas of body functions and activities associated with a particular category, such as specific language impairment (Campbell and Skarakis-Doyle, 2007).

Feasibility of ICF Use

Several recent international studies have examined the use of the ICF framework for the design of assessment methods. For example, Castro et al. (2013) examined the reliability of the linking of established ASD diagnostic instruments with the ICF-CY codes. While this study concluded that diagnostic and functional data can be integrated, it also suggested that these instruments provided functional information beyond the diagnostic criteria. The study also pointed to how ICF dimensions could be clarified and better linked to measurement instruments. Aljunied and Frederickson (2014) showed how to develop an interview schedule based on the ICF for professional educational psychologists in Singapore to interview parents of children with identified ASD. Along similar lines, Gan et al. (2013) developed an ICF-CY-based questionnaire for children with preschool autism in Taiwan.

In another European study, Ibragimova et al. (2009) developed in Sweden an ICF-based questionnaire covering the four ICF age groups. Factor analysis showed that the questionnaire items confirmed the component structure of the ICF, but that within each component (e.g., activity and participation), items clustered based on context and activity rather than the ICF life domains. These authors concluded that the ICF was useful for assessment and intervention (e.g., to localize specific problems), interprofessional collaboration (as a common language), as a conceptual model for thinking about disability and a language for use in children's records. However, several areas of difficulties were also identified: professionals were mixed about its use to communicate with parents, seeing possibilities (involving parents in assessing their children) and problems (parents – professionals having different perspectives and issues about the use of the qualifiers). Completing questionnaires also depended on other professional's knowledge, and this was time consuming to secure this knowledge. Other assessment issues were about the use of the capacity–performance qualifiers and resolving how to identify environmental factors that can act as facilitators and barriers. In discussing their findings, Ibragimova et al. (2009) realized that there were issues that needed to be addressed. This included a dilemma about providing information about children in several life domains. This is a tension between the depth and detail of assessment and the breadth of coverage, which will be discussed further in the next section of the paper.

To use ICF-CY in practice requires the development of ICF-based tools. ICF Core Sets are lists of ICF categories that serve as an international standard for the reporting of functioning for people with specific conditions. The purpose of these Core Sets is to guide clinical research, guide multidisciplinary needs assessments, and inform interventions and treatments. The WHO guidelines for the development of ICF Core Sets have, for example, been used or children and young people with cerebral palsy (Schiariti et al., 2015) and ADHD (de Schipper et al., 2015). The findings of these kinds of ICF-CY developments have shown the impact of these conditions beyond the core symptom domains into all areas of life.

ICF USE IN EDUCATION

In a systematic review of the international applicability of the ICF/ICF-CY in the education systems, Moretti et al. (2012) concluded that despite the low level of use of the ICF-CY in education, the model had potential to be applied in education systems. It can also provide a useful language to the education field where there is currently a lot of disparity in theoretical, practice, and research issues.

Most studies were European and North American and published in non-educational journals. The most used ICF components were activity and participation and environmental factors, rather than body structure and function. The analysis also showed the ICF-CY being used as a research tool, a theoretical framework, and as a tool for implementing educational processes.

Portugal is one European country that has introduced in 2008 ICF informed assessment for eligibility for specialized education. In an initial evaluation of the implementation of ICF procedures, Sanches-Ferreira et al. (2010) examined the functional profiles of students who were assessed as both eligible and not eligible for specialized education services. They found that although the mean number of codes used for these eligible/not eligible groups did not differ, the level of severity of the ICF codes of the eligible group was higher than the non-eligible group. Examination of the functional profiles of students receiving specialized versus general curriculum programs found that more ICF categories were used for the those having more specialized curriculum for the activities and participation area, but not body functions nor environment (Sanches-Ferreira et al., 2015). This research team concluded that their research had shown the utility of the ICF as a resource to guide policy and practice in the provision of special education.

A series of research studies about the use of ICF-CY in Italy have also showed the framework's relevance in school education, but not within a central Government legislative framework. In one study, Meucci et al. (2014) used the ICF-CY to describe the persisting difficulties that children and young people with disabilities had in daily tasks and activities. Using the ICF-CY activity and participation, these authors concluded that they were able to describe these persisting difficulties with domestic life, major life areas, and learning. In another Italian study, Raggi et al. (2013) developed an ICF-CY-based questionnaire to collect disability information in school for Individual Educational Plans. However, teachers reported difficulties with the ICF questionnaire over obtaining reliable information on bodily impairments; using the capacity qualifier in activities and participation items; using qualifiers in "borderline situations"; and identifying systems and policies as barriers or facilitators. These difficulties are similar to those in Ibragimova et al. (2009), discussed above. The Raggi et al. (2013) study also shows how the questionnaire could be revised to address these difficulties: teachers rated observable performance only and simplified environment statements.

Procedures were designed and trialed with an intensive professional development program at a district level in a third Italian ICF-CY development to enhance the communication between disability services, parents, and schools (De Polo et al., 2009). ICF categories of activities and participation were used in designing (i) a notification card (school requests for disability services); (ii) functional diagnosis [based on ICF categories of body functions, activities, and participation (for these categories, only the capacity qualifier was used)]; (iii) a dynamic functional profile (disability service, school, and parents together describe the likely development of the student and the possible achievable goals in 1 or 2 years using the ICF activity/participation component; and (iv) an individual educational plan (all three parties together describe the student's planned educational actions according to the goals identified in the dynamic functional profile for the next 6–12 months). Though the authors report satisfactory adherence to the new ICF-based protocols, they recognized that it took time and effort to use the approaches and to redefine roles and responsibilities. However, one of the key ICF components, the environment was missing in the development of the procedures and materials.

There have also been several recent other studies, which have used the ICF framework to analyze the adequacy of existing IEP assessment and intervention processes for children with different kinds of disabilities and difficulties. For example, Nijhuis et al. (2008) analyzed the IEPs for children with cerebral palsy in Netherlands to study the match between identified needs and the intervention goals designed for these children. Using the ICF-CY framework, they content analyzed of the links between needs documented for each child and the goals as they were reported in the IEPs. They found a lack of correspondence between documented needs and recorded IEP goals. Klang et al. (2016) in a similar type of study in the USA examined the contents of communication-related IEP goals for students with complex communication needs using the ICF-CY categories. Their analysis showed that these communication-related IEP goals contained information on multiple domains of the ICF-CY; the IEPs had a small proportion of goals about interaction with others, participation in classroom and leisure activities. These two studies show how the ICF framework can be used to ensure that program goals cover a broad range of domains.

In another application, McDougall and Wright (2009) used the ICF-CY not to evaluate the adequacy of existing IEPs, but as the basis for formulating techniques for measuring child outcomes. GAS techniques enable the translation of clients' identified needs into distinct, measurable goals set collaboratively by clients, their families, and service providers. These authors concluded that integrating the ICF-CY and GAS helps to coordinate, simplify, and standardize assessment and outcome evaluation practices for individual clients.

Further Portuguese research has used the ICF framework to evaluate the coverage of IEP goals. Sanches-Ferreira et al. (2013) examined the IEP goals of students with additional support needs for the quality of goal formulation and the extent to which they take account of their functional needs. The study showed that goals were not written well in terms of measurability. The IEP goals for students with a highly individualized curriculum do not take account of their functional needs. The authors drew implications for teacher training about how to formulate IEPs; learning to have specific criteria of goal attainment and how to assess factors in the environmental and activities and participation domains. Another Portuguese study focused further on the problems in IEP development for preschool children with ASD using the ICF-CY framework (Castro et al., 2014). The results showed notable gaps in these IEPs. Most IEPs were about activity and participation, with few domains covered in both assessment and intervention parts of the IEPs. Environmental factors were also rarely included in intervention goals, and overall the IEPs only covered a minority of what the experts considered essential to IEPs. These results suggest to these authors that there is a gap between the ICF theory and IEP development practice that raises questions about how the ICF policy innovation has been implemented and adopted.

EDUCATION VERSION OF ICF-CY

Although the WHO in designing the ICF/ICF-CY makes a distinction between health domains of well-being and others domains of well-being, such as education and labor (WHO, 2007; p. 32), it also refers to the ICF as relevant to health-related domains of well-being, which cover aspects such as enjoying high-quality education (Hollenweger, 2014). This incorporation of education to a wider concept of health or health-related well-being underlies the way that the ICF-CY has been used for children and young people in education and rehabilitation therapy settings and for the design of IEPs, as discussed above.

However, there are some problems that arise from using the ICF. The broad coverage of the ICF activity and participation component with nine areas means that each specific area might not cover the detail relevant from an educational perspective. This can be illustrated taking the basic learning area of this component, which includes among 12 subcategories, learning to read, write, and calculate. There is a gap between this simple list of basic learning and an educational concept of a broad and balanced curriculum. As Hollenweger (2011) has also argued, specifically for children and young people, there is a need for a more developmental and educational perspective required in the ICF-CY. This is a difference between ICF-CY used as it is in education settings for education purposes and an educational version of the ICF-CY. The distinction between special needs and SEN – broad general requirements and more specific educational requirements – captures the need for a more focused education-specific perspective. As Ibragimova et al. (2009) recognized in their field trial of the ICF-CY, there is a tension between the depth and detail of assessment and the breadth of coverage.

It is in this context that Hollenweger (2012, 2014) has led a Swiss team that has developed an eligibility procedure for specialized education services based on the ICF-CY and the UN CRPD. In keeping with the CRPD, the focus is as much on changes in the environment as specialized services for the child. Hollenweger reconciles inclusive education with specialized provision by recognizing that some children require special measures to ensure access or facilitate participation. Eligibility decisions become necessary if reasonable accommodation or individualized support depends on additional resources. It is in these situations that education systems need to establish eligibility thresholds. This means that a definition of disability used for eligibility purposes in education systems needs to be set within the curriculum expectations for all children. So, Hollenweger has expanded the basic ICF model, see **Figure 3**, which takes account of an education perspective.

There are three related changes to this model, which are driven by a clear statement of an educational vision for a society. This represents broad and balanced educational aims for all children, which inform more specific educational and development goals. It is these goals that inform how the activities and participation component of ICF are defined. Conceptually, this represents the interface between a health-related and education-based formulation of well-being. The other way in which this educational version of the ICF affects the health-related model is to focus in more detail on school education, not only the broad coverage of environmental factor across different life domains.

This Swiss model has been developed into a set of procedures and materials for use in decision-making and program planning for children/young people to be identified as having SEN. It uses a computer-based record system for interprofessional and parent use with tailored templates and materials that have drawn on the WHO ICF handbook and checklists relevant to the local Canton context. The templates cover the following areas: environment factors (service and how settings); activity and participation; body functions [body structures are not covered, ICD classification (disorders/disease)]; development and educational objectives (original to this ICF version); and appraisal of needs [for more details, see Hollenweger and Lienhard (2011)].

More recently Hollenweger (2014) has suggested that a strength of the ICF is that it can "allow the equal exploration of problems and potentials." The focus on potential represents an educational perspective where assessment is for learning, a focus on abilities, and future goals. This is a focus on learning to participate as much as possible, not fixing impairments.

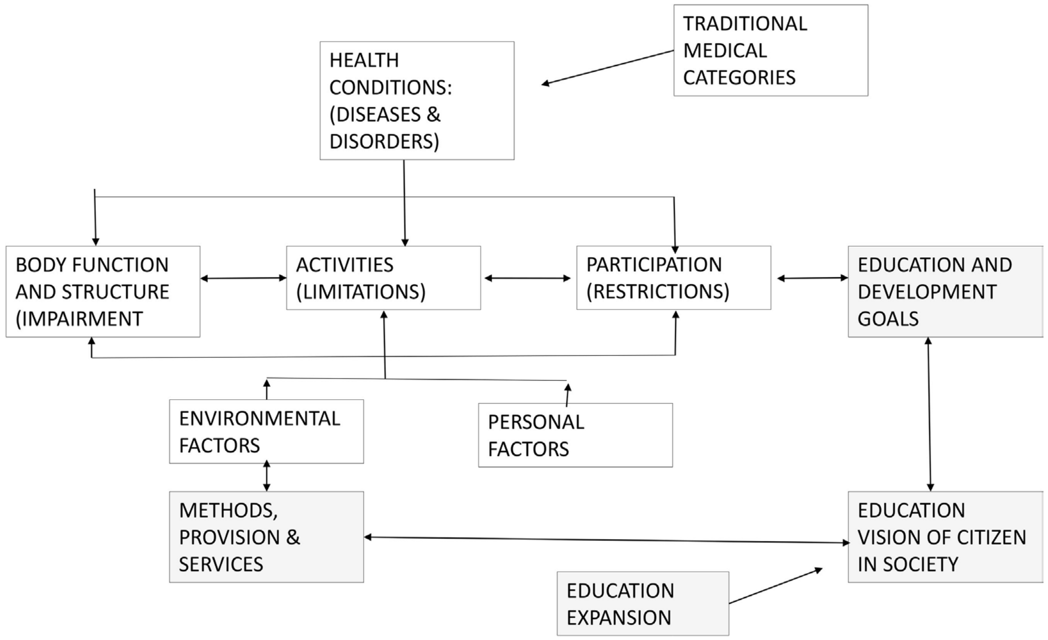

FIGURE 3 | **Expanded education version of the International Classification of Functioning, Disability and Health [based on Hollenweger (2011)]**.

But, the ICF's biopsychosocial causal assumptions mean that one does not lose sight of the impact of impairment on learning and participation when focusing on present participation to plan for future participation. Hollenweger proposes that the ICF makes this "cross-walking" between these approaches possible; it can help connect a child-centered deficit orientation with a situation–participation orientation. The ICF, to use her phrase "invites teachers to deconstruct" (p. 28) disorder categories and contextualize them. This environmental focus on participation restrictions opens up options to create enabling environments.

PERSPECTIVES, CRITICISMS, AND PROSPECTS FOR ICF-CY

It is interesting to consider that of the 80 journal papers identified in the Educational Resources Complete database search (November 2016) using the search terms "ICF" and "child," no studies conducted in education settings in the UK were identified. In the recent English 2014 reform of the SEN/disability legislation, there have been no references to the ICF framework. Nor have education-related professional associations in their policy recommendations made such references. This can be seen in the context of the British Psychological Society and its Division of Clinical Psychology fairly recent call for a paradigm shift in relation to the classification of behavior as regards psychiatric disorders (BPS/DCP, 2013). SEN and disabilities in education debates in the UK tend to be over the pros and cons of single disorder categories, such as the continuing debates about the usefulness and existence of dyslexia (Elliott and Grigorenko, 2014). Though those who criticize diagnostic categories tend to call for functional and contextual approaches, they do not link this to the ICF assumptions and framework.

The legislative framework in the UK has promoted interprofessional collaboration since the original 1981 SEN legislation, with a renewed emphasis in the most recent 2014 legislation provision (DFE/DOH, 2014). But this has not connected with the ICF's emphasis on a common interprofessional language. The oversight of the ICF might be related to professional and disciplinary disconnections. UK professionals and researchers in the SEN and inclusive education field have worked in isolation from the WHO ICF professional networks and the European initiatives described in this paper. There have also been disciplinary disconnections between UK health researchers who have used of the ICF (Morris et al., 2015) and educational researchers, a point noted by Aljunied and Frederickson (2014).

These UK perspectives to the ICF framework might also be attributed to the detachment of research-informed education policy review from the policy-making processes (Norwich, 2014). In the recent change from statements of SEN to education, health, and care plans, a different form of IEP, the policy-making process did not involve a research-informed review of international developments. The person-centered planning model was imported from the adult learning disability field into SEN as a way of being responsive to parental dissatisfaction with the statement process (DFE/DOH, 2014).

Another way to understand this oversight about the relevance of the ICF-CY to special needs and inclusive education might be to consider controversies about models of difficulties, disorders, and disability. For some professionals, the idea of a "classification" is associated with a deficit-focused medical model of disorders and diseases (such as the ICD and DSM) that have been criticized and avoided (Booth and Ainscow, 2011). There has also been a tendency for SEN (seen as a deficit approach) to be interpreted as opposed to inclusive education (as the removal of environmental barriers) (Runswick-Cole and Hodge, 2009). This opposition between focusing on biologically based impairments and on environmental barriers is also represented in the opposition between medical and social models of disability. As argued above in this paper, these oppositions can be shown to be false; the ICF framework is a synthesis of medical and social type models of disability.

Some psychological perspectives also perpetuate a false opposition between biological and social models of disability. For example, there is very widespread reference by some psychologists to Bronfenbrenner's (1979) ecological systems theory as a way of understanding contextual factors relevant to development. However, many researchers and professionals overlook, or perhaps are unaware, that Bronfenbrenner criticized his earlier theory for discounting the role that the person plays in his or her own development and for focusing too much on the context (Tudge et al., 2009). In his more recent bioecological theory (Bronfenbrenner and Evans, 2000), he recognized the relevance of biological and genetic aspects of the person and placed most emphasis on the proximal processes of human development in his Process–Person–Context–Time model. This bioecological theory is more consistent with the ICF biopsychosocial assumptions than the earlier ecological systems theory.

There have also been critiques of the ICF by critical disability theorists using similar arguments to those who advocate a social model, as discussed above. Hammel (2004), for example, has criticized occupational therapists for unquestioning adoption of the ICF. She has raised questions about the use of power in making classification assessments and whether their use is necessarily beneficial. Her critique also rejects that norms used in assessment represent biological realities, when as she argues that norms reflect human constructions. In making this argument, she questions whether ICF-informed assessment is an objective exercise. Though Hammel recognizes that the professional intent in measuring and classifying may be benign, she contends that for those classified, it can be "devastating." The problem with this generalized and dismissive critique is that it does not recognize the consensual and participative role of parents, children, and young people in the use of the ICF framework, if its use is in keeping with the CRPD, as discussed above.

Another part of Hammel's criticism is about the use of measurement; a critique of technical reason and scientific style knowledge in disability service provision. This theme is found in another current critique of the term "participation" as used in the ICF (Veck, 2014). Veck's critique of the concept of "participation restriction" in the ICF is that it identifies such restrictions by comparison with individuals with no disability in the society. The issue here is that this implies that society expects disabled people to conform rather than participate. The ICF, like special education practices, as Veck puts it, takes society as it is now and not as it may become. This diminishes the disabled to "Not Participating" rather than "Not-Yet participating." His point is that technical/reductive accounts of ICF participation mean that participation involves overcoming bodily deficiencies and tackling the disabling aspects of social organization. The "Not-Yet" stance in Veck's views confirms a productive capability that can "build up confidence in all young people that their difference in the world is no deficiency to be fixed, but a uniqueness that is becoming" (p. 177).

While these two critical positions about the ICF reflect position arguments, Lundälv et al. (2015) conducted a Swedish study of the perspectives disability organizations to the ICF, in the context of its use by several national health and welfare organizations. They found that more than half of the representatives had very limited awareness of the ICF. There was also some explicit criticism of its use in individual assessment; the main argument against the ICF was fear of professionals' misuse of authority over the disabled individual leading to a sense of marginalization. Some even saw individual classifications as having no value. But, there were some who were more positive about the ICF, believing that some elements could be used to improve the life conditions of people with a disability. By contrast, there were more positive comments about the value of classification at an aggregated policy review and making level. This study also showed that for these representatives the most important issues were influencing social policy, not learning, and spreading information about the ICF. These authors concluded that professionals and researchers involved in promoting the ICF need to have closer working partnerships with service users and disability.

CONCLUDING IMPLICATIONS

This conceptual paper has examined how the term "special educational needs" has been used in England and evaluated the prospects and challenges of adopting and adapting the ICF-CY. Recent international ICF-CY research and development illustrates that the ICF framework and its operation has the potential to meet the assessment principles set out at the start of the paper. Various studies have shown the relevance and contribution of the ICF-CY to assessments, program planning, and interventions. Several studies have also showed how assessment instruments designed for diagnostic assessment could be linked to ICF-CY dimensions. Various projects illustrated how the ICF framework provided the basis for designing measurement questionnaires, which met some basic standards of reliability and validity. However, measurement issues arose that have been addressed and still need to be addressed by further development research.

There has been relatively little use of the ICF-CY in educational settings and for eligibility decisions about scarce education provision. Its national adaptation in Portugal has shown the usefulness of the ICF as a resource for decision-making, but studies of IEPs show issues in the fidelity of the ICF use and the need for enhanced teacher training. In Italy, there have been both district and school level ICF-informed developments to support assessment and IEP formulation. There are lessons to be learned from these too about the technical assessment and the management of change.

The Swiss conceptual expansion of the ICF-CY to incorporate an educational perspective and its practical implementation has direct relevance to England. This is the one development of the ICF that takes account of an educational perspective on well-being and that recognizes the potential tension between having a broad universal framework that applies internationally and across different life areas and a model that fits national and local educational assessment decisions to be made. The Swiss development brings out the importance of distinguishing between the ICF framework assumptions, the life areas to which they are applied, the hierarchical codes that make up the components of the current ICF, and the specific assessment methods used to assess the functioning and context. As some studies concluded, the provided WHO ICF-CY codes might also need to be revised. The planned WHO merger of the ICF-CY with the ICF (adult version) will also imply some changes to the structure and codes of the revised life-span ICF.

The critiques of the ICF highlight the importance of understanding that the ICF is a construction based on values and research evidence. It is neither a purely technical matter nor to be followed without questioning. As shown in the Swiss development, its use for educational purposes requires conceptual developments that relate to educational ideas of well-being. These go beyond a health-related perspective of well-being (as in the WHO version) and are grounded in national ideas about curriculum and learning. Eligibility decisions about educational provision require norms about functioning and the environment that are neither given nor imposed by professionals or policy-makers. These norms are to be negotiated with service users who are to be treated as having rights to participate in assessment and decision-making. This paper concludes that there is scope for the development and use of an ICF informed approach to assessing additional educational needs in England; it is probably wise that future work picks up the links to the previous ECM initiative a decade ago and the development of a CAF. As part of this move the term "additional needs" would replace SEN as it has a broader coverage, a move already made in Scotland, as discussed above. Such work has started already in research study at Roehampton University (Castro and Palikara, 2016). Based on the argument in this paper and the review of international research, there is much scope for larger scale developments in England and other countries in the UK.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

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