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Cover drawing by Bea, aged 9, at
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Editorial: The Relation between Inclusive and Cognitive Education and New Insights in Brain-Gene-Environment Interaction

JO LEBEER [1]

In 2006 the United Nations adopted a Convention on the Rights of Persons with a Disability, a milestone of the calibre of the Human Rights Convention in 1948. According to Article 24, children with disability have the right to participate and receive high quality education in regular schools. Inclusive Education has become a world-wide standard. There is no more doubt, at least from a juridical or a human rights point of view. States which ratified the Convention (130 up till now) have the obligation to take the necessary measures and create conditions to grant their citizens that right to be educated in a regular environment, including the necessary reasonable adaptations in curriculum and environment, as well as to adequate support. Many countries changed their education laws and provisions. However, there is a widespread difference in the degree of implementation of inclusive education, and even in the understanding and application of its principles in practice.

In 2006, just before the mentioned Convention, the Transylvanian Journal of Psychology published a Special Issue on this topic based on the results of the European Inclues project (Pokorna & Lebeer, 2006). Now is the time to make a scientific update.

Why a special issue on the combination of both topics: inclusive education and cognitive activation? Apparently they have little to do with each other; one is pedagogy, the other (neuro)psychology and cognitive rehabilitation. What is the bridge?

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The relation between inclusive and cognitive education and new insights in brain-gene-environment interaction[1]

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Abstract

This article discusses the relation between inclusive and cognitive education. Inclusive education, when it is well done, may have an important impact on the development and learning of a child "experiencing barriers to learning", as well as on typically developing peers and on the teachers. The barriers to learning a child experiences, may originate in the child's neurological functioning, but may also be due or reinforced by environmental barriers, e.g. in attitudes or (lack of) competences of teachers, peers, parents, (lack of) assistance, material support, etc. Cognitive education is the activation of transverse cognitive skills or executive functions, such as: the ability of sustained attention, to refrain from impulsive behaviour, to expand working memory, to compare and to use an enriched language. Cognition is a basis for learning in the broadest sense. We explore three examples of young people with non-mosaic Down syndrome who, despite of intellectual disability, attained a cognitively high functioning state, such as obtaining a drivers' licence or university degree. These achievements are explored in the light of the theory of ecological plasticity, cognitive modifiability and epigenetics. Furthermore, the article introduces the topics of the 2013 Special Issue of the Transylvanian Journal of Psychology on Psychological and Educational Aspects of Inclusion, such as evidence based strategies for enhancing learning, conceptualizing inclusive education, maths education, socio-emotional aspects of inclusion, peer learning, dynamic assessment, teacher training for inclusion, individuals with intellectual disability becoming teaching assistants.

Introduction

In 2006 the United Nations adopted a Convention on the Rights of Persons with a Disability, a milestone of the calibre of the Human Rights Convention in 1948. According to Article 24, children with disability have the right to participate and receive high quality education in regular schools. Inclusive Education has become a world-wide standard. There is no more doubt, at least from a juridical or a human rights point of view. States which ratified the Convention (130 up till now) have the obligation to take the necessary measures and create conditions to grant their citizens that right to be educated in a regular environment, including the necessary reasonable adaptations in curriculum and environment, as well as to adequate support. Many countries changed their education laws and provisions. However, there is a widespread difference in the degree of implementation of inclusive education, and even in the understanding and application of its principles in practice.

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Why a special issue on the combination of both topics: inclusive education and cognitive activation? Apparently they have little to do with each other; one is pedagogy, the other (neuro)psychology and cognitive rehabilitation. What is the bridge?

Inclusive education, when it is well done - as is outlined in the paper of Sheehy et al. (2013) – may have an important impact on the development and learning of a child "experiencing barriers to learning", as well as on typically developing peers and on the teachers. The name shift from "children with special educational needs" to "children experiencing barriers to learning" (Booth et al, 2011) already indicates a shift in thinking: from a merely child-oriented perspective, towards a more environmental perspective. The barriers to learning a child experiences, may originate in the child's neurological functioning, but may also be due or reinforced by environmental barriers, e.g. in attitudes or (lack of) competences of teachers, peers, parents, (lack of) assistance, material support, etc. This shift of thinking is now well represented in the ICF-CY conceptual framework (International Classification of Functioning), which is discussed in this special issue by Saragoça *et al*. Inclusive education is a cultural process, taking place on many levels. Several papers in this special issue report about this shift in children and teachers.

With cognitive development we want to give an expanded meaning as compared to its usual meaning of the development of knowledge and academic skills. These are secondary to the development of more transverse cognitive skills or executive functions, such as: the ability of sustained attention, to refrain from impulsive behaviour, to expand working memory, to compare and to use an enriched language.   Cognition is a basis for learning in the broadest sense – including also social-emotional learning, creativity, musicality and other intelligences, which are not usually considered to have much to do with cognition. This development takes place in family, community and school. If there is a lack of mediation in this respect, cognitive development may be hampered. An inclusive environment, by exposing everyone to multiple challenges (to adapt, to learn, to relate, etc.) is certainly a "cognitively complex environment" . According to Steven Ceci (1986) cognitive functions are only developed in an environment which is sufficiently complex. Therefore, theoretically, a better cognition should lead to a better inclusion. Many researchers found that indeed this is the case. But what about modifiability of cognition? We want to go beyond merely passively observing that those having better cognition have more chances to be included.

Examples of Down syndrome and high functional achievement
An example of the profound impact of an inclusive cognitively complex environment can be seen in the increasing number of people with Down syndrome who, despite of having a diagnosis of intellectual disability, succeeded in getting to a cognitively high functioning state, as for example obtaining a high school, professional , or even university degree, or a driver's licence. When one analyses their biographies either written by themselves (e.g. Engels, 2006) or by their parents (Felea, 2011) or interviews (Pineda,2010), they have in common that (1) they all went to a regular school; (2) they had very stimulating and challenging parents; who mediated to them thinking-, language-, coping-, socio-emotional and academic skills, and gave them a lot of learning opportunities in this respect; (3) their parents succeeded in convincing others – teachers mainly – to also become

cognitively challenging, who gave them more than average learning experience to become proficient in academic and thinking skills; (4) they did not grow up in an overprotected, simple environment and (5) they became responsible citizens with a contributing role in society. These characteristics all summarized in Feuerstein's concept of "active modifying environment" (Feuerstein, 2002). Interestingly, in these three described case histories, there is evidence that they were not particularly high functioning in the beginning, or cases of mosaic Down syndrome. So the usual argument that high cognitive development is simply a result of better genetic predisposition, does not stand. This means that there are good arguments their high cognitive development is, at least to an important extent, the result of environmental enrichment. In this Special Issue another example is analysed by Verreyt et al.(2013), of a group of young people with Down syndrome who took a course in "learning support assistance for kindergarten. Their study suggests that participation to an inclusive course, followed by regular employment in an inclusive workplace, not only is beneficial for their quality of life, but it also expands the mind of the adult participants, not only of those with intellectual disability, but the whole environment.

Hence, the question is not so much if there is a link between cognitive activation and inclusive education, but how. If we have a better understanding of the "how", it might be able to replicate similar results. Nowadays there are several scientific fields which provide a theoretical basis of understanding a link between cognitive activation, inclusive education and resulting high cognitive development.

New insights in brain-gene-environment interaction

The first is the field of neurosciences and the study of neuroplasticity, which shows increasing evidence that the brain continues to make new connections at all ages, and the undeniably positive effect of being raised in "environmental enrichment conditions". We termed this "ecological plasticity", in the sense that the brain's plasticity mechanisms are highly influenced by the individual's ecology (Lebeer, 1998). An inclusive school may be seen – under certain conditions as outlined in this issue – as an educationally enriched environment.

The second is the theory of Structural Cognitive Modifiability and Mediating Learning Experience (Feuerstein et al.,2002), which provides a theoretical framework as well as practical applicability to enhance cognitive development. In this theory, higher order cognitive functions are seen as the result of adequate mediated learning experience, whereby a human being intentionally interferes to adapt the incoming stimuli (input), in order to make them "digestible", to help with elaboration and to adapt the way answers are expressed (output). We can now assume that teachers (as well as parents), in their role of mediators, act somehow as "closed brain surgeons" in the sense that they really contribute in creating new brain connections.

Thirdly, there is a growing scientific field of epigenetics, which studies the effects of the environment (from cellular environment, to brain networks, to living environments) on the regulation of gene transcription. Epigenetics may offer the explanation of the phenomenon of ecological plasticity. E.g. In the case of Fragile X syndrome, a genetic anomaly in boys which is associated with intellectual disability, impulsivity, autistic tendencies and language development difficulties, the genetic mechanism leading to abnormal brain network construction is well known; the repetition of genes disturbs the construction of Rho proteins, which in itself disturb synaptic dendrite plasticity (Ramakers, 2002). In Fragile X mouse models however, it has been shown that activity may partly

compensate this deleterious effect, by epigenetic mechanisms controlling gene expression. There is also evidence of the influence of environmental input and affective experience on the formation of the social brain in early childhood (Korkmaz et al, 2013), which in many children nowadays is somehow hampered.

These new insights in brain-gene-environment interaction have important consequences for parents, teachers, therapists and whoever is involved in education and developmental activation of children with developmental impairments.

Questions regarding inclusive & cognitive education

However, many questions remain, for example:

- How effective is inclusive education (as compared to special schools) regarding learning of primary academic skills (reading, writing, and mathematics), general knowledge acquisition, social skills development and autonomy, cognitive development?
- What variations in application of inclusive education practice exist within countries and between countries and how are they evaluated?
- Regarding assessment of "additional educational needs", functional evaluation and evaluation of academic achievement: what kinds of adaptations are needed and are effective?
- How can adaptations and support be effectively organized in an inclusive way, meeting the needs of inclusive participation and the needs for optimizing development and learning?
- What kind of support is most effective; what is the quality of support in regular classes?
- What competences are required of the various professions involved in realizing inclusive education: regular teachers, special teachers, other supporting staff?
- What is the role of cognitive activation in inclusive education and the effectiveness of possible specific cognitive activation programmes in this respect?
- What kind of didactic methods regarding literacy and numeracy are most effective with children with difficulties in this respect?
- What are critical success and failure factors regarding inclusive education?
- What educational ICT technologies can contribute to the realization of inclusive education?

Some of these questions will be addressed in this special issue.

Relevant topics in inclusive & cognitive education

First, David Mitchell presents an evidence-based approach to teaching learners with special educational needs and disabilities in inclusive educational settings. The criteria that should be met in research studies are briefly described. This is followed by an overview of evidence-based teaching strategies that have high ratings. A total of 20 strategies are arranged under four headings, according to their predominant underlying assumptions about how learning takes place: social, behavioural, constructivist and mixed (Mitchell, 2013).

A theoretical foundation for the link between cognitive activation and inclusion is given in Dorothy Howie's paper (2013), which starts from Bronfenbrenner's updated ecological theory, mapping some key principles linking inclusive and cognitive education. It then presents a three-tiered model for the inclusive teaching of thinking within that ecological theoretical framework, with an example of how one school community has considered that three-tiered model in terms of the needs of all of its learners for cognitive education.

Desoete & Praet (2013) give an example of Howies' theory how cognitive activation leads to more inclusion, from a very young age: their results indicate that a short and intensive intervention of playing ICT educational games filled the gap between children at-risk and peers without additional education needs. Mathematic skills of kindergarteners increased, with training effects that were persistent in grade 1.

Storbeck and Martin (2013) summarize Deaf Education in South Africa and the USA in terms of the transformation that it has passed through: —from an entirely separate educational system, to one which aims at more inclusion. They raise questions regarding the way in which inclusion is interpreted. In the case of Deaf Education, they state that neither the special education in special settings, nor the inclusive options are sufficiently meeting Deaf learners' needs. However, the incorporation of a cognitive education programme, in acquiring transversal learning skills, offers hearing-impaired learners the opportunity to truly meet the goal of preparation for the future—in academic, social, family, and work lives. They conclude that cognitive education should have a significant curricular position.

Sheehy et al. (2013) make a similar case for children with autistic spectrum disorder: she criticizes the widely held view and practice that it is better to create special settings. She argues that the evidence for such special "ASD" education is generally weak. From her research in 10 countries all over the world, she concludes that it is very well possible to educate children with ASD in mainstream settings. She also gives the characteristics of a truly inclusive pedagogy. If one understands how to teach children with ASD, then more typically developing children greatly benefit.

Demeter (2013) also writes about conditions to create good inclusive education. In her paper she compares the social context of acceptance and rejection of typically developing and children with a label of special educational needs SEN. There might be different reasons of rejection, but secondary and long term consequences are similar for whether or not children are labelled disabled or not. She presents effective buffering techniques and strategies for prevention of prejudicial attitudes. This also links to the ICF which considers attitudes as important "external factors" contributing (positively or negatively) to disability and functioning.

The paper of Hutchings & Mortimore (2013) reports about an intervention study for early literacy acquisition in "vulnerable" learners living in the UK, who have English as a second language. They start from a critique on the "medical model" approach, adopted by most dyslexia and "specific learning disability" specialists, both practically in promoting diagnostic assessment, labelling learners and focusing support upon multi-sensory programmes for individuals delivered by experts. Their intervention with computer based reading programmes was "simple", within classroom, and done by teaching assistants. The results suggest that short- term, daily, focused interventions, delivered by trained teaching assistants are highly effective in increasing literacy in at risk bilingual learners. Moreover, they showed that the less measurable dimensions of learning, emotion and environment play a key role in developing appropriate responses to literacy difficulties.

The problem of assessment is dealt with in two contributions. First Lebeer et al. (2013) give a summary of the results of a European project (the "Daffodil project"), which searched for more inclusive alternatives to classic assessment procedures, which they criticized for being too negative and excluding, thus conspiring with leaving children behind. They present criteria for good practices for assessing children's true educational needs in a more dynamic, inclusion-oriented and contextual

way, oriented at discovering learning potential; they suggest a number of approaches responding to these criteria. Furthermore, they report a qualitative research process to arrive at guidelines and a flow-chart. Salas et al. (2013) report a concrete application of this approach in Chile in South-America, in which they showed that children at risk of educational failure, if evaluated in a dynamic way – they used Feuerstein's LPAD – improve their performance dramatically, thus giving their teachers a more optimistic outlook and counter-acting negative prejudice.

That the teacher is crucial to successful inclusion is again illustrated in the papers of Van de putte & De Schauwer (2013) and the one of Saragoça et al.. (2013). Van de putte & De Schauwer examined teachers' experience with inclusive education in preschool, primary and the beginning of secondary education in Belgium. For the teachers the question has shifted from 'what is wrong with this child?' towards 'what is necessary to let the child participate in our group?' It has profound impact on them, opening up new insights and resulting in teachers' becoming different teachers than before. This is a very important finding, because in many places resistance against inclusion is often formulated in terms of "teachers are not ready for inclusion". This paper shows they can become ready. Theoretically it is also a relevant paper because it questions the thinking about difference as a categorical difference (as expressed in labels as .e.g. "intellectual disability"), to difference as emergent continuous difference. Their paper shows that it is possible – as is suggested by Demeter in another article in this issue – to prevent and buffer teachers' prejudice.

On the other hand, Saragoça et al. (2013) show that teachers, even those who are already specialized in special needs education, need a more substantial and continuous professional development to become "accultured" to a new thinking about disability, not in terms of medical deficiencies, but in terms of bio-psycho-social functioning, as is laid down in the ICF, which has been adopted as "the" frame of reference to assess children with disability in Portugal. Implementation of such a new paradigm is not a quick and easy process.

The psychology of adolescents with special needs in a situation of inclusion is the subject of a paper by Simona Hoskovcová and Lenka Krejčová of Charles University in Prague. They studied self-efficacy as a resilient factor in periods of transition and the role of significant educators who may fundamentally affect pupils' coping with transitions.

Finally, János et al.(2013) report some preliminary experiences of their work at the recently established Feuerstein Centre of the Psychology Institute of the Babes-Bolyai University in Cluj-Napoca, with cognitive activation methods based on mediated learning experience intensification, in children with a history of educational failure and at risk of school dropout. Although preliminary, results are promising and significant in the sense that they show a "way out" – or should I say a "way in" – of a widespread cultural habit of leaving behind children from ethnic minorities who habitually do not perform well at school. By helping the children to adopt better thinking strategies, their teachers are losing their negative prejudice, a real illustration of the Pygmalion effect. It is a confirmation of Howies' three-tier thinking skills strategy discussed in this issue.

In conclusion, both the concept of inclusive education and that of cognitive education are often badly understood. We hope that this Special Issue contributes not only to a better understanding what they truly mean, and what they imply; we also hope that their scientific evidence will become more solid. The fact that the UN Convention has been mentioned many times in this Special Issue, means that it has made a profound impact in the minds of those who feel the need to help with its

implementation. And above all we hope that this Special Issue will "shake the minds" of those in charge of children "experiencing barriers to learning" so that they will become better learners in a more inclusive educational environment.

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Twenty Evidence-Based Strategies for Enhancing Learning

DAVID MITCHELL [1]

Abstract

This paper presents an evidence-based approach to teaching learners with special educational needs and disabilities in inclusive educational settings. The criteria that should be met in research studies are briefly described. This is followed by an overview of evidence-based teaching strategies that have high ratings. A total of 20 strategies are arranged under four headings, according to their predominant underlying assumptions about how learning takes place: social, behavioural, constructivist and mixed.

Keywords

inclusive education, social strategies, behavioural strategies, constructivist strategies, mixed strategies

Introduction

Increasingly, around the world, educators are being expected to draw upon research-based evidence in planning, implementing, and evaluating their teaching. In Europe, for example, since 2010 there has been a project, Evidence-informed Policy and Practice in Education in Europe, with 34 partner organizations from 24 countries, together with four affiliates from outside Europe (see URL: http://www.eipee.eu/ accessed 10 November 2012). This project aims to broker knowledge using common reference tools and approaches, as well as exchanging good practices, data and evidence from relevant European agencies and national-level resources.

The present paper presents a selection of evidence-based teaching strategies that have been found to be effective in teaching learners with special educational needs and disabilities in inclusive educational settings,. After out-

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lining criteria that should be taken into account in determining what constitutes evidence-based teaching strategies, a total of 20 such strategies are arranged under four headings, according to their predominant underlying assumptions about how learning takes place: social, behavioural, constructivist and mixed.

Criteria for Determining Evidence-based Teaching Strategies

A range of criteria should be considered before deciding if there is sufficient evidence to justify the deployment of particular teaching strategies.

(a) Behavioural outcomes. Studies should include reliable and valid measures of behavioural outcomes: after all, we must be sure that a particular strategy has a positive effect on target behaviours

(b) Learner characteristics. Studies should include clear descriptions of the learners' ages, developmental levels, and the nature and degree of any disabilities they may have. Also, it is desirable that the learners' family characteristics, such as ethnicity, be reported.

(c) Control of variables. The research should be designed in such a way as to ensure that the outcomes are due to the intervention and not to any confounding variables such as the simple passage of time, a placebo effect, the effects of additional attention to the learners in the study, or to the effects of repeated testing.

(d) Freedom from contamination. There should be no, or minimal, 'contamination' that might affect the results of the study. 2

(e) Acceptable side effects. Possible side effects should be assessed and should be positive, or at least not negative. For example, coercive means might be used to control certain learner behaviours, but they may cause heightened anxiety or even fear, and, of course, they are unethical and possibly illegal.

(f) Theory-based. The psychological mechanisms or learning processes underlying the strategy should be clearly explained, thus enabling generalisation to other situations.

(g) Follow-up. There should be adequate follow-up after, say, six months, but preferably longer, to ascertain if the behavioural gains are maintained over time.

(h) Natural conditions. Ideally, the research should be carried out in everyday teaching environments, not just in research conditions.

(i) Peer review. The research should have been published in reputable journals after rigorous peer review.

(j) Replication. The research should contain at least two high-quality group studies, or four acceptable quality group studies, or a minimum of five single-subject research studies that have shown positive effects for the strategy. Preferably, independent researchers have replicated the research.

(k) Cost effectiveness. Clearly, for an intervention to be adopted it must not be excessively expensive. For example, the more the intervention depends on one-to-one attention over a prolonged period, the less likely it is considered to be cost effective, especially in poorer countries.

(l) Practical significance. It is possible for research to yield statistically significant results, but the actual effects of the intervention may not be practically meaningful and would have limited appeal to educators looking for strategies that make a big difference to learner outcomes.

(m) Accessibility. Finally, it is important that educators can readily access in a usable form those teaching strategies that have been researched.

In the author's recent book (Mitchell, 2014), several teaching strategies that meet most, if not all, of the above criteria are presented. For each strategy, there is wide support for their deployment in teaching learners with special educational needs, particularly those with disabilities. Examples of supportive research will be presented for each strategy.

Behavioural Approaches

Five strategies focus mainly on changes in a learner's observable behaviours and emphasise the role of external stimuli, particularly the role of reinforcement and the role of the teacher in transmitting knowledge.

Behavioural approaches. Behavioural approaches focus on how events that occur either before (antecedents) or after (consequences) learners engage in a verbal or physical act affects their subsequent behaviour.

In a comprehensive review of meta-analyses involving 20 different intervention strategies, behaviour modification came out with the third highest effect size (after mnemonic strategies, reading comprehension and just ahead of Direct Instruction) (Forness, 2001). The effect size of 0.93 for behaviour modification represented the average of effect sizes for social outcomes (0.69) and academic outcomes (1.57)

Functional behavioural assessment. Functional behavioural assessment (FBA) is a subset of the behavioural approaches outlined above. In essence, it refers to the procedures used to determine the function or purpose of a learner's repeated undesirable behaviour and what leads to it being maintained.

In a review, 22 studies of FBA-based interventions for learners with or at-risk for emotional and behavioural disorders were reported (Heckaman et al., 2000). These studies comprised a mix of antecedent-based interventions (N=6), consequence-based interventions (N=6), a combination of antecedent-based and consequence-based procedures (N=4), and other related approaches (N=6). Regardless of the type of intervention, 18 of the 22 studies showed positive results, with clear reductions of problem behaviour and/or increases in appropriate behaviours. The studies also showed that the most common factors leading to inappropriate behaviours in children were (a) teacher attention to inappropriate behaviours and (b) learning tasks which were too difficult.

Review and practice. This requires planning and supervising opportunities for learners to encounter the same skills or concepts on several occasions. It is aimed at helping learners to 'internalize' concepts and skills once they have been initially taught. This is particularly the case with basic skills that are taught hierarchically, so that success at any level requires the application of knowledge and skills mastered earlier (Rosenshine, 1983).

In Hattie's (2009) recent synthesis of two meta-analyses involving spaced and massed practice, he reported an effect size of 0.71, in favour of the former, observing that 'it is the frequency of different opportunities rather than merely spending "more" time on task that makes the difference to learning.' (p.185). In a comprehensive meta-analysis of 93 intervention studies targeting adolescents with learning disabilities, the single most important strategy

was found to be explicit practice, defined as treatment activities related to distributed review and practice, repeated practice, sequenced reviews, daily feedback, and/or weekly reviews (Swanson and Hoskyn, 2001). A recent synthesis examined 24 studies of effective interventions for building reading fluency with elementary students with learning disabilities. One of the main factors that emerged was multiple opportunities to repeatedly read familiar text independently and with corrective feedback. This led to improvements in the automatic processing of text and, hence, to improved speed and accuracy (i.e., fluency) (Chard, Vaughn and Tyler, 2002).

Direct Instruction. Direct Instruction (DI) is a multi-component instructional strategy centring on teacher-directed, explicit, systematic teaching based on scripted lesson plans and frequent assessment. Research studies have consistently shown that DI has a positive effect across a range of learners and across various subject areas.

In his comprehensive synthesis, Hattie (2009) summarised the results of four meta-analyses involving a total of 304 studies, arriving at an effect size of 0.59 for DI. He noted that studies showing the effects of DI were similar for regular students (0.99) and special education and lower ability students (0.86), but were higher for reading (0.89) than for mathematics (0.50). A recent meta-analysis located 20 studies carried out since 1996, involving 95 separate comparisons. The average effect size over all comparisons was 0.66. In a similar result to Hattie, the effect sizes were very similar for studies involving general education (0.69) and special education students (0.71). Effect sizes were slightly smaller, on average, for reading (0.56) than for language (0.81) and mathematics (1.03) (Coughlin, 2011) – the reverse of the previous study.

Formative assessment and feedback. Formative assessment and feedback is a combined strategy in which teachers (a) probe for knowledge within lessons, (b) give frequent feedback to learners (sometimes referred to as corrective feedback), and (c) adjust their teaching strategies, where necessary, to improve learners' performances.

A US study used a formative evaluation system with low-achieving learners in a large urban school system. It resulted in significant gains in math achievement (Ysseldyke, 2001). Hattie's (2009) synthesis of feedback referred to 23 separate meta-analyses, incorporating a total of 1,287 separate studies. This yielded a high effect size of 0.73, which he described as 'among the most powerful influences on achievement' (p.173).

Social Approaches

These strategies emphasise the importance of social contexts – families, peer groups and classrooms – in facilitating learning. Six strategies fall into this category.

Cooperative group teaching. This is based on two main ideas about learning. First, it recognizes that when learners cooperate, or collaborate, it has a synergistic effect. In other words, by working together they can often achieve a result that is greater than the sum of their individual efforts or capabilities. Second, it recognizes that much knowledge is socially constructed; that is, children learn from others in their immediate environments – their families, friendship groups and their classmates.

With a focus on all learners, not just those with special educational needs, Hattie (2009) identified two groups of meta-analyses that involve cooperative learning: (a) those that compare cooperative with individualistic learning (effect size = 0.59), and (b) those that compare cooperative learning with competitive learning (effect size = 0.54). He argued that these results point to the power of peers in the learning process. An example of a specific study is an Australian investigation of the learning outcomes for 22 3rd grade students with learning difficulties who participated in structured and unstructured group activities in a social studies unit. Those in the structured groups were taught small-group and interpersonal behaviours to promote group cooperation. Activities to be completed were broken down into smaller parts with each learner taking responsibility for completing a part as well as sharing resources and information; those in the unstructured groups did not receive this training. The results showed that the structured group provided more directions and help to other group members and obtained significantly higher performances in comprehension than the unstructured group. This was true both for learners with and without learning difficulties (Gillies and Ashman, 2000).

Peer tutoring and peer influences. Peers play multiple roles in supporting and teaching each other – a 'natural' social relationship that teachers should capitalise on. There is a substantial literature on peer tutoring, i.e., situations in which one learner (the 'tutor') provides a learning experience for another learner (the 'tutee'), under a teacher's supervision.

In his review of some 14 meta-analyses of peer tutoring, which included a total of 767 separate studies, Hattie (2009) arrived at an effect size of 0.55. He

noted several studies that featured learners with special needs. The first of these, which used learners with special needs as tutors of other students with special needs, showed that both groups benefitted (tutors: effect size = 0.53, tutees: effect size 0.58).. The second study found that the magnitude of peer-tutoring effects did not differ according to whether students at risk for reading failure acted as tutors or tutees. In another study, the effects of peer-assisted learning strategies (PALS) on students' reading achievement was evaluated. It was carried out in 22 U.S. elementary and middle schools, with 20 teachers implementing the programme for 15 weeks, while 20 control teachers did not. It was found that all three groups of learners (low achievers with and without disabilities and average achievers) demonstrated greater reading progress in PALS (Fuchs et al., 1997).

Social skills training. This is a set of strategies aimed at helping learners establish and maintain positive interactions with others. Most children quite easily acquire the social skills that are appropriate to their culture, but some do not and must be explicitly taught them. Some have poor social perception and consequently lack social skills; this is particularly true of those with autism and emotional and behavioural disorders (Cook et al., 2008; McGrath, 2005). It is also true of learners with severe disabilities, many of whom have difficulty in forming meaningful or equitable friendships (Wilson, 1999).

In Hattie's (2009) review of strategies, he identified eight meta-analyses, which yielded an average effect size of 0.40, with stronger effects on social skills training enhancing peer relations (0.80 to 0.90) and social outcomes (0.50 to 0.60) and lowest effects for academic achievement (0.10 to 0.20). In a US study, an intervention programme, the Project Achieve Social Skills Program, was implemented in a pre-kindergarten through sixth grade school over a three-year period. It was found to be effective across the school in improving social and problem solving behaviour, decreasing negative and bullying behaviour and improving students' academic and social functioning. However, about 12 per cent of the students had not responded to the intervention (Killian, Fish and Maniago, 2006).

Collaborative teaching. Collaboration can be defined as a process that enables groups of people with diverse expertise to combine their resources to generate solutions to problems over a period of time (Idol et al., 1994). Educating learners with special educational needs requires collaboration with many people - professionals and parents in particular. There are few areas of education that call upon so much collaboration and teamwork.

In an extensive review of outcome research on consultation carried out between 1985 and 1995, the authors found that nearly 67 per cent of the studies reported some positive findings, while 28 per cent reported neutral findings and only 5 per cent noted negative results (Sheridan and Welch, 1997). These were similar finding to those reported in previous reviews of the research. However, they also recognized that although the impetus for setting up consultation models is widely encouraged, research-based support has been accumulating only slowly.

Parent involvement and support. Parents play important, if not critical, roles in educating and supporting learners with special educational needs.

Hattie's (2009) meta-analysis of studies of the impact of home variables on children's educational achievement showed that parental aspirations and expectations had the strongest relationship with their children's achievement (effect size 0.80), while showing interest in their children's school work, assisting with homework and discussing school progress had a moderate effect size (0.38). Another recent meta-analysis of 51 studies investigated the efficacy of different types of parental involvement on the academic achievement of urban pre-kindergarten to 12th grade children. Results indicated a significant relationship (0.3 of a standard deviation) between parental involvement programmes overall and achievement for children across the age-span involved. It was noted that 'parental involvement initiatives that involved parents and their children reading together parents checking their children's homework, and parents and teachers communicating with one another, had a noteworthy relationship with academic outcomes (Jeynes, 2012).

Classroom climate. The classroom climate is a multi-component strategy comprising the psychological features of the classroom, as distinct from its physical features. The key principle is to create a psychological environment that facilitates learning, thus drawing attention to three main factors (a) relationships, (b) personal development and (c) system maintenance (Moos, 1979).

In a recent meta-analysis of the influence of affective teacher-student relationships (TSRs) on students' school engagement and achievement, a group of Dutch scholars examined a total of 99 studies ranging from preschool to high school (Roorda et al., 2011). TSRs include such positive variables as warmth, empathy, and closeness, and negative variables such as conflict. They found that TSRs had a medium to large association with student engagement and a small to medium association with student achievement.

These associations were more important for students who were academically at risk, in particular for those from disadvantaged backgrounds or for those with learning difficulties. The authors noted that affective TSRs remained important, or were even more influential, for older students, even into late adolescence. However, they concluded that while affective TSRs are important, there are many other teacher factors, such as instructional quality, that also influence student engagement and achievement. Another recent meta-analysis examined the impact of interventions aimed at enhancing students' social and emotional learning (Durlak, 2011). A total of 213 school-based social and emotional learning (SEL) programmes were included in the study. These programmes had in common the acquisition of competence in recognizing and managing emotions, setting and achieving positive goals, appreciating the perspectives of others, establishing and maintaining positive relationships and handling interpersonal situations constructively. Positive effect sizes were obtained across six domains: social and emotional learning (effect size: 0.57), attitudes (0.23), positive social behaviour (0.24), conduct problems (0.22), emotional distress (0.24), and academic performance (0.27). The authors noted, too, that classroom teachers and other school staff were able to effectively conduct the SEL programmes.

Cognitive Approaches

Five strategies draw upon cognitive models of learning how we collect, store, interpret, understand, remember and use information. These strategies typically emphasise the role of learners in actively constructing their own understanding. They are increasingly drawing upon neuroscience in explaining their underlying mechanisms, a field that is sometimes referred to as the 'Mind, Brain and Education' movement, which has the goal of joining biology, cognitive science, development and education in order to create a sound grounding of education in research (Fischer, 2009).

Cognitive strategy instruction. Cognitive strategy instruction (CSI) refers to ways of assisting learners to acquire cognitive skills, or strategies. It does this by helping them to (a) organise information so that its complexity is reduced, and/or (b) integrate information into their existing knowledge (Ashman, and Conway, 1997). It includes teaching skills such as visualisation,

planning, self-regulation, memorising, analysing, predicting, making associations, using cues, and thinking about thinking (i.e., metacognition).

There is a considerable literature on the effectiveness of various types of CSI on learners with special educational needs. Much of it focuses on those with learning disabilities and on mathematics, reading comprehension and writing skills. Overall, there is strong evidence favouring CSI (Gersten, et al., 2001). In his recent synthesis of two meta-analyses of the impact of teaching meta-cognitive strategies on learners' achievement, Hattie (2009) found an effect size of 0.69. He noted that such teaching was particularly effective with remedial students. A US review of several studies of CSI concluded that it was effective for improving the mathematical problem-solving performance of middle and secondary school students with learning disabilities (Montague, 1997). The goal of instruction in the studies was to teach the students a comprehensive cognitive and metacognitive strategy for solving mathematical word problems. In the cognitive strategy students were taught to follow these steps: Read, Paraphrase, Visualise, Hypothesise, Estimate, Compute, and Check. In the metacognitive strategy they were taught to Self-instruct, Self-question and Self-monitor.

Self-regulated learning. Self-regulated learning (SRL) aims at helping learners to define goals for themselves, to monitor their own behaviour, and to make decisions and choices of actions that lead to the achievement of their goals (Zimmerman, 2000). Ultimately, SRL is directed and regulated by motivation. This strategy can be used in a variety of settings, across a range of subjects, and with learners with and without special educational needs. Most definitions of SRL refer not only to the regulation of cognitive processes, but also to the regulation of behaviour and emotions (Rueda et al., 2011).

A recent meta-analysis on self-regulation studies was reported by a group of German scholars (Dignath et al., 2008). They presented the results of 48 intervention comparisons involving 30 articles on enhancing self-regulated learning among primary school learners (those with special educational needs were not separately analysed). They concluded that self-regulated learning training programmes proved to have positive effects on academic achievement. In another recent review of self-regulated learning, carried out by UK scholars (Duckworth et al., 2009), they drew conclusions such as the following: (a) there is a positive overall relationship between self-regulation and academic achievement; (b) individual elements of self-regulation (e.g., attitudes towards learning, attention and persistence) are also related to aca-

demic achievement; (c) although the effect size of self-regulation is small compared to that associated with prior attainment, it exists independently of prior attainment; (d) aspects of self-regulation such as attention, persistence, flexibility, motivation and confidence can all be improved as a result of effective teaching; (e) metacognition is a key element and driver of self-regulation.

Memory strategies. Here, consideration must be given to ways of enhancing primary memory, short-term memory, long-term memory and the executive system. Memory straddles both the cognitive approach and the social approach to learning, the first because the learner must construct the relationship between new knowledge and what was previously learned, and the second because others play an influential role in determining what is attended to and how it is interpreted. The principal considerations for developing memory skills include mnemonics, motivation, attention, pacing of lessons, rehearsal, transforming material into mental representations, and chunking. As well, consideration should be given to the relationship between memory and emotions.

Several research studies have shown that students (including those with a range of disabilities) can be trained to use mnemonic strategies independently across a range of different content areas, including science and social studies (Mastropieri and Scruggs, 1989). In an analysis of 19 meta-analyses of various interventions, mnemonic training, with an effect size of 1.62, was rated the highest This effect size can be translated to mean that the average student receiving mnemonic instruction was better off than 95 per cent of the students not receiving such instruction (Lloyd et al., 1998).

Reciprocal teaching. Reciprocal teaching (RT) involves teaching learners, by means of guided practice, how to improve their reading comprehension, in all subject areas, by predicting, clarifying, questioning, and summarising what is in a text. It takes place in a dialogue between an educator and learners while segments of text are studied, in which the educator models and explains in the early stages and gradually passes more and more responsibility to the learners as they become more competent.

There is substantial evidence that RT is effective in improving learners' reading comprehension. In the main, studies have focused on students with learning disabilities and have been spread across several countries. For example, in an early study by Palincsar and Brown (1984), the originators of RT, this approach was compared with 'typical practices'. This US study involved 24 7th grade learners with reading difficulties. The results showed that the

majority of the learners in the reciprocal teaching programme made substantial gains in reading comprehension. A comprehensive review of 16 quantitative RT studies, including six with below-average learners, found a median effect size of 0.88 when experimenter-developed comprehension tests were used (Rosenshine and Meister, 1994). The effect size was somewhat lower (0.32) when standardized tests were used. This analysis also showed that RT was most effective for older and poorer reading students.

Cognitive behavioural therapy (CBT). As its name implies, CBT draws upon both cognitive/ constructivist and behavioural approaches to learning. It is an active process of changing a person's negative thinking patterns, which in turn leads to changes in behaviour and, ultimately, to a reduction or elimination of feelings of anxiety or depression. It is a brief, systematic form of psychotherapy that teaches people to change the way they think about themselves and act.

A meta-analysis of school-based studies was reported in 1999. This study surveyed 23 investigations of the effect of CBT on learners with hyperactivity-impulsivity and aggression (Robinson, et al., 1999). The mean effect size across all the studies was 0.74, with 89 per cent of the studies reporting that those in treatment groups experienced greater gains than those in control groups. In all bar one of the studies, the children were treated in self-contained special classes in regular schools or in regular classes. All of the studies incorporated strategies designed to assist children increase self-control, mostly by using covert self-statements to regulate their behaviours. A recent English review found similarly positive results for CBT (Pattison and Harris, 2006). It reported on the research evidence on the outcomes of four approaches to counselling children and young people: CBT, person-centred, psychodynamic and creative therapies. More high quality evidence was found for the effectiveness of CBT than the other approaches. In a breakdown of the studies reviewed, CBT was found to be an effective therapy for the following problem areas: (a) behavioural and conduct disorders, (b) anxiety, (c) school-related issues, (d) self-harming practices, and (e) sexual abuse.

Mixed Approaches

Some strategies do not fall readily into the one of the above three approaches. Four in particular are worthy of mention.

Assistive technology. An assistive technology (AT) device is defined in US legislation as 'any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of children with disabilities.'

A recent review of the literature on the use of computer assisted instruction with learners with mild and moderate disabilities found that, although mixed, research supported the its use to raise academic achievement, particularly when it is used as a tool for extended practice of previously learned concepts (Fitzgerald and Koury, 1996). A Swedish study investigated the effects of an interactive multimedia computer programme on reading and communication skills of six-year-old learners, 11 with autism and nine with mixed handicaps. The former group increased both their word reading and phonological awareness, but these were not sustained during follow-up. A similar, but weaker pattern was found for the second group. It was concluded that such interventions should be individually based (Heimann et al., 1995).

Augmentative and alternative communication (AAC). Some learners with special educational needs have significant difficulties in communicating with others using speech. Augmentative communication is used to supplement whatever existing methods of communication a learner has, while alternative communication represents an attempt to replace the lost means of communication.

In an analysis of 50 single subject experimental studies carried out across a wide age range, the effectiveness of AAC was examined. The results showed that interventions were effective in terms of behaviour change and generalization, although to a lesser extent with maintenance over time (Schlosser and Lee, 2000). A US study investigated the effects of a classroom-based augmentative communication intervention with non-verbal and behaviourally and cognitively challenged adolescents. Picture communication boards, as well as natural language, were used and resulted in increases in communication and positive behaviours and participation in a more complex curriculum (Cafiero, 2001).

Phonological awareness is an oral language skill that involves the ability to notice, reflect upon and manipulate (move, combine, and delete) the individual sounds in words. (Torgesen and Mathes, 1998) It involves two processes: (a) the awareness that speech is made up of sounds, and (b) the ability to break down these sounds and manipulate them.

In a meta-analysis carried out in the US by the influential National Reading Panel (2000), an effect size of 0.53 was obtained for the impact of phonological awareness instruction on reading. An Australian study evaluated the effects of phonological processing skills training for learners aged nine-14 years with persistent reading difficulties. The results showed that improvement in the learners' phonological processing skills led to considerable improvement in their reading accuracy and reading comprehension. Extending the length of the training time significantly improved the transfer of skills to the reading process, especially for those with severe phonological processing skill difficulties (Gillon and Dodd, 1997).

Quality of the indoor physical environment. This strategy is aimed at ensuring that all the elements of the indoor physical environment that may affect students' ability to learn are optimal. It involves attending to such matters as the design and arrangement of furniture, acoustics, lighting, temperature, air quality, and safety.

A study conducted in New York City showed that students in overcrowded schools scored significantly lower in both mathematics and reading than similar students in less crowded conditions. Rivera-Batiz and Marti, 1995). A Swedish study investigated the impact of air quality on absenteeism in two day-care centres. The introduction of electrostatic air cleaning technology reduced the level of absenteeism from 8.31 per cent to 3.75 per cent (Rosen and Richardsom 1999). A New Zealand study examined the effects of sound-field amplification (SFA) for four learners with Down syndrome aged six to seven years. The results showed that the learners perceived significantly more speech when a SFA system that amplified the investigator's voice by 10 decibels was used (Bennetts and Flynn, 2002).

Conclusions

There is a substantial and growing body of evidence regarding the efficacy of a wide range of teaching strategies. Although this paper is mainly concerned with directing attention to strategies that have been found to be successful in teaching learners with special educational needs, it must be emphasised that most, if not all, apply to all leaners. All educators, including teachers and teacher educators, should not only attend to the literature on evidence-based teaching strategies, but should also interrogate their own practices in terms of their impact on all learners, including those with special educational needs.

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Teaching Thinking: a Three-Tiered Model to Enhance Inclusive Learning, in an Ecological Framework

DOROTHY HOWIE [1]

Abstract

This paper uses Bronfenbrenner's updated ecological theory to map some key principles linking inclusive and cognitive education. It then presents a three-tiered model for the inclusive teaching of thinking within that ecological theoretical framework, with an example of how one school community has considered that three-tiered model in terms of the needs of all of its learners for cognitive education.

Keywords

Bronfenbrenner, three-tier model, ecological theory, cognitive education

Introduction

An overall theoretical/conceptual framework which would be of value to all involved in teaching thinking in an inclusive way, as it takes into account the centrality and agency of the child, along with differing levels of support, is Bronfenbrenner's ecological systems model, which he has updated, and which has been applied to children with special educational needs (Sontag, 1996). The discussion will follow the main components of this updated model. Links will be made to teaching and learning, and the teaching of thinking in particular.

The pupil/person at the centre of the learning

Bronfenbrenner places the child, with what he calls their 'developmentally instigative person characteristics', along with meaning making by the child, right at the centre of his model. The needs of the learner, what is in the

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best interests of the learner, the agency of the learner, including their voice, and the unique meaning making of the learner of their own learning, are all central, and first principles, in rights documents, both international and national.

For example, the 2006 UN Convention on the Rights of Persons with Disabilities has at the beginning of the document as a general principle (a) 'Respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons'. Article 7:2 states 'In all actions concerning children with disabilities, the best interests of the child shall be a primary consideration.

The Salamanca Agreement (UNESCO, 1994) states in Principle 2 'every child has unique characteristics, interests, abilities and learning needs'. Within its framework for action it states 'Every person with a disability has a right to express their wishes with regard to their education, as far as this can be ascertained' (Framework 2). In framework 4 a child-centred pedagogy is affirmed with the statement 'Special needs education incorporates the proven principles of sound pedagogy from which all children may benefit. It assumes that human differences are normal and that learning must accordingly be adapted to the needs of the child rather than the child fitted to preordained assumptions regarding the pace and the nature of the learning processes.

(This statement links strongly to the international definitions of inclusion, and has particular implications for assessment).

Partnership with the child in the learning process is central to effective pedagogy, in line with key theorists of learning such as Vygotsky and Feuerstein. Vygotsky's socio-cultural theory (1978) affirms the interactive agency of the learning child. Feuerstein (Feuerstein, Feuerstein, Falik and Rand, 2006) has as the first key criteria of Mediated Learning Experience for effective learning 'intentionality/reciprocity' in which the child shares the learning intentions of the mediator. This links to the 'instigative' i.e. active agency role of the learner in Bronfenbrenner's model.

Bronfenbrenner and Ceci's (1994) presentation of a bio-ecological model incorporates what they call 'proximal processes' which are defined as 'processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects and symbols in its immediate environment' (p.572).

The concept of 'personalised learning' embraced in the UK, and aimed at giving 'greater personalisation and choice' (DfES, 2004), affirms and addresses both the unique learning characteristics of each child, and also the agency of the child. It should include the unique meaning making by each child within their learning situation, as endorsed by Bronfenbrenner's updated model, by Vygotsky's emphasis on the unique cultural meanings and strengths each learner brings to learning situations and interactions, and the second main mediation criteria spelled out by Feuerstein, the 'mediation of meaning'.

In Bronfenbrenner and Ceci's (1994) bio-ecological model, the meaning making is important at all levels of the model, not only by the self at the centre. They state 'The key factor is whether, in a particular family, school, community, workplace culture, or place and period in history, the outcome in question is given salience in the beliefs and the behaviours of both self and others in each of these environmental contexts. In short, which features of the environment become, or are made salient [given meaning] plays a critical role in determining which of a multitude of innate possibilities have the most chance of finding realization' (p.583).

The macrosystem.

This system level includes the overarching cultural patterns of government, religion, education and economy, which impact on and interact with the person's learning. Some shared concepts which could help in linking inclusion and the teaching of thinking at this system level are:

1. A shared definition of inclusion. It would probably be helpful to use an internationally accepted definition, workable in a variety of cultural contexts, such as the one which underpins Ainscow's Index for Inclusion (Booth and Ainscow, 2002), now used internationally for school self-monitoring in progress towards inclusion. Ainscow (1995) defines inclusion as the restructuring of schools to meet the needs of all learners, including those with special educational needs, in contrast to integration, whereby support is given to children with special educational needs to enable them to fit into an ordinary school. This definition of inclusion is similar to the Frederickson and Cline (2002) definition as a radical set of changes whereby schools restructure themselves so as to embrace the needs of all learners.

This 'education for all' whereby each school community should be accountable for the success or failure of every child, is spelled out in the Salamanca Agreement.

2. A definition of learning and thinking. There needs to be a holistic and inclusive definition of learning and thinking which is learner centred, and affirmed in both teaching-learning and in assessment. Mittler (2013) in discussing the future in relation to inclusion, quotes from the Delor's report (UNESCO, 1996) as follows: 'Formal educational systems tend to emphasise the acquisition of knowledge to the detriment of other types of learning; but it is vital now to conceive education in a more encompassing fashion…as built on four pillars of learning to be, learning to know, learning to do and learning to live together' (p.179/160).

Definitions of thinking frequently focus on the process of learning and thinking, as exemplified in Sternberg's definition as follows : Teaching thinking requires the teacher to 'intervene at the level of the mental process and teach individuals what processes to use when, how to use them, and how to combine them into workable strategies for task solution' (Sternberg, 1984, p. 39).

3. A view of inclusion which embraces the fullest inclusion of every child, including children with special learning needs as well as children from ethnically different and socio-economically disadvantaged backgrounds. As described by Mittler (2013), an international expert on inclusion and advisor to UNESCO, referring particularly to work in the UK, there are 'serious questions which face both the special needs and ethnic minorities constituencies. Until now, they have been working in parallel rather than together. The time has surely come for them to join forces and make a common cause for 'education for all' (p.211/2). Mittler spells out as one question which is cause for concern the over-representation of children from ethnic minority groups in special schools for children with learning difficulties and with emotional and behavioural problems.

The international rights documents relating to education of children with disabilities bring inadequate attention to the needs of all children to be valued and learn in an environment that understands and affirms unique cultural meanings. For both Vygotsky

and Feuerstein, the mediation of unique cultural meanings and cultural tools is central to effective learning. Sternberg (1983) has identified the importance of programmes for the teaching of thinking to be appropriate to the cultural backgrounds and meanings of the learners involved. Howie's 2011 book is one of the first international publications to have a strong focus on cultural issues in the teaching of thinking, with many examples of differing approaches used with learners from unique cultural backgrounds.

4. Ensuring that the Salamanca Framework principles are supported by an integrated system in relation to inclusion. The UNESCO Open File on Inclusive Education (2001) discusses some of the wider issues which need to be considered for a more inclusive system, including managing the transition, professional development, assessment, organizing support, families and communities, developing an inclusive curriculum, resourcing and funding, managing transitions throughout education, and working with schools.

<u>The exosystem.</u>

This is the environment of the institutions to which learners belong, especially the school.

Probably the best known framework outlining criteria for progress towards whole school inclusion is the Index for Inclusion (Booth and Ainscow, 2002). The revised index has a strong focus on the first dimension of an inclusive school ethos, including the principle that 'staff seek to remove barriers to learning and participation in all aspects of the school.' This leaves no room in schools for some staff to consider inclusion the responsibility of a small group within specially designated support services or sections of the school.

Each school should have a unique culture of inclusion able to respond to the diversity of learners in their school area. Mittler (2013) states 'Inclusion is not about the placement of individual children but about creating an environment where all pupils can enjoy access and success in the curriculum and become full and valued members of the school and the local community' (p.185).

The second dimension of the Index involves school policies. In the Index for Inclusion particularly important questions are asked about curriculum, in

relation to the policy of a school, including 'Do all curriculum development activities address the participation of students differing in background experience, attainment or impairment?'.

The Salamanca Agreement has as a Framework clause 9 'the matching of curriculum content and method to the individual needs of pupils', and as a School Factor clause 28 'Curricula should be adapted to children's needs, not vice-versa' and clause 29 'Children with special needs should receive additional instructional support in the context of the regular curriculum, not a different curriculum. The guiding principle should be to provide all children with the same education, providing additional assistance and support to children requiring it.'

An important whole school policy aspect relates to how support is given to enable each learner to access the curriculum. The Salamanca Agreement advocates a 'continuum of support'. Such a continuum of support should be possible without the need to label or categorise learners, but rather to be decided on through on-going formative assessment.

The Index for Inclusion has a third dimension relating to inclusive practices. These generally cover aspects addressed in the Microsystem, below.

<u>The mesosystem.</u>

This is the interlocking of systems in which a learner is involved. For all learners in a school, the most important of these interlocking systems is that of the family system with the school system. There has been a long history of partnership with parents in bringing about change in education for both children with educational needs as a whole and for the meeting of the needs of individual children.

There are international models of parent and community wide school partnership in the teaching of thinking. For example, Howie (2011) cites the example of the Scottish Borders Council Learning and Teaching Division initiative whereby not only are all teachers trained in the use of Feuerstein's Mediated Learning Experience criteria for high quality teacher/learner interactions, but parents are also encouraged in their use. Professor Klein has worked with colleagues in culturally different countries to enhance the use of Feuerstein's Mediated Learning Experience criteria in early parent-child interactions (Howie, in press).

The microsystem.

This system involves the direct teaching/learning interactions in which the learner is engaged.

The 2006 UN Convention on Persons with Disabilities reiterates a clause from the 1989 UN Convention on the Rights of the Child, stating the right to 'the development of persons with disabilities of their personality, talents, and creativity, as well as their mental and physical abilities to their fullest potential.'

In spite of the length of time we have known of Vygotsky's writing about the idea of supporting potential development through work within the Zone of Proximal Development, and Feuerstein's optimistic view of cognitive modifiability, and his operationalization of this in dynamic assessment procedures, in my experience too often teachers consider cognitive abilities as fixed, and limit the development of learning through their beliefs. Any lack of confidence in their own ability to use and build on their already existing knowledge and skills for the benefit of all learners could also underestimate their own potential for learning and development.

I outlined a number of principles important in direct teaching/learning interactions, in the teaching of thinking in an inclusive way (Howie, 2011). That book I discuss each principle in relation to both the model of the teaching of thinking put forward by Feuerstein, with its dimensions of the embracing learning environment, belief in the modifiability of intelligence, the mediator, the learner, and the task; and items from the *Index for Inclusion* (Booth and Ainscow, 2002). These principles are detailed below :

The belief system :
Principle 1 : A belief that all children can learn and change in their cognitive functioning
Principle 2 : The use of any teaching of thinking approach should aim to improve thinking for all of the learners involved
Principle 3 : Teachers need to believe in the positive possibilities for, and contributions from, all learners

The learning environment :
Principle 4 : The learning environment needs to provide adequate learning challenges for all learners
Principle 5 : The learning environment needs to be open to change
Principle 6 : The learning environment includes the wider community

The mediator and the mediation :

    Principle 7 : The mediation of thinking involves the mediator in a shared, reciprocal learning relationship with the learner

    Principle 8 : The mediation of thinking involves the mediator in making the learning meaningful to the learner

    Principle 9 : The mediation of thinking involves the mediator in the transferring and generalising of new learning

The task :

    Principle 10 : The tasks used in the teaching of thinking should foster challenging, high-level thinking and real-life problem solving

    Principle 11 : The task needs to be fully understood in terms of its task dimensions and demands

    Principle 12 : The links between the teaching of thinking and curriculum tasks need to be as strong as possible

The learner :

    Principle 13 : The mediator of thinking for all must address the unique learning needs of every individual learner

    Principle 14 : The mediator of thinking needs to address the learning needs which the learner is experiencing in the learning process involved with the thinking interaction

    Principle 15 : The mediator needs to work in partnership with the learner for the fullest self-regulation of their thinking and learning approaches

There are two more aspects to Bronfenbrenner's updated theory with implications for our topic. One is the role of time, not just in terms of considering change in individual development as a function of exposure to an intervention, so studying learning in the process of change, but in terms of both the positive and negative effects upon the individual's learning of changes in the systems which embed the individual. According to Bronfenbrenner and Ceci (1994) 'environmental contexts influence proximal processes and developmental outcomes not only in terms of the resources that they make available, but also in terms of the degree to which they provide the stability and consistency over time that proximal processes require for their effective functioning' (p.576).

The final aspect is the complexity of the ways in which the individual's potential for learning interacts with the system layers, in a number of recip-

rocal ways. The paper by Bronfenbrenner and Ceci (1994) draws our attention to the possibilities of the complex ways in which genetic potential can be actualised, through proximal processes in the environment. They state 'from its beginnings, development involves interaction between organism and environment : The external becomes internal and becomes transformed in the process. However, because from the very beginning the organism begins to change its environment, the internal becomes external and becomes transformed in the process' (p.572).

The three tiered model

I put forward a three tiered model to guide schools in their teaching of thinking in an inclusive way (Howie, 2011). The idea of using a three tiered model came initially from the inclusion literature, relating to the ways in which the needs of all learners could be met in a school system. Norwich (1996) suggests that there are three kinds of needs :

1. Common needs, arising from the characteristics shared by all learners
2. Exceptional needs, arising from characteristics shared by some learners
3. Individual needs, arising from characteristics unique to the individual.

Mittler (2000) included this need description in his important book Working Towards Inclusive Education : Social Context.

This three tiered model is in line with a 'continuum of support' as outlined in the exosystem level above. Such a three pronged delineation of needs seemed to fit well the key 'three wave' model for literacy and maths suggested in the UK policy document : Excellence and Enjoyment :A Strategy for Primary Schools (DfES 2003), and repeated in the Rose (DfES 2006) final independent report on literacy, as follows :

1. Wave 1, the effective inclusion of all children in daily 'quality first' teaching
2. Wave 2, additional interventions to enable children to work at age-related expectations or above

3.   Wave 3, additional highly personalised intervention, for example specifically targeted approaches for children identified as requiring SEN support.

The three kinds of needs were also in line with the UK three tiered model for the meeting of social and emotional needs (SEAL) (DfES, 2005).

Increasingly in the USA, in response to the 'Response to Intervention' (RtI) policy requirement, a three tier model is being adopted. For example, in the State of Colorado, the three tiers adopted to address this requirement are as follows ;

1.   Tier 1 instruction includes high-quality, research based curricula and instruction strategies to meet the needs of all students

2.   Tier 2 provides supplemental instruction designed to meet the learning needs of students not progressing as expected at Tier 1

3.   Tier 3 provides more explicit instruction that is focussed on a specific skills need, which could be either an acceleration need or a remedial need.

The three tiered model for the teaching of thinking is outlined below, with some comments in relation to the wider Bronfenbrenner theory :

1.   Tier 1 : Teaching thinking for all, with approaches which are integral to all classroom teaching and learning. When a school is deciding which of many approaches possible at this level could best meet the needs of all learners in their unique school community, the exosystem and mesosystem levels of Bronfenbrenner's model will need to be considered, along with the obvious microsystem level and the learning needs shared in common by all learners in the school system. The school ethos, school policies, school development goals, school structures, processes and practices (including assessment practices), all important at the exosystem level, will need to be well integrated with the choice of approach for the teaching of thinking at the microsystem level. The strengths and needs of the wider school community and its parents in particular, its goals, and its resources, at the mesosystem level, also need to be considered.

2.   Tier 2 : Working with small groups for learners needing particular attention to the teaching of thinking. Although such small group work for shared 'exceptional' learning needs will clearly be in-

formed by the unique characteristics of the learners in the school, it will probably reflect not only the wider governmental policies concerning how to give support to children with learning needs, but also the wider cultural beliefs and values around learning needs. Both of these aspects could be considered macrosystem level factors. For example, the Hong Kong Government has a policy on 'gifted education' (Education Bureau) which along with a tier 1 whole school based delivery of higher order thinking skills, creativity and personal-social competence in the curriculum for all learners, has a tier 2 pulling out from the regular classrooms of homogeneous groups of learners to allow for enhancement of specific areas such as creativity training and leadership training. This is a level 2 approach addressing the enhancement of strengths. More common is level 2 support for addressing of shared learning difficulties. At this tier level I want to give particular attention to the use of approaches to the teaching of thinking with learners sharing common cultural characteristics, sometimes as a minority group within the wider culture. Vygotsky's attention to the cultural embeddedness of learning reminds us that in any cognitive intervention we should take into account the cultural meanings and values which learners bring to the intervention. Vygotsky wants this to be a positive understanding, revealing the positive characteristics of the thinking of such learners (Sutton, 1988). Our project using Feuerstein's Instrumental Enrichment with Maori adolescents in New Zealand (Howie, Richards and Pirihi, 1993) paid attention to the match between Maori cultural ways of knowing and learning and the Feuerstein cognitive enhancement approach, the programme was taught in partnership with the Maori teachers who were the main curriculum teachers of these students, the intervention was enriched and bridged with unique Maori cultural meanings by these teachers, and measures used avoided the use of norms which may well have poorly represented these students.

3. Tier 3 : Working with individuals who need further attention and support, beyond tier 2. Attention is given in the model to a holistic approach to each individual's cognitive and emotional/motivational needs. It is not surprising that examples given in

Howie's 2011 book at this tier level draw strongly on approaches associated with Vygotskian theory, with its interest in the unique individual response to, including emotional response to, a learning intervention. Feuerstein's Theory of Mediated Learning Experience, has an application in the dynamic assessment of intelligence, whereby each child's response to learning mediation is analysed and measured in response to their own pattern of abilities prior to and following the learning mediation (the 'teaching' component of the test-teach-test dynamic assessment paradigm). This provides a model of individual assessment which could well be carried over into evaluation of the effects of his Instrumental Enrichment programme. Most evaluations use a control group design, and Howie's series of research studies are as yet unusual in combining both group control and single subject design to evaluate an individual's response to each component of the Instrumental Enrichment programme, in relation to their prior performance. The first study was with children attending a special class for children with mild to moderate learning difficulties attending a New Zealand Intermediate School (Howie, Thickpenny, Leaf and Absolum, 1985); the second was with children with hearing disabilities attending the New Zealand Kelston School for the Deaf (Thickpenny and Howie, 1990); and the third was with Maori learners in their first year in the lowest 'stream' of a large South Auckland Secondary School (Howie, Richards and Pirihi, 1993). Other issues at this tier level fit well with the Bronfenbrenner model, including the importance of the reciprocal nature of teaching of thinking for each unique learner, with shared meanings expressed in the learning partnership.

Whole school approach: case study

An example of how such a model might be mapped out in a whole school and inclusive approach to the teaching of thinking is provided by the preliminary planning work which was done by one New Zealand school, in collaboration with the writer and funded by the New Zealand Commission for UNESCO.

This school already had a strong commitment to inclusion, the teaching of thinking, and research informed practice. The school had as a school development goal the curriculum priority area of the teaching of writing, so this was a targeted outcome for each tier level.

Tier 1 : teaching high quality thinking for all, through the use of the 'Solo Taxonomy', with work on the learner's own understanding of what is needed to self-manage movement through the levels of the taxonomy, with a focus on writing. The school was already using 'Solo Taxonomy' school wide, an approach designed to develop higher quality thinking (cognitive processes), which had been further developed by Professor John Hattie and colleagues at the University of Auckland, with research funded by the Ministry of Education (Hattie and Brown, 2004).

The 'Solo Taxonomy' is used widely in New Zealand schools, and the writer subsequently discussed with Pamela Hook, an education consultant who provides support to school using this approach, how Feuerstein's Theory of Mediated Learning Experience might map on to and inform this teaching for high quality thinking. Below is a summary of how Feuerstein's Mediated Learning Experience criteria might map on to Hattie's '5 things that matter' in his paper on 'Solo Taxonomy'. (In her 2011 book Howie discusses and examples the use of Feuerstein's Mediated Learning Experience criteria as a useful tier 1 approach.)

In the summary below, Hattie's 5 things that matter are linked to Feuerstein's MLE criteria :

1. Checking what children know at the start :	MLE mediation of meaning
2. Making a link from what children know to what the teacher wants to teach, with SOLO:	MLE mediation of meaning and MLE mediation of intentionality/reciprocity
3. Metacognition – providing children with opportunity to reflect:	MLE mediation of regulation and control of behaviour
4. Feedback	MLE mediation for sharing behaviour
	MLE mediation for feelings ofCompetence
5. Doing things multiple ways – opportunities to practise	MLE mediation of transcendence

Tier 2 : Working with smaller groups with shared learning characteristics, for further support in teaching thinking, through exploring the strength of an approach to the teaching of thinking in writing, developed by a New Zealand consultant, and already used in the school to enhance writing achievement. There would be a focus not only on learners with specific support needs with this writing programme, such as learners with English as their second language, but, as collaboratively decided on by key school staff and the author of the writing programme, to focus in 'Appreciative Enquiry' (a research practice in the school) on teachers themselves and the experiences they have engaged in, with the 'meaning making' involved, as they use the writing programme. This was planned to involve exploration through a 'story telling' discursive approach. It was also planned to focus on selected in depth child case studies, including possibly children from immigrant families who had experienced trauma. (The school had a considerable immigrant population.)

Tier 3 : Working with individuals who need further individualised support in the teaching of thinking, through a trial of Feuerstein's cognitive enhancement programme, 'Instrumental Enrichment', with a small number of learners who need more individualised teaching of thinking, with a particular focus on 'bridging' to writing.

Even though this Tier 3 work was planned to address the individual support needs of a few children in the school with the most unique and complex learning needs, the goal was to deliver Feuerstein's Instrumental Enrichment programme to them in as inclusive as possible a way. The plan was to pro-

vide much of the programme through extra individualised support while teaching the programme to their full class, by their ordinary class teacher, thus encouraging inclusion. The plan matched the 'wrap around' individualised support within the ordinary classroom commonly found in New Zealand schools for such learners.

Conclusion

There are many challenges to teaching thinking in an inclusive way. Every country, school and child is unique, which has complex implications at every level of Bronfenbrenner's ecological systems model. Ensuring that approaches to teaching thinking meet the unique cultural meanings in each 'ecological niche', and mediate learning and thinking in ways which are truly reciprocal and both share and enhance meanings, require us all to enhance and even change ourselves as thinking and teaching individuals.

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Conceptualising Inclusive Pedagogies: Evidence from International Research and the Challenge of Autistic Spectrum

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Abstract

The historical development of special education has left a legacy of beliefs regarding special procedures and teaching approaches for specific groups of children. These practices might appear to contribute to the continued growth of pedagogical practices that do not acknowledge the issue of inclusion. This paper considers the notions of inclusive pedagogies that emerge from a vignette study as part of an international review of the conceptualisation of special educational needs. Within this data evidence emerges regarding students with autistic spectrum disorder, a group who are often advocated as in need of special and specific educational provision. This paper critically examines this evidence. The implications of this analysis for understanding inclusive classrooms are discussed, including the extent to which effective education for students with autistic spectrum disorder can be part of an effective education for all.

Keywords

effective education, autistic spectrum disorder, inclusive pedagogy

Introduction

Inclusive education has become a global issue, (Lindsay, 2007) based on beliefs about the rights of children encapsulated in the Universal Declaration of Human Rights (Lindahl, 2006). The underpinning direction of change is towards a system in which all children, including those special educational needs, have equal access to education and, moreover , education with their peers. Not unexpectedly there are significant inconsistencies in how inclusive education is constructed and developed internationally (Stangvik, 2010), with a variety of policies existing world-wide which aim to facilitate its devel-

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opment (Budiyanto, 2011; Sheehy, 2013). Most European countries are signatories to the Convention on Rights of People with Disabilities (Stein, Stein, Weiss, & Lang, 2007), which is explicit that 'Parties shall ensure an inclusive education system at all levels ...' (Article 24) (Department of Economic and Social Affairs, 2011)

However education systems and educational psychology have a long history of identifying special pupils and creating spaces for special education. Although the weight of evidence to support the use of specific pedagogies for specific educational needs in general is weak (Lewis, & Norwich, 2005; Rix & Sheehy in press.), this history has created a faith in such special procedures, approaches and placements (Nind, Wearmouth, Collins, & Hall, 2004). This is particularly relevant to the area of autistic spectrum disorder where a multitude of autism-specific special pedagogies exist (Parsons, Guldberg, MacLeod, Jones, Prunty, and Balfe, 2009)

A systematic literature review examined the nature of inclusive approaches for children with special educational needs (Sheehy et al., 2009). This was inspired by Skidmore (2004) who suggested that good inclusive classrooms and schools begin their task from a consideration of the curriculum and subject lessons, which are consequently designed for a diversity of leaners (Skidmore, 2004). This is in contrast to approaches which take their starting point as the children's impairment deficits and needs. Again this contrast is particularly pertinent with regard to autistic spectrum disorder (ASD), where educational approaches are often based on particular theories of child development or seek to respond to different aspects of autistic spectrum disorder (Parsons & Cobb, 2011). Sheehy (et al, 2009) examined the nature of whole class, subject-based pedagogies with reported empirical outcomes for the academic and/or social inclusion of pupils with special educational needs. Their findings suggested five significant characteristics with regard to whole class inclusive pedagogies.

    a) social engagement being intrinsic to the pedagogy

    b) flexible modes of representing activities
    c) progressive scaffolding of classroom activities
    d) authenticity of classroom activities
    e) pedagogic community

                          (Sheehy et al., 2009)

A teacher implementing such approaches would include group work in their repertoire, with learning activities being presented to the group in various modes to support comprehension and discussion. Activities would be designed to support not just problem solving but the development of the social and communication skills to engage with such activities. The activities would have a meaning in relation to both the children's experiences and also the teacher's judgement of their academic validity. Pedagogic community refers to the teacher being supported by a network who share a common view of how to teach their subjects, underpinned by a shared conceptualisation of how children learn. A key part of such an approach would be the prioritization of social interactions within the classroom as an educational tool. Whilst there is a wide range of evidence to support this practice (Howe & Mercer, 2007) ,it does raise the question of whether this is effective for children with ASD, who are likely to experience significant problems with the development of language and communication skills, within a mainstream class. Whilst there is evidence to support this inclusive approach for special educational needs in general, it may be that the particular nature of autistic spectrum disorder would impede participation. Children diagnosed with autism, or more recently with the diagnostic category of autistic spectrum disorder (ASD), will have communication difficulties which will impair their social interactions and friendships, they may enjoy routines to the extent that they become upset these are altered in any way or have an intense fixation with 'inappropriate items' (The American Psychiatric Association, 2013). These characteristics will fall on a continuum and vary between individual children Estimates of the prevalence of ASD have varied between countries and over time (Matson & Kozlowski, 2011a). In the United Kingdom estimates of approximately one in one hundred have been noted (Department of Health, 2013), similar to some previous international surveys (Matson & Kozlowski, 2011b). This suggests that ASD is not uncommon. However, across three systematic research reviews (Nind et al., 2004; Rix et al, 2006; Sheehy et al., 2009) only four studies emerged, from 3,462 screened research papers, which included measures of outcome and descriptions of pedagogy for children with ASD in mainstream classrooms.

One explanation for this lack of presence in the empirical educational research literature might be because children with ASD would not typically be placed in mainstream schools and, within the United Kingdom, there is some evidence to suggest this is the case (Keslair & McNally, 2009). To gain an in-

sight into the issue of educational provision for children with ASD, a vignette study across 11 countries is presented.

Methodology

Vignettes are short descriptions of a situation, usually hypothetical (Schoenberg & Ravdal, 2000) which elicits a person's responses or judgements about the depicted scene (Atzmüller & Steiner, 2010). They have been used for a variety of purposes within educational research (Hargrave, n.d.) and in comparative cross-cultural research (Gupta, Datta, Kristensen, Nicolai & Pozzoli, 2010). Vignettes need to appear authentic to participants, possibly based on real experiences (Barter & Renold, 1999). Consequently in this research a vignette relevant to ASD (see Figure 1) was derived from the real situations known to the researchers.

The study reported here was part of a larger research study funded by the National Council for Special Education, Ireland (Rix, Sheehy, Fletcher-Campbell, Crisp, & Harper, 2012) during which 10 countries, were selected on the basis of their geographical distribution and range of educational systems. The countries selected were Australia, Cambodia, Canada (Nova Scotia), Cyprus, Italy, Japan, Kenya, Lithuania, Norway, Scotland, with the addition of Ireland making 11 in total. Within each country a researcher was identified, on the basis of having published educational reports regarding special educational needs education in their own country and their academic experience. The 11 potential participants were contacted, following the ethical procedures of the authors' university, via email informing them of the research and requesting their participation. Having consented to take part in the research, the 11 participants were sent vignettes which described a child and their situation.

The vignette relating to ASD is given in figure 1.

Matas is three years of age and lives at home with his parents and three older brothers. His father is a lawyer and his mother is a teacher of mathematics, living and working in the country's capital city. Matas is physically fit and healthy, loves playing outdoors and is the strongest swimmer amongst his brothers. However, his parents have become increasingly concerned about his lack of speech. Although he can use a few words, he rarely uses them in appropriate contexts and much of what he says consists of repeating back those words or phrases that are said to him. They have also noticed that he does not play with his brothers or other children in the neighbourhood. He seems to prefer to play on his own. Matas repeatedly lines up his set of favourite toy cars and becomes very annoyed when his brothers want to take any of the cars away. He has been watching the same film on video almost every day for the last six months. He can name each character in the film when asked 'who's that?' He can also become upset when his daily home routine is changed, for example, if his morning break does not have a banana. This causes him to scream and bang his head with his hands. In general, he appears to enjoy being at home and around his brothers.

Figure 1. *Vignette relating to ASD.*

Having read the vignette the participants responded to the following series of questions.

PLEASE ANSWER THE FOLLOWING QUESTIONS.
If there are contradictions in the system or variables which will powerfully affect the outcome please suggest what these might be. If a question cannot be answered it would be helpful if you could suggest why.

In relation to your country, we would like to know:

Where would Matas be educated?
How would his needs be assessed?
What support would he be offered?
Where would the funding for Matas's education and support come from
What curriculum would he follow? (e.g. the same as his age-equivalent peers or a curriculum specially designed for his personal learning or a curriculum designed for a particular group of students unlike their age-equivalent peers.)
Who would be involved in the decision about his education placement?
Who would be involved in the decision about his support needs?

We would now be interested to know if there would be any change in placement and support if the following factor was changed:
How would the placement and support change if there were no concerns about Matas's language?

Figure 2. *The Vignette related questions.*

As can be seen in Figure 2, the final question altered a significant aspect the vignette and sought to gain responses regarding children with ASD who experienced no delays with language development. It sought explore if provision was differentiated for children syndrome, who previously might be described using the label of Asperger syndrome (The American Psychiatric Association, 2013).

Findings

School Placement and Provision

The likelihood of a child being placed in mainstream school, a resourced unit or a special school varied between the countries. If one imagines educational placements ranging from mainstream classes to specialist provision, segregated residential facilities (Norwich, 2008) or not accessing education at all, the child portrayed in the vignette might be placed anywhere on this spectrum, depending on the educational system of the country of his birth (see figure 3).

Country	Scotland				
	Cyrus				
	Australia				
	Norway				
	Italy				
	Canada	Japan			
	Ireland	Lithuania		Kenya	Cambodia
Placement	Mainstream (kindergarten)	Specialised preschool/ Special school kindergarten	Child Development Centre/group	Residential school	Not in school

Figure 3. *Type of educational placement indicated by in-country researchers as likely in responses to a vignette related to Autistic Spectrum Disorder.*

As figure 3 illustrates, in four countries the child would be able to attend their local day centre or kindergarten (Norway, Italy, Australia, Scotland and Cyprus).

The option for attending a mainstream preschool existed in Ireland alongside the possibility of a specialised preschool, following a formal diagnosis of autism. These options existed in Canada, alongside privately funded preschool support and assessment. A formal diagnosis here would allow access to supported transfer into mainstream school.

In Japan, two options also existed: attending an education centre (specialising in child development issues) or alternatively special school kindergarten.

A form of special education was seen as the likely placement in Lithuania, either in a special school or within a special group for young children with

speech and language difficulties. If residential care was accessible then this would be the favoured options in Kenya, with a mainstream placement being far less likely. The option of attending school at all was felt to be unlikely if the child lived in Cambodia. The rational for this being that pre-school teachers would not accept this child without special training and such training was rare.

Responses to the same situation but where the child had no language problems, as might be the case in a diagnosis of Asperger syndrome, suggested that that a change of provision would occur. In three countries this would be a change in placement: either a move to mainstream (Ireland and Lithuania) or a local special school for children with emotional and behavioural problems. In the other countries the placement itself would not change (Norway, Cambodia, Canada), but the type of support staff working with the child might change (Scotland) and focus on behavioural issues, rather than providing a speech and language therapist (Australia). These responses to changes in the vignettes depiction suggest that language issues were prioritised, in relation to behavioural ones, in these educational systems and that this aspect is more fundamental in determining a child's education and support.

The child's placement in a special school would remain unaltered in Japan, but the school would be able to provide a programme suitable for pervasive developmental disorders in general, accommodating both situations.

The assessment of need and pedagogy

All of these changes in provision, in response to the altered vignette, appear to be based on the individual needs of the child. This assessment might occur within school (Norway, Kenya), in the health services (Lithuania) or from a multidisciplinary team (Ireland, Scotland, Cyprus), a typical response being that of additional resources in the form of special needs or teaching assistant time.

A different assessment rationale was indicated in Italy. The child's placement would remain in a mainstream class but the issue prioritised as influencing provision was the child's social behaviour, how they worked within a group of peers and also the nature of that group. This presents a contrasting perspective on how to respond to 'need' and, by assessing the child's social

group, reconceptualises it within the classroom. The group and their activities are seen as an important educational 'tool' with the child's class placement strongly influenced by the social groups which could be formed within a class. Whilst formal diagnosis of ASD (certification) is sought and leads additional support (staff time) in class, this can take a long time. Regardless of this the child remains in their local school, with adapted teaching strategies being delivered by their class teacher. Therefore a formal diagnosis would not be gateway through which a child with ASD gains access to particular school or a new pedagogy, and whilst diagnosis might result in additional resources, the focus remained on the social affordances within the class.

Pedagogy and curriculum

In Japan an explicitly 'two-track' (mainstream and special) system existed, with coherence between assessment, placement and subsequent educational pedagogy. As seen in figure 2 an assessment of ASD would result in a special placement. These settings were indicated as providing a detailed assessment directly linked to a pedagogical approach. Tests of adaptive skills and observation of daily activities would inform a teacher-implemented programme based on applied behavioural analysis (ABA) and speech-language therapy. This was seen as a special pedagogy, delivered in special setting. Whilst other responses suggested a link between assessment and placement interestingly this was the only response to indicate a link with a specific teaching approach. More broadly there was an indication that a placement in a special school allows alternative communication support and an individualised curriculum influenced (Lithuania, Japan, Kenya). In the mainstream settings the typical class curriculum would be differentiated and adapted by class teachers (Ireland, Scotland, Australia, Canada), with additional advice on accessing the curriculum provided by peripatetic or advisory services.

Discussion

The overall picture that is suggested from the responses of the 11 in-country experts, is that in many contexts children with ASD are being educated in mainstream classrooms. However, placement does not prescribe pedagogy. The pedagogy that is being used within these settings needs consideration. Where special school placement was indicated in the vignette responses, a shared characteristic was that of having an individualised curriculum, by definition not necessarily shared with other children.

Where a mainstream placement was seen as likely, the vignette responses suggested that the child would have additional teaching assistance within the classroom to support their engagement with an adapted and differentiated curriculum. Florian & Black-Hawkins (2010) argue that one can discern two approaches to inclusive pedagogy: an individualised approach with teaching activities designed for both most of the class and also just some of class; and approaches that construct learning opportunities for the whole community of learners within the classroom. They argue that inclusive pedagogy requires a shift towards the latter. The vignette's mainstream placements suggests that two of the 'inclusive characteristics' (Sheehy et al., 2009) might be present here: a progressive scaffolding of classroom activities and perhaps flexible modes of representing activities. Whilst the use of differentiation in this way has been suggested as a significant aspect of an inclusive classroom (Florian and Black Hawkins, (2010) it might be used as part of a 'most and some' approach, rather creating shared opportunities for all. This level of detail is not present in the vignette response and as the vignette asks for responses regarding an individual child, rather than a class, it may be that this biased the responses in this respect. With this caveat however a sense emerged that the assessment of individual need produced an individualised response in terms additional time and that adaptation being made where directed towards the individual child, by this process rather than the class teachers. In terms of inclusive characteristics (Sheehy et al., 2009) only the Italian response was explicit as seeing the social context of the class as the educational tool which needed to be considered and implemented to support inclusion. This different perspective also chimes with Florian and Black-Hawkins (2010) the intent to creating learning opportunities for the whole class.

Ironically, the strongest sense of a teachers being able to access a pedagogic community emerged in the Japanese responses, in which teachers used

ABA based pedagogy to teach the skills and behaviours that they assessed were needed by the child. This approach has an explicit paradigm of how children learn and consequently an explicit pedagogical approach. Teachers are therefore able to access information, it being a well-documented approach, to understand situations they make face in the classroom and they are able to use the language of ABA's behavioural paradigm to discuss their concerns meaningfully with fellow practitioners. However this is not to say that such an approach is necessarily more effective than that which is practiced in the mainstream settings. There is some evidence that behavioural techniques can be used to approaches by teachers in mainstream classes to support access to the curriculum (Riesen & McDonnell, 2003) and that some in some Italian schools this approach informs thinking about class teaching, but its specialist intensive use occurs outside class time (Rix et al., 2012). It has also been argued that individualised intensive teaching is part of 'good teaching' for all and that inclusive pedagogy is underpinned by a underlying model of learning, applied consistently (Sheehy, 2013). It is worth noting that a systematic research review of effective provision for children diagnosed having autistic spectrum disorder (Parsons, et al, 2009) concluded that independent evaluation of well-known interventions, such as ABA, was lacking and that their effectiveness may have been over-estimated. Within the mainstream placements an adapted curriculum was frequently mentioned but there was not a strong notion that children with special educational needs required a special pedagogy, different from mainstream pedagogy.

The use of vignettes in this way allowed insights to be gained of likely practises within the selected countries. Of course these cannot be see as 'all encompassing, national accounts' (Sheehy, Rix, Crisp, & Fletcher-Campbel, 2012) and there may well be significant variations at local level, influenced by factors such as distance and local funding arrangements (Sheehy et al., 2012). As mentioned previously the individualised focus of the vignette may have reduced the reported level of detail regarding classroom pedagogy. Subsequent research might seek responses to a class-based vignette, which would gain a deeper understanding of the type of inclusive pedagogy, (as defined by Florian & Black-Hawkins, 2010) that is being practised.

Conclusions

The vignette responses indicated that young children with ASD are likely to be placed in mainstream schools in many countries. This challenges the notion that these children inherently require a special and separate placement to their peers. The pedagogy that they encounter in these settings appears to rest primarily on differentiation of the curriculum (an everyday classroom practice) and meets some of the characteristics of inclusive pedagogy derived from systematic research reviews. Although the extent to which this is part of 'learning for all' within the class remains uncertain, the responses suggest that this everyday classroom practice is seen as the key part of inclusive pedagogy.

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Inclusion and Cognitive Education for Deaf Learners: Perspectives from South Africa and the Usa

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Abstract

The policy and philosophy of inclusion of special-needs learners in educational settings is widespread among developed countries and in some but not all developing countries. The place of cognitive education within such settings is frequently minimal, but should have a significant curricular position; if the place of cognitive education is changed and expanded, a more varied definition of inclusion can be made, both philosophically and practically. However, significant revisions in both administrative practices and teacher education must occur in schools everywhere in both the actual meaning of inclusion and the appropriate place for cognitive education. This article provides a brief overview of the example of deaf learners as a case in point and summarises Deaf Education in South Africa and the USA in terms of the transformation that it has passed through—from an exclusionary, internally disparate system to one that is supposedly inclusive with equality and access for all; the article also raises questions regarding the way in which inclusion is interpreted. In the case of Deaf education, neither the specialised nor inclusive options are sufficiently meeting Deaf learners' needs; the incorporation of a cognitive education programme offers Deaf learners in both contexts the opportunity to truly meet the goal of preparation for the future—in their academic, social, family, and work lives. It is expected that the case of Deaf education may be then extended to other special populations and to their respective need for cognitive education, regardless of their educational placement.

Keywords

Cognitive, education, strategies, metacognition, inclusion, Constitution

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Introduction

South Africa has a long history of oppression, discrimination, and lack of equality. These inequalities, found in all spheres of life, became particularly evident in education. The USA, too, has a history of racial discrimination, but has come to represent true democracy and equality for all in the minds of some peoples of the world. In an attempt to overcome the legacy of apartheid, the South African education community initiated a process of transformation. This process has been centrally driven by the philosophy of educational inclusion, where each decision and action is guided by the core inclusive educational principle: equal education and access for all learners. Somewhat similarly for different reasons, the educational system of the USA has taken an unambiguous position that special-needs learners must as a first choice be included; only when their needs are truly severe may a non-inclusive setting be considered.

We begin by providing a brief overview of the transformation process in both the USA and the South African education systems that gave rise to inclusion, with a critical reflection on the theory and practice of inclusion. Throughout the discussion, Deaf education is foregrounded, with particular reference to the rejection of inclusion by Deaf communities; yet we see the obvious lack of strong alternatives through which education opportunities can be significantly improved.

The South African Context

South Africa's long practice of discrimination based on racial categories soon extended to cultural and linguistic discrimination as well. This discrimination became most evident within the apartheid education system, which ensured that ample resources, funding, and quality education were made available primarily to the white minority. This race-related discrimination and segregation of learners subsequently "extended to incorporate segregation on the basis of disability" (National Department of Education, 2001: 9).

The USA has long been known for its Constitution adopted in the late 18th century. Yet, similar to South Africa, rights were extended only to white persons; it was not until the middle of the 20th century that Black citizens were given full rights, with a lingering process of covert and overt discrimina-

tion even to the present day. In 1996, South Africa adopted a ground-breaking Constitution, which legally entrenched the basic human rights of all people. Both of these national Constitutions legislate that all people are equal and thus have equal rights, including the fundamental right to basic education and prohibiting discrimination "against anyone on one or more grounds, including race, gender, sex, pregnancy, marital status, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, language and birth" (National Government of South Africa, 1996a: 3).

In this transformation process which moves away from the legacy of apartheid and apartheid education, South Africa has embraced inclusivity, which is in essence viewed as overcoming the past and present inequalities and barriers to access and participation.

Deaf Education in the USA

Deaf education in the USA generally is considered to have begun formally in the early 19th century with the founding of the first school for the Deaf. Many special schools were later established and flourished through the mid-20th century. A watershed event occurred in the early 1980's when the USA's Assistant Secretary for Special Education installed a policy of inclusion as the preferred Placement for all special-needs learners; funding to support special-need students, including Deaf students, special school placements became very difficult to obtain because of the government policy of preference for inclusion as the desired placement alternative.

A number of special schools for Deaf learners have persisted, although many have closed due to the pressure for implementing inclusive education. Some special schools which persist have become placements for students with multiple disabilities in addition to deafness; in other cases, thesel schools have been able to demonstrate to local government-funding officials and to parents that these schools offer a unique combination of characteristics which are not possible to obtain in inclusive settings: specially-trained teachers in Deaf education, the presence of other Deaf students,the regular use of sign language which then removes the need for a third-party sign-language interpreter which is required in inclusive settings, and the presence of some Deaf teachers who can also serve as positive role models for their young Deaf students. Communication preferences within American Deaf

Education have varied; an early emphasis on sign language gave way in the latter 19th century to a widespread preference for oral communication and lip-reading; a combination of signs used in English word order then assumed prominence in the mid-to-later 20th century; currently a resurgence in valuing sign language is notable, due in part to the work of linguists who have analysed sign languages as full and complete languages with all of the features of languages. Many in the USA now understand that a first language in sign language provides the full linguistic basis for learning a second (reading and written) language inasmuch as the majority of Deaf children come from hearing families; without a basis in sign language, they grow up without any language - they cannot access the spoken language and they have no exposure to sign language.

Deaf Education in South Africa

The history of Deaf education in South Africa is closely linked to the legacy of apartheid and more specifically apartheid-education policies. These policies influenced the development of separate schools for the Deaf: Black Deaf schools, White Deaf schools, and Coloured/ Indian Deaf Schools (Morgans, 2001). In addition to the apartheid legacy, the diverse nature of South Africa (with its linguistic and cultural implications) has led to the proliferation of schools for the Deaf, and currently we have over 45 schools. Despite this apparently large number of schools, in the last few years many new schools have been established due to pressure from within communities to meet the needs locally (which is indeed inclusive in nature).

Currently these schools – some of which are mainstream or specialised schools, with classes that serve Deaf and hard of hearing learners – are still primarily racially and culturally defined. This situation is due to the slow urbanisation process (which is economically driven), and consequently rural and township segregation continues. This process is further exacerbated by communities as they push to meet the needs of their Deaf and hard of hearing learners locally. In a similar way the majority of teachers of the Deaf have chosen to teach in schools close to their homes, which usually fit their particular racial or cultural profile.

In addition to physical and geographical segregation, apartheid also had an influence on the mode of communication and thus on the mode of educa-

tion in schools for the Deaf. Whereas white schools for the Deaf were run as elitist oral schools (deliberately avoiding the use of sign language), Black schools were allowed to use what was thought of at the time to be the less desirable 'manual' method (sign language). Ironically, this development led to the rich and well-developed Black dialects of South African Sign Language (SASL) because it enabled full communication(Morgans, 2001).

Related to this difference in pedagogical method, a second major area of differentiation has been evident in the level of education provided to Deaf learners. Historically, apartheid education (often referred to as Bantu education) ensured that while white learners received an 'academic' education, Black learners received a more 'vocational and practical' education. With the abolition of apartheid and thus apartheid education, an equitable education for all has been the goal.

This process has not been transferred to Deaf Education where many schools for the Deaf are offering fewer academic options (if any), with vocational training being the central focus. Subsequently, whatever the method of education and regardless of race and culture, education levels at schools for the Deaf remain problematic. This problem has led to a situation where the majority of Deaf school leavers are functionally illiterate and thus largely unemployable (DEAFSA, 1997). In addition to educational offerings, one of the central contributing factors toward the low level of education in Deaf Education has been that teachers of the Deaf have not been required to receive specialised training to teach deaf learners.

Despite this clearly inadequate education system for Deaf learners, the process of transformation toward an inclusive education system, and thus equitable education for all, has not been readily embraced by the Deaf education community. The following section briefly considers this transformation process in order to gain a deeper understanding of the debate that surrounds the implementation of inclusion within Deaf Education.

Transforming Education in South Africa

The South African education system was a powerful tool for perpetuating the aims of apartheid, where many students experienced discrimination based on race and ethnicity. This "institutionalisation of apartheid in every facet of South African life had a significant impact on the area of 'special needs' and

support in education, entrenching racial disparities and contributing to the massive inequalities in their educational provision" (National Department of Education, 1997: 22).

During an investigation into this discriminatory education system, the National Education Policy Initiative (NEPI) exposed the role of curriculum, in addition to the human factor, for stressing difference, and thus promoted prejudice in education in terms of race, gender, and social class (NEPI, 1993). This prejudice confirmed that the South African education system was preventing the development of a common South African citizenry.

In an attempt to overcome this discrimination and in following international trends to address the diverse needs of all learners by minimising barriers to learning, South Africa established two special task teams, and after a year of intensive research and public hearings in all nine provinces, the task teams agreed that discrimination was indeed occurring in schools, and various barriers to learning were identified.

These investigations and subsequent documents decry the segregation of people with disabilities and make specific practical educational recommendations regarding the transformation of the education system at the institutional, instructional, and curriculum levels. To this end, inclusive schools should embrace transformation on three dimensions (as discussed in the Index for Inclusion, Booth et al. 2000): creating inclusive cultures, producing inclusive policies and evolving inclusive practices. The extent to which communities and thus schools need to transform emphasises the belief that "inclusion is a journey without and end" (Mittler, 2000 in Swart & Pettipher, 2005: 9).

Despite being at the very core of our Constitutions, the development of an inclusive education system has been quite contentious, within both South Africa and the USA for similar reasons. In the following section we look briefly at what inclusive education is intended to be and then examine misconceptions about inclusion within the current Deaf Education context.

Moving toward Inclusion

Inclusion, the antithesis of segregation and segregated education, proposes equal access to equal education and basic human rights for **all** learners where diversity is acknowledged in terms of "gender, nationality, race, lan-

guage, socio-economic background, cultural origin and level of educational achievement or disability" (Mittler, 2000 in Swart & Pettipher, 2005: 4). However, inclusion has come to mean equal access to a non-discriminatory education system *for disabled learners and learners with special education needs, and the education of disabled learners together with able non-disabled learners.* [For some Deaf communities, however, inclusion has been viewed as a form of oppression because it denies equal access to education in terms of communication(sign language) and culture (the Deaf sub-culture)].

In order to challenge this simplified view of inclusion, a change in attitude in the whole community is required. This change would alter the discourse from that of difference and disability to a discourse of rights and equal opportunity (Naiker, 1999:14). Such a transformed discourse would mean a commitment to "developing inclusive community and education systems" (Swart & Pettipher, 2005: 4), creating equal opportunities for learners through challenging the community and system to continually change and adapt, rather than focussing on the inadequacies and differences within the individual learners. This change has also required a "paradigm shift from a focus on 'learners with special needs' to identifying and addressing the unique needs of individual learners and addressing their specific needs and barriers to learning and participation" (Muthukrishna, 2000: 67).

The implementation of inclusion has been crystallised as broader than formal schooling, acknowledging learning in both formal and informal contexts and manners and in broader societal settings in order to maximise the participation of all learners. To this end, attitudes, behaviours, methodologies, curricula, and environments – a holistic transformation – need to be changed to meet the needs of all learners.

Despite this fundamental evidence that inclusion in South Africa is a philosophy of anti-discrimination throughout the broad spectrum of needs that learners exhibit, the majority of South African educationists are distracted by their myopic view of inclusion as synonymous with mainstreaming (simply placing different students together in the same classrooms), specifically for learners with disabilities. In the USA, the policies favouring inclusion over special schools or special day-class placements has led many hearing parents of Deaf children to regard a special-class as less than worthy of their Deaf children, when (ironically) the special placement frequently provides true full access for their Deaf child because of a qualified Deaf Education teacher and the barrier-free communication through the use of sign language.

Inclusion and the Deaf learner

This misconception has filtered into the Deaf education sector, where the majority of practitioners have misunderstood inclusion to mean the unequivocal abolishment of schools for the Deaf and the subsequent mainstreaming of all deaf learners, or reverse inclusion where multiple disabled hearing learners are 'included' into regular schools for the Deaf.

The concern about abolishing specialised schools for the Deaf in South Africa and the USA led to initial demonstrations and lobbying at various forums against the implementation of inclusion for Deaf learners. Yet, ironically, current schools for the Deaf in South Africa still produce learners who are to a large extent under-educated, ill-equipped, and at times functionally illiterate and thus largely unemployable (DEAFSA, 1997). On the other hand, Deaf students leaving the remaining schools for the deaf in the USA have largely become fully functioning members of society—due in part to strict laws requiring accommodations in the workplace and elsewhere in society for their benefit. In both countries, much time has been wasted within the Deaf education sector fighting inclusion, meanwhile neglecting the essential process of understanding the positive implications of what is intended as inclusion for an education system in need of redress.

In considering the philosophy and the appropriate practice of inclusion and the subsequent endeavour to create barrier-free learning for all learners, which is deeply entrenched in central documents such as both Constitutions, the South African Schools Act and the Language in Education Policy (National Government of South Africa, 1996a, 1996b and 1996c), advocate inclusion as it was intended; that clarity may yet be the key to ensuring equal education (and thus literacy) for all Deaf learners.

Defining Cognitive Education

Let us now consider the important role that cognitive education can play in the education of all students, whether or not they are in inclusion classrooms and whether or not they have special needs. The term "cognitive education" is interpreted here to refer to a systematic approach for incorporating higher-level thinking strategies into educational settings at primary, secondary, or tertiary levels. Critical thinking and problem-solving , key components of cognitive education, however, are often incidental rather than systematic

in their implementation. They are often dependent on the subject matter and/or preferences of an individual teacher. In its most well-developed implementation, cognitive education refers to a comprehensive array of thinking strategies which are infused within the subject matter of the curriculum. Such strategies as comparison, categorization, organization, analysis, synthesis, and the application of logic would comprise such a comprehensive set, with some dedicated attention paid also to metacognitive discussion and applications of these strategies to school subjects as a whole. Furthermore, the most effective manner of implementation includes a school-wide commitment to incorporate these strategies by all teachers in every aspect of school life. Two examples of such a program would be "Instrumental Enrichment" (Feuerstein, 2006) and "Cognet" (Greenberg, 1988), but several other programs would fit this definition. A well-developed cognitive education program should satisfy the conditions of:

- A strong theoretical base
- Belief in cognitive modifiability for all learners
- Dependent upon teacher education and teacher-re-education of a particular kind
- Be incremental and cumulative rather than promising a rapid change in learners' thinking
- Encompass a range of cognitive skills (Link, 1984).

Programs, then, which satisfy the above criteria would, in our view, qualify as true systems of cognitive education for the purposes of this article.

Rationale for Cognitive Education

The time, energy, professional effort, and curriculum revision for a truly effective system of cognitive education would carry with it the basic question of, "Why provide such an emphasis when the pressure is greater than ever for teachers to 'cover' vast amounts of growing subject matter in the world in the limited time frame of required schooling and to pass the ever-present examinations?'

Multiple answers abound for this question. First, the 'knowledge explosion' - the rapid expansion of human knowledge—already means that it is impossible for anyone to know everything about anything; thus, knowledge per se is insufficient for survival and problem-solving in today's complex

world because knowledge is changing rapidly. Knowledge , of course, is important because we must think about something, but far more important is the need instead to enable our learners to evaluate current knowledge and to create new knowledge.

Another answer to this question is that in the complexity and speed of today's world and the rapidity of the knowledge explosion, future adults desperately need to acquire the skills of effective problem-solving-acquiring the skills of problem-identification and the development of alternative solutions rather than only one. It is also said frequently today that today's students are being educated for careers that have not yet been created—hence, the need for generic and transferable thinking strategies.

Still another answer is the fact that embedded beneath all subject matter is a framework of cognitive strategies which must be explicit in order for the learner to retain and manipulate knowledge. For example, embedded within the study of history are the cognitive principles of sequence, prediction, and pattern-identification; the same could be found easily in all other subject areas. Systems of cognitive education should focus on the explicitness and conscious awareness of cognitive strategies in the process of acquiring cognitive skills. Without cognitive skills as a built-in element across subject-matter, learners fail to grasp the universality of these strategies which will then serve them well as future workers and adults in social life.

Cognitive processes have at least 10 additional functions:

1. While perception is irreversible, cognition is adaptive
2. Cognition permits one to control the environment at a distance
3. Cognitive processes help us to decide what to focus on, when to focus, and how to focus
4. Cognitive processes help one to select and filter huge amounts of information
5. Cognitive processes transform data into mental structures
6. Cognitive processes generate new information
7. Once a concept is induced, it can be communicated to others
8. Cognitive processes let us access the affective, motivational , and attitudinal dimensions of experience
9. Cognitive processes produce consciousness
10. Cognitive processes enable recognition of conflicts and the acceptance of dissonance.

<div align="right">(Feuerstein and Falik, 2000)</div>

Thus, the rationale for the place of cognitive processes is at once deep and wide.

A Method

A next question is, "How is cognitive education effectively implemented, both in inclusive and non-inclusive classroom settings?" The needed adaptation of methods is minimal for different populations. Whether or not the classroom is inclusive, a well-tested methodology from one program as an example (Instrumental Enrichment) is instructive.

The first phase of a thinking episode is to first step temporarily outside of a subject-matter context and carry out problem-solving on specially designed tasks (enactive, electronic, or paper-and-pencil); such tasks may be from the previous list of cognitive skills—comparing, categorizing, organizing, analyzing, etc. The teacher guides student development not by telling or informing but by "mediation"—through strategically designed questions, guiding, leading, setting an example, and providing partial answers, but the learner is the one who carries out active thinking in solving the problem of the day. A strong cognitive program has an internal sequence of strategies, of which

nearly all can be tied to whatever subject matter is under study; but the cognitive strategies are identified as a body of skills that stand outside subject matter. For example, if the cognitive-education program calls for several weeks of practice with the skills of finding patterns, then the teacher relates those experiences to the subject matter also—if the teacher is teaching Language, then pattern-finding would be applied to finding patterns in grammar or in the plots of literary works; if the teacher is teaching mathematics, then pattern-finding would be applied to finding patterns in the steps to solving a mathematical problem, etc.

The second phase is metacognition—the planned opportunity by the mediator(teacher) to have students actively reflect explicitly on the strategies that they have just used in the problem-solving situation. Such metacognitive questions which elicit this reflection would be, "How did you get that answer?"; "If you were going to solve the same problem again, how would you do it differently or similarly?"; "If you had to teach someone else how to do the process, what would you tell them to do first, second, and third?" Thus, the learner becomes consciously aware of her or his mental processes and thus starts to become more independent because she or he now has an accumulating repertoire of strategies which can be called upon when a mediator is not present.

And the third phase is application, or metaphorically "bridging"—making a connection between the cognitive skill just acquired and its direct application to the subject matter being studied or to outside applications such as social life and (in the case of older learners) the workplace. In this methodology, the cognitive skill is only temporarily decontextualized and then soon brought to bear on some relevant application. In this way, students also become conscious of the ways in which cognitive strategies underlie much subject matter. For example, in the cognitive skill of sequencing, applications can easily be made to sequencing steps in the solution of a mathematical problem, finding a pattern among historical events, or perceiving the important events in a story which they are planning to write or read.

The next question is, "What kinds of adaptations are needed in cognitive education for special-needs learners, in both inclusive and non-inclusive settings?" Wide experience in many countries with learners of all kinds has indicated only two fundamental adaptations of the above methodology for learners with special needs. The first of these is a somewhat slower pacing of activities because some cognitive skills need to be acquired as pre-requisites

for the strategies which are about to be mediated, and more detailed demonstration and explanations are needed for some special- needs learners. The second of these adaptations is greater attention to vocabulary development in the acquisition of "thinking words" so that the learner can reflect on her or his cognitive processes during metacognition; such terms would include the mastery of attribute words (number, color, shape, size, direction, etc.) and other useful "thinking" terms such as identifying, concluding, logic, patterns, comparison, analysis, prioritize, etc. Other than the assumption that special-needs educators are trained to make adaptations for their respective special populations, little else is needed to make the cognitive education program relevant and productive for such populations as ADHD, autistic, Down Syndrome, Deaf, blind, and learning disabled students—whether or not they are in inclusive settings.

Results from Cognitive Interventions with Special-Needs Learners

Although cognitive education programs are used widely in classrooms of typically developing learners in numerous countries (Italy, France, Brazil, and others) and research studies have been conducted on the effects of cognitive education in such settings, numerous studies have also been carried out to assess the impact of cognitive education with special populations. The effects are impressive in view of the generally low expectations which are unfortunately held for many such learners.

For purposes of definition, we define "special-needs populations" as individuals with diagnosed cognitive (not physical) challenges to their learning process, requiring adaptations or special placements as distinct from typically developing learners. The term "disability" is used in some locations as a defining term, although it has been misused as a negative label in some quarters. For our purposes, we will use the term, with the understanding that in many cases with the appropriate interventions and cognitive education, such students can learn to adapt to or in some cases overcome these challenges.

A summary of these studies with special populations, categorized by disability, using the example of the cognitive program "Instrumental Enrichment (FIE)", now follows:

Developmental Disabilities

A study explored the effectiveness of the Instrumental Enrichment "Basic" program, designed for younger learners. Emphasis was on systematic perception, self-regulation, conceptual vocabulary, planning, decoding emotions, and social relationships, along with transferring learned principles to daily life. Participants were 104 children from Canada, Chile, Belgium, Italy, and Israel who had development disabilities, cerebral palsy, genetically-based intellectual impairment, autism, or ADHD. Over a period of 30-45 weeks of intervention by specially trained teachers in the cognitive methodology, research subjects showed statistically significant improvement in the WISC-R subtests of Similarities, Picture Completion, and Picture Arrangement, as well as on Raven's Coloured Matrices, by comparison with a similar group who received only occupational and sensori-motor therapy (Kozulin, et al., 2010).

Deaf/hard of hearing

In regard to deaf and hard of hearing learners, the effects have been four-fold:

1. For students having systematic 3-times-per-week experiences with FIE, significant increase in reasoning skills, as measured by the Raven's Progressive Matrices test, in comparison with students who have not had FIE.
2. In the same study group, an increase in teacher-observed problem-solving behaviors such as identifying more than one solution to a given problem, and staying with a problem until it is solved, as opposed to giving up quickly.
3. Significant improvement in results on standardized tests of academic achievement in reading comprehension, math computation, and math comprehension.
4. Ability to develop real-world solutions to given problems, through narrative description of steps to be taken; improvement seen in sequencing and completeness of the problem-solution steps (Martin, 1984).

Eighth grade students at the Lexington School for the Deaf in New York City over a period of four years found that on the Stanford Achievement Test for Reading and Math Problem-Solving, after using FIE, showed the following increases, when compared to national data that indicate an average growth of about 3 months per year without using FIE: 22% of the students increased 3 or more grade levels in Reading Comprehension, 14% increased 2 grade levels, and 33% increased one grade level; on Math Problem-Solving, 36% of the students increased 3 or more grade levels,17% increased 2 grade levels, and 19% increased 1 grade level. The data are noteworthy in light of the fact that in this one school, there are 24 different home languages in students' families, and 80% of the students qualify for government food assistance because of identified poverty (Keane, 1984). Another study found that Deaf students, as a result of FIE, learned to categorize and compare things spontaneously (Berchin, 1991).

Brain Injury

In regard to brain-injured students, the effects ofF IE were studied, and it was concluded that FIE was a "valuable approach" for treating cognitive deficiencies in such students (Johnson, et al., undated).

Cognitive impairment

In regard to cognitive impairments, Feuerstein and others have carried out numerous pieces of research. One of those describes a child who was diagnosed as "retarded" and who had delayed speech and mental processing. After work with FIE, the child mastered tasks of increasing complexity, graduated from high school, was trained as a bookkeeper and accounting, and is now responsible for the accounts department of a large chain of supermarkets (Feuerstein, 1980). Similar children without the FIE intervention showed no such mastery.

In regard to Down Syndrome specifically, the interaction of an FIE-trained mother with her Down Syndrome boy, resulted in some significant changes. The result was that the child by age 9 was reading on a first-to-second grade level, with understanding even more developed than level; he also learned to keep account of days of the week, anticipate the kind of meal he would have on the basis of the cutlery laid out, anticipate the reactions of adults and children by verbal and nonverbal cues, and generalize from one situation to another. Another Down Syndrome child that is more typical of Down Syndrome children, learned as a result of FIE to make responses to a variety of stimuli to which she had been considered impervious, and discriminate between objects, and learn object permanence(Feuerstein, 1980). With mildly retarded adults, FIE was found to appeal to the students in terms of the format of regularity, discussion of instruments, and summarization of key points; they said they liked the sessions because it gave them the chance to think, and it helped them to become more independent (Matthews, et al.). In the above cases, the learners' progress was compared to that of similar cases who did not have the FIE intervention; their progress in each instance was definitely less than those who had had the FIE intervention.

Autistic Spectrum

In relation to autism, autistic children after working with FIE over two years began to show significant changes in behavior and interaction with the environment; in such cases it was helpful to have someone other than the parent be the mediator; FIE has resulted in an ability to penetrate the child's resistance and bring about meaningful changes (Hanegbi, Krasilowsky, & Feuerstein, 1970). A more recent study examined the effects of IE on 20 autistic children in Canada; the results indicated a high level of success for the students who had a mediated learning approach through FIE, and these re-

sults have been presented at several international professional conferences in Europe and North America (ICELP, 2001). Another recent study (Gross and Stevens, 2005) indicates that in one-on-one instruction using FIE with a younger autistic child, improvements were noted in visual attention and tracking, give-and-take, turn-taking, understanding of cause-and-effect, prediction, making choices, asking questions, following verbal instructions, and persistence.

Researchers into autism, a field that is only in the process of full development, state that autism is a state of being with many different causes, and is not necessarily a permanent condition. Some autistic children, for example, learn to speak by singing, others through sign language. The autistic child sometimes has a problem in seeing that a person could be both angry and loving at the same time; thus, in experiments in Israel, it was found that by raising the cognition of such children through mediation in FIE with exercises showing how two opposing items can co-exist, autistic children grew to accept the concept of two apparently contradictory trends occurring at the same time. In this still-early stage of research, experimenters recommend of course an early start as soon as a diagnosis has been made, and to select a program and carry it out intensively.

The research staff at the International Center for the Enhancement of Learning Potential (ICELP) in Israel, now known as the Feuerstein Institute, who not only carry out some research but also review all FIE studies from elsewhere as well, are at this time taking an understandably cautious approach to claims about FIE as a true breakthrough, while studies are being verified and examined for quality.

Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder

In regard to children with Attention Deficit Disorder (ADD), Kreiger and Kaplan (1990) studied 9- and 10-year-old students on the effects of FIE over a twelve-week period. The FIE group, when compared to a control group that was matched, scored significantly higher in reading accuracy and reading comprehension, as measured by the 1973 edition of the Neale Analysis of Reading Ability.

A study was conducted in Europe involving Attention Deficit Hyperactivity Disorder (ADHD) students; ADHD students who had Instrumental Enrichment were found to improve significantly when compared to students who had not had FIE, in their precision, representation of ideas on paper,

finding relevant cues in problem-solving situations, and declarative knowledge (Roth and Szamoskozi, 2001).

Learning Disabilities

In regard to learning disabilities, FIE approaches were found to have a profound positive impact on learning-disabled youth, in particular the focus on identifying patterns (Messerer, et al., 1984). Also, Brainin (1982) conducted a study of rural Westchester County, New York underachieving 6th grade students, reading two years below grade leveling remedial classes. The experimental group had 59 hours of FIE instruction over one school year, while the control group had equivalent hours in a remedial reading program; as measured by the Comprehensive Test of Basic Skills (CTBS), significant positive differences in favor of the FIE group were found on Total Reading gain scores.

Sanches (1994) conducted a three-year study with 8-year-old rural public school students who had poor language skills as measured by the Test of Language developed by Pozar (1983); the study compared 25 FIE students with 25 students in a control group. The comparison of pre-test and post-test scores indicated significant differences in favor of the FIE group on all four subtests of language (oral, written, vocabulary, and grammar).

Kaufman and Burden (2004) found that FIE helped young adults with serious learning disabilities in peer tutoring and the ability to reflect, build confidence, articulate thoughts and feelings, and improve general language ability. Another study of the effects of FIE on a learning-disabled population took place at the Ben Bronz Academy in West Hartford, CT; IE has been integrated across the curriculum in this special school, and significantly positive results beyond expectations were found with a middle-school population in a variety of subject areas (Martin, D., Sharp,S., & Spence, I., 2009).

Visually Impaired

Successful adaptation of FIE instruments for blind and visually impaired students have been and are being made. Some of the verbal instruments have been brailled, while some of the geometric and pictorial instruments have been transformed into tactile form with raised figures that can be distinguished by number and texture. When such instruments are used, together with the normal mediation discussions, blind and visually impaired students make similar cognitive progress to that of sighted students. Specifically, in at least two carefully controlled studies, blind students as a result of the

FIE experience were found to: improve in symbolic and schematic representation of objects and processes, form mental images of space, integrate verbal labels and schematic images, demonstrate greater alertness and involvement during lessons, start interacting with sighted peers, improve in self-image, and set higher educational and career goals for themselves (Lurie, Gouzman & Kozulin, 1998; Gouzman, n.d.).

It is therefore apparent that cognitive education has a place in the programming for special-needs learners with a wide range of challenges. The fact that a majority of the studies cited above took place in special classes (i.e., not inclusion settings) should demonstrate clearly that cognitive education can succeed when done appropriately in settings where students are grouped according to their challenges as opposed to with other typically-functioning learners. Thus, the debate about inclusion versus non-inclusion is rendered moot in regard to cognitive education. It is also possible to hypothesize that cognitive education actually succeeds better in non-inclusive settings because of the direct attention that is possible in those settings as opposed to special-needs learners becoming neglected when grouped with non-challenged students; this hypothesis, of course, remains to be tested. At the very least, we see empirical data showing the success of cognitive education in a number of non-inclusive classroom environments.

The Place of Cognitive Education Within the Curriculum

We refer to a "place" in the curriculum for cognitive education; just what is that place? A first answer would be what is not the place. The goal of cognitive education as an infusion across the curriculum will not be accomplished if the classroom has a designated classroom period, for example, twice per week called "Thinking" after which the regular curriculum proceeds as it always has done with little or no explicit emphasis on cognitive processes. In such a case, the "thinking" time may be engaging to students , but students do not make any connection between those experiences and the rest of the curriculum.

On the other hand, an appropriate place would be not only a time devoted explicitly to "thinking skills", but also a teacher who frequently during the rest of each week refers back to the cognitive skill in the context of the regular subject matter. For example, if the cognitive skill learned and practiced dur-

ing the "thinking time" in a particular week was comparison in a particular experience, then the teacher at other times in the week would ask for and show applications of comparison to the study of, e.g., historical events, methods of computation, characters in a narrated story, different results from scientific experiments, and different works of art in different periods in art history. Such careful applications make obvious the application or "bridges" to the rest of the curriculum.

Some teachers object to the specific placement of a planned "thinking time" in the curriculum because they worry about "coverage" of the required curriculum and also getting students prepared for examinations—they say that they simply do not have "time" in an already-crowded curriculum for "one more thing". The response to such concerns is twofold. First, "coverage" of the subject matter is not truly useful until the students also have a concept of process—it is process that will be lasting, not the memorization of the particular subject matter. Second, ironically perhaps, a focus on cognitive skills such as process-of-elimination actually can help students on examinations such as multiple-choice formats—success on such tests is due partly to being able to carry out a well-planned process of elimination. A caution here, however, is that the rationale for cognitive education should never be simply to help students do well on tests; cognitive skills are for life.

Summary

Both the USA and South Africa have sought the journey of democracy by consciously acknowledging the mistakes of their segregated pasts. The education community in turn has chosen the path of inclusivity in order to supposedly equalise education opportunities for all learners – no matter their race, language, gender, or disability. Despite the national thrusts toward equal quality education for all in both countries, Deaf Education in South Africa remains petrified within its provision of non-academic, unequal education where school leavers enter the workplace unable to compete equally with their hearing counterparts.

The views of inclusion for Deaf students in the USA vs. South Africa, then, differ in at least one important respect. With some excellent exceptions, schools for the Deaf in South Africa are still marked by relatively low expectations, and Deaf educators are calling for improvement in this regard; for now,

inclusion is seen by many as an opportunity for equality. On the other hand, many Deaf educators in the USA are opposed to inclusive settings because such settings do not provide barrier-free communication, while many schools for the Deaf in the USA have evolved to become centers of not only barrier-free communication but also community resources for the needs of Deaf students and high expectations for achievement. Deaf educators in both countries, however, strongly desire the same positive outcomes for Deaf learners, but each country has separate circumstances although somewhat similar histories related to human rights and segregation.

Deaf learners have the right to look forward to barrier-free learning environments, which will include barrier-free communication, accessible curricula, and thus fully accessible learning experiences. One path to achieving this goal would be to embrace the philosophy of inclusive education with its aim of equitable quality education by means of accommodating the diverse needs of all learners. This acceptance, in turn, will require that teachers of the Deaf are sufficiently equipped to create these barrier-free learning experiences, in various ways and contexts. The journey toward equal Deaf education in both the USA and South Africa will begin once we challenge the status quo and begin to consider ways of meaningful improvement and particularly the incorporation of cognitive strategies in a systematic and carefully planned manner within all settings, including those which are inclusionary.

A Reform Agenda for the Immediate Future

If the case can be established for the place and methodology of cognitive education, if cognitive education is equally powerful for both inclusive and non-inclusive classroom settings in different ways, and if we are clear that inclusive settings may not be appropriate for some students who are currently in such settings, then what immediate steps are needed for the full implementation of cognitive education in all classroom settings? As is normal with such complex questions, the answers are multi-pronged.

1.A first critical step is the reform of teacher education on the pre-service level. Clearly today's teachers who are in preparation for their careers were probably in most cases not the beneficiaries of embedded cognitive education during their own careers as learners in schools. Therefore, some coursework in cognitive education needs to be incorporated within teacher educa-

tion programs, but that action is not sufficient. Their other coursework (curriculum, psychology, internship practice, etc.) must also be infused with the awareness and application of cognitive education. This step, then, requires two other conditions. First is the re-education of teacher-education faculty within the university about the place of cognitive education within their own respective subjects and its value in the preparation of pre-service teachers. Second is the identification of excellent role models of practicing cognitive-education teachers with whom these new teachers would work in internship experiences—to witness first-hand how well-executed cognitive education succeeds as a model for them to follow when they fully become teachers.

2. A second critical step is a systematic program of teacher professional development for those teachers already in the classroom and who are thus experienced in methodologies that may not include cognitive education. Through carefully designed and engaging teacher development workshops and seminars, experienced teachers can, with appropriate support, develop and implement cognitive education as a new dimension within their own ongoing teaching. Garbo (2013) describes the important role for mediated learning in teacher training for inclusion in a study in Italy; a one-year training course which included classroom experience and theory helped participants to master cognitive and metacognitive tools for inclusive teaching and learning for students with a wide range of cognitive profiles. Such activity, however, requires experienced trainers in cognitive education within the university and also supportive school administrators, which we shall discuss next.

3.The third step, then, is school-administrator re-education about the fundamental place of cognitive education in the curriculum of an entire school. Administrators should be a part of any teacher development activities so that they can be then supportive of its legitimate place across the curriculum.

Administrators, once convinced of the place of cognitive education, can then allocate the needed resources (funding, materials, time) so that teachers are fully supported in their cognitive efforts.

4. A final step is the education of the parent community of a school, whether or not they have special-needs children. Just as teachers in most cases would not have had exposure to cognitive education when they were school learners themselves, parents too probably lacked that experience. Parents have a special role in this important curricular change. First they can

benefit from some exposure to the program so that they are convinced of its merit and can be supportive of the teachers, and second they can also reinforce at home the practices of encouraging thinking in their children.

Thus, a full program of conscious change can lead to the legitimization of cognitive education in all settings—regular classrooms with part-time included special-needs students, inclusive classrooms, and special classes specifically designed for special-needs learners.

Confucius is reputed to have said, "Give me a fish and I shall eat tomorrow; but teach me how to fish, and I shall eat for a lifetime." That saying summarises the entire case for cognitive education everywhere.

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Inclusive Mathematics Education: the Value of a Computerized Look-ahead Approach in Kindergarten. A Randomized Controlled Study

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Abstract

Kindergarteners with 'additional educational needs' at-risk (n=40) for mathematics difficulties and a group of peers (n=92) were randomly assigned to play educational games in their regular classes, supporting the development of counting (14 children at-risk and 30 children not at-risk) or number comparison skills (10 children at risk and 29 children not at-risk) and to a business-as-usual group (16 children at-risk and 33 children not at-risk). The effects of educational ICT-technology was studied using a pretest-posttest and delayed or follow-up test design. The results indicated that a short and intensive intervention of playing educational games filled the gap between children at-risk and peers without additional education needs. Mathematic skills of kindergarteners increased, with training effects that were persistent in grade 1. Especially computer games supporting the development of counting skills enhanced the overall mathematical learning proficiency in grade 1. The implications for effective mathematic achievement, didactic methods, preventive support and the realization of inclusive education will be discussed.

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Introduction

In 2006 the United Nations adopted a Convention on the Rights of Persons with a Disability. According this convention all children have the right to participate and receive high quality education in regular schools, with necessary reasonable adaptations in curriculum and support. Inclusive Education has become a world-wide standard.

Belgium has ratified the convention, having the obligation to take the necessary measures and create conditions to grant their citizens that right to reasonable adaptations. In clinical practice however it is sometimes easier to create the 'good will' in teachers to look for adaptations or support for children with 'visible handicaps' (such as blind children or children with the syndrome of Down), than it is to get teachers adapt their aims, methods, materials and evaluations for children with 'less visible difficulties', such as mathematical learning disabilities. At the same time, mathematic and numbers are very where. In everyday life situations, we need to be on time, pay bills, follow directions or use maps, and look at bus or train timetables. Kristel, Sara, Wim and Charlotte described their mathematical learning difficulties as follows (Vanmeirhaeghe & Van Hees, 2012):

> Kristel (master in education) : *"Why was elementary school like hell? Because I felt a huge pressure on me. Open your manual on page 68. There we go again! Where is page 68? Other pupils already had taken down the title while I was still looking for page 68. It was a constant feeling of needing to exert myself. I have to take care that I can follow. That is what made it so hard for me. Everyone was faster then I was.*

> Sara (bachelor in journalism) *I need three times more time than an average student to learn the same subjects.*

> Wim (engineer) *"You could say that I have given up the struggle with mental arithmetic. It remained a problem for me"*

Given that mathematical learning disabilities is associated with cost to society, family and the individual person, this study aims to investigate if preventive support can be developed for kindergarteners, making them less at-risk to develop mathematics disabilities. From the perspective of 'Universal Design for Learning (UDL)' preventive support materials and interven-

tions might diminish the impact of learning disabilities and decrease the need for special education, so that inclusive mathematics education for more children can take place.

The importance of kindergarten in the development of mathematic is not ignorable. Aunola, Leskinen, Lerkkanen, and Nurmil (2004) revealed that when children have high levels of early numeracy in kindergarten, their numeracy even increases between kindergarten and grade 2, whereas in children with lower levels of early numeracy there is less improvement over the same period. In addition, Clarke and colleagues (2011) revealed that to improve mathematic early mathematics core instruction is needed. Since kindergarteners at-risk for mathematic difficulties often encounter problems with counting and number comparison skills (Desoete et al., 2012; Stock et al., 2010), a preventive support focussing on these early number skills, might be effective for children with 'additional educational needs' in kindergarten. In addition it seems indicated to determine if there is a difference in the effects of didactic methods contributing to the realization of inclusive education by supporting the development of counting or number comparison skills.

Several instructions were developed to enhance early numeracy skills in young children (e.g., Bloete, Lieffering, & Ouwehand, 2006; Dowker, 2005; Wilson, Revkin, Cohen, Cohen, & Dehaene, 2006). However, most interventions are time-consuming, taking about 6 to 9 months and sometimes even longer to be effective (Griffin, 2004; Kaufmann, Handl, & Thöni , 2003; Van de Rijt & Van Luit, 1998; Van Luit & Schopman, 2000). Recently also educational ICT technology and computer games have been used to provide learning experiences for children (Clements, 2002). Several studies described the effect of computer-assisted interventions (Clements, 2002; Kulik & Kulik, 1991; Liao, 2007). However not all studies were in favour of computer-assisted interventions (Kroesbergen & Van Luit, 2003; Malofeeva, 2005; Seo & Bryant, 2009). In addition, Li and Ma (2010) concluded that computer-assisted interventions produced more effects on mathematics learning in students with 'additional educational needs' than in students not at-risk.

Several questions remain unanswered, since the available studies especially focus on elementary school children (Baroody, Eiland, Purpura, & Reid, 2012; Fuchs, Fuchs, Hamlet, Powell, Capizzi, & Seethaler, 2006; Wilson, Dehaene, Dubois, & Fayol, 2009; Orega-Tudela, Gomez-Ariza, 2006) or on children with low-socioeconomic-status (Din & Calao, 2001, Howard, Wat-

son, Brinkley, Ingels-Young, 1994; McCollister, Burts, Wright, & Hildreti, 1986; Wilson et. al., 2009), whereas few evidence-based programs for preventive support for kindergarteners at-risk for mathematics difficulties or even disabilities exist. Moreover although low performing children were found to benefit from a large amount of 'additional education' (Aunio, Hautamäki, Sajaniemi, & Van Luit, 2009; Dyson, Jordan, & Glutting, 2011; Haseler, 2008; Jordan, Glutting, Dyson, Hassinger-Das, & Irwin, 2012; Riccomini & Smith, 2011) it remains unclear if they also benefit from didactic methods using educational computer games and less intensive support organized in an inclusive way. More evidence-based and well-controlled intervention studies regarding these educational computer games supporting the development of early number skills in kindergarteners with 'additional educational needs' are required.

In the present investigation, we report the findings of a randomized controlled study on two forms of preventive computer game support organized in an inclusive way in regular classes for kindergarteners at-risk and not at-risk for mathematics difficulties. The general aim of the present study was twofold. First, we investigated the modifiability of numeracy by two kinds of educational computer games in regular kindergarten classes. We used two forms of ICT support in an inclusive way: a short and intensive intervention of playing computer games supporting the development of counting skills and a short intervention of playing games supporting the development of number comparison skills in kindergaren. We aimed to explore the most effective preventive support in kindergarten for future mathematics learning. The adaptations needed and effective for the preventive support for kindergarteners with 'additional educational needs' at-risk for mathematics difficulties will be analysed.

Method

Participants

Participants were 132 (69 boys) full-day kindergartners with a mean age of 5,8 years (SD = 4 months) in Belgium. The children had an average intelligence (TIQ = 101.39 (SD =12.73), VIQ = 102.74 (SD =11.97), PIQ = 99.29 (SD =11.68) on the WPPSI. Forty of these participants were at-risk for mathemati-

cal difficulties, because of low early numeracy (<pc25), assessed with the TEDI-MATH (Grégoire, Noël, & Van Nieuwenhoven, 2004). Written parental consent to participate in the study was obtained for all children. Most parents had working and middle-class-socio-economic backgrounds. Dutch was the only language spoken at home.

Measures

Intelligence was assessed in kindergarten with the WIPPSI-NL (Hendriksen & Hurks, 2009; Wechsler, 2002).

The early arithmetic abilities subtest of the TEDI-MATH was used as pretest and posttest measure in kindergarten. This subtest consisted of series of simple arithmetic operations. The child was presented six arithmetic operations on pictures (e.g. "Here you see two red balloons and three blue balloons. How many balloons are there together?"). Cronbach's alpha was .84.

All children completed the Kortrijk Arithmetic Test Revised (Kortrijkse Rekentest Revision, KRT-R, Baudonck et al., 2006) as follow-up test in grade 1. The Kortrijk Arithmetic Test Revision (Kortrijkse Rekentest Revision, KRT-R; Baudonck et al., 2006) is a standardized test on arithmetical achievement which requires that children solve 30 mental arithmetic (e.g., '16-12 =_') and 30 number knowledge tasks (e.g., '1 more than 3 is _'). The psychometric value of the KRT-R has been demonstrated on a sample of 3,246 children. A validity coefficient (correlation with school results) and reliability coefficient (Cronbach's alpha) of .50 and .92 respectively were found for first grade.

Procedure

Parents received a letter with the explanation of the research and submitted informed consent in order to participate. All children were assessed individually, outside the classroom setting. The investigators received training in the assessment and interpretation of the tests.

Within each school and kindergarten class children were randomly assigned to participate in the counting group, number comparison group, or a business-as-usual control group, such that children from each classroom were assigned equally to the three groups (e.g., if three students from a class-

room participated, they were assigned to each of the three groups). The groups had the same children for each intervention

Preliminary comparisons revealed that the children in the three conditions did not differ significantly on pretest measures.

The interventions took place in nine individual computer game sessions in a the classroom during 5 weeks, 25 minutes each time. Multiple treatments were performed at each school. Each session consisted of solving problems in accordance with the instructions given in the program. The computers provided immediate and continuous feedback as well as repetitive training. The computers provided number comparison or counting exercises as games tailored to individual needs. The adaptive software identified the children's strengths and weaknesses to fill possible gaps. Both experimental groups were compared with the treatment as usual instruction variant. Systematic on going supervision was provided during the interventions.

Each of the comparison sessions involved a non-intensive, but individualized and adaptive computer-assisted number comparison game without counting instruction. The software identified a child's number comparison strengths and weaknesses to fill possible gaps. Children learned to focus on number and not on size. They learned to compare the number of animals, by pointing the mouse to the group of animals that had the utmost, making abstraction of the size of animals. In addition children had to compare two different kinds of stimuli (animals/dots). There were exercises with organized and non-organized objects. Moreover children learned to compare visual and auditory quantities and to compare quantities (dots) with number words or Arabic numbers and number words. All children got a basic program with additional exercises on those components they experienced as difficult, since the computer-assisted intervention had an adaptive structure identifying the 'additional educational needs' regarding numeracy and number comparison skills.

In the experimental computer-assistant counting training children played games supporting the development of counting skills. They learned to count synchronously and learned to count without mistakes experiencing the cardinality principle. By clicking on a symbol a quantity of that symbol with an upper bound of 6 was generated. The child was asked to count and register by tapping the number on the keyboard. Auditory feedback was given. Children were asked :"How many animals are there?" while on the screen there were objects, plants and animals. "How many can bark?" The instruction

was read aloud and an answer was expected by tapping the number of stars. Visual feedback was given by a happy or a sad smiley. Auditory feedback was given by a sob when they made a mistake or an applause when they succeeded. There were exercises with the accent on adding, subtracting, leaving only a certain quantity. All children started basically at the same level. As the computer-assisted intervention had an adaptive structure additional exercises were foreseen for children who experienced 'additional educational needs' and weaknesses or gips in counting skills.

Control subjects (reference group) received the same amount of instructional time, as did children in the two other conditions. However, instead of counting or comparison instruction, the control group received nine sessions in regular kindergarten activities (intervention as usual and had the opportunity to play other games on the computer).

Results

Preliminary comparisons

The three groups (children playing educational computer games supporting the development of their counting skills, children playing educational computer games supporting their number comparison skills and the control group of peers not getting an intervention to develop their early numerical skills) were matched on pre-test skills in kindergarten. No significant differences were found ($F(2,129) = 0.04$; $p = .957$) for kindergarten calculation skills assessed with the TEDI-MATH (Grégoire et al, 2004) before the intervention in kindergarten. There was a trend of difference in intelligence assessed with WPPSI-III ($F(2,128) = 0.73$; $p = .484$), so intelligence will be used as covariate in the subsequent analyses to determine if there are differences in the effects of interventions between the three groups.

The effect of educational computer games in kindergarten

To determine if the short and intensive playing of computer games supported the development of the early number skills (counting skills, number comparison skills) an ANCOVA with intelligence as covariate, the calculation re-

sults on the **posttest** in kindergarten as dependent variable and the groups (playing counting games, playing number comparison games, not getting computer-assisted support in kindergarten) as independent variable.

The ANOCA revealed significant differences between the children playing educational games supporting the development of their early number skills and peers not playing such educational computer games ($F(2,124)= 23.25$; p <.001, $\acute{\eta}2 =.27$).

To look for persistence of the within-group training effects, a MANCOVA with group (computer-assisted intervention on counting, comparison, control group) as independent variable, intelligence as covariate and number knowledge and mental arithmetic as **follow-up** measures (assessed in grade 1) was conducted.

The MANCOVA was significant on the multivariate level ($F (4, 246) = 3.97$; p =.004; $\eta^2= .05$), revealing significant differences between the groups playing educational games in kindergarten for number knowledge ($F (2,124) = 6.29$; p =.003, $\eta^2= .09$) and mental arithmetic ($F (2, 124) = 6.04$; p = .003; $\eta^2 = .09$) assessed six months later in grade 1. The Tukey posthoc analysis revealed that both groups getting preventive support in kindergarten by playing educational computer games supporting the development of early number skills (counting skills and number comparison skills) had a better number knowledge in grade 1 compared to the control group not getting this support. For mental arithmetic in grade 1 there was a significant difference between the children playing computer games supporting the development of counting skills and the control group of children not getting an intervention in kindergarten.

The effect of support for children with 'additional educational needs'

To determine if the educational computer games supported the development of children with and without additional educational needs a 2 x 3 MANOVA was conducted with child characteristics (at-risk, not at-risk for mathematics difficulties) and type of intervention (counting support, number comparison support, no support) as independent variables and **posttest** in kindergarten as dependent variable.

The MANCOVA revealed a significant main effect for type of intervention ($F (2, 122) = 24.78$; p <.001; $\eta^2= .29$) and child characteristics ($F (1, 122) =$

22.08; p <.001; η^2= .15) but no significant interaction effect (F (2, 122) = 1.18; p = .310), meaning that both groups of children (children with and without additional educational needs) benefitted from the short intervention of playing educational computer games in their regular classes, supporting the development of their early number skills.

The persistence of the within-group training effects was analysed with a MANOVA on the **delayed test** in grade 1, revealing a significant main effect for type of intervention (F (4, 238) = 4.72; p = .001; η^2= .07) and child characteristics (F (2, 120) = 6.89; p =.001; η^2= .10) and again no significant interaction effect (F (4, 240) = 0.96; p = .430).

Table 1. *Effects of computer games on children with additional educational needs*

		Counting games		Comparison games		No games	
		At-risk	Not at-risk	At-risk	Not at-risk	At risk	Not at-risk
		M *(SD)*	*M* *(SD)*	*M* *(SD)*	*M* *(SD)*	*M* *(SD)*	*M* *(SD)*
Pretest	TM	2.36 (1.50)	10.17 (4.76)	2.50 (1.51)	9.41 (4.44)	2.31 (1.49)	9.85 (4.46)
Posttest	TM	11.23 (2.85)	13.82 (2.16)	9.67 (3.42)	11.27 (2.96)	6.04 (3.20)	9.76 (2.97)
Follow-up	NK	21.62 (4.29)	23.00 (4.28)	19.80 (4.69)	23.25 (4.00)	15.23 (5.59)	20.79 (5.37)
	MA	21.00 (5.05)	22.87 (4.93)	18.70 (4.30)	21.36 (5.65)	14.46 (5.41)	19.55 (6.54)

*p ≤ .05, TM = Tedi-Math; NK = number knowledge; MA = mental arithmetic;
At-risk = having 'additional educational needs' for mathematics difficulties in kindergarten

Table 1 revealed that early numeracy can be enhanced by playing educational computer games, even in children with 'additional educational needs'. The short computer-assisted (number comparison or counting) intervention in kindergarten had a sustained effect on mathematics learning in grade 1. Children with 'additional educational needs' playing computer games supporting the development of their counting skills in kindergarten became equally good at number knowledge (M=21.62; SD=4.29) in grade 1

than children without additional educational needs (not at-risk for mathematics difficulties in kindergarten) not playing educational games (M = 20.79; SD = 5.37). The same was true for the mental arithmetic performances in grade 1. The gap between children with special needs playing counting games (M=21.00; SD=5.05) and peers not at-risk for mathematics difficulties not playing games in kindergarten (M=19.55; SD=6.54) disappeared in grade 1.

Discussion

Studies have reported large individual differences among children even before the onset of formal education (e.g., Aunio et al., 2009; DiPema , Lei, & Reid, 2007; Geary, 2011). Furthermore mathematical learning difficulties can be predicted reliably from kindergarten (e.g., Desoete, Ceulemans, De Weerdt, & Pieters, 2012; Morgan, Farkas, & Wu, 2009; Stock, Desoete, & Roeyers, 2010). If markers for mathematics difficulties can be assessed and early identified and if effective early preventive support and adaptations can be set up for children having 'additional educational needs', it might be possible to diminish later learning difficulties and prevent some children to fall further behind.

The central question behind this study was whether or not a not-intensive computer-assisted preventive support organized in an inclusive way by playing educational computer games in regular kindergarten classes and giving continuous feedback on weak counting or number comparison skills can facilitate mathematics learning in grade 1, as already found in older children with more intensive and longer trainings (Kaufmann et al., 2003; Räsänen et al, 2009; Wilson et al, 2006). Indeed, it can. Children in this study were randomly assigned to a preventive support focusing on number comparison, to a preventive support of counting or to a control condition in kindergarten. Both individualized computer-assisted support forms with children playing computer games had a sustained effect on mathematical learning in grade 1. This was noticeable in the delayed posttest, six months, after the training took place, indicating the persistence of the training effects. Children of both groups playing computer games supporting the development of the early number skills, performed better than the control group not playing games on number knowledge in grade 1. In addition the children playing counting

games also had better mental arithmetic skills in grade 1. The findings demonstrated that a preventive adaptive support for kindergarteners can enhance early numeracy in young children with a delayed effect on mathematics learning in grade1. However, not all games were equally successful. Playing counting games in kindergarten supported the development of number knowledge and mental arithmetic in grade 1, whereas playing number comparison games in kindergarten only resulted in gain scores on number knowledge in grade 1. To conclude, our study especially revealed the value of adaptive counting games in kindergarten as a look-ahead approach to enhance mathematical learning. This is in line with other studies (Clements, 2002; Siegler & Ramani, 2008; Van de Rijt & Van Luit 1998; Whyte & Bull, 2008). Therefore we might conclude that educational computer games in regular kindergarten classes providing children with immediate and continuous feedback as well as repetitive training on early number skills (especially on counting skills) can be used as preventive support for numeracy.

Especially interesting for the inclusive and cognitive education, in line with Jordan and colleagues (2012), Ramani and Siegler (2008;2011) and Griffin. (2004) is that early numeracy can also be enhanced in kindergarteners with 'additional educational needs'. The present data indicate that even a short (at the most 8 sessions of 25 minutes) period of playing adaptive educational computer games in kindergarten can enhance mathematics learning in grade 1, even in vulnerable children at-risk for mathematics difficulties. Such a preventive support can even reduce the gap between children at-risk and peers without additional educational needs in kindergarten. In line with Aunio et al. (2009) this is good news for siblings of children with learning disabilities having an enhanced risk to develop a disability themselves (Desoete, Praet, Titeca, & Ceulemans, 2013; Shalev et al 2001). Perhaps didactic methods including educational computer games supporting and enhancing the development of counting skills can prevent some of them from falling behind, avoiding math or even develop math anxieties. In addition, adaptive educational software providing counting exercises tailored to individual needs seems indicated to identify strengths and weaknesses in all children with additional educational needs in kindergarten. Such educational computer games as support in regular kindergarten classes can contribute to the realisation of inclusive education in elementary school.

These results should be interpreted with care, since there are some limitations to the present study. We only assessed a small group of children with

additional educational needs in kindergarten. Research with larger groups of children at-risk for mathematics difficulties and disabilities is indicated. Moreover, context variables such as home and school environment should be included in order to obtain a complete overview of the development of these children.

Nevertheless, this study highlighted that early numeral skills are highly susceptible to preventive support and the amount of support does not to be large to be effective. In addition mathematics learning can be enhanced in children with 'additional educational needs' at-risk for mathematics difficulties by playing adaptive computer games supporting the counting skills in kindergarten.

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A Comparative Study of Social Prejudice Towards typically Developing School Children and Children with Sen.
Suggestions for Buffering Maladaptive Effects

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Abstract

In this study we aim to evaluate and compare the social context of acceptance and rejection of typically developing and children with a label of special educational needs SEN. Our purpose was to discover the strengths which could be used to support children with SEN, and the weaknesses (inappropriate behaviour, influential factors, social and psychological causes) which need to be considered in order to buffer and prevent the negative consequences of rejection and prejudicial attitude. By revising and comparing the literature of rejection and prejudice on typically developing and children labelled with SEN, we concluded that the latter are different from typically developing peers on some aspects of the causes and primary consequences of rejection. However, secondary and long term consequences are similar for typical and disabled children. Effective buffering techniques and strategies used in child social psychology are presented.

Keywords

social acceptance, social rejection, children with SEN, prejudicial attitudes, consequences of rejection, buffering factors.

Introduction

Children with special educational needs (SEN) all named the children with learning difficulties or disabilities that make it harder for them to learn or access education than most children of the same age. They need extra or different help compared to children of the same age (DfES, 2006 in Westwood, 2007).

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During the last decades the educational system has been confronted with the concept of inclusive education, in the hope of positive results regarding acceptance, socialisation and emotional-cognitive development of all children. Professionals predicted some years ago that inclusive education will lead to the development of a new generation more tolerant and accepting to difference (Thomas, 1997).

Children with special educational needs at risk to be less accepted, more rejected and to be victims of bullying than their typically developing classmates. However, they are sometimes treated more favourably than classmates, more like friends than acquaintances. (Frederickson, 2010). Is this the situation? What are possible causes of rejection for children with SEN? Are they similar to those applied for typically developing children? What can we learn from the effects experienced by typically developing and rejected children? What can we do to buffer the negative effects in order to help the development of a healthy and inclusive school environment? These are the main questions discussed in this study.

Objectives

Our goal is to present, analyse and compare the social context of acceptance and rejection of typically developing children and children with SEN. Our purpose is to discover psychological and social factors which could be used to support children with SEN in the school setting, as well as to discover the variables which have a negative impact on these children in the process of their social interactions, in order to buffer and prevent the negative consequences of rejection and prejudicial attitude. This will be done by using information regarding effective prejudice and rejection-buffering strategies, used with success in the field of developmental social psychology and the social psychology of intergroup processes.

Acceptance and rejection of typically developing children and children with SEN

Acceptance and rejection in mainstream school settings

The reasons for studying the level of acceptance and rejection among peers is well defined by Asher and Coie (1990): "by comparing rejected children with children who are better accepted, not only do we learn how inappropriate behaviour (e.g., aggression and disruptiveness) can lead to peer relationship difficulties, we also learn what kinds of positive skills children need to acquire in order to initiate and maintain relationships with peers." (Asher and Coie, pp.4., 1990). The effects of inappropriate behaviour regarding rejection and the identification of necessary positive skills are of great importance when we analyse the social context of a mainstream school. But they are perhaps even more important when we look at the quality and quantity of interactions between children or adults with and without SEN children with SEN, and search for causes of acceptance, rejection or prejudicial attitude.

Social acceptance has been conceptualised as a signal that other people wish to include the target person in their groups and relationships (Leary, 2010). This might stem from the need to belong, desire to form and maintain close, lasting relationships with other individuals (Baumeister & Leary, 1995). Besides desiring a positive social contact, people longing for acceptance want to feel that they are in a relationship, where mutual concern for each other is present (DeWall and Bushman, 2011).

In contrast, social rejection is seen as a potent social cue, which is associated with feelings of hurt (Moor et al., 2010).

When evaluating the causes of peer acceptance and rejection in school, classic studies in the field (Coie and Kupersmidt, 1983; Dodge, 1983) show that rejection is more frequent in the case of boys who exhibit a behavioural history characterized by rough play and aggressive behaviour (Dodge, 1983). In contrast, accepted children are cooperative and engage in conversations. Aggression as a predictor of rejection was confirmed in other recent studies (Trentacosta et al., 2009; Lansford et al., 2010; Orue and Calvete, 2011). But the relationship between rejection and aggression is not a unidirectional or predictive. Results indicate that middle childhood peer rejection can also predict concurrent and later antisocial behaviour (Dodge, Coie, & Lynam, 2006) and aggression (Wesselmann et al., 2010; Lansford et al.,2010), and can

sometimes serve as mediator between the disability and externalizing problems (Menting et al., 2011).

On the other hand, acceptance plays an important role in buffering and decreasing the negative effects of rejection. Offering socially rejected people an accepting attitude, reduces their aggression (DeWall, Twenge, Bushman, Im, & Williams, 2010). Similar effects emerged with prosocial behaviour. Maner et al. (2007) studied the effects of prosocial behaviour exhibited by socially rejected children. Results showed that acceptance leads to acceptance, thus emphasizing the role of disruptive, antisocial and aggressive behaviour as causal factor, and prosocial behaviour as a buffering factor in the process of peer acceptance and rejection.

Acceptance and rejection of children with SEN

Regarding the concept of acceptance of diversity in the educational setting, rejection appears as a negative attitude towards children with disabilities. The negative attitude leads to a low level of inclusion-based teaching, and to a rejection at institutional level, which usually involves school principals, teachers and students.

The limited acceptance level of teachers is a specific kind of rejection, which usually refers to the rejection of the novelty and difficulty of the tasks required by the inclusive process. Teachers showed in the earlier decades negative attitudes toward the policy of inclusion of children with special needs within the regular classroom (Forlin et al., 1996). Their concerns referred to the question of time children with special needs might require to the detriment of typical students; assessment of the work produced of children with SEN; gaps in their own training and preparation regarding the inclusive educational practice (Tait & Purdie, 2000).

These results are supported also by Campbell, Gilmore & Cuskelly (2003), who mention data obtained from an earlier research of Center & Ward (1987): teachers' negative attitudes are congruent with the level of disability of the child proposed for inclusion. In the aforementioned study, teachers were reluctant to include students with severe physical disabilities, or students with intellectual disabilities.

Teachers are not the only population which is prone to negative attitude and rejection of the "SEN child". This type of attitude coming from teachers

(rejecting inclusion when the SEN child is severely disabled and when the inclusion should be done in his/her classroom) is supported also in a study which explored how do classmates accept a peer with some kind of disability (Frederickson, 2010). Frederickson (2010) argues, that attributional processes are more often triggered when a child's difficulties are severe or obvious. Although included, pupils with special educational needs are usually less accepted and more rejected than their typical classmates (Nakken & Pijl, 2002). The causes of these phenomena might be identified in the fact that children still have misconceptions about disability and prefer to play with non-disabled children (Cameron et al., 2006).

Regarding misconceptions, an important factor which might influence the acceptance of a disabled peer seems to be the degree of explanatory information given to peers (Frederickson, 2010). In a recent study, Frederickson (2010) compared the reasons of acceptance and rejection of typically developing as well as children with SEN in a mainstream setting. The results show, that although the quantity of reasons for acceptance was the same for both groups, children with a label of SEN were accepted in a higher rate for their benevolence and lack of negative traits, compared to non-labelled classmates. „Typical" children however, were more accepted because of the shared experiences and the amount of reciprocal friendships. Compared to their classmates without a label of SEN, children with SEN were more often rejected because of limited contact and different interests (Frederickson, 2010).

In the light of the above, we can conclude, that compared to their non-labelled classmates and peers, children with SEN are seldom rejected because of their aggressive or antisocial behaviour. Rejection often comes as a result of the lack of shared experiences and limited level of reciprocity. This conception is proved also by results which show that the severity of the disability, which hardens reciprocity and some of the common experiences, is related to the grade of rejection (Masten et al., 2011; Rainforth, 2000; Forlin et al., 1996).

In an average school setting, the population of rejected children includes not only children with disabilities, but also children who show a slower or late development in certain skills (Menting et al., 2011). Data collected from such a sample revealed that children with poorer receptive language skills experienced peer rejection most frequently. These children showed also more externalizing problems. The relationship between language skills and

externalizing behaviour was mediated by the development of peer rejection (Menting et al., 2011).

Prejudicial attitude towards typically developing and children with SEN with SEN

Prejudice is a negative feeling toward a group based on a faulty definition (Bergen, 2001). In an average school setting, the prejudicial attitudes of children may relate to any characteristic of the peers (race, ethnicity, gender, weight, social status, abilities), which involves difference. Study results show that children display prejudice at an implicit level at least by age six (Baron & Banaji, 2006). Implicit prejudice is described as a prejudice (i.e., negative feelings and/or beliefs about a group) that people hold without being aware of it (Olson, Fazio, 2006). In a recent study, Vezzalli, Giannini and Capozza (2012) found that one of the aspects which influences the negative implicit attitudes of children is the degree of direct contact between the child and the target of prejudice (e.g. a child of different ethnicity). Italian elementary school students showed an increased level of negative implicit attitudes toward immigrants, when they experienced a great level of direct contact. This result is surprising, because according to the contact hypothesis (Allport, 1957 in Pettigrew, 1998) so well-known in social psychology, direct contact was found to reduce (explicit) prejudicial attitudes among children (Dovidio et al., 2011; Turner et al., 2007; Cameron et al., 2011) and enhance positive attitudes (MacMillan et al., 2013). Vezzalli, Giannini and Capozza (2012) further revealed that another influential factor is the implicit prejudice level of the teachers, which predicted children's implicit prejudice.

This aspect is important to consider, because it emphasises the importance of the implicit negative attitudes of teachers, parents, as guides of the prejudicial attitudes of the children. Unspoken or unrevealed prejudice has an impact on children. This is supported by the literature of the field, where the modelling role of the family and school environment is strongly supported (Bergen, 2001).

School teachers and principals are aware of this influence, therefore institutions are sometimes reluctant to discuss the special needs of a pupil with the children from the class, because they are concerned about prejudice or labelling. But avoiding and constantly counter-balancing prejudicial cogni-

tions might send cues to children which enhance implicit prejudice. However, there are results which suggest that labels can sometimes serve a protective function (Frederickson, 2010).

The prejudicial attitudes toward children with special educational needs often manifest themselves as low social acceptance, which in turn increases the risk of victimisation. Research data show that children with special educational needs are at risk of experiencing higher levels of bullying than their classmates (Carter & Spencer, 2006). The similarity between consequences of prejudice towards typically developing children and consequences experienced by children with SEN is sustained in the literature (Valeo, 2009). Results obtained in schools from the U.S.A. suggest that prejudice and labelling processes towards children with children with SEN are similar with the processes activated when dealing with race or gender-based discrimination (Valeo, 2009).

Exploring prejudice on an expanded level, there is evidence, that in the United Kingdom, the prejudicial attitude towards the disabled affects around 24% of the persons with special needs (Cameron et al., 2006). One of the main correlates found in relation to prejudice is the lack of contact with disabled persons (Cameron et al., 2006). This leads us to the direct contact hypothesis discussed above: prejudice seems to be more frequent and stronger when there is no contact between the source group and the prejudiced group.

But is it only the lack of proper information and contact that makes us prejudicial? In the paragraph which analysed the sources of prejudice when talking of typically developing children, we discussed the viewpoint of Bergen (2001), who argued that learning and modelling influences prejudicial attitude. An evolutionary approach argues, that prejudicial thinking toward those with special needs emerge from mechanisms of disease-avoidance, which in turn has evolutionary roots (Park, Faulkner, Schaller, 2003). The theorists argue, that because contagious diseases were often accompanied by anomalous physical features, humans developed psychological mechanisms that respond to the perception of these features, triggering specific emotions (disgust, anxiety), cognitions (negative attitudes), and behaviours (avoidance). If this is the case, how can we alter these processes, and what is to be done to minimize the negative effects of rejection and prejudice?

Comparing the effects of rejection and prejudice on SEN- and non-SEN children

In the case of typically developing children, there is evidence that social rejection leads to a variety of emotional, cognitive, behavioural, and biological outcomes (DeWall and Bushman, 2011).

Emotional consequences of rejection and prejudice

Most studies mention as core effects the results which appear on emotional level: hurt, anxiety, anger, sadness, depression, and jealousy (Leary, 2010). Our emotions influence our self-esteem, which are experienced by children as temporary feelings of self-worth (Williams et al., 2000).

A meta-analytical review conducted on a sample of 192 studies revealed however, an interesting result: usually, rejection leads to a more negative emotional state (Blackhart et al., 2009). However, results revealed that rejection lead also to an emotionally neutral state marked by low levels of positive and negative affect. Other sources also suggest that rejection sometimes causes emotional numbing (Bernstein, Claypool, 2012). The results sustained that severe exclusion led to physical numbing and less-severe exclusion led to hypersensitivity.

Cognitive consequences of rejection and prejudice

Social rejection reduces performance on challenging intellectual tasks, resulting in a below-level performance (e.g., Baumeister,Twenge, & Nuss, 2002). Literature on racially prejudiced stereotypes suggests that the academic self-concepts of the student are damaged when the prejudicial attitude reflects a presumed lower level of intelligence based on the students' racial or ethnic group (Lehmann, 2012).

Rejection also causes a cognitively attuned state, which makes children less prone to cues of social acceptance and potential threats (e.g., Williams et al., 2000). This cognitive numbness is often associated with hypersensitivity to signs of threat. (DeWall, Twenge, Gitter, & Baumeister, 2009). Study shows that in a mainstream school setting, excluded persons are more likely to rate the ambiguous actions of others as hostile and treat more aggressively others,

who are not involved in the exclusion or whom they don't know (DeWall et al., 2009).

Behavioural consequences of rejection and prejudice

On behavioural levels, social rejection increases chances of aggression (Twenge, Baumeister, Tice, & Stucke, 2001), mass violence in schools (Leary, Kowalski, Smith, & Phillips, 2003). Research also revealed that a hostile cognitive bias mediates the relationship between threats of social rejection and aggression (DeWall et al., 2009).

In the school setting, rejection is strongly correlated also with the victim status (Veenstra et al., 2005). Peer rejection experiences predict later externalizing behaviour problems, especially when the child is chronically rejected (Laird et al., 2001). Other researchers have also found that rejection by peers is strongly associated with problematic school conduct (rule-breaking) and poor academic performance (Fite et al., 2012). Other results sustain that peer rejection is strongly correlated with behavioural problems and antisocial behaviour (Trentacosta et al., 2009).

This relationship between rejection and later externalizing, aggressive and problem behaviour is stable in time, as peer rejection suffered in middle childhood predicts later antisocial behaviour (Dodge, Coie, & Lynam, 2006). This result is sustained by data gathered from children coming from a smaller age-group (6-9 years old): in early elementary school peer rejection, has an additive effect on children's externalizing problem development (Sturaro et al., 2011). Another study (Ladd, 2006), which analysed the role of peer rejection in an additive prediction model showed that peer rejection and aggressive behaviour was a stronger additive predictor of externalizing problems during early childhood. Rejection accompanied by a withdrawn behaviour, was found to be a distinct predictor of internalizing problems in early childhood. This predictive relationship increased with age (Ladd, 2006).

Biological consequences of rejection and prejudice

Social rejection is associated with many biological responses, such as an increased level of pro-inflammatory cytokines (Dickerson, Gable, Irwin, Aziz, & Kemeny, 2009), greater activation of brain regions associated with the affec-

tive component of physical pain (Eisenberger, Lieberman, & Williams, 2003), slower heartbeat (Gunther Moor, Crone, & van der Molen, 2010), release of the stress hormone cortisol (Dickerson & Kemeny, 2004).

There is a limited set of data which explores the difference between the effects of claimed and granted group inclusion (de Waal-Andrews, van Beest, 2012). The results of the study underline the fact, that acceptance and inclusion does not bring every time a set of positive emotions and social evaluations, and as a result, it does not always lead to positive interpersonal consequences. De Waal-Andrews and Van Beest (2012) proved that inclusion is claimed, this is associated with thoughts of being disliked by others and it leads to less prosocial behaviour. This sets perhaps a different viewpoint upon the diversity of effects (both positive and negative) of inclusion of the children with children with SEN.

Experimental data shows, that rejection has specific effects also at physiological levels. Social rejection leads to feelings of hurt, and is accompanied by a slowing of heart rate (Moor et al., 2010). This is more pronounced after the person had a prior expectation of positive social evaluation. The result seems to offer an explanation also for the specific problems related to central control during cognitive processes and affective regulation associated to rejection.

Specific consequences of rejection and prejudice for children with SEN

The effects of rejection mentioned above are effects identified and measured in typically developing children, adolescents and young adults. In the case of persons with disabilities or children with SEN, the large scale of difficulties included in the definition of disabilities or special educational needs makes it hard to identify general categories for the effects of rejection and prejudicial attitude. However, there is evidence that some of the emotional and cognitive effects are very similar with those experienced by typically developing children (Figure 1.).
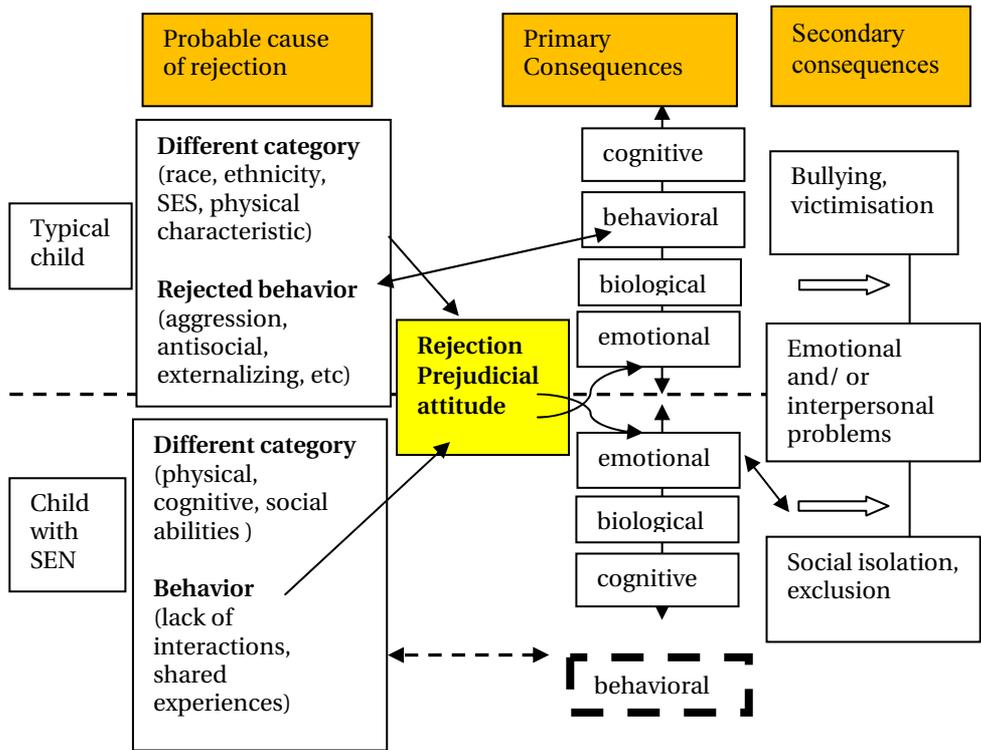
Figure 1. *Exploratory model of rejection and prejudicial atti-tude toward SEN and typically developing children*

On a cognitive level, people with moderate to mild intellectual disabilities' seem to be conscious regarding the stigma they experience in their lives. When examining the impact of prejudice on their self-perceptions, results emphasize that adults with mild intellectual abilities struggle to maintain an adaptive level of self-perception (Jahoda et al., 2010). Some authors argue, that inclusion implemented more as an integrative process, and not as a real inclusion has been shown to have negative consequences for the self-concept of the children with SEN attending mainstream schools (Cameron et al., 2006). This adverse effect is explained by the fact that in such a context, there is often little actual interaction between the typical and children with SEN, which can lead to feelings of isolation and anxiety for the included child. Data gathered from children rejected for having some kind of learning

disability were also reported to have poor social problem solving skills (Swanson and Malone, 1992 in Geary, 2011). At an interactional level, these children are reported to be aggressive.

Regarding emotional consequences of prejudice, Jahoda et al. (2010) points out, that prejudicial attitude might increase the vulnerability to emotional and interpersonal problems. Again, Cameron et al. (2006) argue that the inclusive setting might also raise the level of emotional insecurity of the children with SEN attending mainstream schools. Results obtained from samples of children diagnosed experiencing barriers to learning showed that these children experience social rejection and are reported to be more immature compared to their typical classmates (Swanson and Malone, 1992 in Geary, 2011).

A recent meta-analytic study revealed that children with disabilities are prone to being exposed to different kinds of aggression and abuse (Jones et al., 2012). Although the study does not mention the prevalence of rejection in the samples included, based on prior results which suggest that most children with SEN experience rejection (Nakken & Pijl, 2002), we can presume that rejection is a meaningful correlate in the analysed samples, too.

Figure 1. shows the similarities and differences in the causes and consequences of rejection for typically developing and children with SEN, as synthetized based on the results presented above. For both categories, the primary cause of rejection is the different category they belong to and their „different" behaviour. Typically developing children are seen as being different most often because they have a different race, ethnicity, social economic status (S.E.S), or some other characteristic that is rare in that specific group (e.g. body weight). children with SEN are different because they have other physical, emotional, social abilities and needs). Another reason for rejection mentioned in the literature was the behaviour of the child. Typically developing children are most often rejected because their aggressive or antisocial, hostile behaviour, children with SEN are rejected because the lack of interaction, lack of mutual interest or experiences. These factors might lead to rejection and prejudicial attitude, which in turn was shown to lead to some immediate and some long-term consequences. The literature presented similar emotional, cognitive and behavioural consequences, although typically developing children are more often reported for behavioural effects. Depending on the type of disability the SEN child presents, it seems, that negative behavioural responses like aggressive behaviour are present also in the groups of

children with SEN. Consequences of rejection are immediate and chronic at emotional level for both categories, and these are associated with simultaneous biological correlates (reported only in studies with typical teenagers and adults). Cognitive correlates are also associated with emotional responses, which might or might not lead to consequences at behavioural level. When they appear, behavioural responses have an influence on the child's initial behavioural state, which can be aggravated (children with SEN become more isolated, have less interactions, typically developing children show a higher level of their initial hostility, aggression). This mutual effect might lead to the stabilisation of rejection for both groups, and in the long term, to being bullied, to exclusion and isolation or to more severe emotional and interactional problems.

Buffering the negative consequences of rejection and prejudice toward children with SEN

On the subject of effective methods in reducing the consequences of rejection and prejudicial attitude toward children with SEN, the literature of rejection and prejudice offers a few possibilities. At the level of social interactions, the most mentioned effective buffers are the following:

Social acceptance

A study, dealing with methods of buffering the rejection of teenagers diagnosed with psychopathology, underlined that parental and peer contexts are able to buffer rejection (Sentse et al., 2010). Parental rejection was buffered by peer acceptance, but parental acceptance in turn was not able to buffer peer rejection . Another recent study, conducted with average teenagers showed that positive social relationships and acceptance buffer the negative effects of rejection by peers (Masten et al., 2012).

Social contact (direct and extended forms)

The positive effects of emerging in direct contact with the victims of rejection and prejudicial attitudes have been well documented, research suggests that one way to reduce prejudice towards other groups is through contact with members of other groups in the form of neighbours, work colleagues, friends (Cameron et al., 2006). It is well documented that direct contact with out-group members, provides opportunity for intergroup contact too, which reduces negative attitudes. Good intergroup contacts are likely to promote

positive out-group attitudes (e.g.Gomez, Tropp, and Fernández, 2011; Turner et al., 2007). The extended contact hypothesis (Wright et al., 1997 in Lyons, 2011) proposes that mere knowledge of an in-group member's friendship with an out-group member may reduce bias when group memberships are salient.

A study that compared the prejudicial attitude of children and teachers towards students socially or ethnically different, showed that prevention programs based on extended contact offer positive results in a group of children when the focused prejudicial attitude is towards disabled children (Cameron, Rutland, 2006; Cameron, Rutland and Brown, 2006). In the study, children had more positive attitudes towards the disabled when being red stories with characters coming from multicultural backgrounds.

Friendships and close relationships

As we mentioned earlier, the extended contact hypothesis says that knowledge of an in-group member's friendship with an out-group member reduces intergroup biases and prejudicial attitudes Wright et al., in Lyons, 2011).

Recent research data supports that spending more time with friends during adolescence relates to less activity in the brain regions which are active during negative affect and pain processing (Masten et al., 2012). These findings are consistent with the notion that positive relationships during adolescence may relate to individuals being less sensitive to negative social experiences later on.

Besides the social level, the literature emphasizes the importance of interventions targeting the cognitions and informational processes associated with rejected peers, teachers or parents.

One way to influence maladaptive cognitions of peers and teachers might be by interventions which use different processes of categorization. Interventions that promote extended contact (Wright et al., 1997 in Lyons, 2011), make the persons think of themselves in a larger group perspective, because recategorization leads to categories that highlight the similarities among the interacting people (Perdue et al 1990 in Pettigrew, 1998). Recently, research revealed an effective cognitive programme, which is able to reduce prejudice at a more general, but efficient level (Vasiljevic, Crisp, 2013). The program

was based on novel category combinations and led to a reduction of prejudice towards multiple out-groups (elderly, disabled, asylum seekers, HIV patients, gay men).

Also, there is a strong need for proper information regarding children with SEN and their disabilities, respectively, the extra skills and methods needed by teachers who manage inclusive school settings (Frederickson, 2010). The simple lack of correct information might lead to the activation of negative stereotypes.

Suggestions

If we consider the evolutionary explanations of Park, Faulkner and Schaller (2003), the implicit rejection which stems from our evolutionary background has strong emotional, cognitive and behavioural correlates. An efficient model which would target the emotional, cognitive, biological (psychosomatic, medical) and behavioural aspects of prejudicial attitude would have to consider these 4 basic aspects.

Based on the literature of protective factors against rejection, we would have to consider as buffering factors the variables of social interaction (acceptance, friendships, contact), and the one of cognitive processes (information, categorisation). We argue, that techniques proposed at these levels would have a positive impact on all 4 basic aspects: emotional, cognitive, biological and behavioural. Results reaches via the direct and extended forms of contact, respectively, via friendships support the view that they have an incremental impact not only on social and behavioural level, but also at cognitive (Gomez, Tropp, and Fernández, 2011) and emotional levels (Masten et al., 2012). Positive emotions have a great influence on biological correlates (Gunther Moor, Crone, & van der Molen, 2010; Eisenberger, Lieberman, & Williams, 2003), and as a result they might reduce the level of psychosomatic reactions and improve the health factor of the child with SEN. As a second variable, we think that cognitive variables play an important role in reducing rejection through processes like categorization (Vasiljevic, Crisp, 2013), characteristics of processed information (Fredericskon, 2010), out-group biases (Turner et al., 2007), so implementing procedures which consider this aspect is also important.

Because formal programs, implemented at different institutional levels have influence also on a personal level, we suggest a set of techniques which target the aforementioned aspects (social and cognitive) through implementation at the level of schools and institutions.

Specific strategies for buffering negative consequences of rejection and prejudice

Encouraging inclusion

Inclusion has many benefits which extend also into the everyday life of the child with SEN (Cameron et al., 2006): inclusion of children with SEN has the main advantage of reducing the stereotypes and negative attitudes towards them. When they attend mainstream schools, socializing with typically developing children allows children with SEN to engage in interactions, and to develop their social skills.

Implementing targeted school programs to reduce prejudicial attitude

One major strategy for reducing negative consequences of rejection and prejudice would be to use targeted school programs in mainstream and inclusive school settings. These would have to use effective methods applied successfully in social psychology: multicultural approach, contact-hypothesis, common ground approach, counter-stereotype education. Research conducted regarding the effectiveness of the multicultural approach claims that children are taught that cultural diversity is a positive thing, are less prejudicial against children coming from other cultures or children who are disabled (Cameron et al., 2006). The contact hypothesis was already defined in this paper (Wright et al. In Lyons, 2011). This strategy, as well as the common ground approach focuses on making children experience similarities and characteristics which are common for them and rejected or prejudiced children. These techniques change the perception and stereotypes of children, by giving them experiences and information which influence their preconceptions and negative attitudes. The counter-stereotype strategy (Cameron et al., 2006) approaches directly the false stereotypes of children, teachers or parents, by teaching children counter-examples, which prove that some stereotypes are false.

Implementing programs of social interaction

These programs are already applied in certain schools, which support the interaction between typical and children with SEN, aiming for the development of mixed group partnerships and possibly mixed friendships. Again, we argue that frequent interactions and close relationships have important effects not only on a social, but also on a cognitive and emotional level.

Conclusions

In this study we aimed to present a theoretical synthesis of the literature regarding the processes of social rejection and prejudicial attitude experienced by both typical and children with SEN. We wanted to present the psychological and social factors which could be used to support children with SEN in the school setting. Another goal was to discover the variables which have a negative impact on these children in the process of their social interactions. Exploring the factors involved, our objective was to offer an explorative and comprehensive model of the process of rejection and of the variables which need to be considered in order to buffer and prevent the negative consequences of rejection and prejudicial attitude.

Our analysis concluded that typical and children with SEN show some similarities regarding the reasons for being rejected or treated with prejudicial attitude. Both typical and children with SEN are rejected in their peer group because of their difference. Children with SEN are different because they live with a physical, psychological or cognitive condition; typically developing children are rejected based on their belonging to a specific group (ethnic, racial, etc.). Children with SEN are mainly rejected because of their interactional constrains emerging from their condition, and they are disliked for the lack of contact, lack of common experiences and shared interactions. Typically developing children may also be rejected on the account of their behaviour, but this aspect is mainly related to aggressive, antisocial, and externalizing problems, and it does not appear primary due to a passive attitude or lack of contact.

Regarding the specific consequences of rejection and prejudicial attitude, we found that the literature of the field focuses mainly on the consequences experienced by typically developing children. These children were found to experience different effects on emotional level (hurt, anger, anxiety, emo-

tional sensitivity, emotional numbness, and hostility), cognitive level (low self-esteem, low self-worth, cognitive numbness, below-level cognitive performance, biased social information processing), behavioural level (aggressive behaviour, antisocial behaviour, externalizing problems). Children with SEN were found to experience similar cognitive consequences (affected self-perception, affected self-concept, poor social problem-solving skills) and similar emotional results (emotional vulnerability, emotional insecurity, and emotional immaturity). Behavioural consequences are rarely reported (aggressive behaviour), but this might be explained by the fact that some of the children with SEN are not able to overtly give a behavioural reply to their rejected peer or group. This might be a plausible explanation, as studies which report aggressive behaviour were concluded with children with learning disabilities (Swanson and Malone, 1992 in Geary, 2011). Still, we must ask ourselves, to what grade are these cognitive, emotional and behavioural correlates of rejection related to the rejection of the child with SEN, and which dimensions are primary affected by his condition. Biological correlates were also found for rejection, but these studies considered typically developing children, students or young adults only.

One major difference in the consequences experienced is that typically developing children have sometimes more possibilities to exhibit and send cues (verbally, emotionally, through behaviour) regarding the negative effects of the rejection. But studies which analysed the long-term effects of rejection and prejudicial attitude show that both groups might be targets of bullying (Veenstra et al., 2005; Carter & Spencer, 2006).), exclusion (emotional, social) and are prone to develop emotional, interpersonal problems (Jahoda et al., 2010; Ladd, 2006). In both groups, these consequences are largely influenced by the parental attitude (Kim & Cicchetti, 2010; Sentse et al., 2010). This level of similarity might be influenced by the aspect discussed by Frederickson (2010), who argued that being labelled (as being a child with special needs) might have positive (buffering) effects also.

The literature of the field also revealed some effective variables which tend to buffer the negative effects of rejection and prejudice (Masten et al., 2012; Frederickson, 2010; Sentse et al., 2010). Based on these factors and on the effective programs developed based on approaches used in social psychology, we proposed buffering strategies on a cognitive and on a social level.

Limits and further suggestions

Being a theoretical evaluation of the issue of rejection of SEN and typically developing children, the study does not bring an exhaustive or causal explanation of the phenomena. It would be interesting for further researches to explore through a quantitative meta-analysis the spectrum of rejected disabled children and the associated emotional and cognitive consequences. Also, on an empirical level, it would be important to evaluate the emotional characteristics of rejected and accepted children with SEN, in order to observe the additive or the buffering role of the SEN-condition, in relation with rejection.

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Learning from Each Other

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Abstract

Research and discussions on inclusion and social justice highlight the need to ensure access to and success in education as central concerns. Educational and psychological research in the field of Specific Learning Difficulties / dyslexia is most usually concerned with measurement, the use of valid and reliable scales.

By contrast the application of a mixed methodology approach to research can integrate quantitative measurement of cognition with qualitative exploration of the experience, emotions and context of all the people involved. The Dyslexia and Multilingualism project (Mortimore et al, 2012) applied a mixed methodology to the evaluation of interventions for vulnerable learners with English as an additional language and combined statistical analysis of the impact of the intervention with questionnaires, focus groups and interviews to create a rich picture of the intervention. This paper will discuss the challenges and implications of the findings both for all the people involved and for the development of holistic inclusive practices in early intervention for literacy difficulties. It explores a fundamental principle of inclusive practices - what we learn from each other when we respond to and respects each other's views of the world.

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Introduction

Research and discussions on inclusion and social justice highlight the need to ensure access to and success in education as central concerns for education in UK. This article explores the challenges and lessons learned from a research project in England on a literacy intervention programme for learners with English as an additional language, Dyslexia and Multilingualism (Mortimore et al 2012). Here we focus on two key challenges. Firstly, our tentative steps towards developing mixed methodology research practices that include the voices of the people involved in the project, such as, children, teaching assistants and parents. Secondly, the implications of the findings for the development of research practices in inclusive education based on holistic perspectives on learning. The aim is to illustrate what we have learnt from each other.

The mixed methodology approach used within the project identified the impact of the intervention programme on the literacy scores of the children and explored experiences of the teaching assistants (TAs) who delivered the intervention together with stories of some of the bilingual children and their parents. Educational and psychological research in the field of Specific Learning Difficulties (SpLD/dyslexia) tends to be about measurement, the use of valid and reliable scales rather than the human voice. This perspective fails to consider children as active social agents or their right to express their views as indicated in UN's Convention on the Rights of the Child (1989). A fundamental question for inclusive practices is how we respond to and learn from each other.

UK school contexts are frequently multilingual with a rich diversity of linguistic and cultural heritages but the official discourse and language of instruction is English (apart from Wales). The first key challenge was the invisibility of many of the contextual variables that may influence children's progress in literacy. Focusing primarily on quantifying effects or progress tends to ignore more qualitative factors in children's lives that also influence progress in literacy. For bilingual pupils these can be crucial to distinguishing between literacy difficulties linked to transferring to a new language / view of literacy and those that may be due to language transference, bilingualism or cognitive/ learning difficulties. In the course of the project, through the literature review, design of the intervention and interviews, these complex and contentious variables were constantly framing our perspective on the re-

search in a way that a more traditional quantitative study would have missed. The qualitative element was an enriching additive dimension that opened a pathway for exploring more local understandings about children's learning together with a more dialogic process that integrated the voice of participants. It posed questions for us about how we explored impact not only as individual progress but also as embedded in social and cultural practices. The notions of the links between being part of minority ethnic communities and identification of special educational needs has been, in the UK, a contentious arena. . SpLD/dyslexia, for example, is hard to identify in children acquiring EAL with a high risk either of misattribution of a learner's difficulties to second language acquisition or misrecognition in schools of a child's underlying abilities, resulting in inappropriate application of SEN labels and expectations (Hall et al 2001) which can result in inappropriate provision and promote endemic racism within the educational system (Landon, 2000).

Our research attempted to both acknowledge and begin to reconcile two contentious issues. Firstly, the existence of silos of expertise – historical barriers between those professionals working with children with additional support needs (ASN), particularly Specific Learning Difficulties (SpLD)/dyslexia and those working with ethnic minorities and bilingual children. Our literature review prior to the dyslexia and multilingualism project, indicated that much research and practice seemed to run in parallels with little communication between the two groups included in the project, whose divergent discourses and practices, arise from contrasting perspectives and models in their approaches to these learners.

The complexity and risk of endemic racism in identifying additional support needs (ASN) in this population underpins a second issue – the acceptance of a medical or social model of disability which underlies tensions both around identification and support for ASN and selecting research methodologies. The 'medical model' of disability is rooted in the individual's biology with the individual's failure to adapt to society causing the disability. The contrasting social model removes the 'problem' from the impaired individual, locating it in social and individual attitudes and behaviours that produce physical and conceptual barriers (Barton, 1996). The medical model focuses upon the cognitive and processing skills of a child from an ethnic minority, taking little account of hidden variables such as the learner's story, linguistic and cultural heritage or covert attitudes to bilingualism within the school context. The currently monolingual English school is frequently not

an 'additive' environment which celebrates the child's linguistic repertoire and welcomes and celebrates diverse communities but rather a 'subtractive' environment with evidence of lower levels of parental involvement, cognitive development and L2 achievement (Cummins, 2000; Smythe and Everatt , 2000).

Traditionally, SpLD/dyslexia specialists have adopted the medical model both practically in promoting diagnostic assessment, labelling learners and focusing support upon multi-sensory programmes for individuals delivered by experts (e.g. Turner, 1997; Ott, 2007). SpLd/dyslexia research had predominantly followed the positivist tradition of the gold-standard randomised control trial (RCT) (Singleton, 2009) criticized as objectifying participants, omitting consideration of context or invisible variables and excluding the voices and cultural heritage of participants (Haslum, 2007; Wheldall & Carter, 2008). This perspective contrasts with the approach of those working with ethnic minorities who have focused strongly upon the place of the learner within embedded social and cultural practices (Kelly, 2010) requiring research methodology beyond the quantitative to explore these hidden variables.

Frames for thinking with

Increasingly it became apparent that we were working with multiple, often dissonant discourses, and needed to find a way of working that could diminish gaps between these discourses. The first step was to reject notions of opposition between quantitative and qualitative research, home and school literacy practices and to focus on a third space (Guitterrez et al 1999, Kelly 2010). This third space is the locus for evaluating how space 1 (e.g. home literacy practices) and space 2 (dominant school literacy practices) interact or compete with each other. Here space 1 reflects home, family and religious or community links, perceptions of purpose and value of literacy, how this is influencing literacy acquisition. Space 2 reflects school and all the links and funds of knowledge (Kelly 2010) influencing perceptions and teaching of literacy. The research questioned how the nature of spaces 1 and 2, for example are influencing each other.

In some respects this exploration of connections between differing places is thinking ecologically. Yet it differs from ecological systems theory (Brofenbrenner, 1979) where the locus of interest starts from an individual. Within our research project, the numbers of participants, cross cultural contexts, linguistic diversity and distance between project managers and schools needed to draw on competing discourses within different systems. Hence the concept of the 3rd space worked at different levels within it – firstly to explore the ways in which different research discourses relate to each other and secondly exploring the impact on those closely involved in the intervention.

This methodology also permitted exploration of some wider, less measurable dimensions of learning. Traditionally cognition, emotion and the environment have been considered separately. Learning is a personal activity but always influenced by life experiences, views of the world and approaches to learning encountered. Furthermore, learning seldom occurs in isolation and is influenced by places of learning and people around us. Illeris (2003, 2009) argues it is possible to construct a view of the field of learning based on two assumptions: first, that learning requires the integration of two processes: 'an external interaction process between the learner and his or her social, cultural or material environment, and an internal psychological process of acquisition and elaboration' (Illeris, 2003: 398); second, that learning includes three dimensions: [T]he content dimension of knowledge, skills, attitudes, ways of behavior – everything that can be learned – the incentive dimension, emotions, and motivations, and the interaction dimension, communication, cooperation and community – all of which are embedded in a societally-situated context. (Illeris, 2009: 46).

The Dyslexia and Multilingualism Project (Mortimore et al, 2012)

This project aimed, through its mixed methodology, to throw light upon impact of intervention upon skills (content), incentives and interactions. It explored how a mixed methodology might examine the central issues identified – the tensions between the silos of expertise with their contrasting models of disability, the contested role of ASN identification and support within a multilingual school context – creating a third space. The project, undertaken with the British Dyslexia Association (BDA), funded by the UK Big Lottery, explored potential for identifying risk of SpLD/dyslexia in children with Eng-

lish as an Additional Language (EAL), developed and evaluated strategies and support materials and, trained the professionals involved in the project activities in SpLD/dyslexia and supporting bilingual learners

It was ground breaking in several ways:

- Few UK studies specifically address interventions for children both with EAL and at potential risk of SpLd/dyslexia within multilingual contexts. Those that do   are small scale, focus more on screening and assessment   (e.g. Fawcett & Lynch, 2000; Hutchinson et al, 2004; Hurry et al, 2005);
- The study aimed to address the issues of silos of expertise and undermine barriers between the two professional worlds, SpLD/dyslexia support and of those who support bilingual learners;
- The mixed methodology design moved beyond the usual positivist paradigm employed in the SpLd/dyslexia arena and aimed both to identify the quantifiable impact of an intervention upon literacy scores and to explore the experiences of the Teaching Assistants (TAs) who delivered the intervention and the stories and voices of some of the bilingual children and their parents to incorporate a socio-cultural perspective into the empirical design.

Literacy learning and bilingualism/ SpLD in English schools

Since 1997, numbers of children arriving in UK schools with little English have doubled to over a million with 1 in 6 (NALDIC, 2013) primary school children bilingual, accessing the curriculum through EAL. Between 2008 and 2011 numbers rose from 14.4% to 16.8% in primary and 10.8% to 12.3% in secondary schools, involving an increase from 240 languages to over 300 (NALDIC, 2011). In 2012, children with EAL comprised over half the pupils in 1700 schools. Linguistic school communities vary but education is in the literacy system of English with few bilingual educational programmes; children have to learn to read and write fluently in this majority language. Most bilingual children succeed academically however, Ofsted, which monitors the quality of UK educational provision, had in 2003 identified underachievement of Black and Minority Ethnic students as a cause for concern. Issues emerge around teaching linguistically diverse children in the classroom in

ways which support their bilingualism, alongside political dimensions as to how bilingual learners are perceived and catered for in schools within an additive or subtractive context.

Social and cultural differences, life experiences and political policy, play a significant role in the development of EAL and literacy, indicating the need for a holistic approach, particularly when considering what to do when there is cause for concern in literacy skills or at stages such as the shift from primary to secondary or high school at the age of 11 when the demands upon reading comprehension, spelling and writing skills accelerate. The challenges encountered by children at risk of dyslexia at this stage are linked with difficulties with the rule systems of the second language, coping with the new phonology and orthography involved and making the transition from conversational language (Basic Interpersonal Communication Skills, BICS,) to the cognitive academic language proficiency (CALP, Cummins ,2000) required across the secondary curriculum.

4 to 10% of all children in the UK may be predisposed to SpLD/dyslexia (Singleton, 2009), defined as,

> a specific learning difficulty which mainly affects the development of literacy and language related skill……present at birth and lifelong in its effects... characterised by difficulties with phonological processing, rapid naming, working memory, processing speed, and the automatic development of skills that may not match up to an individual's other cognitive abilities. (BDA:2009)

Bilingual learners with EAL are however, under-represented in UK SpLD/Dyslexia programmes and are potentially overlooked. SpLD/dyslexia is hard to identify in children acquiring EAL with a high risk of over or under-identification leading to inappropriate provision. Difficulties with acquiring a second language can mask signs indicating risk of SpLD/dyslexia and levels of oral language skill contribute strongly to the development or prevention of SpLD/ dyslexia (Snowling, 2010). Research (Ganschow and Sparks, 2000) confirms that strengths and weaknesses in the linguistic codes of phonology/orthography, syntax and semantics are transferred between languages therefore learning a second language, particularly a complex inconsistent orthography such as English, will challenge learners with SpLD/dyslexia because it also requires those areas of dyslexic vulnerability - sequencing, phonological knowledge and both short- and long-term memory (Wolf 2008).

Listening difficulties also emerge from the processing differences associated with SpLD/dyslexia (Crombie & McColl, 2001).

Outline and findings of the project

The full study combined statistical analysis of pre and post-intervention data, with narratives arising from focus groups, questionnaires and interviews to explore two issues:

1. the impact of an individualised specialist intervention programme on the experiences of bi-lingual children at risk of SpLD/dyslexia, alongside parents and participating professionals.
2. the reliability of a screening protocol to enable risk of dyslexia in bilingual learners to be identified by teachers. This is reported elsewhere (e.g. Hansen & Mortimore, 2012). However, analyses indicated that the screener did not reliably identify the participants as at risk of SpLD/dyslexia so they can only be described as struggling to acquire literacy.

Following project training, SENCOs (Special Educational Needs Co- coordinator - the professional within the school responsible for managing the delivery of ASN support) used specially developed screeners to identify potential risk of dyslexia in 462 bilingual children from years 4-6 (aged 9 to 11) whose literacy was causing concern, and whose 'failure to thrive' was not explained by other factors, e.g. global learning difficulties or emotional and contextual challenges. All had adequate BICS and had attended English schools for a minimum of two years. These 55 schools represented the full range of socio-economic status and comprised both inner city and rural areas. Over 43 first languages were represented. From this group, the project team used screener scores to selected 213 children with the highest risk to participate in the programme.

The intervention programme was delivered by teaching assistants. Teaching assistants work in UK schools to support work, in the classroom and specialist teachers, particularly with children with ASN. Without teaching qualifications, they rely on the teaching professionals for direction. Many develop considerable expertise and skills in working with vulnerable children. The intervention programme was therefore practical, economic and provided support and training for the teaching assistants. In the absence of

studies evaluating interventions for bilingual dyslexic learners, the programme, was based upon the needs of bilingual children acquiring EAL, particularly vocabulary enhancement (e.g Cheung & Slavin, 2006) , the needs of monolingual children with dyslexia (e.g. Brooks 2003; Ott, 2007) and of dyslexic learners acquiring a modern second language (e.g. Schneider, 2009).

Two computer delivered programmes designed to be dyslexia-friendly were adopted:

- Nessy (Net Educational Systems Ltd): games and activities to develop phonological awareness, word patterns and spelling rules;
- Rapid Reading (Pearson Heinemann), a reading scheme for 8 to 12 year olds which encourages discussion of ideas and vocabulary and includes speech recognition software for independent listening and reading practice.

The programme met the requirements emerging from the literature review, being structured, reinforced, cumulative and multi-sensory. It included strategies to improve phonological processing skills (including verbal memory), and processing speed , oral language development and explicit vocabulary teaching, to develop comprehension skills and work with morphemes

Prior to the project, 76 SENCos, 106 TAs and 70 class teachers received two days of training in dyslexia, in EAL, assessment instruments, intervention materials and paired reading strategies. Schools were issued with screening materials and pre and post and follow up intervention assessment instruments - Wide Range Achievement Test (WRAT) 4, British Picture Vocabulary Scale (BPVS), Non-word test (Turner, 1994), York Assessment of Reading Comprehension (YARC) and a free writing test.   A pair of children was allocated to each TA and half hour daily interventions took place for 15 weeks (maximum 75 sessions).

There were two phases. The children's literacy skills were tested three times - pre Phase one, post phase one and at the end of Phase 2 Table A indicates the structure of the intervention.

Table 1. *Structure of the project interventions*

	Group 1 N=105 students	Group 2 N=46 students	Group 3 N=62 students
Pre-testing Sept 2010	√	√	√
Phase 1: 15 weeks between Oct and March	NESSY/RR Intervention (A)	Paired reading (PR) (B)	Control – no intervention (C)
InterimTesting Feb/March 2011	√	√	√
Phase 2: 15 weeks Feb/March to July	No intervention	NESSY/RR (A)	NESSY/RR (A)
Final Testing July 2011	√	√	√

The children were divided into three groups: A undertook the intervention, B undertook a paired reading activity with a trained TA and C comprised a waiting control group without individual support. Paired reading was chosen for the comparison group B. The teaching assistant read simultaneously with the learner from reading material chosen to reflect the child's enthusiasms – (See appendix A).

Phase 2 enabled all the children to undertake the NESSY/RR intervention and investigated the robustness of changes over time.

All data from the pre, post and follow up tests were entered into a PASW database and analysed.

Findings

Phase One:

Analysis ANOVA and paired T tests across the pre and post phase one scores indicated significant progress for all three groups in all the skills tested, with the exception of the control group's progress in single word reading, National Curriculum level in writing (NC), number of words and legibility and all three groups' progress in speed of writing. However, effect sizes for the changes showed both intervention groups A/B outperforming controls across all areas.

Differences emerged between the NESSY/Rapid Reading A and the paired reading B groups. Spelling, phonological decoding and reading accuracy, improved more for group A than for the paired reading children B. However, group B made higher gains in skills associated with reading fluency, silent reading sentence comprehension and oral receptive language alongside comparative gains in single word reading. These were, of course, the activities covered in the paired reading. Surprisingly, however, Group B outperformed the intervention group in writing speed and number of words and gains in NC levels. The paired reading activities involved no writing tasks.

The NESSY/RR intervention has had a specific impact on spelling and phonological decoding compared with the paired reading The paired reading, with the added emphasis on oral vocabulary, comprehension strategies and positive feedback, has shown real value and produced significant gains in all aspects of literacy skills with a perhaps unexpected trade-off for writing skills. The control group had continued to make some progress in all areas of literacy. However, the failure to make significant progress in number of words written or NC levels over this 15 week period is of some concern as is the slow development of the single word reading skills

Phase two:

Analyses of the scores at the three testing points evidenced the continuing success of both the NESSY/RR and the paired reading intervention particularly at the level of word reading/decoding and vocabulary which underpin reading comprehension. The NESSY/RR group's improvements in spelling and free writing tended to level out but the children do not regress completely.

Once the control group completed the NESSY/RR intervention, they made significant gains with WRAT single-word reading and spelling, YARC reading rate and comprehension, vocabulary and non-word reading. However, reading and comprehension gains were marginal in terms of significance, and the gains in YARC reading accuracy/comprehension and writing speed were not significant. The picture here is more mixed.

Overall, gains from Phase One were sustained across the reading skills but remained more fragile in the area of spelling and writing when intervention was discontinued. This is unsurprising as dyslexic difficulties with spelling and writing remain more intransigent than reading skills (Ott, 2007).

Qualitative data

We aimed to explore the impact on all those involved and focused on final responses to the project from teaching assistants, children and parents. Focus group interviews occurred in six schools within varied contexts, minority ethnic populations and range of languages spoken. For example one school population of 175 had a growing numbers with EAL who spoke 18 different languages and came from a wide variety of different countries including Czech Republic, Libya, Syria, Poland, Mozambique and Vietnam. This reflects the increasingly plural UK society with dual heritage families, such as Czech /Italian containing multilingual children. By contrast one school of 164 children with majority of children speaking EAL predominantly contained children who spoke Somali and Arabic as their main languages. Again this reflects our experience that children were frequently multilingual rather than bilingual.

The data were collected thorough interviews and focus groups at the end of the project. The four themes for all these discussions were:

1. Pleasure and enjoyment
2. The materials used
3. Progress and learning
4. Being bilingual

Findings

Data was gathered from five TAs who had taught the children and attended at focus groups with children and parents. A total of 36 children (22 girls and 14 boys) participated. A total of 18 parents (11 mothers and 7 fathers) attended the focus groups. These focus groups offered a view on the intervention programmes; which suggests, some influences beyond the school and professionals involved.

Summary of key points

The Children

1. Pleasure and enjoyment
Almost all children had enjoyed participating; they enjoyed their time out of class and valued the time spent reading with TAs.

2: The materials
Despite two and four months having elapsed since the intervention, children recalled surprising detail and spoke enthusiastically about Rapid Reading and Nessy. Individual children were clear about their differing interests and preferences for different books, aspects of the programme and games. Their negative comments about the materials were confined to frustrations around computer failures with both Nessy and the Rapid Reading Assistant.

Children know what they are interested in and like. Using materials that speak to children's interests is an important incentive for engagement in learning. Children were also able to say how their relationship with TAs had worked. Developing a close working relationship with a trusted adult was an important dimension of the intervention programme.

3: Progress and Learning
Although children said that their reading and spelling had improved progress was rated in terms of moving through spelling and reading levels. Children commented on:

- Getting their spellings right
- Reading more at home
- Reading faster
- No longer needing to sound out words.

Intonation, expression and a lack of confidence had been an issue for many children at the start of the project. Growth in confidence indicates the crucial role of emotion in learning. However, few children showed metacognitive awareness of specific reading skills, strategies and improvement in comprehension. Being able to talk about strengths and weaknesses is an important development, which aids children in taking control of their learning.

4 Languages and Bilingualism

Children talked enthusiastically about languages and being bilingual. The focus group saw them discussing together the range of languages spoken within the group. The main points were:

- Many children were multilingual sometimes speaking up to 4 languages Beyond English the additional languages used were linked to where they had lived in the past or close relatives. For example, Somali children, who often arrived in UK via Italy or Holland listed, Somali, Dutch or Italian and Arabic as languages they spoke, read or wrote. Children made strategic choices about which languages to use in different contexts
- Children saw the importance of keeping connections to wider family and friends and hence the value of continuing to speak read and write in languages of home.
- Children were comfortable, knowledgeable and interested in language and languages. For example children would discuss differences in spelling in different languages and different scripts. Children discussed different modes of language use such as speaking, reading and writing and seemed to be aware of how good they were in each.
- In some schools children indicated that they felt they were 'not allowed' to speak languages other than English unless there was a new non-English speaking child in the school that they could help.

Many of these children are knowledgeable global citizens with family connections that spread across the world. At times it was apparent that this was a rare opportunity for them to discuss with each other and display their knowledge. What had been created here was a third space where funds of knowledge from space 1 were being drawn into space 2. Yet at the same time it was clear that the official discourse of school was dominant and there was little chance for a third space to evolve in ways that would have supported children's cognitive and emotional dimensions.

This is surprising given what is known about the extent to which languages support each other and the extent of the knowledge and interest children displayed in each other's languages.

Summary of Key points from Parents

Schools varied in the number of parents who came to the focus groups. In one school the focus groups were divided into a fathers' group and mothers' group. The focus groups had been organised around the same 4 themes.

1: Their children's reading and spelling

Many parents indicated that they felt their child had struggled prior to the start of the project. Parents indicated that they had noticed: differences in comparison with other children in the family or not being able to read what friends could; difficulties in more than one language; writing well in Arabic but not reading well; slowness in reading speed. Not all parents pinpointed specific reasons for their child's struggles however one reason was the difficulties of English language, especially spelling stating:

> even for English kids it's not easy to spell straight away.

2: Had they observed any differences in their children's reading over the timescale of intervention?

Parents agreed that the intervention programme had helped their child and were happy with the extra support. Although not often very specific, the main improvement noticed was children's increased confidence in reading, noticed in the child being more willing to read or write at home, choosing to read and reading more books, reading more quickly and with enthusiasm.

> In one school parents stressed how their children's spelling had improved and how they now made fewer spelling mistakes.

3: Knowledge and understanding of dyslexia and of children's progress

Although parents had general questions about the school and intervention project they didn't ask specifically about dyslexia. However, comments made by parents raised issues over communication, questioning how much they really knew about how their child was progressing or the level they were achieving in school:

> I see he's writing good and reading not bad. But I don't know if that's enough for his age or not?

There were also indications of confusion over information given to parents by schools.

> On the one hand the school had said my child was reading well but then they were included in the programme.

4: View of the importance of literacy in home, of language and of religion

This was an important focus for discussion in many of the schools, especially those that were linguistically diverse. What became apparent was:

- Some children speak, read, write more languages at home than schools had indicated;
- Parents appreciated the value of learning more than one language early in life 'because they never forget', the importance of children learning English quickly in order to feel socially included.
- Families with strong community connections and contacts in locality or outside UK, either in country of origin or with family living elsewhere in the world, tended to stress the importance of maintaining home languages;
- Families were sometimes making strategic decisions about which language/s would be most beneficial to concentrate on. For example in multilingual families choosing to concentrate on European languages (Portuguese and English) rather than an oral African language;

One parent discussed the dilemma of wanting your children to be proficient in English in order to succeed in the future but wishing them also to grow up with the advantages of being bilingual for both career flexibility but also identity. At the same time growing up proficient in both languages is hard when they spend most of their waking hours in school speaking only English and to succeed they have to be better at English than English people.

In some linguistically diverse schools, parents were coming in to speak to children about language, religion and culture. There was talk of a general recognition of diversity but this was not necessarily embedded within day-to-day working with the school.

Overwhelmingly parents showed concern for how their children were progressing in school. They indicated that the intervention had benefitted their children. However, there was a definite gap in a more precise knowledge of the progress that had been made by individual children over the course of the programme. There was very little indication from these parents of active involvement within the school environment or to any sense of

how schools and parents worked together, to develop a thriving 3rd space to enhance children's literacy across languages. There was a sense that there was a focus, perhaps in developing paired reading with parents, where a thriving 3rd space might be developed.

There are complex issues surrounding multi-literacies (Baker 2006), as parents place value on different types of literacies such as learning to read the Qu'ran. At the same time parents are making strategic decisions about which languages to maintain and to what extent they will encourage their children to learn to read and write in home languages. However, the underlying messages indicate that there is a gap, with parents wanting their children to be very good at speaking, reading and writing in English and the capacity schools have for supporting children and families in ways that may enhance their knowledge of languages.

Teaching Assistants

The interviews were held with 5 TAs who had taught the children and been present at the focus groups with children and parents. These interviews were analysed using the same key themes as in the children's focus groups.

1 Pleasure and Enjoyment
Overall TAs were positive about their involvement in the project. TAs spoke about:

- Being enthusiastic about working with the children and how daily sessions had helped them build strong relationships with most children
- How they had developed knowledge of bilingualism and dyslexia and skills as a result of the training and daily work with children
- Learning more about the children and their families through participating in the focus groups.

There were times when TAs felt that the school undervalued their increased skills and knowledge or used their time allocated to the project for other unrelated activities.

2: The materials used
Management of the sessions was one major area of comment. In particular TAs felt they needed more time to become familiar with programmes as once

the routine was established the sessions worked well. TAs indicated that Rapid Reading was an easy to use carefully graded scheme and this had supported their confidence in implementing the programme. The books were enjoyable to read with the children and it was possible to be flexible about which section, fiction or fact, was read first. Views of the computerized Reading Assistant were more mixed. They felt it supported children's confidence in reading aloud and pronunciation of new vocabulary. However, there were difficulties with the recognition of children's accents and children didn't find it easy to work independently. TAs indicated that the NESSY games were an incentive for practicing spelling but there were reservations as to how effectively games reflected spelling mastery.

TAs indicated that the training and materials would be useful to the school in the future. They looked forward to continuing to use the materials as they felt that children had grown in confidence and made progress. TAs felt that their personal preferences such as, enjoyment of reading with books had influenced how children responded to different aspects of the intervention programme.

Challenging and enjoyable materials combined with building strong relationships are important factors in an intervention.

3. Progress and Learning

TAs talked about children's struggles with reading comprehension. Additional time on activities around the texts, asking comprehension questions, retelling of stories and information, inference and deduction was important for vocabulary enrichment.

The interesting, challenging non-fiction content motivated children. Some came into RR at the highest level but, whilst they could decode these texts, the challenging content enriched comprehension.

For many children, the biggest gain noted was growth in confidence and reinvigorated interest in reading. Two TAs talked about children who had scarcely or never spoke in English in school starting to join in.

TAs did not talk in detail about specific aspects of children's progress in reading, confining their comments predominately to increases in confidence and enjoyment. The daily records for the schools were often brief and contained few details about specific areas of for example phonics or vocabulary that individual children struggled with.

A TA in one school had concerns about the mismatch between progress in learning and progress in literacy, even when a child had been in school for some time. They were concerned about whether other signs were indicative of potential SpLD such as evidence of poor literacy skills in L1; forgetfulness, disorganisation and frustration at progress

The indications were that TAs' qualifications and prior experience were related to understanding what was required and how to analyse children's progress. Training and follow up support for TAs seems to be crucial.

Discussion

The most beneficial strategy for dyslexic learners is direct, systematic, multi-sensory instruction (Ott, 2007: Moats & Farrell, 2005; Brooks, 2008). This applies equally to the rule systems of a second language (Sparks & Miller, 2000). The impact of the structured multi-sensory programme delivered via NESSY and Rapid Reading confirms the effectiveness of this type of individual support for bilingual learners. The strength of the impact of the paired reading (Boyle & Topping, 2012) confirms its relevance for children with EAL and its practicality for this group, with the added bonus that this is a cheap strategy that can be taught to anyone who might like to read with a learner in Language 1 or 2, either within the school or home context.

The qualitative elements of the research offered an insight into the way participants were thinking and learning. The discussions with children, parents and TAs raised many issues, over and above a shared sense that all had benefited their involvement in the project, both in terms of enjoyment of the process and the materials. That, despite challenges in managing activities and using the software, there was an impetus to repeat similar interventions in the future. The importance of revisiting learning and of consistent practice in learning to read is highlighted along with the opportunity to talk and develop language and confidence for reading outside the classroom. There were questions about communication, between parents and schools, between the different 'silos' of literacy support and bilingual learning and a sense that different parties view L1 and L2 in different ways, especially children and parents. Varying indicators of the extent to which L1 is kept active within schools and contributes to the creation of an additive environment were evident. The responses also raise many questions about the role and status of TAs and

about their levels of knowledge and depth of training which echoes the findings of the recommendations of the Blatchford (2009) report that TAs must be trained if they are to offer effective support .

Challenges

The difficulty of identifying risk of SpLD/ dyslexia in children with EAL remains. The cognitive and psycholinguistic approaches predominantly taken for assessing SpLD/dyslexia underemphasise socio-cultural issues around cultural differences as well as linguistic difficulties (Rogoff, 2005). A culture-fair assessment must privilege the emotional and social significance of the culture of the learner and his or her community (Sternberg, 2000) and take into account the child's story, proficiency in L1 and English, the orthography of the child's first language and his level of literacy in this language. It must also find ways to develop understanding of the additive context for bilingualism in schools and for communication between schools, families and the cultures from which all their members come. Practical difficulties emerged around all these areas. Hence the findings confirms the need for caution in attaching labels to children with EAL whose literacy fails to thrive, in suggesting that they have deficits in their learning or that their less well developed English skills explain any delay. It also argues for prompt adoption of appropriate multi-sensory intervention to enrich their language experience, rather than waiting for a label to be assigned. This uncertainty over identification or SpLD/dyslexia risk also complicates the sourcing of research participants for purely quantitative empirical studies.

Recommendations

The following practical pedagogical recommendations emerge:

- a half hour daily carefully structured intervention programme following the design of the project intervention and involving a trained TA and two children over a period of 15 weeks can boost both reading and spelling/writing skills effectively. These improvements can be sustainable but children will need further re-

inforcement and individualized monitoring of spelling to main-
tain and automatize spelling gains;

- use of enriched paired reading in L1 (or L2) with a proficient bi-
lingual partner, peer or adult is highly recommended;
- Build up vocabulary in both languages to overcome poor word
knowledge (L1 impact on L2
- ICT programmes with a strong element of fun and interest such
as Nessy and RR were endorsed by the bilingual children – with
reliable software;
- Focus on listening and reading comprehension strategies.   In-
clude explicit higher order comprehension strategies alongside
enrichment of vocabulary systematically linked to the literacy in-
tervention or contextualised. Emphasise building confidence in
use of language and expression;
- Develop knowledge of the children's stories, knowledge of lan-
guages and literacies and ensure these enhance the teaching of
literacy in English;
- Exercise caution over the need for a label or identification of risk
of dyslexia in this group and start intervention as soon as possi-
ble. Findings suggested that years 4 to 6 seemed optimum for this
particular type.

Recognise the value of the relationship built with a significant adult.

Recommendations for the Whole School context

Benefits from the project were most marked in contexts where a member of
the senior management team was highly committed both to the project and
to making the most effective use of their TA team

Schools need:
- systems to build communication between separate silos of in-
school expertise and between school and home;
- an individual with specific responsibility for supporting bilingual
learners in each school and training and mentoring TAs;
- specific training courses for teaching/monitoring and assessing
EAL;

- to acknowledge the value of focusing upon a child for a short and intensive period of time. Experience of this type of focused intervention also enhances the expertise and confidence of TAs and could comprise one element of experiential training;
- to resolve issues and sensitivities around the role and status of TAs within schools to enable expertise arising from this type of project to enhance the support offered beyond the project;
- to recruit TAs with knowledge of the languages of the local communities;
- To explore the role of communities of practice for TAs to bring TAs with varying ranges of skills/ knowledge of languages from different schools together to enhance training and sharing of expertise.

Conclusion – learning from each other

This project took place in the real world of school where the diversity of contexts required complex responses to the emerging data and findings. The full report (Mortimore et al 2012) provides detailed responses to these issues. However, the decision to adopt a mixed methodology approach which rejected notions of opposition between qualitative and quantitative research opened the door to a dialogue about what works and why. Our findings back previous research (Brooks, 2003) suggesting that short- term, daily, focused interventions, delivered by trained TAs should be a priority for at risk bilingual learners. It suggests that first responses to the identification of literacy difficulties should be holistic in acknowledging the child's full story and endeavoring to create links between home and school. Through the research it became increasingly apparent that the less measurable dimensions of learning, emotion and environment play a key role in developing appropriate responses to literacy difficulties. Including the voices of children, parents and TAs taught us this. The notion of a 3rd space and especially the discussions with children and parents about bilingualism led us into questioning how future interventions could develop in a 3rd space. One straightforward development would be paired reading which included parents or older children in a variety of languages.

The mixed methodology approach enriched our understanding of both the quantitative and qualitative elements of the research. It gave us a unique snapshot of the multilingual world of children in the schools involved which informed our recommendations. Importantly it also enriched our understanding as researchers for the future.

We explored a fundamental aspect of inclusion – how we respond to, respect and learn from each other's views of the world.

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The Need for a more Dynamic and Ecological Assessment of Children Experiencing Barriers to Learning to move towards Inclusive Education: a Summary of Results of the Daffodil Project

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Abstract

Although governments have recognized the need to make education more accessible to children with developmental disabilities and/or learning diffi-culties, many children remain excluded from participation in regular school settings, let alone receive adequate education. Though every country which ratified the United Nations (UN) 2006 Convention on the Rights of People with Disability has committed itself to inclusive education, there are many obstacles. One of them is the currently preferred way of assessing children with standardized, psychometric diagnostic tests with a classifying purpose. This type of assessment, based on a medical impairment model and a static model of intelligence, results in reports which are sometimes not very useful for educational advice.

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This paper reports an overview of the results of the DAFFODIL project (Dynamic Assessment of Functioning and Oriented at Development and Inclusive Learning), created by a consortium of eight European partners in order to research more inclusive alternatives and suggest reforms to assessment and coaching procedures. It starts with a critical review of current assessment practices; then it presents criteria for good practices for assessing children with additional educational needs in a more dynamic, inclusion-oriented and contextual way. A Delphi procedure was used by 150 professionals and parents to develop a consensus for guidelines for assessment procedures oriented at mapping functional difficulties, context, interaction and possibilities for learning, with the objective to understanding learning processes, to develop more inclusive, challenging and suitable educational programmes and more useful recommendations for teachers, parents and rehabilitation staff.

Background

Since the 2006 United Nations' Convention on the Rights of People with Disability grants every child the right to be and to study in a regular school environment, and compels governments to remove obstacles against inclusive education, many European countries have changed their legislation and practice. Despite longstanding or more recent incentives, many children remain either excluded from adequate educational opportunities or are being raised in separate educational environments (EADSNE, 2008a). The number of children being labelled as having "Special Educational Needs (SEN)" is increasing. In particular, children from ethnic minorities or less favourable socio-economic circumstances are at risk of underachieving and falling out of the educational system early. The Organisation for Economic Cooperation & Development stated that one in five children has serious difficulties with reading, writing and mathematics in primary school (OECD, 2012). In 2003, Finland – the country with the world's best academic achievements for all children, including the socio-economically deprived - reported that 17% children had special education needs. This was reduced to 7.96%, in 2007/8

when a narrower definition of SEN was adopted (European Agency for Development in Special Needs Education, 2003, 2008a). Using a broad definition of special needs – children who need additional support to obtain minimal academic achievements – a study in Belgium found that about 20% of primary school age children have additional educational needs (Lebeer et al, 2010), much more than the 5% of children officially diagnosed with a disability and/or specific learning disturbance.

One of the barriers to inclusive education is created by the way children, who present some kind of learning or developmental problem, are assessed prior to and during their schooling. In many countries where inclusive education is not yet a right or not common practice (e.g. Belgium, Romania, Hungary, the Netherlands), access to regular schooling still depends on sufficiently high results on cognitive, behavioural, language and achievement tests. In countries where inclusive education is a right (e.g. Norway, Sweden, Italy, Portugal, France and the United Kingdom (UK), traditional assessment may contribute to educational underachievement, when low scorers, given a diagnostic label, carry an assumption of low potential, entailing a risk of creating low educational expectations, a self-fulfilling prophecy or a Pygmalion effect (Rosenthal & Jacobson, 1968). The question is: is there a problem with the tests, with their interpretation, their subsequent expectations and recommendations or with the way in which the intervention is organized, i.e., the link between assessment and intervention?

The issue of functional and learning assessment became the core theme of a European Life-Long Learning project called DAFFODIL , an acronym for Dynamic Assessment of Functioning Oriented at Development and Inclusive Learning. The project was a consortium of eight partner institutions (universities, an educational board and two training centres) in six European countries (Belgium, Norway, Sweden, Hungary, Romania, Portugal) and the British Virgin Islands, a UK Overseas Territory.

The first part dealt with the exploration of the strengths and weaknesses of current assessment practice and coaching procedures in relation to exclusive or inclusive education. The next part explored alternatives which tried to respond to these findings. We wanted to find innovative models of good practice in functional, dynamic and contextual assessment and coaching of children and their environments (schools, families) which would lead to more adequate Individual Educational Programming (IEP), maximally facilitating development and learning in an inclusive setting. Our central question

was: How to assess a child's functioning in a way that does not harm his/her future, gives him/her optimal chances of learning, takes into account difficulties as well as strengths and potential, while at the same time assessing and coaching the school towards accommodating and teaching all children, including the ones with difficulties?

Problematic issues in the assessment of children with educational difficulties

Assessment takes an important part in the life of a child who does not have a "typical" development. On many occasions a child is evaluated and important decisions are made based on assessment results. Assessment may have effects on different levels. There are financial implications such as increased family allowances for children with disability; personal assistance budget; access to health-insurance and speech and physiotherapy services. Assessment results may determine what kind of educational opportunities a child may or may not get and where the child will be educated: a special or a regular school; the level of special educational needs programme; access to different types of schooling; access to university; and job opportunities.

Using test batteries is the standard procedure when a child does not perform as expected. In 2001, a study done in school diagnostic centres in Europe showed that psychologists regularly used standardized psychometric test batteries to determine special needs requirements (Muñiz et al., 2001). In most countries, official institutions (education, health, work, welfare) require results on standardized psychometric tests.

In 2010, a study in Sweden, Portugal, Hungary, Belgium, Romania, Norway and the Virgin Islands (Lebeer et al, 2011) showed that of the "top 10" of the most widely used test batteries in the evaluation of pupils, the Wechsler scales are still number one for assessing intelligence, far exceeding all the others. Standardized developmental scales are also universally used.

Labelling children as having a disability may carry the advantage of obtaining a benefit (recognition, money, assistance, a placement) from a public authority or school. Similarly, parents and teachers are satisfied when assessment is thorough and comprehensive, when it gives them cues to understand a child's functional impairments, and in some cases thus de-blames them of pedagogical mischief. This may be one of the reasons for the blooming diagnoses of children with social-behavioural difficulties such as autistic

spectrum disorder, ADHD, developmental coordination disorder (DCD – formerly known as "dyspraxia") or specific learning disabilities (dyslexia, dyscalculia). Standardized psychometric tests may then have their utility when the need is to "objectify" a diagnosis, and place the child's performance on a comparison scale. This is called the "classifying diagnosis" objective of testing.

On the other hand, when the purpose of evaluation is to design educational or therapeutic intervention plans or to assign a child to a special or a regular school, the same test results often have an opposite effect. Parents and teachers complained that test results merely give them a list of deficiencies, mapped on percentiles, what the child is not able to do as compared to its peers. Test reports hardly give any cues on how to understand the child's problems, how to work with a child, what the child may be able to do, or what the real needs are. Sometimes it leads to wrong placements, low-profile programming, and parental depression. Negative effects on parents have been similarly reported in earlier studies (Gowen et al., 1989; Olsson & Hwang, 2001)

When the question is how pupils with impairment may participate in a regular school, often crucial aspects are missing in classic reports:

A) Child-oriented

- A qualitative description of how a pupil learns: what modalities, preferences, motivations
- A list of the pupil's strengths (talents)
- What is the pupil interested in?
- What elements in the personality of the pupil and his/her situation constitute barriers, or are possibly positive elements?

B) Teaching and learning-oriented

- How modifiable is the pupil, i.e. is the pupil able to show new behaviours when I try to teach him something?
- What do I (the teacher) have to do in order to make the pupil learn?
- What is the pupil's response to teaching?
- What are the child's functional impairments in relation to school learning: what activities are difficult and why?
- What are the pupil's real needs in order to be able to perform an activity or to participate?

- What technical equipment could make activity and participation possible?

C) Environment-oriented

What is the pupil's environment: family background, school background, peers, support staff, how do they behave?

- What other resources could be found?
- How welcoming is the child's environment?
- What elements in the environment (pedagogical, physical, psychological, people, lack of equipment, etc.) can enhance, or become barriers in learning and participation?

Rather than asking for validity in predicting dysfunction and learning problems we should ask for validity in determining educational needs.

Therefore, it is not so much the testing itself per se which constitutes the centre of the debate, but the place of testing in the whole of a comprehensive assessment and the way test results are used and interpreted.

Criticisms have been formulated against standardized psychometric test practices for more than 100 years, almost since their coming into existence: they hardly give information about learning processes or learning potential; they are based on a static, immutable, nativistic (genetic) concept of intelligence as if this were a characteristic of a person's biology; they disadvantage lower-functioning children, especially those coming from a lower socio-economic level. In summary, their static interpretation leads to a deprivation of adequate educational programming and cognitive stimulation (Dias, 2001; Feuerstein et al, 1981, 2002; Haywood & Lidz, 2007; Nisbett, 2009). During the past century, this static "testing paradigm" has become culturally dominant: it penetrates all aspects of society.

This medical- biological, individualistic, impairment-based view on functioning is far from the cultural model of disability, which underpins the UN Convention of the Rights of People with Disability, the ICF (International Classification of Functioning, Disability and Health) model of disability of the WHO and the Inclusive Education movement as is being advocated by associations of people with disability. The social model of disability sees the degree of disability as a result of complex interactions between a child's bodily or functional impairments and the barriers to learning and functioning which exist in the external world. Barriers can be attitudes, physical, norms,

rules, habits or personal circumstances. However, few traces of this thinking can be found in the testing paradigm. In giving primordial importance to testing as a source of information, professional diagnosticians seem to be hardly concerned with a child's social and learning context. In the mentioned Daffodil survey, very little use was made of instruments looking at contextual aspects of functioning, such as family and school.

Although a number of rating scales have emerged, rating behaviour and involving observations by family and school staff (Merrell, 2008), their use in educational settings may be problematic. Since many of them are intended for labelling and diagnosis rather than designed to identify qualitative dimensions of the individual child's learning and functioning, they consequently contribute to instruction aiming at the specific child.

New forms of assessment are needed which look at a child "with a different glance," aiming to understand a child's functioning in a dynamic and interactive way, how to improve his/her functioning, learning and participation and what might be hindering participation. Assessment should also be directed at evaluating school context: how a teacher/ school could contribute better towards accommodating and teaching all children, including the ones with difficulties. The objective of assessment should be to adequately plan and monitor a challenging educational intervention, allowing the child to be maximally included. This requires a mind-shift and a change of practice by psychologists, doctors and others involved in assessment

Methods

During 2009-2010 an international project group consisting of 36 psychologists, teachers, doctors, rehabilitation professionals and parents from the Daffodil partner countries, were involved in constructing guidelines for such a dynamic, contextual and functional assessment. To gain constructive and external validity, we followed a qualitative Delphi method. First we agreed on basic criteria for models of good practice and looked at their evidence base. Then we made a long-list of guidelines. The guidelines were then amended in local focus groups in Belgium, Sweden and Portugal (N=70) and reduced to a shortlist of 15 principles. In a third phase, they were discussed in extended focus groups by participants from 12 EU countries at the International Sum-

mer School in Evora, Portugal (N=68). They were finalised and submitted again in the local feedback groups until a final consensus was reached.

Results

Criteria for good practice in dynamic functional inclusive assessment

Good practice in assessment depends on basic assumptions and objectives. Why do we assess? We agreed on the following criteria:

1. Aim: assessment goals should be clear and shared by all parties concerned
2. Principles of assessment
   2.1 Interactive, taking the pupil's personality in full account
   2.2 Adapted in function of the particularities of the pupil
   2.3 Look for strengths
   2.4 Map functional impairments, in relation to restrictions in executing activities and participating in group activities (school activities and other activities)
   2.5 Dynamic and flexible in function of the pupil's needs
   2.6 Look for hidden potential, try to look for how the pupil reacts to attempts to teach new concepts and behaviours
   2.7 Take a reasonable amount of time, in order to be able to look at change
   2.8 Make a difference between performance achieved without and with some kind of support. Every support (in whatever form; people, technical, etc.) should be allowed to be used in order to achieve a certain performance or execute a certain activity. The kind and amount of support needed to reach an objective is important information and should be part of a report.
   2.9 Care should be taken to formulate interpretations regarding future functioning
   2.10 Communicate assessment to all parties concerned

3. Sources and kind of information
    3.1 Information about a pupils' functioning should come from all sources in the child's environment, e.g. family, school, community
    3.2 Aspects in the environment (physical, technical, relational and attitudinal), which may constitute a barrier to participation
    3.3 Aspects in the environment which may facilitate participation
    3.4 What kind of learning modalities and materials are beneficial
    3.5 Linked to the curriculum; the relationship should be made clear
    3.6 Possible technical equipment which could allow better participation
4. Recommendations
    4.1 Should be formulated in a positive way
    4.2 Are an integral part of assessment; they should be detailed enough to be of practical use to the pupil and his environment
    4.3 Assessment should be closely linked to a plan.

Given the great number of important criteria identified regarding good practice, the guidelines cover a number of conceptual areas. Table 1 gives a list of possible guidelines.

Table 1. *List of guidelines for a dynamic, functional, contextual assessment*

What?	How does this show, examples?	Why can it be important?
GENERAL GUIDELINES		
1. Adopt an inter-professional perspective	• The assessor shows curiosity in and respect for the plurality of views, ideas from different actors. • Strive for creating a collaborative network to help the pupil	• Assessment is teamwork. Barriers to learning may originate in the behaviour/attitudes of people involved in teaching and learning. There can be barriers between different professions/paradigms that need to be overcome.
2. Adopt an interactional perspective	• The assessor looks at a pupil's functioning in relation to other people & contexts involved in the pupil's learning (teacher, parents, peers, in relation to materials, curriculum, system, environment, etc.)	• A pupil's learning is not merely determined by the brain's functioning, but by a multitude of complex interactions
3. Be aware of values and concepts regarding assessment and inclusion	• The assessor reflects upon his/her values and concepts regarding inclusion, assessment and children with special needs • The assessor takes part in research, policies regarding inclusion of children with special needs. Evaluates his/her work. • The assessor works according to guidelines for assessment from the International Association for Psychologist's Test Commission	• The concept of inclusion and children with special needs is constantly debated; the assessor needs to have conscious definitions and stand-points.

INITIAL PHASE OF ASSESSMENT

4. Identify key people

- The assessor identifies and addresses key people and forums in the school organisation
- Explores the organisational structure before starting the assessment
- Contact the key people who have direct information about the child: teachers, parents, principal, psychologist, therapists, doctors, etc.

- To make assessment effective, people with authority and crucial influence on the pupil and the learning context have to be reached,

5. Construct the assessment as a learning opportunity

- The assessor initiates meetings before, during and after the assessment. Invites questions and hypotheses, fosters a reflective tone.
- The assessor dialogues with pupils, parents and teachers on the purpose of assessment, which is to find out about functioning and learning; find out about strengths and difficulties, possibilities and change.
- The assessor also explains that he is there to help finding ways for better learning
- The assessor explains that he is not only there to help the child but also the teacher
- The assessment takes place on different occasions

- To counteract expectations of quick answers/ diagnoses/ reports, i.e. product-orientation.
- To obtain a pupil's and a teacher's motivation and full cooperation to enrol in the assessment process, while at the same time overcoming possible negative experiences in past testing procedures
- The assessment can be a dual process; one can assess the child to help him overcome his learning problems; but one can also assess the teacher in order to help him to interact with the child
- Assessment is not a one time single event, but an observation process over time

| **6. Define common goals & reframe referral questions** | • The assessor, together with pupil, teachers and parents, defines common goals and reframes initial referral questions, before starting the assessment.
• The assessor uses time to discuss and reframe the referral question so that it can be linked to the everyday situation and goal of inclusion.
• The assessor keeps the focus on the pupil's educational needs
• The assessor also looks at the way the teacher interacts with the child
• The assessor is responsible to for trying to create a joint viewpoint between pupil, parents and other actors about the needs for assessment
• The assessor asks for strengths (sources of resilience) in the pupil and his environment and reframes needs in a positive way | • The goal of assessment should be to find out how a pupil can learn and participate in an inclusive environment. If inclusion is not shared as a somewhat desirable goal and the assessment does not contribute to knowledge about the "how to do" in everyday life, the assessment loses impact.
• Systematically looking at strength & resilience already creates a different orientation and creates a positive atmosphere |
| **7. Choose assessment instruments in relation to goals** | • The assessor, together with pupils and parents, choose out of a wide range of instruments, in relation to the assessment goals and referral question: individual and context oriented; does not limit his choice to an individual pupil-oriented test battery. | • Standardized batteries have their place, but only as part of the whole contextual assessment.
• Choosing instruments because of familiarity might not always address the referral questions. |

DURING THE COURSE OF THE ASSESSMENT PROCESS

8. Assess learning in context, strengths and needs

- Start with looking for talents & strengths in different domains of learning and daily life, also outside school
- The assessor explores areas regarding current design of learning context/ environment.
- They also look at hypothetical/future designs of learning contexts.
- They get information on how the pupil functions in the classroom, with his peers and at home
- Organize one or more classroom observations
- Look at the teacher/pupil interaction
- Look for barriers to learning in the person's biological and psychological functioning
- Look for barriers to learning in the pupil's context: family, classroom, environment: physical barriers, absence of technical aids, attitudes
- Look for barriers to learning in the curriculum
- Look for barriers to learning in the academic achievement evaluation
- Look for needs for technical or environmental aids which could help a pupil to execute an activity and participate
- Look for activities the pupil is doing already, with and without help

- It is important to look not only at areas which do not work well, but for areas that work well, i.e. talents and strengths, in order to help establishing a positive self-esteem.
- A difficulty with learning (regardless of severity) is never only a difficulty of the pupil alone, but interplay between biological, psychological functions and social barriers. To broaden the perspective of learning to include what is done in the learning context.

- Look for areas of motivation, pleasure and sense of competence
- Look for the kind of help (mediation) which is needed, in what kind of activities this is needed
- Map strengths (facilitators of learning) in the pupils' environment
- Map areas that need to be strengthened

- This is important for suggesting measures for support and activation

9. Adopt a perspective on potential and learning possibilities

- If focus is only on diagnosis or current or historical level of functioning, it may not contribute to a deepened understanding of how *this* pupil specifically can be supported.
- Use tools that explore functioning in basic processes with a dynamic understanding, providing understanding of how to develop conditions for future gains for the pupil.
- Assessment and teaching are part of the same process
- Use methods which involve a dynamic teaching (mediation) phase
- Based on the perspective of the plasticity of human brain construction, and cognitive development, in relation to the environment, it is important to adopt tools that can be used in dynamic way
- Adapt teaching flexibly in function of the pupil's differential needs and responses
- Look at changes after teaching
- Looking at the result of tenets of teaching (mediation) gives relevant information about how a pupil can be taught

10. Create a positive collaborative relationship

- Assessor makes an effort to motivate the pupil to collaborate, to overcome anxiety and resistance.
- Pay attention to how teachers/parents/children react during assessment.
- Use his/her sensitivity and intentionality as a tool during the assess-

- Assessment is more a dialogue than a monologue. The usefulness depends on the collaboration of the pupil and his environment. Communicative skills play an important role in managing the process of assessment.

ment process
- Invite actors to give feedback on their experiences of the assessment.
- Adjust goals and communication during the process of assessment.

AT THE END OF ASSESSMENT PROCESS

| **11. Communicate findings in an inclusive, & optimistic way** | • The assessors model through their language, behaviour & attitudes how to approach the pupil in a positive way
• The reports explicitly identify strengths and talents as well as needs.
• The report also mentions strengths and functioning in domains which are not directly related to school-based learning
• Be very cautious in mentioning "dysfunction" labels; when inevitable, always use them in the context of a positive description.
• Communicate the dynamic nature (modifiability) of skills | • The work with children with special needs can easily get stuck in focus on dysfunctions/negativity etc.
• Assessment should lead to assessing needs. A report which only mentions a dysfunction as a conclusion is not to be considered a good report. A good report is mainly oriented at suggesting measures for support and activation |
| **12. Translate standardized measurements and use them in relation to a qualitative description of the child** | • Be very cautious with mentioning IQ results in reports.
• Use quantitative measurements to establish baseline and progress.
• Use standardized tests with caution and always with explanation and in relation to qualitative assessment of potential
• Refrain from mention- | • Measurements have their place, but mainly to understand and to evaluate progress.
• Standardized measurements may serve the purpose of situating a pupil in a whole population. More relevant in an inclusive context is to use standardized measurements to reveal strengths and needs within |

	ing percentiles and relative age comparisons without explanation • Use qualitative descriptions and interpretations to illustrate changes and potential	an individual. • Measurements should be used in a dynamic perspective, to show change.
13. Communicate in plain language and give practical recommendations	• Information should be presented in a language which is understandable both for parents and teachers • "translate" all technical terms in parent-understandable language • Take care to formulate recommendations oriented at improving inclusive education and development • Formulate practical & concrete recommendations relating to everyday dilemmas • Be specific in your recommendations	• In line with the principal purpose of assessment , the end-user (pupil, parents and teachers) should understand what they can do to change and how they can do it

FROM ASSESSMENT TO INCLUSION

14. Connect assessment to an activating and inclusive programme	• The results of assessment should lead to an activating and challenging programme • Include recommendations regarding an adaptive learning environment • Include recommendations leading to more inclusion and participation • The results of assessment should lead to recommendations on e.g.	• Inclusive education means that the school is looking for solutions to meet the needs of every child within the context of a school for all. • Inclusion is more than special, adapted education for children with special needs • Inclusive education is about finding inclusive solutions for children with special needs and typically developing children to learn together • Assessment looking at

	• how to adapt curricu-lum • how to adapt environ-ment • kind and intensity of ex-tra support, human and/or technical • how to adapt materials • how to adapt level of complexity and abstrac-tion level • how to activate cogni-tive functioning • how to mediate • how to involve peers • how to involve commu-nity resources • How to deal with chal-lenging behaviour.	learning possibilities/ po-tential should lead to a more challenging and acti-vating programme
15. Assessment should include formative as-sessment, dealing with curriculum and IEP ob-jectives	• Clarify the pupils learn-ing objectives, whether they are the common curriculum, exceptions from this, or in seldom cases, not related to it. • Say something about the pupil's need in terms of methodology, materi-als and the need for sup-port in terms of time and expertise required to reach the goals.	• To be a part of inclusive education, assessment has to be related to curriculum; what is going on in the school.

Getting started: why do we need assessment?

There may be different purposes why a pupil is assessed:

- To understand how a pupil/ person (with difficulties) functions and learns
- To make an inventory and understand a child's functional diffi-culties & impairments, and its difficulties to execute activities and to participate in classroom and school life
- To understand the conditions under which a pupil functions and learns

- To find out a child's learning potential
- To find out the (special) educational needs of the child
- To have a basis for designing an individualized education plan
- To be able to create a good inclusive learning environment
- To inform people working with a pupil
- Formative evaluation: to be able to formulate advice and design intervention showing how to work with a pupil
- Formative evaluation: to give feedback to the pupil as to his learning process and progress
- Summative evaluation (achievement oriented): to see where the pupil actually stands in his learning process, what he has achieved.
- Normative evaluation (such as in psychometrics): to rank a pupil's performance in a population
- Classification purpose: to classify children in categories for planning educational policy, special needs policies, budgetary purposes
- Utilitarian evaluation: to obtain a benefit (financially, or some kind of protection of dispensation

Not all evaluation methods are suitable for all the above mentioned purposes. The assessor has to be aware why he/she assesses, for what purpose, how he will work, how it will be reported and what will be done with the results. Different methods and systems have to be used when the purpose is objective measurement and comparison, than when the objective is to understand and to plan.

Conceptual systems forming the basis of a more inclusive assessment

When assessing a child, it is important to be aware of the underlying theoretical models. They determine the choice of instruments, interpretation and intervention goals. For example, an educational programme based on IQ, assuming a nativistic model of intelligence, will differ from one based on dynamic interactive assessment, taking modifiability as a postulate.

Therefore, the following conceptual systems may be a good basis for a more inclusive assessment:

- A bio-psycho-social model of disability (more concretely: the ICF-framework (WHO, 2007).
- a contextual vision on learning (Nisbet,2009)
- a dynamic-interactional view on assessment (Feuerstein et al, 2002, Haywood & Lidz, 2007; Pameijer, 2006)
- an inclusive vision (Booth & Ainscow, 2002)
- a social constructive model of disability and development (Fougeyrollas & Beauregard, 2001)
- the modifiability of each individual (Feuerstein et al, 2002)
- cognitive theories of learning (Das, Naglieri & Kirby 1994; Feuerstein et al, 2002; Nyborg, 1993; Vygotsky, 2012)

Assessment methods responding to the criteria of dynamic and contextual functional assessment

We would like to suggest some approaches which respond in a varying degree to the above listed criteria.

Approaches assessing functioning, activities, participation and context

Action-Oriented & Needs-based assessment

The model of Action Oriented & Needs-based Assessment (Pameijer, 2006) was developed in the Netherlands in the nineties, inspired by the policy of 'Together Back to School'. It is based on seven principles: (1) primordial focus on the educational needs of students and support needs of teachers and parents, instead of 'problems' or 'disorders'. The key question is not 'what is the matter with this child?' but 'what are the needs of this child?' (2) a transactional frame of reference; (3) central role of the teacher in changing the conditions in which the child evolves; (4) focus on the strengths, opportunities and constructive aspects; (5) continuous collaboration with teacher, child, parents and other parties; (6) goal-directed recommendations which are achievable and workable; (7) systematic and transparent approach in defining a clear intervention plan, based on evidence-based knowledge, effective at school and class level.

International Classification of Functioning, Disability & Health (ICF - WHO)

In 2001, the World Health Assembly adopted the International Classification of Functioning, Disability and Health (ICF) to be used by all World Health Organisation (WHO) member countries. The ICF does not see disability as a direct consequence of disease as in the International Classification of Diseases (ICD-10). Instead, disability is seen as a complex interaction between (1) structural (anatomical) and functional changes, (2) impairments in executing activities, (3) restriction in participation, (4) external factors - barriers or facilitators in the environment of the individual, which may be of a (bio)technical, physical, attitudinal, cultural, economic or social nature and (5) personal factors. With the ICF, the individual's functioning can be mapped in these five components and intervention can be taken accordingly. Each component is divided into chapters. There can be an evaluation in the first, second and third level of depth. For each item (category) qualifiers can be tagged indicating degree or severity. The ICF has been introduced in Portugal on a national basis as a standard to assess children with special needs (Candeias et al, 2011).

Approaches assessing underlying learning processes and modifiability

Dynamic Assessment

Dynamic Assessment (DA) is defined as "an interactive approach to conducting assessments within the domains of psychology, speech/language, or education that focuses on the ability of the learner to respond to intervention" (Haywood & Lidz, 2007, p.1). DA designates a heterogenic group of approaches, which have in common assessed responses to learning (Sternberg & Grigorenko, 2002). The principle is based on the socio-constructive theory of intelligence and the concept of the "zone of proximal development" developed by Vygotsky (1938; 2012). Feuerstein (1979; 1985; 2000) can be regarded as one the pioneers in the development of dynamic assessment. The LPAD battery was created by Feuerstein et al. during the 1950s under the name of "Learning Potential Assessment Device", as a response to a growing frustration in using psychometric testing for disadvantaged children. It has since become a source of inspiration for the development of other dynamic assessment approaches (Haywood & Lidz, 2007; Tzuriel, 2001).

Das-Naglieri Cognitive Assessment System

The Cognitive Assessment System (CAS) has been developed by Das and Naglieri (1997) based on their Planning, Attention, Simultaneous, and Successive processing (PASS) theory of intelligence which in turn is based on Luria's neuropsychology. The PASS abilities are operationalized using twelve subtests, organized in four scales, corresponding to the four PASS processes. Validity studies demonstrate test fairness across language, culture, family background and other relevant variables. The CAS is a good alternative to the WISC. It also has good psychometric properties, but in contrast with the Wechsler batteries it can be used to understand underlying cognitive functioning and it can be used to measure progress.

Assessment of context

Consultation model. Consulting with a systemic/contextual approach

The research and methodology of consultation addresses learning and change processes that are going on when professionals as well as parents meet and focus on a dilemma. In Sweden and in an international context, consultation is applied in a number of professional fields and with different theoretical frameworks (Lambert, Hylander, & Sandoval, 2004). Through inferential interviewing, descriptions and hypotheses made by teachers and parents are explored. Questioning, reflections, observations, inferences and changing and evolving hypotheses can be understood in terms of processes involving thought, language, concept formation and development of mental representations. The process of change in thinking may be fostered by highlighting areas and situations that may not have been considered earlier or may have been neglected. In the consultation model one way of understanding a situation is reframed to another way of understanding the same situation or dilemma (Hylander, 2000). How the referral question is formulated leads to different focuses in assessment, and consequently different choices of assessment tools and interventions (Partanen, 2011).

Index for Inclusion

The Index for Inclusion (Booth & Ainscow, 2002; 2011) is a reflective counselling tool for coaching schools and teachers, helping them in the transformation process in becoming a really inclusive school. It covers aspects on how to create an inclusive culture, policies and practices, involving

teachers, school team, policy makers, parents, children and the local community. The index helps to explore the experiences of the teachers in two ways: what elements can we detect in the teachers' story as 'inclusive' (appreciation) and what opportunities we can find to work more inclusively tomorrow (challenge).

Inclusive coaching

Inclusive coaching can be defined as support for teachers (or other professionals) in dealing with diversity in the broadest sense. By coaching teachers to eliminate barriers and adapt the educational environment so that everybody can learn and participate, they can realize that changing to an inclusive perspective brings new possibilities and resources. It energises the teacher and puts him or her back in control of the situation that he or she is experiencing. It is about giving inclusive language and tools. Coaching can rescue education from the 'tyranny of the technical' by unlocking the possibility to think radically outside the usual frame of mind. It is not about giving solutions to prescribing how it must be done or about correcting the teacher, which creates dependency on the coach. It does not focus specifically on how to deal with disabled children in the classroom or assessing children with learning difficulties. It aims to help teachers create their own solutions by introducing reflective learning, so they can, in an independent way, become their own and each other's coach. Inclusive coaching is about deconstructing the thinking about the educational practice from within school systems, not to reconstruct and make the same errors, but to break it open and find new ways for dealing with the challenges of reality.

Assessment of learning academic skills

Curriculum-based assessment of reading, mathematics and writing

In a curriculum-based dynamic assessment, two areas curriculum objectives and the cognitive processes involved in learning them, should be considered (Lidz, 1991; Sønnesyn, 2011). While traditional dynamic assessment mainly deals with underlying cognitive processes, this field also comprises academic learning objectives. Lidz & Jepsen (2007) developed a procedure called the Application of Cognitive Functions Scale which has been validated for children aged 3-5 in a number of countries and across different cultures. In evaluating arithmetic or reading in terms of knowledge and skills, on which re-

quired simultaneous and successive processes can be based, dynamic achievement testing is applied in combination with the Cognitive Assessment System (CAS). The design is based on a test-intervention-retest design, applied with a "back and forth" approach between intervention and retest. Several studies showed that cognitive intervention of improving planning processes, resulted in gains in arithmetic, as well (Naglieri & Johnson, 2003, Iseman, 2005).

Portfolio Assessment

Portfolios are systematic collections of work by students with guidance and support of the teachers. They may serve as a basis to analyse the continuity of the learning process in terms of effort and performance improvement. The longitudinal characteristics of portfolios make it possible to follow the learning process step by step. For students with learning disabilities, this represents a considerable advantage to classic achievement tests, which give a momentary static picture on which they usually obtain low scores. The objectives of the student's portfolio may be multiple: to show the student's metacognitive abilities; to increase the student's motivation by allowing them to choose some evidence of their own learning as well as reflect on their own successes and then present it to be viewed by others; to evaluate students in a continuous and dynamic manner (formative assessment); and to allow the teacher to adjust pedagogical interventions along this route (Klenowski et al., 2006).

A proposal for a flow chart

We have tried to conceptualise the assessment process in a flow chart (Figure 1). This has the advantage of giving an overview, but it inevitably has a drawback of reducing complexity. Many of the steps, procedures and processes described are in fact intertwined rather than proceeding in a step-by-step sequence. In fact, a continuously changing spiral or network model would be a better representation. The arrows work in two directions, indicating that assessment gives feedback and modifies the assessor.
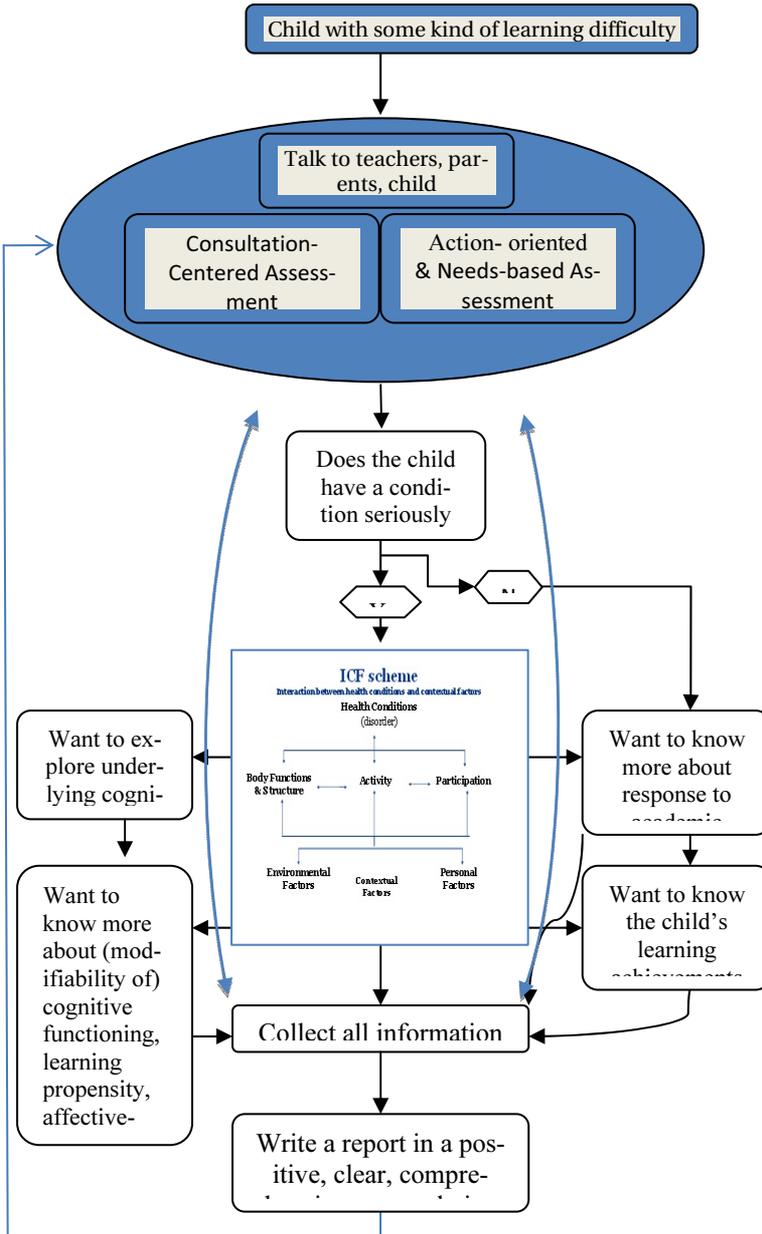
Figure 1. *a suggested flow chart for a more functional, dynamic, contextual and inclusive assessment and coaching of children experiencing barriers to learning*

Discussion

If inclusive education is to be implemented, a new assessment paradigm is needed, whose key-words are: action-oriented, needs-based, dynamic, process-oriented, functional and contextual. This needs a new thinking and practice.

The suggested approaches and methods are by no means exhaustive. Many other methods could be eligible to respond to the new criteria. Guidelines serve as possible inspiration for policy-makers at different levels in the educational systems, from national, regional to local levels. For example, at municipal and regional centres dealing with educational issues and assessment, the guidelines can be used to develop policies and assessment procedures in a more inclusive direction.

The Daffodil project's use of surveys and focus groups as vehicles for development of new knowledge is an excellent example of how a new assessment paradigm can be implemented and maintained through activities that reach professionals, teachers, parents and their children, who live with the consequences of assessment in their everyday life. All organizations dealing with assessment should continuously evaluate and monitor their assessment procedures and develop them in accordance with the goals stated in the UN 2006 Convention on the Rights of People with Disability, as well as the principles stated by the European Agency for Development in Special Needs Education (2008b). In this way the Daffodil guidelines may serve as an important example and operationalization of how a new assessment paradigm can be developed and documented systematically.

The process of compiling guidelines for inclusive assessment is by no means finished. It is a continuing process of learning. It will be a challenge to show through research how the guidelines and a dynamic, functional assessment procedure, can be transferred to different organisational and national contexts. In order to change current traditional testing practice, it needs to be accepted by the scientific community. This can be done by evaluating it in comparison with a traditional static assessment procedure, eventually showing what the benefits are for children and their optimal learning and development.

One of the reasons for the slowness of the implementation of the new assessment paradigm is that it is time-consuming to do and to learn, as opposed to quickly done standardized testing. More people are involved, obser-

vation is done over time, and learning phases may take longer, in addition to different instruments and modalities. But a comparison between the two approaches should not be done only with criteria of time and money. The longer time investment of action-oriented and dynamic assessment has to be seen in the perspective of actual and future learning. The very process of assessment is a process of learning. In the long run, surely society will gain from having more autonomous, more self-sufficient, higher functioning citizens.

Another reason for the delay in implementation might be that a change of paradigm always meets resistance, as Kuhn (1962) pointed out. There seems to be a "clash of testing cultures": on the one hand, the 19th-20th century "testing paradigm" which is static, deficiency-oriented, individual-oriented, based on a diagnostic medical-model, still holds strongly to its authority and largely dominates the world of educational psychology and medicine as opposed to in comparison to the emerging ecological and dynamic paradigm. Even if many parents and professionals are convinced that they need a different approach than classifying testing, inertia may defer widespread acceptance. In many countries, alternatives to mere classification testing are being tried out. As with all paradigmatic shifts, the risk is that these "innovative" approaches become embedded in the "old paradigm" and just mere tools of distinguishing between "strong and weak learners". There will be no change in practice, if the assessor does not change his mind.

Acknowledgements

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The Contribution of Dynamic Assessment to Promote Inclusive Education and Cognitive Development of Socio-Economically Deprived Children with Learning Disabilities

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Abstract

Dynamic assessment refers to an assessment using an active teaching process of perception, learning, thinking and problem solving. The process is aimed at modifying an individual´s cognitive and affective functioning and observing potential changes in learning patterns within the testing situation. This article elaborates on the promotion of cognitive and affective development in school children whose learning processes were evaluated using the Complex Figure of Rey in a Learning Propensity Assessment Device (LPAD) evaluation, as a way to include rather than exclude children from the educational setting. The dynamic evaluation showed the children´s modifiability in functions such as planning, organizing and short-term memory. The LPAD is based on Feuerstein's theories of structural cognitive modifiability and mediated learning experience, with a constructive view on intelligence. Forty-five children, 7 to 15 years old, were evaluated. In dynamic assessment, there is a teaching phase in which the examiner interferes with the process to produce a mediated "peak" performance. The findings indicated that test outcomes were significantly different ($p \leq 0,005$) after mediating the learning processes and that this kind of assessment enhances certain executive functions, essential for effective learning. The findings demonstrate the benefit that children can obtain from a purposeful learning experience, which strengthens, through quality interactions, functions that appeared deficient.

Keywords

mediated learning experience, learning potential, dynamic assessment

Executive skills such as organization, impulse inhibition, planning and working memory represent key cognitive functions responsible for a human being's ability to adapt to dynamic environments. Historically, children in Chile from socially deprived contexts have presented deficiencies in the development of certain cognitive abilities, as reflected in the very low scores demonstrated in school achievement assessments conducted by various institutions over time (SIMCE, 2010 in MINEDUC 2012). The assessment of cognitive skills using static psychometric evaluations defines these children as having a learning disability, leaving little room for interventions that could improve their performance and orientation to teaching strategies, thus excluding them from certain educational settings. It should be emphasized that the educational orientation central to the Chilean school curriculum considers the human being to be an open and modifiable system, in which intelligence is not a fixed value but a dynamic auto-regulated process, sensitive to the intervention of an efficient mediator (Mineduc, 2013; Prieto & Pérez, 1990).

In this context, the specific type of evaluation defines the way the child will be taught and the potential challenges the educational system will pose to him or her. Improving the assessment of academic achievement has been a recent topic in the education departments of some of the socio-economically deprived municipalities. The present study aims to describe the significant changes obtained when assessing children with learning disabilities in a dynamic evaluation setting, leading to a different view on potential learning outcomes. Unlike static tests, the changes reflected in a dynamic assessment remind teachers of the importance of their role in learning, thus leading to more inclusive opportunities for children with learning disabilities.

Structural Cognitive Modifiability and Mediated Learning Experience

The dynamic assessment procedure used in the present study is based on the theory of Structural Cognitive Modifiability (SCM) developed by Feuerstein, Rand, Hoffman and Miller (1980). Feuerstein conceives of the human being as an open system, receptive to change, whose cognitive structure can be enhanced and modified. SCM becomes an essential characteristic of the human being who responds and adapts to new situations and constantly changing new requirements. It is understood that human beings have the capacity to change the structure of their cognitive functions as a means of adapting to the changing demands of life's situations (Feuerstein, Feuerstein and Rand, 2006). Such a structural cognitive change is not transitory, and it differs from the simple accumulation of experience or maturation. This adap-

tational capacity is manifested in different ways in each individual, as not everyone possesses the same capacity for modifiability; thus, change can vary from one individual to another, depending on the quality of the interaction offered.

The modifiability model focuses on those interactions between a person and his or her environment that are mediated by another person. Mediated Learning Experience (MLE) is defined as a human-environment interaction that has particular characteristics determined through the criteria of MLE. The development of cognitive abilities depends on a number of proximal and distal factors, MLE being the most important of the proximal factors (Feuerstein, Feuerstein and Rand, 2006). Not only human beings but also environments themselves can serve as mediators as long as they offer permanent challenging experiences that require adaptations often reaching beyond the current age or developmental status of the person (Feuerstein, Klein & Tannenbaum, 1994; Lidz, 1991).

Adequate MLE can generate openness to cognitive changes of a structural nature and development of an active learning disposition. In contrast, a lack of adequate MLE may result in delays in the person's cognitive development.

Learning Propensity Assessment Device (LPAD)

This evaluation model aims to explore the learning potential of people and identify the types of educational interactions that favor the emergence and development of skills and learning processes that would not otherwise manifest themselves spontaneously in the subject. That is, rather than identifying weaknesses and what the child cannot autonomously do or accomplish, the model aims to identify, recognize and express the hidden potential everyone has. This potential is only expressed when the individual enters into interaction with another who generates the need to use that potential, previously thought to be non-existent, to fulfill intentionally demanding functions.

LPAD is a method that works on the basis of direct observation of learning processes in a subject performing a task or solving a problem. The evaluator is actively involved in this process, interacting with the child through questions, observations and comments that allow the child's internal process of thinking, as well as the emotional and motivational variables accompanying it, to become visible. Thus, the evaluator can recognize those interactions

that best help the child to reach achievements that he or she is not able to accomplish alone. .

The LPAD and the need for a dynamic assessment approach in general arose from experiences with populations whose functioning was low for a variety of reasons and for whom conventional assessment and regular educational programs were totally inadequate. A significant number of studies have incorporated a mediated learning perspective, and it has been applied to a variety of different populations. A unique feature has been dynamic assessment´s generic relationship to concepts of intelligence and cognition, as well as its application to very pragmatic outcome variables for populations with special needs.

The goal of dynamic assessment is to produce changes of a structural nature, defined by their stability, permanence, flexibility and generalizability or transformational nature over time and across varying conditions of exposure or required levels of performance (Feuerstein, 2002). The tasks are selected to reveal cognitive functions and areas of potential dysfunction and to include potential opportunities to use strategies for change. The changes that emerge from the LPAD administration are described from the perspective of deficient cognitive functions, the nature of the tasks performed and the nature and intensity of mediational interventions required. Changes are viewed as propensities for cognitive development, implying capacities for further growth.

The specific LPAD objectives are the following: (1) To identify those cognitive functions that have developed properly; (2) To identify those cognitive functions which are deficient, insufficient, or in a developmental state; (3) To assess the individual's response to teaching strategies and cognitive principles; (4) To evaluate the type and amount of mediation required to overcome cognitive deficits; (5) To develop awareness of the cognitive processes involved in the individual's performance; and (6) To create in the individual, as well as his environment, a positive awareness of his true potential.

Evaluation of executive functions: short term memory, planning and organization

Executive functions have been defined as processes associating ideas, movements and actions, both simple and those geared to the resolution of complex behaviors (Lezak, 2004). Luria (1964) was the first author who, with-

out coining the term, conceptualized the executive functions by observing a series of disruptions in the ability to lead, motivation, formulation of goals and plans of action as well as self-monitoring of behavior associated with frontal lesions. The term 'executive' can be credited to Muriel Lezak (1982), who defined it as the mental capacity essential to carry out an effective, creative and socially accepted behavior. In turn, Sholberg (1989) considers that executive functions include a number of cognitive processes, such as anticipation, goal-setting, planning, behavior selection, self-regulation, self-monitoring and making use of feedback. Executive functions concern the following components: paying attention, prioritizing, formulating an intention, planning, and executing the plan.

Originally, short-term memory, as opposed to the more stable long-term memory, concerned the capability of retaining temporal information. Both concepts (short- and long-term memory) were related to the idea of a data repository where the information is maintained for a short period of time in a special format while transferring to permanent storage. Following the proposal of Craik (1975), short-term memory was considered to be a superordinate concept that includes working memory. Furthermore, Goldberg (2002) considered it more appropriate to emphasize the active role short term memory plays where the rapid selection of data as useful information allows knowledge to be continuously available.

Short-term memory has limited capacity and includes the analysis of information from sensory memory (Gil, 2002). Kolb and Wishaw (2006) note that the concept of working memory could be another way to define short-term memory. However, authors such as Gil (2007) suggest that working memory is not the same but is rather a component of short-term memory. In this perspective, this type of memory would not be a rigid memory that only stores information, as with long-term memory storage, but would play a more active role in information processing. This process would be responsible for the so-called working memory.

Evaluation of executive functions has typically followed a static view. Common tests used to measure executive functions include the Wechsler tests and the Stanford-Binet tests (Weschler, 2004). Specific diagnostic measures include the FAB by Dubois, Slachevsky, Litvan and Pillon (2000) and the Barcelona Test (Peña-Casanova, Gramunt, Gich, 2005).

More recently, other innovative functional and dynamic assessment methods have emerged. The CAS (Naglieri & Das, 1997) is an individually administered measure of ability that holds particular advantages over other measures of executive functions that feature verbal and quantitative content for linguistically diverse students, for example. As Naglieri (2008) states, "reducing the amount of knowledge needed to correctly answer the questions on intelligence tests is a useful way to ensure appropriate and fair assessment of diverse populations" (Lebeer et al, 2011: 120). Measures such as the CAS or the LPAD (Lebeer, 2011) may become tools that provide information suited to children with learning disabilities and thereby promote the child´s learning.

Materials and method

Participants

A total of 45 children from the Metropolitan Region of Santiago (Chile) participated in the study. All the children came from two communities with common characteristics, including exposure to the same local programs and opportunities and the same low socioeconomic background. The children belonged to one of Santiago's most socially deprived communities. Inclusion criteria included having a clinical diagnosis associated with learning disability. The age of the participants was between 7 and 15 years. Parents and children were informed in advance of the goals and content of the LPAD assessment.

Measures

The dynamic assessment was conducted with one of Feuerstein's LPAD (Learning Propensity Assessment Device) instruments. The LPAD assessments took place within the context of school settings in Chile and were not linked to clinical purposes. All children were living with their families and attended school. Cases were selected from the database on the basis of their learning disability as well as the accuracy and completeness of their records.

A full description of the LPAD test battery is given elsewhere (Feuerstein et al., 1979). The LPAD instruments used are derived from psychometric test

items developed by André Rey (1934), but they have been adapted by Feuerstein in procedure and interpretation. The Complex Figure of Rey is seen mainly as a qualitative instrument in the sense that the changes in the child's learning are evaluated according to the quality of mediation (teaching) as well as through quantitative data. A dynamic test contains a learning phase during which the "tester" intervenes as a mediator to teach concepts and strategies. Afterwards, the child is evaluated again to see whether and to what degree he or she has learned new behaviors. In individual LPAD assessment, mediation is included in each stage of problem solving, not only at the end. In contrast to other dynamic assessment batteries or learning tests, mediation is not standardized in Feuerstein's LPAD; its purpose is to demonstrate a higher level of functioning. This may require a variation in the intensity and proximity of the mediation, according to the needs of the child (Lebeer, 2011).

As Lebeer (2005) states, the goal is to evaluate change in the child's behavior in four domains: cognitive functions, mental operations, affective/motivational factors and learning efficiency (concentration, speed, attention span). Dynamic assessment evaluates the degree and type of mediation needed to bring about change. Changes are essentially qualitative in nature. Scores are only useful in comparison with the child's unmediated performance, not with standards, as will be shown in this paper.

Procedure

This study was conducted during the regular school year (from 2010 through 2012). Children were evaluated in their everyday school context by professionals from the Centro de Desarrollo Cognitivo (Cognitive Development Center), to redirect attention to some of the educational needs presented by children with learning disabilities in their integrated classes. Another goal was to encourage adoption of beliefs as to the possibilities of human cognitive modification, as opposed to the fixed beliefs engendered by static tests that result in the common diagnostic profiles students bring to school. Such indicators of modifiability help teachers revise their expectations and increase their desire for active modifying environments and optimal contexts conducive to inclusive education.

The mediation process depends of the type of response produced in both phases (Copy and Memory) of the Complex Figure model task. Frequently, strategies consist of directing the attention and focus towards the main structuring of the figure, in which the elements are placed inside or outside. The analysis of each element and its relationship to the others is discussed and from that analysis arise different ways of organizing the figure and planning their own behavior. The internalization of this process may be seen in post-test phases, using both copy and representational memory, where students use organizational strategies to build an internal and hierarchical model, previously analyzed according to relevant criteria.

Design and statistical analysis

The study followed a typical experimental design with pre- and posttests in accordance with the described characteristics of dynamic assessment. The statistical analysis consisted of Student´s t-test comparing the pre- and post-test measures.

Results

The results of the Complex Figure of Rey (figure 1) identified deficient cognitive functions, at times related to the entry and processing phase, and specifically, cognitive processes and mental operations such as organizing, planning, working memory, hypothetical reasoning and inferential analogical relations, especially in relation to the copy phase of the pretest. The results also showed better outcomes, on average, associated with the posttest phase of the evaluation.

	Pre test		Post test	
	M	SD	M	SD
Complex Figure –copy-	24.80	7.6	31.27	4.1
Complex Figure –memory-	13.93	8.0	29.91	4.9

Figure 1. *Pre and Post test results on Complex Figure of Rey*

Mediated learning experience, performed during the dynamic assessment, took into account criteria defined by Feuerstein (2006) ensuring quality-mediated interaction such as intentionality, meaning, transcendence and goal-setting to achieve the objectives. The interrogative style constantly challenged the child to identify functions and processes associated with each exercise. The main mediation criteria used during dynamic assessment included intentionality-reciprocity (e.g., telling the child what was expected in each evaluation item and receiving feedback on what was understood), transcendence (e.g., expanding the information by providing rules), mediation of meaning (e.g., co-constructing with the child the relevance and explicit value of the activity within the cultural context), as well as mediation of sharing behavior (e.g., discovering relationships among the different answers and actions). The intentionality-reciprocity criterion (Feuerstein, Feuerstein & Rand, 2006) was fundamental in two ways: first, in communicating the relevance of the stimuli presented, and second, in being explicit on what was the goal of the task. The explicitness of the goals was manifested in the mediation of the objectives of the task and the regulation and control of behavior needed as part of the reciprocity.

Figure 2 gives an example, of the substantial evidence of changes between the first copy and the second copy, as well as the first memory reproduction from the second.

COPY
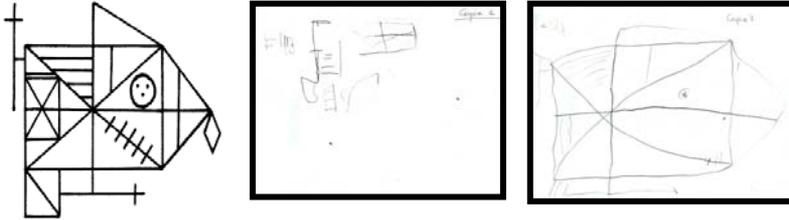
MEMORY
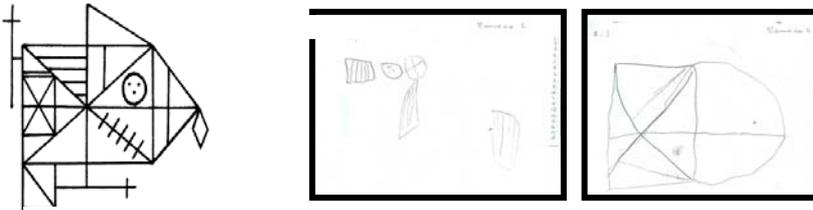
Figure 2. *Complex figure of Rey, in a dynamic mode. The left is the model. In the middle is the first memory/copy reproduction. On the right is the memory/copy reproduction after the mediation phase.*

The results demonstrated that children evaluated within a dynamic assessment significantly improved from the pretest to the posttest, both in the copy phase, t (44) = 7.01, p < .001 as well as in the memory phase, t (44) = 15.82, p < .001. Some of the cognitive functions involved in the improvement include better attention skills and less distraction, planned and systematic exploratory behavior, the ability to consider two or more sources of information, solving a problem using sequential steps, generalization and transfer from concrete things to abstract thoughts, the ability to differentiate between relevant and irrelevant information, precision and accuracy, and less reliance on a trial-and-error approach to problem solving. Working memory was improved via higher thinking processes.

Qualitative reports from teachers include the perception of students' gains in terms of precision and accuracy in the use of language (verbal labels), differentiation of the relevant from the irrelevant (problem-solving), and self-observation as a key to improvement. A significant change in beliefs about modifiability as a result of the evaluation process can be observed in the following remark made by one of the teachers involved in the process: "It made me realize the importance that I have as a mediator, that I was aware of but did not know how to implement. This kind of evaluation gave me the tools to do so, in the sense that I became aware of what I want to achieve and can try to create that awareness in my students with learning disabilities". These changes in the expectations and clarity of the evaluation process can have an important impact on inclusive education.

Discussion and conclusions

This discussion aims to describe the different actions and mediated experiences that were proposed for evaluating children with learning disabilities and their relation to more inclusive evaluations. This improvement was demonstrated by the results, which showed significantly better outcomes at the posttest than was obtained at the pretest phase. The results also show changes in terms of the empowerment teachers acquire from a non-static look at the results provided by an evaluation that models the potential of a student with learning disabilities. This change of perspective can be a starting point for a more inclusive evaluation system, with core changes in Chilean education, looking forward.

Supported by the principles of law, justice and equal opportunity, and within the framework of international conventions, Chile has generated a series of public policies and programs in the field of education that are aimed at populations at risk of exclusion. These policies are rooted in discourses on diversity, which, in turn, have a strong link to the concept of inclusive education (UNESCO, 2003). In this context, a special education policy called "Our Commitment to Diversity" has emerged (Ministry of Education, 2005).

The programs derived from these policies make the subjects at risk of exclusion more visible, using diagnostic classification procedures that have become categorical visibility mechanisms. They are basically positivist approaches supported through standardized instruments. In the case of intel-

lectual deficit, using psychometric intelligence instruments from a static viewpoint result in categories such as borderline, mild, moderate, severe or profound mental retardation (MINEDUC, 2009).

Such a categorization frames the identity boundaries of children with learning disabilities with respect to their limits and possibilities for learning. Setting boundaries may define their lives, their imagination and their future, as these boundaries influence the perception they have of themselves and the expectations that others have of them.

Using these categories, the link between identity and expectations can lead to a negative attitude and inadequate generation of appropriate learning environments. Feuerstein (1980) has pointed to a passive-acceptant attitude, generating self-fulfilling prophecies with regard to learning opportunities and development of these subjects.

Given the structure of psychometric intelligence tests, psychologists cannot use them to evaluate modifiability because the tests do not use the techniques necessary to make inferences about the child's learning processes or potential. The LPAD is a systematic attempt to overcome this limitation in intelligence tests and to provide a basis for drawing conclusions about the nature and adequacy of the development of important cognitive functions, the relative ease with which such functions can be changed, the investment required to achieve such a change, and the speed with which modified cognitive functions are applied to new tasks.

As a dynamic assessment, the LPAD represents an individual approach with regard to thought, perception, learning and problem solving processes and an approach in which teaching is a central and active part of the evaluation procedure. The LPAD includes measuring the initial level of efficacy in performing a task (baseline), training thinking principles and troubleshooting, and altering the specific cognitive functions that may be required for the learning itself (mediated learning experience) and subsequent evaluation of newly acquired processes. Such an approach represents a decisive shift away from the normal requirements of classic psychometrics in which the role of the examiner is allegedly to be objective and neutral, giving no specific instruction or even feedback on the performance of the subject. Such tests are generally based on the products of previous learning opportunities rather than direct observation of learning processes.

A different approach to evaluation is needed because of the unsustainability of some of the assumptions associated with the normative evaluation,

specifically because of the large number of children and adolescents with poor performance. In other words, we need methods that enable us to let go of asking whether children can learn and to instead ask how teaching must be provided to fulfill their learning potential. As Caffery, Fuchs and Fuchs (2008) state, DA evaluation may be useful among low-achieving students because, unlike many traditional tests, it does not suffer from floor effects, and it is unique in the prediction of future academic achievement. We would add that DA not only acts on the student but also effects a change in the teacher's expectations, thereby changing the outcome for the student, given the evidence on the impact of beliefs on student performance (Darling – Hammond, 2003). Thus, DA creates a more inclusive basis for the evaluation process.

The results of the study allow us to have a new look on how an evaluation can promote the potential strengths of a child with learning disabilities. It shows that executive functions can be enhanced through the mediation of cognitive strategies absent in deprived cultural contexts. It seems relevant to recall in this context Vygotsky's (1995) point of view that a learning process always involves more than one human being. It is precisely this process of co-construction that allows the common actions between a speaker with a clear intention (mediator) and an active subject (child) to change the context of learning. Evaluation carried out in a child's Zones of Proximal Development (Vygotsky, 1995, 1988) generates a new cultural reality for the child.

The study underlines the importance of various mediation criteria (Feuerstein et al, 2006) in MLE provided through LPAD. Each mediation strategy is constructed from the previous mediation strategy, providing the child with new cognitive abilities that lead to better planning and organizational abilities and better strategies for memory. Mediation involves pursuing answers beyond a first response and acquiring insight (metacognition) through the process of inquiry. This is consistent with the finding of Tzuriel (2013) on how mediation of transcendence becomes the most consistent strategy for predicting cognitive modifiability among children with learning difficulties, as well as the finding that DA, as a central evaluation method, contributes not only to the assessment of cognition but teaches the child how to benefit from mediation in a different setting and context.

In the field of disability, considering the risks of labeling a child´s essence in terms of the outcome for that child, it is important to maintain some distance from positivist approaches to evaluation. With static assessments, we could run the risk of what Taylor (1993) called the false recognition: "identity

is often molded by the false recognition of others. Thus, an individual or group of people can suffer real damage, a real distortion, if the people or society around him, show him as a reflection, a picture or demeaning or contemptible limiting himself. False recognition may cause harm, can be a form of oppression that imprisons someone in a false, distorted and reduced way of being" (Taylor 1993: 20).

The changes that emerge from a dynamic assessment break with the diagnosis as a "permanent monitoring device that sorts, distributes individuals, measures them, and gives them a fixed location" (Foucault 1996: 115) within a social context. We should, as Heidegger (1990) has stated, accept that we are building ourselves with the world, thus, our view of learning should be of an unfolding process, of human existence as an open being, rather than a closed or fixed process. This view would prevent us from speaking of identity as a fixed essence, but rather as an essence that is **between** or **in between** an unfolding process. DA could be a way of looking at the middle ground of this process and generating the interrelated conditions needed to learn, thus evaluating and identifying these conditions during the unfolding process. For a truly inclusive education, we should approach a non-dichotomous construction of the child and the other (evaluator/teacher), focusing instead on the relationship **between** the two and the unfolding learning process, with a co-constructive perspective on what is being evaluated.

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Implementation of the International Classification of Functioning, Disability and Health (ICF) in the Portuguese Educational System: Attitudes and Training Needs of Special Education Teachers'

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Abstract

Since 2008, the International Classification of Functioning, Disability and Health - ICF (WHO, 2001) is the framework of reference in the assessment and intervention process with students with SEN, in the Portuguese educational system. As a consequence special education teachers' training needs emerged from it. In this study, we characterize the received training and the special education teachers' attitudes and training needs towards ICF. The sample consisted of 913 Portuguese special education teachers who responded to Attitudes Towards Training Questionnaire in ICF - ATTQ-ICF.This study demonstrates that teachers' training on the use of the ICF should occur as soon as possible in their training and it should be extended to other experts involved in the educational process of the student. The need for more knowledge about the tools and methods to assess functioning, the knowledge about the eligibility criteria for special education and the definition of qualifiers based on the ICF classification system also emerged. Finally the discussion of case studies is also considered crucial in the training process.In summary, a training model is needed that has a sufficient number of training hours; that includes training modalities which support teaching practice in a continuous way; that fosters discussion of the barriers to practical implementation of the ICF and finally, that includes a concrete case discussion.

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Introduction

In 1994, one of the focuses of the UNESCO Salamanca Statements on Inclusive Education was about the recruitment and training of educational personnel, stating that "appropriate preparation of all educational personnel stands out as a key factor in promoting progress towards inclusive schools." (p. 27)

In a 2007 report, the European Agency for Development in Special Needs Education (EADSNE) states that (initial, continuous and specialized) training constitutes itself as a fundamental way to give teachers the appropriate knowledge and skills, for example, on the positive attitudes towards difference, the information and tools to support the assessment and the consequent development of the IEP, among others (Watkins, 2007). Candeias (2009) also gives the teacher education a key role in the effectiveness of pedagogical work with students with Special Educational Needs (SEN), in particular regarding to specialized techniques of inclusive intervention and assessment. Similarly, the European Agency for Development in Special Needs Education (2011) provides some recommendations for the training of teachers and policy makers. It advocates the need to investigate the most suitable models regarding the content, the pedagogy and the assessment that will enable teachers towards inclusive practices (EADSNE,, 2011, p. 75). Regarding policies, it incites to a comprehensive reform that would lead to the increase of inclusive schools and the sustainment of teachers' training for inclusion rise (EADSNE, 2011, p.79).

In the most recent recommendation on training for kindergarten, Primary and Secondary Education Teachers, the National Education Council (Conselho Nacional de Educação [NEC]) argues that this should focus on the various dimensions of professional development and that the influence of the training in the career progression should be diminished. It sustains too, that teachers who are waiting for a place to work or with precarious employment bonds should also be able to attend training (Recommendation. º 4/2013).

In Portugal, with the Decree-Law No. 3/2008 of 7 January, the International Classification of Functioning, Disability and Health (ICF) has become the reference document on the assessment and intervention on pupils with SEN.

This fact has generated training needs in special education teachers and other teachers, in order to know the assessment and intervention model inherent to the ICF, as well as its operation in the educational system.

The ICF model and the underlying assessment and intervention

ICF is a document from the World Health Organization (WHO) which was approved in 2001 and whose official version in Portuguese dates from 2003.

Since it makes a biopsychosocial approach to the individual, trying to "provide a coherent view of different perspectives of health from a biological, individual and social perspective" (WHO, 2001, p. 20), this classification was chosen by the Ministry of Education (ME) as a framework reference in the process of assessment and intervention for students with SEN.

The assessment will be supported by the ICF (and the version for children and youth, ICF-CY) and it will examine the child or young person according to different points of view: components of functioning and disability and contextual factors, as well as the interactions established between them (General Directorate for Innovation and Curricular Development[Direção-Geral de Inovação e de Desenvolvimento Curricular, DGIDC], 2008). In order to do so, the contributions of several stakeholders, such as the classroom teacher/director of the class, special education teacher, career, social worker, therapist, psychologist, health services, operational assistants, and others to consider are essential to act as a multidisciplinary team. This team will be responsible to develop the whole process regarding the assessment of the student; they will have to determine the responsibilities and the educational measures to be applied and decide on what will be the basis for preparing the Individual Educational Program (IEP) to be approved by the Pedagogical Council and ratified by the Director of the School.

Teachers' training for the implementation of the ICF in an educational context

Portuguese Studies

Given the new legal framework regarding specialized supports to students with SEN, the Ministry of Education promoted some briefings and direct monitoring in schools, as well as a Training Course in Special Education at national level, in collaboration with twenty five universities and polytechnics, covering all the country. This Training Course, which included only 2700 teachers (of about 5300), with and without specialized training, working on special education, lasted for 50 hours (GDICD, 2009).

Still, these actions seem not to have enabled teachers with the knowledge and skills required by recent legislation. A study commissioned by the Ministry of Education (External Evaluation of the Implementation of Decree-Law no. 3/2008 Project) revealed advantages and constraints on the use of the ICF in schools. The critics against it were related to the lack of "understanding of the reasons for its use in the assessment and eligibility [of students with SEN]", "lack of professionals to assess and describe the body functions and structures" and "lack of training and assessment tools." (Simeonsson et al. 2010, p. 332). The constraints presented by the educational community in this study (lack of documents using ICF language, scarce collaboration of health professionals, few appropriate assessment tools, training needs) are consistent with the results of other studies (Candeias et al., 2009; Candeias, Rosário and Saragoça, 2013) and have pointed out the need to: (i) training in assessment – functioning domains and components that specify and deepen the ICF criteria, (ii) develop assessment tools and compile the existing ones and (iii) invest in teachers' training and other experts training regarding teamwork and time management areas. Another study, conducted with special education teachers from Alentejo region (N = 110), demonstrated that about 41% of teachers received training before starting to use the ICF and about 52% after they start using the ICF. The received training had an average duration of 25 hours (minimum of 5 hours and a maximum of 46 hours). However, teachers wanted the training had an average duration of 30 hours. 65% of the teachers expressed the need for more training in the ICF (Candeias, Saragoça & Gato, 2010).

International studies

Training in the use of the ICF has sparked interest in other countries besides Portugal. A quasi-experimental study, developed with 113 professionals from habilitation services, investigated the effects of training on the knowledge, understanding and using the ICF (Pless et al., 2009). After the conclusions, Pless et al. recommend that training in the use of the ICF should be adapted to different professional groups, depending on their level of knowledge of its instruments.

Italian studies developed by the Disability Italian Network (Leonardi et al., 2005), attest the usefulness of training in the ICF to clarify doubts on the correct way to apply the document.

In Japan, studies on the training materials and the use of the ICF in the field of special educational needs concluded that it is urgent to develop training materials for the use of that classification in practice with students with SEN. They also emphasize the need to develop different types of training (of a more expository character, such as workshops, online training, or others), using contents that suit the needs of the trainees (Tokunaga & Tanaka, 2009).

Given all the controversy surrounding the introduction of the ICF and the provided training, we considered of great relevance and timeliness to characterize the training needs, at national level, of the special education teachers towards the use of the ICF framework in the process of assessment and intervention with children and youth with SEN.

Aims of the study

The main goal of our study is to characterize the attitudes and the training needs of Portuguese special education teachers towards the use of ICF framework in the assessment and intervention process with children/youth with SEN.

In Japan, studies on the training materials and the use of the ICF in the field of special educational needs concluded that it is urgent to develop training materials for the use of that classification in practice with students with SEN. They also emphasize the need to develop different types of training (of a more expository character, such as workshops, online training, or others), using contents that suit the needs of the trainees (Tokunaga & Tanaka, 2009).

Specific Aims

> 1 – To characterize the training received and the attitudes towards the training received by special education teachers in what it concerns the use of the ICF framework in the assessment and intervention process with children and young people with SEN;
>
> 2 – To understand the relationship between the characteristics of the received training, the attitudes towards the training (in terms of satisfaction with the training, training needs and the coverage of the training), in special education teachers and the personal, professional and institutional attributes of the participants (age, employment status, years of experience in special education, total number of students in the group of schools, number of students with SEN and the amount of hours of the received training).

Methodology

Sample

The target population for this study was the special education teachers who work in public education schools/groups of schools in Portugal. GDICD data (2009, p. 43) indicates the existence of 4,779 special education teachers in service and over 500 in service in Early Intervention, in total 5279 teachers.

The sample was taken randomly because it was used a process of gathering "which ensures that every element of the population has a calculable probability other than zero of being chosen for the sample." (Vicente, Reis & Ferreira, cit. by D 'Oliveira, 2002, p. 59). This type of sample has two considerable advantages: (i) the possibility to demonstrate the representativeness of the sample and (ii) the ability to statistically estimate the level of confidence the results of the sample apply to the Universe (Hill & Hill 2009).

Characterization of the respondents

Participants (N=913) in this study range from 23 to 63 years; 24% are between 45 and 49 years; 17.3% are between 40 and 44 years and 17.1% among the 50 and 54. In the lower extremes we find teachers from 23 to 29 years old (9%) and 55 to 63 years old (5.3%).

As for the job situation, the vast majority of teachers who participated in the study already belong to a Group of Schools (58.6% of teachers have an effective link and continuity with the respective school and 28.6% are hired).

Regarding professional experience in special education, 37.8% of teachers who responded to the questionnaire have between 0 and five years of experience in that area while 21.6% have 6-10 years of experience in special education. 16.3% have 11 to 15 years of experience in special education. The percentages decrease in teachers who have 21-25 years of service (7.3%), 26-30 (3.4%) and 31-33 years (0.8%) of teaching in special education.

In what concerns the total number of students of the Group of Schools teachers participating in the study, the highest percentage (24.5%) teaches in groups of schools with over 1500 students, compared to fewer teachers working in Groups of Schools with less than 300 students (3.3%).

The vast majority of the respondents to the questionnaire (49.2%) teach in Groups of Schools with more than 45 pupils with permanent SEN. In Groups of Schools with 31 to 45 students with special education, 26.7% of the participants work in this study. the percentage of staff working in groups of schools with 15 to 30 students is lower (18.4%), and the percentage of teachers working in schools with less than 15 students supported by special education is even less.

Procedures

We started by asking permission to the monitoring system of surveys in school, of GDICD (in accordance to the Order number 15847/2007, DR 2nd series, number 140 of 23rd July), to apply the questionnaires among special education teachers, teaching in public schools in Portugal. The permission was granted.

Then we requested the help of the Regional Bureau of Education of Alentejo (Direcção Regional de Educação do Alentejo, a service of the Ministry of Education) and the other four Regional Bureaus of Education (Algarve,

Lisbon and Tejo Valley, Central and North). After these collaborations have been accepted, each School and Group of Schools disseminated the questionnaire among their special education teachers who responded and sent back the document to an e-mail specifically created for this purpose.

The letters were sent in May 2011 and the deadline to send back the questionnaires was 10 June 2011.

The next step was data analysis with software for data processing SPSS - Statistics Data and Document and AMOS 21.

Care was taken to ensure confidentiality of the participant's responses and their anonymity.
Although arriving by e-mail, questionnaires were printed (without any reference to the author) and properly numbered.

Instrument

The instrument of this study was the Attitudes Towards Training Questionnaire - ICF - ATTQ-ICF (Saragoça, 2012). This questionnaire is about opinions, attitudes and perceptions of the respondents (subjective measures), which are presented as objective statements or items. The ATTQ-ICF consists of 38 items. The participant answers on a 4 points Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). This set of items is intended to: (i) know the limitations and potentials of the received training on the use of the ICF framework in the process of assessment and intervention with children and young people with SEN, (ii) know the training needs of special education teachers towards the use of the ICF framework in the process of assessment and intervention with children and youth with SEN.

This questionnaire has three dimensions: (1) Training needs - it includes 21 items that express needs for training on the ICF, the ICF contents to deepen and the working methods needed for its implementation, (2) satisfaction concerning the training received – it includes 8 items that express thoughts and feelings of empowerment and satisfaction, as well as expectations about the training on the ICF applicability, (3) the coverage of the training - includes 9 items on the modalities of training and its coverage in what concerns the target population. These dimensions explain 47.8% of the variance. The first dimension explains 30.8% of the variance. The second explains 9.5% and the third explains 7.5%. This test gives us good evidence of internal con-

sistency, with a Cronbach's alpha of 0.873, for the full scale and .0.946 for the first dimension, 0.715 for the second dimension and 0.740 for the third dimension.

The ATTQ-ICF was applied with a survey that had two parts: (i) 5 questions about the personal, professional and school characteristics of the participants, (ii) 30 questions about the characteristics of the training received in the use of ICF as a reference in the assessment and intervention process with children and youth with SEN.

Analysis and description of results

The characterization studies foreseen in the goals were made based on descriptive statistics, using the software for data processing SPSS - Statistics Data Document and AMOS 21.

Table 1. *Study of the relationship between personal, professional and institutional variables and the dimensions of Attitudes Towards ICF Questionnaire (ATTQ-ICF)*

	Training Needs	Satisfaction with Training	Training Coverage
Age	-.047	-.032	.039
Professional Status	.063	.028	-.047
Number of years of Experience in Special Education Teaching	-.080[*]	-.005	.032
Number of Students of the Group of Schools	.042	.011	-.008
Number of Students with SEN	.014	-.029	-.036
Hours of Training	-.115[**]	.210[**]	.104[**]

In what concerns the connection between personal, professional and institutional variables (age, professional status, number of years of experience in Special Education Teaching, number of students of the Group of Schools where he/she teaches, number of students with SEN and number of hours of the received training) and the attitudes towards training in the ICF. It is worth to highlight the existence of a negative correlation between training needs and teachers professional experience, which indicates that more years of experience in special education teachers have, smaller training needs they demonstrate.

Table 2. *Study of the connection between the received training and institutional variables and the dimensions of Attitudes Towards ICF Questionnaire (ATTQ-ICF)*

	Training Needs	Satisfaction with Training	Training Coverage
Initial Training	.019	.002	.024
Specialized Training	.032	-.156**	-.029
In Service Training	.166**	-.152**	-.036
Workshop	.150**	-.049	-.109**
Self-training	.076*	.039	-.108**
Training Organized by a School Team	.079	-.083	.007
Training Organized by the Regional Bureau of the Ministry of Education	.036	.083	-.072
Training Organized by the Ministry of Education	.102*	-.001	-.169**
Training Organized by Teachers' Training Centre	.030	-.081*	-.087*
Training Organized by Higher Education Schools	-.004	-.128**	-.072
Training involved Special Education Teachers	-.027	.051	-.065
Training involved Regular Education Teachers	-.008	-.068	-.115**
Training involved Operational Assistants	.003	-.119**	-.067
Training involved some experts	.034	-.046	-.079
Training involved Psychologists	.085*	.022	-.051
Training involved School Management	.023	.020	-.018
Training Accredited by the Council of Scientific and Pedagogical in-Service Training (CCPFC)	.067	-.167**	-.079*
Contents: Legal Framework	-.002	-.092*	-.112**
Contents: Basic Principles	.053	-.051	-.055
Contents: Structure of the ICF	.038	-.106**	-.054
Contents: Components of Functioning and Disability	.059	-.172**	-.098**
Contents: Components of Contextual Factors	.114**	-.202**	-.089*
Contents: Teamwork	.153**	-.231**	-.126**
Contents: Selection of the codes to be used	.135**	-.250**	-.090*
Contents: Qualifiers assignment	.122**	-.275**	-.083*
Assessment instruments provided	.138**	-.296**	-.004
Case Studies presented	.081*	-.192**	-.084*
Preparing Individual exercises	.130**	-.182**	-.072
Preparing Group Work	.084*	-.228**	-.041
Training focused on the Expository Nature	-.097*	.174**	.073

Concerning the satisfaction with the training received, there are negative and significant connections between some types of training. It includes the one that was provided by Teachers' Training Centres, by Higher Education Schools and accredited by the Council of Scientific and Pedagogical in-Service Training (CCPFC). The dissatisfaction may be related to the contents taught in training, since there is a negative correlation with almost all items related to them. Regarding the coverage of the training, there is a positive correlation with the amount of hours of received training, indicating that the more hours of training teachers had, greater coverage and higher value they found in the training.

Table 3. *Study of the connection between the received training and the personal, professional and institutional variables*

	Age	Professional Status	Number of years of Experience in Special Education Teaching	Number of Students of the Group of Schools	Number of Students with SEN
Initial Training	-.077*	.023	-.093*	.049	.050
Specialized Training	.409**	-.491**	.425**	.076*	.149**
In Service Training	-.237**	.285**	-.285**	-.059	-.068
Workshop	-.120**	.180**	-.215**	.061	-.025
Self-training	-.140**	.191**	-.180**	-.047	.004
Training Organized by a School Team	-.102*	.089*	-.119**	-.086	-.100*
Training Organized by the Regional Bureau of the Ministry of Education	-.212**	.320**	-.272**	.080	.010
Training Organized by the Ministry of Education	-.269**	.289**	-.314**	.115**	.061
Training Organized by Teachers' Training Centre.	-.189**	.202**	-.200**	-.107*	-.070
Training Organized by Higher Education Schools	.192**	-.222**	.191**	-.005	.052
Training involved Special Education Teachers	-.011	.049	-.022	-.013	.032
Training involved Regular Education Teachers	-.011	-.035	.013	.012	.099*
Training involved Operational Assistants	.017	-.034	.023	.033	.132**
Training involved some experts	-.018	-.004	-.024	.056	.085*
Training involved Psychologists	-.061	.074	-.077	.010	.140**
Training involved School Management	-.102*	.085	-.047	-.046	.005
Training Accredited by the Council of Scientific and Pedagogical in-Service Training (CCPFC)	-.184**	.237**	-.168**	-.047	-.040
Contents: Legal Framework	-.008	.015	.000	.071	.009
Contents: Basic Principles	.003	.040	-.012	.020	.013
Contents: Structure of the ICF	.011	.031	.010	.006	-.001
Contents: Components of Functioning and Disability	.022	.016	-.001	.032	.064
Contents: Components of Contextual Factors	-.001	.040	-.037	.016	.054
Contents: Teamwork	-.010	.057	-.050	-.030	.059
Contents: Selection of the codes to be used	-.100**	.079*	-.098**	-.072	-.004
Contents: Qualifiers assignment	-.060	.039	-.069	-.019	.029
Assessment instruments provided	.001	-.073	.051	.009	.053
Case Studies presented	-.064	.075*	-.060	-.102**	-.055
Preparing Individual exercises	-.068	.105**	-.087*	-.011	-.016
Preparing Group Work	-.073	.086*	-.122**	-.050	-.012
Training focused on the Expository Nature	.077	-.080*	.081*	.093*	.035

In what concerns the connection between the training received and the personal, professional and institutional variables, we highlight the significant and negative correlations between the independent variables such as age and number of years of professional experience and the type of training performed. The older and the more years of professional experience subjects teachers have, the less training they received either in their initial training either in in-service training, workshops or self-training they had. The same is true regarding the organizers of the training, that is, the older and more experienced in teaching in special education, the fewer teachers attended training organized either by the School teams, either by Regional Bureau of the Ministry of Education, the Ministry of Education or Teacher' Training Centres.

Likewise, we emphasize that the older and more experienced teachers are those who had fewer training accredited by CSPST. These teachers were trained on ICF particularly within their specialist training delivered by a higher education institution. It also seems to have been those who were trained using a more expository nature (as it can be seen by the existing positive correlations).

The professional status of teachers has also a strong positive and significant connection with the type of attended training (in-service training, workshops, self-training), the organizers of this training, as well as some of the core contents in such training contexts (selection of the codes to be used, case studies and individual and group exercises).

Finally, it is important to point out that the intensity of the presence of students with permanent SEN in the group of schools in which the teacher practices his professional activity, seems to be associated with the intensity of training hours in the specialization of teachers and a wider range of professionals involved in training, such as regular education teachers, operational assistants, speech therapists, physiotherapists and psychologists.

In order to understand if one could speak in predictive effects of the independent variables related to attitudes towards the received training, we sought to determine the possible effects of personal, professional and institutional variables over the attitudes towards training on ICF. To this end, we studied the significance of the effect of the independent variables (age, professional status, number of years of experience in special education, number of students of the group of schools, number of students with SEN and hours of received training) on the results ATTQ-ICF through a multiple linear re-

gression with parameters estimation by the maximum likelihood method implemented in AMOS 21.

Figure 1 shows the graphical output of the fitted model, with the standardized coefficients. In this model, the higher regression coefficient is between the number of hours of received training and the dimension "satisfaction" of ATTQ-ICF (.21). The adjusted model explains only 2% of the variability of the "need for training", 5% of the "satisfaction" and 1% of the "coverage".
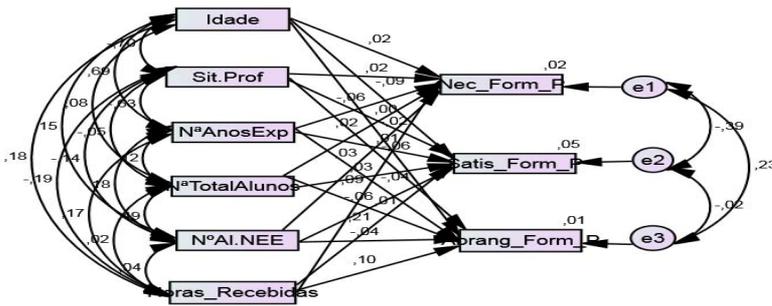
Figure 1. *Bivariate multiple linear regression model between attitudes towards training on ICF expressed in terms of training needs (Nec_Form_P), satisfaction with training (Satis_Form_P), and scope and usefulness of training (Abrang_Form_P), depending on age (Idade), professional status (Sit. Prof.), number of years of experience in special education (N.º Anos Exp.), number of students of the group of schools (N.º Total Alunos), number of students with SEN (N.º Al. NEE) and hours of received training (Horas_Recebidas). Only the trajectory satisfaction with training hours of received training (Satis_Form_P Horas_Recebidas) is statistically significant (p <0.001).*

Consulting the output "Estimates", we found that only the path between "hours of received training" (Horas_Recebidas) and "satisfaction" (Satis_Form_P) has a non-standardized coefficient that is statistically significant, for the usual levels of significance (p <.001). By contrast, the trajectories' coefficients of the remaining independent variables and the results of ATTQ-ICF are not statistically significant for the usual levels of significance.

We also tested the existence of multi-colinearity. No predictor presents VIF (Variance Inflation Factor) values greater than 5, thus confirming the absence of multi-colinearity between the independent variables in the model.

These results enlighten the importance teachers give to training and the satisfaction deriving from it, including the applicability of learnt contents in

the teaching activity: the ability to describe the functioning profile of the student, or to develop an IEP, or the usefulness of the provided instruments.

In summary, from the analysis of the correlations, we find that teachers showing less training needs are those with greater experience in special education. The dissatisfaction expressed by teachers towards training seems to be due to the content discussed over there. The variables age and experience in special education appear related to the type of received training, and the older and more experienced teachers are, less training (in service or accredited) they received from CSPST.

There is a predictive effect of the amount of hours on received training and the satisfaction, sense of competence and usefulness of such training. It stresses the importance of continuous training, in continuity and focused on content, instrumentation and its practical applicability.

Discussion

With this study, it was possible to characterize the training already received, the satisfaction attitudes, the need and the scope towards ICF training by the Portuguese Special Education teachers. On the first level of analysis, it was highlighted that the emergence of training needs in this area should occur on the initial teacher training on one hand, and should be extended to other professionals such as psychologists, regular teachers and others, on the other hand. It was also highlighted the need for more knowledge in terms of assessment instruments and methods, differentiation between eligible and non-eligible students for special education, allocation of qualifiers and discussion of case studies.

On a second level of analysis, a model of satisfaction emerges with the training which highlights the power of the hours of training. It stresses the importance of in-service training and coaching, as we now explain.

We assume in this work that the study of attitudes and needs in teacher training is a prerequisite for proper intervention, i.e., to provide to those teachers the training in types, forms, contents and activities best suited to the quality of their practice. It is important to match the "supply" to the "demand" of training, trying to adjust the given training to the desired training (Rodrigues & Esteves, 1993).

This perspective of needs analysis conducts and evaluates the action, upon which it is possible to plan. It also enables greater involvement of the trainees since their expectations, their interests and their difficulties are being taken into account. On the other hand, a perspective of "lifelong learning" emphasizes that the academic education and the initial vocational training do not enable teachers with all the knowledge and skills they will need throughout their career (CCE, 2007). So in addition to initial training, all teachers have to conduct periodic training.

This training can be of various forms or formats and should focus on content and practices. In the case of the Special Education teachers studied here, it seems to be urgent a training in continuity that allows further abilities on the applicability of the assessment model focused on functioning in teaching activities, as well as training skills in the description of the functioning profile of the student, the preparation of IEP and the use of assessment tools that complement the use of the ICF.

Hence it appears that teachers' satisfaction with the training and their needs for more training time is due to the development of instrumental skills involving the practical modalities and reflexive training.

In short, this study demonstrates that Portuguese special education teachers still evidence some resistance in the use of the ICF as a frame of reference in the assessment and intervention with students with SEN. This may occur, largely, because of the small number of hours of received training as well as the contents of the training and the training implementation methods. A model of satisfaction emerges with the training that states that the more hours teachers have of training on the ICF and the bio-psycho-social model that sustains it, the more they tend to express greater satisfaction about the use and usefulness of students' for special education referral attitudes through the ICF.

Consistent with studies in other countries, this study also showed that the emerging training needs are indicative of expectations of deepening the content and development of practical skills such as discussion of practical cases, knowledge of assessment tools and assessment methods that help to characterize the functioning profile of the students, in line with the bio-psycho-social model proposed by the ICF.

Finally, we need to emphasize the limitations associated to the use of the method of gathering data via questionnaire. On one hand it allows us to collect information from a large group of teachers (913, about 20% of the 5279

special education teachers), revealing major lines of interpretation of attitudes, satisfaction and the needs of teachers, but on the other hand it does not allows to interpret in depth the collected information.

It is in this sense that in future studies we propose to select a small group from the participants in this larger study and to interview them about their attitudes towards the implementation of the ICF framework in education.

We intend to follow that same group of teachers through a development-oriented skills training, demonstrating the potential of the document when the training is appropriate, and seeking to understand the changeability of teachers' attitudes during this in-service training process.

We expect to achieve more elaborate, complex and assertive ways of using the ICF, which are essential to underpin the assessment and the intervention planning of students with SEN.

To this end, training based on a coaching model may be an appropriate response once it is "a systematic process of learning, focusing on the present situation and change-oriented (...)." (Pérez, 2009, p. 17). Recent studies have also demonstrated the usefulness and advantages of this training model in education and amongst the respective educational agents (Schraepen, 2011; Bright & Crockett, 2012; Knight & van Nieuwerburgh, 2012).

So, there is a need to provide special education teachers, with regular education teachers and others involved in the process of assessment and intervention with students with SEN with training activities adjusted to their interests and needs, which take on a continued basis and in continuity, encouraging greater knowledge and practices in a reflective way and the professional and personal development.

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"Becoming a Different Teacher…" Teachers' Perspective on Inclusive Education

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Abstract

This article examines teachers' experience with inclusive education in pre-school, primary and the beginning of secondary education. Drawing on a qualitative approach, this study aims to explore what we can learn from teachers that have already invested in (several) processes of inclusive education with children with significant disabilities. Through semi-structured interviews, we discover that teachers need opportunities to work with the disabled child in their class and create moments of communication around the child and his/her individual curriculum. They learn much more about the abilities of children, while previously they were mainly focussing on the deficits. Therefore, for the teachers the question has shifted from 'what is wrong with this child?' towards 'what is necessary to let the child participate in our group?' This moves from difference as categorical difference, to difference as emergent continuous difference. This shift in understanding opens up new insights and new ways of teaching, resulting in teachers' becoming different teachers than before. In this process teachers recognize the importance of close encounters and reflection-in-dialogue.

Keywords

Inclusion, teacher perspective, support, diversity

Introduction

Our society has increasingly higher and more complex expectations of teachers. Being a teacher comes together with a wider job description than merely passing knowledge on to students (Verhoeven et al., 2006). The (extra) care schools can offer forms an integral part of the educational reality of schools

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and of the expected responsibilities of teachers. Diversity is the norm in society but also in the classroom. Children with various needs are sitting together in the same classroom and are entitled to 'good' education.

With the ratification of the UN convention on the Rights of Persons with a disability (2006) Belgium agreed to develop a more inclusive educational system. Every child has the right to go to a regular school (article 24). Special education is the exception rather than the rule. This is in contrast with the Flemish educational reality. We have a two-track system in the education of disabled children. We have a very broad special education (8 types of special education) and a limited range of possibilities to get support in the regular education system. We do not seem to be able to find a consensus around the recognition of inclusive education in our educational legislation. We can hardly find the word 'inclusion' or 'inclusive education' in our educational policy: it is an 'infected' word that mobilizes a lot of resistance.

In this article, we want to focus on inclusive education as the responsibility of the regular school and the teacher to create for every child the opportunity to be part of the (class)group (Griffith, 2009).Thus the role of the teacher is more than recognizing diversity (Sandoval, 2007, as cited in Forlin, Cedillo, Romero-Contreras, Fletcher, & Hernández, 2010), but he/she plays an active role in handling diversity in class. A critical factor for the success of inclusive education is the competence of teachers and their attitude towards inclusion (see e.g. Hodkinson, 2006; Leyser, Zeiger &, Romi, 2011). Loreman (2005) notices that many teachers do not feel prepared for the changes in their practice in that they are afraid of extra work and the cooperation with parents and other adults. The new challenges can lead towards low feelings of self-efficacy. Consequently, teachers do not know how to respond and do not act any more. They are more likely to pass questions because they believe that specialists have more suitable answers and more appropriate treatments.

Even though much research has been done on inclusive education, the voice of teachers with experience in an inclusive classroom is often not heard. We believe that teachers can give us insights into the comprehensive tasks when teaching children with special needs, and the information they provide would be valuable in the training and support of fellow teachers. In this study, we investigate how teachers look at the process of inclusive education after having a child with a disability in the classroom. This study will also

emphasise the importance of knowledge building together with practitioners to provide better education for every child.

In this article we first describe the methodology and the results, where we use citations of the participants to make it all vivid. In the discussion we bring in the Deleuzian framework of 'difference and differenciation' (Davies & Gannon, 2009) to discuss the results.

Inclusive education

Inclusion is hard to define, the focus should not be on what inclusion means, but rather on the meanings of inclusion. (Barton & Armstrong, 2001; Nind, 2005 and Cole, 2005). Inclusion is also argued to be a difficult and multifaceted process and should be interpreted in different ways in different contexts. In this article we refer to the definition by Giangreco (2006, p. 4) because it touches upon different aspects of inclusive education as indicated in literature:

- *"All students are welcomed in general education. The general education class in the school the student would attend if not disabled is the first placement option considered. Appropriate supports, regardless of disability type or severity, are available.*
- *Students are educated in classes where the number of those with and without disabilities is proportional to the local population (e.g. 10-12 % have identified disabilities).*
- *Students are educated with peers in the same age groupings available to those without disability labels.*
- *Students with varying characteristics and abilities (e.g. those with and without disability labels) participate in shared educational experiences while pursuing individually appropriate learning outcomes with necessary supports and accommodations.*
- *Shared educational experiences take place in settings predominantly frequented by people without disabilities (e.g. general education classes, community work sites, community recreational facilities).*
- *Educational experiences are designed to enhance individually determined valued life outcomes for students and therefore seek an individualized balance between the academic-functional and so-*

cial-personal aspects of schooling. Inclusive education exists when each of the previously listed characteristics occurs on an ongoing, daily basis."

Giangreco's definition is a powerful one "because it speaks about all students, not just those with disabilities; it describes special education as a process, not as a place; it speaks of the rights of students; it describes students, both with and without disabilities, as being a shared responsibility for all schools and educators; and finally, it describes school as a place of community; and as a place from which community can be created" (Smith, 2010, p. 43).

Methodology

This study is based on the initiative undertaken by the movement 'Parents for Inclusion' that came up with the idea to do something with the stories of the teachers, who worked a school year with their children with disabilities. They brought together a number of teachers who wanted to share how they had experienced and helped to shape the process of inclusive education. We ourselves coached inclusion teams and worked together with students to give extra support in the class. We started to collect positive stories. This does not mean that it was all beer and skittles. During the interviews the teachers went deeper into their disillusionment, doubt, fear, frustration...

From these interviews, we have chosen 17 stories of teachers from pre-school to secondary education on the basis of a strong variation in age, experience, education type, nature of the capacities of the child, support options etc. (see Table 1). All the children had their own individual curriculum and needed extensive adjustments in order to participate in a regular class context. Some teachers were interviewed about the school year that just ended, while other teachers told about experience in the previous years (maximum 5 years).

The data were generated from semi-structured, in-depth interviews. The themes in all the interviews dealt with: vision on education, the representation of the disabled child, involvement of the child within the classroom, impact on teaching, building an individual learning path, team functioning around the child and dealing with support. We asked teachers to focus on

one school year and one concrete (inclusion) situation. All interviews were completely typed and returned to the teachers for member checks in order to assure the credibility of the results.

For the analysis the researchers followed an inductive and conceptual way of working as provided by Clarke (2005) and Charmaz (2006). Reoccurring themes, common patterns and key moments were identified. After we considered the content and the overlaps between different themes, six common aspects in the stories of the teachers emerged and were examined thoroughly: (1) the selection process of the teacher to meet the challenge of inclusive education, (2) uncertainties of teachers, (3) participation of the child within the classroom, (4) influence of inclusion on the classroom climate and social relationships, (5) collaborative teaming and finally, (6) the quest and the use of support in the class.

Results

Making a choice for a child

In Flanders it is not evident to enrol a disabled child in the regular education system, despite the legal acknowledgment of 'the right to enrol'. Usually the school takes the time to decide whether the teacher agrees to accept the child as a member in class. Children with a disability are often seen as the exception: regular education is not the place to be taught. The practice of exclusion to a more specialized context is embedded in the educational system and represents a common way of thinking. Belgium has been one of the most separatist countries as regards education of children with special needs (EADSNE, 2003). The disabled child is seen as another category, different to the 'average' student. In the school context this way of looking at children with special needs is closely associated with the kind of questions raised about the nature of the difference in the child. Teachers are interested in, for example, what the deficits of the child are, what are the difficulties, how big is the gap between him or her and the rest of the group. These questions are a representation of the way our society thinks and acts "with a focus on achievement and (prescribed) outcome"(Davies, 2011). The school becomes a place where everyone has to be able to reach the same standards goals. The teacher has to be the person who will make sure that every student will ac-

complish and that cognitive development is central in the learning process. "Students who are not seen to be masters of the required tasks of schooling are excluded or withdrawn from mainstream classrooms" (Clairborne, e.a., 2009, p.48). So the idea of parents to let their child with special needs participate in the regular class goes straight against the current discourse. In the period when the school decides whether the child can attend school, the child and his/her family will undergo considerable insecurities.

Some teachers got the choice to accept a disabled child in the classroom. They find it important to have a choice because in the end the teacher takes responsibility for the learning process. Within education many decisions have been made without the involvement of teachers. Being able to make up your own mind can prevent resistance of the teacher, otherwise this will have negative implications for the pupil and his/her classmates.

> *"During holidays, my principal phoned me to ask if I would have objections against Nimi in my class. It seemed a nice challenge. I thought it was important that I was able to choose for it" (Wouter, teacher of Nimi, first year of secondary school).*

Having a choice is one step in the preparation process of the teachers. They then talk to different team members who have already worked with the child, the parents, colleagues, support workers and so on. What comes next is dealing with the pragmatic matters including who the child is, whether the child disturbs the classroom, what the expectations of the teacher are and what support is available in the classroom. According to the teachers, it is essential to gain an insight into the problems of the child in order to learn to handle them.

In some of the stories, the decision is not an individual choice but it's a choice by the entire school team. As a result concrete questions concerning the child and the class practice are discussed in the larger group.

> *"When we heard that the parents of Yani requested to send her to our school, we made with the team a number of reservations and we addressed those in question form to the parents. We received really proper answers, and I had the feeling: Yes, we should certainly try that." (Luc, teacher of Yani, third year of primary school).*

Other teachers have no choice and just do it because there is no time and space to doubt. They admit that they are glad because they would otherwise

have refused, had they had enough time to consider. They indicate that choice is not possible for other pupils without a disability. In general, the social commitment of teachers and their vision on 'good' education are decisive factors in promoting inclusive education. The disabled child is an equal member of our society and the school is seen as the ultimate mini-society par excellence. Many teachers realize that the choice for education is a choice made by parents. It is not up to them to question that.

> *"Earlier I would have asked questions about her presence in regular education. Now I think: If her parents have made this choice, I don't have the right to say she cannot come to school and learn. I also think as a mum. When she is having fun, even if she is not learning, she can be happier here than elsewhere"* (Caroline, teacher of Sofie, first year of secondary school).

When the decision is made that the child can attend the school, it does not mean that the entire school team is behind the choice for inclusion. These different opinions can create quite some divisions among the members of the school team.

> *"There are still teachers who question inclusion. The difference is that they do not know Sofie and have no experience with her. They just see her in the playground and have questions about her presence here. You don't need to look at inclusive education as a burden. I do not pay a lot of attention to colleagues who are doing that."* (Caroline, teacher of Sofie, first year of secondary school).

Having positive experience does not mean that teachers are in favour of inclusive education in general. Teachers dare to speak about the experience with this child but are cautious about other children with special needs. The same questions would arise with every new situation. Teachers find it important that the child is developing in a positive sense and that the regular school must add value to the education process of the child. Teachers have also questions about children who have difficulties in establishing social contact.

> *"If you, for example, get someone in the class where you don't really have contact with, I would find that much harder. With Niels, you can make contact. If you ask a question, Niels responds"* (Eef, teacher of Niels, third grade of secondary school).

From the interviews, it is revealed that there is clearly much fear for children with difficult behaviour. Teachers find it important that a child can function within a class group. They also see limits in the number of children with special needs in the regular class. Teachers see possibilities for one child with a significant disability in class, but want to avoid a concentration of problems.

Uncertainties

In our interviews, all teachers report on experiencing uncertainties throughout the school year. Uncertainties arise because not everything is known.

Besides, teachers have doubts about their competency because they feel they have no expertise in the deficit (s) (and the medical complications) of the child. They feel insecure about not knowing enough or not knowing how to act. Many questions are situated within the daily classroom practice. For instance, can a teacher in the classroom continue to do what he/she did previously? What adaptations are necessary? Can the teacher give the child enough knowledge and skills to prepare for future? The assessment and the evaluation of disabled children is another challenge for the teacher. How can the teacher measure if the child learns and what he/she learns? Is there an objective view of what the disabled child can or cannot do? There is additional uncertainty about the relational aspects within the classroom. Can the teacher build a bond with this child? Will the child feel belonging to the class group? Also the categorical thinking comes back in the uncertainty whether the extra attention paid, the adaptations and efforts made towards the disabled child is 'fair' to his/her peers in class. Finally, teachers experience anxiety around the presence of other adults who comes 'snooping' in their class. Questions can be raised about whether the teacher will be able to keep his/her personal teaching style, and how the support workers think of the teacher?

The moments of uncertainty are natural for every teacher in the process of discovering unknown territory. Teachers in this research find it crucial to create openness and they take the worries and questions seriously. They particularly regard it helpful to go into conversation with people that know the child and the way of working within an inclusive classroom.

> *"I was allowed to ask every question I had. I wanted also to have my own search. But if there was a problem, I always knew where I could turn for help." (Jonny, teacher of Aloïs, second year of primary school)*

Teachers have to handle the unknown and the uncertainties. They have to leave their safe and familiar situation and make place for what they don't know. The space to experiment (and occasionally fail) must be very clearly communicated to teachers. All the teachers in the research managed to move forward with their uncertainties and attribute their progress to the following strategies:

- Teachers should fall back on their skills as a teacher. The questions and doubts can be tackled by the realization that the work a teacher daily does for all the children also works for this particular child.
- The initial uncertainty will reduce gradually by working with the child and building up positive experiences. Time and communication are of crucial importance in this process. Teachers do not stand alone. They can count on support of other people who have listening ears and helping hands.
- Teachers will discover that the child has abilities too. There are not only the difficulties which determine who the child is and what he/she is capable of. Teachers should not compare performance of the child with that of their peers in class, but focus on recognising what they share in common.

There are no universal solutions. Every child and every situation has different needs. Teachers should open up for the not-yet-known. They are practicing in dealing with a strength-weakness analysis and this opens doors in the learning process of the disabled child, his/her peers and the teacher (Giangreco, 1933). In this process of searching and experimenting they become a different teacher than before.

Codification of studies

When teachers tell about their class practice, participation arises as a central concept. The key question is how a disabled child can participate in a regular classroom. Teachers suggest that from preschool to secondary education students be offered the opportunity to have similar experiences to their peers. It is very important to feel part of a group as a valued member.

> *"I never excluded Yurn. For example, with outdoor activities in the woods, Yurn participated despite his wheelchair. I always take parents along for large excursions, now we had to be with 4 man to pull and to push. Yurn always went with us. Physical Education, stage performances, these were always with Yurn. We have never asked Yurn to stay at home" (Gust, teacher of Yurn in the fourth year of primary education).*

A child learns already by just being present in the classroom. Children pick up things by way of doing and imitating other kids, even if the content is too difficult for them.

> *"Inne absorbs an enormous amount. Her mother tells that Inne plays at home what I have said in the classroom. She also sees a lot of things from the other children. They tie their shoes and Ine is looking: well, well, how do you do that?" (Antigone, teacher of Inne, 5th and 6th grade of primary school)*

There are many different ways to participate. The disabled child might be doing the same things as the other children in class, but it's not about learning at the same place and in the same quantity as the other children in class. When teachers make this shift it reduces the pressure on their shoulders. The crucial question within inclusive education revolves around how and when the child is involved and what adaptations are necessary. How a pupil reacts, communicates in class, responds in learning can be highly individual and different. It takes time to find out what a child needs. Teachers indicate that they see much more learning opportunities and many areas in which children may achieve different goals: social contact, finding one's way in the class, group work and so forth. In this regard, teachers have expectations of the disabled child. This process of working with children presents itself as a

quest, with teachers constantly adjusting according to what they observe with the child and in the classroom.

> *"I expect that children of the third grade between September and June get a firm shot in independence. I expect that from Yani, too. It began with her food. Yani had to say herself if she was eating at school or at home" (Luc, teacher of Yani, third grade of primary school).*

Social relationships

Teachers are afraid the child will be singled out because of 'being different.' They wonder how the children will deal with each other, how the communication goes, whether there is more bullying and whether the disabled child feels different and less able than his/her peers.

Teachers from kindergarten to secondary schools experience the learning opportunities in the relationship between pupils with and without disabilities. Classmates learn in everyday classroom that everyone is different. Pupils with and without limitations should be considerate towards each other to play together, to talk, to learn, to work…

> "I think [the students] learn to handle it and they learn in social terms especially to take someone else into account. I must say I was scared in the beginning but they have always done very well. Also on a trip one or several children were looking for Oskar. The class kept an eye on him and said: 'Come on, Oskar, come with me.' and he went with them. I found that very pleasant" (Chris, teacher of Oskar, first grade primary).

Teachers see the positive effects in terms of social relations as reflected in the classroom climate. With the presence of a disabled child, there appears less hassle and less discussion. Making mistakes is less considered as a negative experience.

> *"Niels sits in a very difficult group and normally you would expect that he would be bullied. But that is not the case, they take care of him and they go along well with each other. I think this is positive for that group. They are also students who certainly can learn some-*

> *thing for the future" (Eef, teacher of Niels, third grade of secondary school).*

In secondary education teachers experience that all pupils during puberty are highly individualistic. This influences the interaction between pupils. Certainly in vocational education, teachers work with the same strategies as in primary education. They hold conversations with the group, set up a buddy system, stress the importance of the group, let them work together in pairs or small groups. In short, teachers work actively with the diversity in the classroom through cooperative learning strategies. They are always ready to find solution to barriers whenever they appear.

Teamwork and communication

It is the view of every teacher that inclusion clearly is teamwork. The search for how the child can participate in class, involves exchange of information and ideas. This is often new to a teacher. The image of the teacher working alone in his/her class with the pupils is still prevalent in Flemish context. In the stories we see teachers open their door to outside influences. They dare to consult other people inside and outside the school in that they realize they cannot do it alone. Thus, the team around the disabled child can act as a platform for exchanging information, searching solutions together and enunciating questions. The teacher is a key figure within the whole team, as he/she spends a lot of time with the pupil with a disability.

> "At a certain moment the question arose: what will be the following step in reading? In the case of Yani this is incredibly difficult, because reading has to do with making sounds and hearing them and this is one of the things Yani cannot do. We had to look for another reading method, a different way of learning to read. Then the team is important: we know Yani and together we take responsibility" (Luc, teacher of Yani, third year of primary school).

It is also pointed out that the teachers obtain considerable useful information and tips from parents who know their children and have already rich experience in dealing with the barriers. How do parents handle their child? What do they expect of their child? These are questions that are crucial in the dialogue and in the development of the classroom practice. The teacher, who

is often perceived as competent, has to be able to change positions between knowing and not knowing (Delfos, 2000).

> "In general I think [cooperation with parents] is important. (...) They can provide information about their child that you would not discover yourself" (Jonny, teacher of Aloïs, 2nd year of primary school).

Shared responsibility is a key word in working together. In the area of teamwork and communication teachers admit that they want additional training or coaching.

Discussion and conclusion

The data in this paper represent the experience and perspective of teachers who have worked in inclusive education. We are aware that the interviewed teachers are not representative of all teachers in the system of education. The analysis has certainly not the intention to be complete nor is it the reflection of what we see in an inclusive classroom Yet, these stories can provide valuable insights into how teachers are committed to the process of inclusive education.

To understand the shift that teachers experience in their thinking through their daily work with a disabled child, we have used the Deleuzian framework of difference and differenciation (Davies & Gannon, 2009). The framework posits that how we think about and look at disabled children determine the ways in which we deal with them.

We can see difference as a categorical difference, in which the other is discrete and distinct from the self, with the difference lying in the other (Davies, & Gannon, 2009). The focus is on 'being different', leading to binary thinking in terms of able/disable, appropriate/non-appropriate, normal/abnormal. As a result, attention is paid to the deficits of the child and the goal is to correct and fix the deficits. In this respect, a specialist and specialized knowledge are needed to work with the disabled child. Deleuze offers another approach to difference in which difference comes about through a continuous process of becoming different, of differenciation (Davies, & Gannon, 2009). It focuses on opening up to the child, thus opening up to difference, and differences between children are regarded as natural. A lot of

teachers indicate that their way of teaching does not change, but their way of looking at children with disabilities changes (Avramidis et al, 2000). They learn a lot more about the abilities of children, while they were previously mainly focused on their problems. In line with this approach, the teacher develops a relationship with the child and finds out how the child learns and interacts by teaching him/her. Building a relationship with a child is used as a working tool (Corbett, 2001). It demands an emotional involvement of the teacher. The crucial question within inclusive education revolves around how and when the child is involved. In the data we found there are many different ways that children can participate.

In the daily practice teachers experience several barriers to achieving the involvement of the child. These barriers can be seen as challenges and a quest for answers (Humphry, 2006). There is a requirement of constant balancing between an individual trajectory and the standard curriculum. Teachers' tasks involve differentiating, organizing, managing classroom flexibly and finding a balance between supporting social skills and passing on knowledge. Inclusive education urges us to reconsider what we have taken for granted, i.e. daring to take risks, working with tensions and working toward opportunities. In this process the teacher undergoes changes and becomes a different teacher than before. It is only through continuous becoming that new ways of thinking and new ways of being in the world become possible. When we open up to difference and the Other, it becomes possible to escape from our own limits. The teacher must learn to deal with not knowing the answers in advance. Support plays a crucial role in handling this uncertainty by helping to confirm and motivate. This is often new to a teacher. Positions of expertise can change. Teachers admit that they want additional training or coaching in the area of collaborative teamwork (Thousand & Villa, 1992).

In the process of inclusion reflection on the classroom practice is valuable, particularly when carried out together with other members of the team. According to Glazer and Hannafin (2006), support is often given one-to-one and the interactions are not reciprocal, and teachers are not actively participating in the search for a solution. In our stories there is space for reflection – in –dialogue. Aelterman (2007) sees this as a learning process for the teacher. Systematic communication with colleagues in and outside the school has in-

fluence on the reflective abilities and practice of the teacher. It can make the teacher stronger and more confident to face new challenges.

An experience in an inclusive situation does not mean that teachers can generalize this way of looking at other children with special needs. It is not a question of difference or differentiation, but of AND… AND. This conclusion underlines the need to support teachers. Teachers emphasize that they learn through the encounters and working with the child, rather than asking for additional training.

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Appendix 1: *Participants*

Name teacher	Gender	Class	School	Label of the child	Support in the class-room[3]
Sylvie	female	first year of kindergarden	Small school, rural area	Cerebral palsy	Special educator/ therapist/trainee / nurse
Annelies	female	Second year of kindergarden	Small school, rural area	Developmental delay	Special educator/ trainee/parent
Bert	male	Kindergarden (3 years)	Steiner-pedagogyy – city	Girl: autism + cvi Boy: severe physical disabilty	2 special educators
Ann	female	First year of primary school	Small school, rural area	physical disabilty	Special educator + assistants direct payment
Chris	female	First year of primary school	City school	Down Sydrome	Special educator/ trainee
Filip	male	First year of primary school	Big school in rural area	Growing disorder	Special educator/ trainee
Jonny	female	Second year of primary school	Idem above	Idem above	Idem above
Geert	male	Principale	Idem above	Idem above	Idem above
Cathy	female	Third year of primary school	City school - Jenaplan	Intellectual disability	Special educator/ speech therapist/ trainee
Luc	male	Third year of primary school	Small school	Cerebral palsy	Assistant direct payment
Sanne	female	Fourth year of primary school	Small school, rural area	Cerebral palsy	Special educator / assistants direct payment
Gust	male	Fourth year of primary school	Small school, rural area	Spina bifida	special educator/ nurse for toilet
Antigone	female	Fifth and sixth year of primary school	Small Freinet school, rural area	Down Syndrome	Special educator/ trainee
Tineke	female	First year of secondary school	Middle school in city	Down Syndrome + severe visual disability	Special educator/ assistants direct payment
Caroline	female	First year of secondary school	Big school in the city	Cerebral palsy	assistants direct payment + nurse
Wouter	male	First and secondary school	Small vocational school	Cerebral Palsy	Special educator/ assistants direct payment
Eef	female	Third year of secondary school	Vocational school in the city	Down Syndrome	Special educator/ trainee

[3] List of persons who provide effective support in the classroom.

A Kindergarten Assistant Course for Persons with Intellectual Disabilities as an Implementation of the Concept of 'Presumed Competence'

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ALICE SCHIPPERS [2]
GEERT VAN HOVE [3]

Abstract

The Region of Flanders works with a Framework Law on Special Education, which provides for over 40 years the possibility for children to attend schools offering types of Special Primary Education and many types of Special Secondary Education. Recently, a new opportunity has been created for a small group of young adults with intellectual disability to participate in an experimental training course for "kindergarten teaching assistants" developed by Handicum. This is a long life learning service, offering courses for 'special target groups'. Handicum organizes these courses based on the concept of "presumed competence". This means that people with an intellectual disability can develop, learn and participate in the world. Using case studies we aimed to present empirical evidence about the results obtained with the Kindergarten Assistant Course, developed for persons with intellectual disability. In Education the question is, how can we achieve inclusive education, and not who can be included.

Keywords

Handicum, Kindergarten Assistant Course, intellectual disabilities, presumed competence.

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2. Dr., Disability Studies in the Netherlands;
3. Prof.Dr., Ghent University

Introduction and Background

Since 1970 Flanders, as a region of Belgium, has had its own Framework Law on Special Education. Due to this framework for more than 40 years children have attended schools providing 8 types of Special Primary Education and 4 types of Special Secondary Education. These special schools are operating in a parallel structure alongside mainstream schools. During those 40 years the parallel structure has developed into a collection of specialised settings in which Flanders and Belgium have assumed a leading position in Europe in the way children and young people are referred to this structure.

Children with an intellectual disability are welcomed in Type 1 primary education (for children with a mild intellectual disability) and in Type 2 schools (for children with a moderate or severe intellectual disability). In secondary education we find them in Type 1 education (preparation for protected living), Type 2 education (preparation for a protected workplace) and schools providing Type 3 education (preparation for mainstream work and living in society).

It is noticeable in all this that students in these forms of Special Secondary Education have no opportunity to continue on to any form of Higher Education after completing their studies. It seems to be assumed that once young adults with an intellectual disability graduate from Special Secondary Schools they have "reached an educational ceiling".

People who work with these youngsters in practice know better. In terms of intrinsic motivation for (continued) learning there is no evidence of any lack of plans and proposals among young people in this group. They want to learn languages; they work with computers and want to learn more about it; they feel that they could improve some of their skills in order to go for a job 'in the real world'.

For many of them, this hunger (to learn) goes unsatisfied. A small group of them do sometimes receive opportunities to practice mainly vocational skills, in the context of job coaching pathways.

Recently a brand new opportunity has been created for a small group of young adults with an intellectual disability to participate in an experimental training course for "kindergarten teaching assistants" developed by Handicum. Handicum is a long life learning service offering courses for 'special target groups'.

Methodology: case studies

To bring empirical material to this article we go back to an extensive description coming from one pilot project in the Flemish speaking part of Belgium. With this report we want to give some answers to our desire to derive an in-depth understanding of things happening in their real world contexts. (Bromley, 1986, 1)

Due to the fact that this pilot project is unique for the country we can say that we have studied a relevant case as an example of good practice in tackling a situation of discrimination. Within the case report as presented in the next part of this article we see that the first and second author made use of "participant observation", "documents" and "interview material" as sources of information to build their case report.

To go from the case study material to conclusions and discussion the third and fourth author made use of a rhizomatic figuration (Honan and Sellers, 2007) knowing that working with rhizomes involves making ceaseless and ongoing connections. Following Deleuze and Guattari (1987, 7) any point of a rhizome can be connected to anything else, and must be. A rhizome establishes connections between semiotic chains, organizations of power and circumstances relative to art, social sciences and social struggles.

Case study report

Practice report: Lut as kindergarten teaching assistant

Lut is 25 years old. Until recently she was attending a day care centre for adults every day. She used to dream of working with children. Lut is very enthusiast about young children. She attended a kindergarten teaching assistant training course at Handicum and completed a training placement at a school a few minutes away from her home by bicycle. She was warmly welcomed by the management and by the kindergarten teacher: Lut is a welcome helper. Lut supports the teacher, Lieve, on two half-days each week in the 1st year of kindergarten. The teacher writes a day plan for Lut, with a fixed structure and activities that are repeated every day. Teacher Lieve sees the help that she receives with her kindergarten class as a relief. Lut helps to set out the equipment, buttons up coats, reads stories, pours drinks into cups

etc. The children think it is wonderful to receive extra support and the teacher has more time to provide individual guidance for some of the children.

Lut says that she loves being in the classroom. She feels comfortable with the children. After the course the support worker from Handicum guided Lut into a Supported Work trajectory. She is supported in the workplace by a job coach. Lut now works on a voluntary basis in the school, working closely alongside the teacher.

Kindergarten teaching assistant training course

Since February 2011 Handicum has been offering practice-oriented courses in Flanders for people with a functional limitation who are not, no longer or not yet eligible for paid work. The term functional limitation may refer to an intellectual, physical and/or sensory impairment, autism or a non-congenital brain injury.

The kindergarten teaching assistant training course consists of **two parts**: a series of ten **training days**, which run alongside a **training placement in a kindergarten**. Each student is supported by a placement support worker. This may be a job coach, a support worker or a personal assistant who closely follows and supports the student's learning process. During the ten training days the students work with various types of course content: the kindergarten context, early child development, hygiene in the kindergarten etc. A lot of attention is also paid to the modules in which trainees gain insight into themselves. In the courses the focus is brought to each person's unique talents, limitations and challenges. The course participants actively work on building greater self-confidence, using body language, learning to be firm etc. Learning to know and maintain personal boundaries, having the confidence to say no and using authority are also covered. The training course takes place in a kindergarten within the student's own community. This allows them to broaden their individual networks and strengthens their links with their own neighbourhood. The Kindergarten Teaching assistants are part of the teaching team, get to know the children's parents and play a role in their neighbourhood. At the end of the course, each student receives **a certificate**. Once they have a portfolio containing an overview of their talents and experiences and other information, they are better placed to continue working as kindergarten teaching assistants.

Life Long Learning Centre Handicum

Handicum is a centre for people with disabilities and those close to them, recognised as a socio-cultural organisation by the Department of Culture of the Flemish Community. The aim is to work towards an inclusive society. By organising and providing support for training activities, personal growth for people with a disability and those close to them became a central theme. Handicum also seeks to challenge people who do not have disabilities to get to know and appreciate people with a disability as fellow-citizens. The initial premise of the Centre is that people with a disability have an important part to play in our society. Developing their talents forms the basis for this. To achieve this, Handicum creates opportunities and organises projects for people with a disability, placing the emphasis on active citizenship, inclusion and empowerment.

By giving people insights into their own strengths and talents, helping them to gain confidence and giving them opportunities to use their talents and energy to work in society, Handicum allows them to take control of their own lives.

Talent in training

Many changes are taking place in Flanders in the field of "people with a disability". Until recently the emphasis has been on a highly developed network of facilities, offering separate provisions for people with a disability. More opportunities now exist for people with a disability to play a part in life in mainstream society and to work outside special facilities, in real-life contexts.

The training for Kindergarten Teaching Assistant is intended for people who are not eligible for paid work in the mainstream employment sector or even paid work in a protected workplace. There is a real need in society for training and continuing education for these people. The "Talent in training" project aims to fill this gap and develops **practice-oriented training courses** to guide people towards **Supported Work** and/or give them more skills. A practice-oriented course consists of a combination of one-day courses (acquiring knowledge and practicing skills) and workplace learning (gaining experience, developing talents and reflecting). Through this training course the **right to education** of adults with an intellectual disability, as set out in the

UN Convention on the rights of people with a disability, can get its implementation in practice.

In this project Handicum works hard to identify talents among people with a disability and support them to allow those **talents** to be used in a context of work in society. This process involves a reversal of roles. People with a disability are usually in the role of service users; they are supported or cared for. In this project, adults with a disability take on the provider role themselves and thereby become active citizens. This has a powerful influence on their sense of self-worth. If you can do something for another person, then you are somebody. Work confers status. People with an intellectual disability need support in order to take on the new **active citizen** role. The training course for kindergarten teaching assistants meets that need.

This training course aims to help people with an intellectual disability to make their dream a reality: to find work that they really enjoy and to be supported in that work. Through the training course they are given the opportunity to develop (further) **knowledge and skills** through their work with young children. In this project a lot of energy goes to the **personal growth** of each student. This is done by using each person's talents as a starting-point. "The right man in the right place" is the key principle here. This is about matching people with unique talents in the area of work with young children to the appropriate workplace.

This project is **innovative**. Practice-oriented training courses like this one which prepare people with an intellectual disability for Supported Work are not currently offered anywhere else in Flanders.

The policy memorandum from the Flemish Minister for Welfare, Public Health and Family (Vandeurzen, 2010) states that the **citizenship model** must be the fundamental model for the further development of policy in Flanders on people with a disability. "The citizenship model also means that people with a disability are able to develop their own abilities to the full and **take control of their own lives**. Initiatives that help to reinforce personal autonomy and self-direction must therefore be developed further" (p. 4). The "Talent in training" project fits in perfectly with this objective.

Working on the road towards an inclusive society

This project helps to improve quality of life for people with a disability (life-long learning for all, the right to societal recognition and social integration) and promotes appropriate participation and an inclusive society. Starting from experience-based studies it is obvious that the **quality of life** of students on the "Kindergarten teaching assistants" pilot course has been **significantly improved** (Verreyt, 2011). The students indicate an improvement in satisfaction with their own lives. They have an enhanced sense of belonging in society. They also indicate that they have more control over their lives and are better able to set the direction of their own lives. For many of them a new world is opening up, offering them new perspectives and wider networks. The "Kindergarten teaching assistants" course gives them an opportunity to realise their dream of working with children. This project gives people with an intellectual disability the opportunity to work with their own talents and strengths in their **own community** and in their own environment. Handicum wants **to motivate the community** itself to give people with a disability the opportunity to gain this experience. This allows them to become convinced of the added value of (unpaid) work, both for the person with a disability and for society. The course is organised in a "**community-based**" context. To strengthen the basis of support in society a number of concrete activities are organised.It is seen as important to inform and involve the widest possible network of people in the course. This is organised among other things by providing an information session before the start of the training placement in the kindergarten, for the entire teaching and management team, by involving kindergarten teachers and placement leaders in the training days and by informing the children's parents. The ultimate aim is that it should be seen as perfectly normal in society for people with an intellectual disability to play a full and active part in the community. This is an enriching process for all those involved, as is also shown by the practical story above: teacher Lieve and the management of the kindergarten where Lut works as a teaching assistant are enthusiast about the assistance that Lut provides in the kindergarten. This collaboration is also enriching for the young children involved. Contact with people with a disability and positive experiences of working together have **a positive effect in terms of representation of persons with disabilities.**

A tailored process of guidance gives people with a disability a better chance of progressing up the ladder of participation in society. This results in greater recognition of (what can be achieved by) people with a disability, improves collaboration in the workplace, enhances solidarity and fosters respect for the individual. Supported Work is acquiring a higher status in the workplace. The workplace does not include people with a disability solely for social reasons. The employee with a disability offers real added value for the workplace, which results in a win-win situation.

Supported Work helps people who are searching for a suitable workplace and also provides support at the workplace. The intention is that trainees should continue to work at their workplace after the course, with continuing support from Supported Work.

Future perspectives

Based on the success of the "Kindergarten teaching assistants" pilot course (Ghent, February - May 2011) and due to the high level of demand and need that we can identify, these courses will be provided in every province in Flanders in the near future.

In the next phase of the project Handicum will offer other courses: for example "Residential care home assistant", "Childminding assistant", "Park services assistant" etc. and short courses: for example "Customer friendliness", "Working together", 'Social skills at work" etc. In this way more people get the opportunity to use their talents in a workplace in mainstream society.

Handicum plans also to introduce their course for last year students in special secondary shools. The practice periods as planned in the curriculum of Type 3 Secondary Special Schools will be combined with the 10 days course.

Conclusion and Discussion

Analysis of this project, which is unique in Flanders, has led us to a number of important insights.

When Jacques Delors, the former President of the European Commission, set out his vision for education in the 21st century, he said that in his view the aim of the educational mission was best described as "learning to learn, learning to do, learning to live together and learning to be". Allowing youngsters and young adults with an intellectual disability to continue studying is one way of expressing this mission in practice, thereby including it in the philosophy of lifelong learning.

Handicum organises this course in such a way that we can dare to call it an example of good practice in lifelong learning. We know that "good practice" is a term that is overused and is often bandied about rather carelessly. In this case, it is clear that we can see the following, all occurring together: a sound theoretical basis, scientific evidence and personal stories and experiences. In theoretical terms, this teaching approach to people with an intellectual disability follows the concept of "presumed competence" as used by Douglas Biklen. ... The principle of "presuming competence" is simply to act as Anne Sullivan did. Assume that a child has intellectual ability, provide opportunities to be exposed to learning, assume the child wants to learn and assert him or herself in the world. To not presume competence is to assume that some individuals cannot learn, develop, or participate in the world. Presuming competence is nothing less than a Hippocratic oath for educators. It is a framework that says, approach each child as wanting to be fully included, wanting acceptance and appreciation, wanting to learn, wanting to be heard, wanting to contribute. By presuming competence, educators place the burden on themselves to come up with ever more creative, innovative ways for individuals to learn. The question is no longer who can be included or who can learn, but how can we achieve inclusive education. We begin by presuming competence... (Biklen and Kliewer, 2006; Biklen and Burke, 2006).

Scientific evidence on this project is provided by the first author in her MA research thesis, in which the seven participants in the first pilot project detail the direct positive effects of the course on the basis of their own experiences, in terms of the eight areas of QOL (personal development - self-determination - interpersonal relationships - social inclusion - rights - emotional well-being - physical well-being - material well-being).

Finally, it is also clear that the assistant training courses for people with an intellectual disability represent an example of tackling discrimination. Article 24 of the UN Treaty stipulates that the Member States should ideally organise inclusive education at every level of education. Handicum has taken this message seriously and organises its adult courses in parallel with this mission. Together with Verdugo et. al. (2012, 1040) we see this as an illustration of a direct link between art. 24 of the Convention on the one hand and efforts to combat discrimination in the area of "personal development" on the other.

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Transient Moments in Inclusive Education

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Abstract

Transient moments in educational career when a child moves from a certain level of education onto another may be a demanding situation for every child. If we consider a child with special educational needs the demands of such situation can lead to even broader difficulties as the inclusion puts various expectations not only on a child but also on his/her environment, i.e. parents, teachers, schoolmates etc, and their mutual interactions.

The paper reviews possible sources of support at the developmental stages which include transitions in the educational process. The attention will be particularly paid to the concept of self-efficacy as this appears a crucial aspect of continuous resilient development. However, individual self-efficacy is built on several facets. One of them are significant adults (i.e. parents and teachers) who may serve as a source of social information, they may mediate a child's competence, and they may also moderate interactions among all students in school in such a way that one's self efficacy is developed or, on the contrary, is decreased. Thus the article will combine three variables of transient moments in inclusive education - specifics of developmental stages in which transitions occur, self-efficacy as a resilient factor of such transitions, and the role of significant educators who may fundamentally affect pupils' coping with transitions

Keywords

self-efficacy, transient moments, inclusive education, significant others, educators' support, school age, adolescence, special educational needs [3]

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Self-efficacy and transitions

Self-efficacy is defined as a belief in one's ability to succeed in specific situations. One's sense of self-efficacy can play a major role in how the person approaches goals, tasks, and challenges as his confidence in his own ability to behave in a way that allows control of the events, which influence his life. In our case we focus on transitions from one level of education to another. Self-efficacy belief represents the basis of human agency. The lesser the trust in success, the weaker is the stimulus to do something (Bandura, 1997). Self-efficacy is a part of the self-concept and develops in the process of individualization. Understanding the process of individualization and formation of self-concept enables us to recognize the process of development of stress-resistance (as a component of the self-concept).

The terminology relating to questions of individualization and formation of self-concept is vague and divergent, and operationalization of the different constructs is rather divergent as well. In the process of personality development we are able to define certain developmental stages, but at the same time we can observe, that the self-concept of children of the same age group distinctly differs. Other sources of misunderstanding and vagueness are also the temporal stability of self-concept, the dependence of results on applied methods and language skills of children. One must count with distinct intercultural differences of self-concept and its development (Neubauer, 1993).

The development of self-efficacy is closely connected to the process of socialization and it interacts with it more essentially than other aspects of the arising personality. Man gains a conviction of his self-efficacy from four main information sources (e.g. Bandura, 1997):

1. Experience of success when coping with difficulties (mastery experience) – is obtained either by imitation of a successful model, by one's own performance, or by lowering the level of sensitiveness to certain stress-situations;

2. Social modelling – requires the chance to observe successful behaviour of persons resembling an observer, or it may have a form of symbolic modelling;

3. Social persuasion in efficacy – includes the application of suggestion, encouragement, interpretation of a situation by another

person, instructions what to do and how to act, and also how to stop self-accusation;

4. Reduction of stress and depression – is achieved by handling various signs of one's own body, care for one's own physical condition, relaxation, and "hardening."

In order to take advantage of these sources in favour of strengthening self-efficacy in children, one must regard the momentary developmental stage as well as intellectual abilities. The means of mediating experience to children should correspond to the sources of self-efficacy mentioned above (Bandura, 1997). If we talk about inclusion, we have to deal with environmental factors, which are influenced by attitudes to inclusion expressed by the community and the culture. From this point of view we can mention a fifth source of self-efficacy (Flammer, 1995). These are messages from the environment articulated for example in sayings, proverbs, and "wisdoms".

Not only does self-efficacy change during the development of a child. From the beginning of the development, the child and his environment interact as reciprocal elements. Parents facilitate child's activities and increase his competence, and in return, the acquired abilities of the child stimulate increased sensitiveness and access to the parents. The same reciprocity works in the school environment for teachers. In order to apply self-efficacy it is necessary to use many cognitive, social, manual, and motivation abilities. A child with broader experience has better understanding of himself and its usual environment. Through this knowledge the child is able to judge more realistically its own efficacy in various areas of activity (Hoskovcová, 2006).

From the developmental point of view children in pre-school age are very generous when it comes to judging their own success or failure. When failing to achieve a difficult goal, it is not considered a real failure. On the contrary, reaching a goal without effort is viewed as a success. It is school that ultimately turns children's attention to the fact of effort; in fact to such a degree that 6 to 9 year-old children consider any goal achievable provided they try hard enough. The downside of such an approach is that a child might feel inferior due to failing to achieve a goal which is beyond his capacity (Hoskovcová, 2006; Flammer 1995).

As the time passes, a child develops a differentiated idea regarding levels of various tasks and his ability to fulfil them. These ideas become clear between 10 and 13 years of age. This process incorporates realism as to the idea

of oneself, which can, however, negatively impact one's development, e.g. when a pupil achieves the lowest mark in comparison with his schoolmates, in spite of the fact that his individual performance keeps improving.

Essentially, this step creates the structure of one's belief regarding self-efficacy and control. This, however, applies only to selected areas of life. With regard to school reality, there is sufficient scientific evidence for stating that academic self-efficacy can significantly affect school success and therefore needs to be encouraged (e.g. Doll, Zucker, & Brehm, 2004; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Pajares, 2006). A parent or an educator take the role of a moderator of self-efficacy development and enable a child to structure a challenging situation in order to eventually master it on his own (1st source of self-efficacy). The importance of observational learning grows, drawing from the peer model (2nd source of self-efficacy). Besides, adults and peers become an important source of encouragement (3th source of self-efficacy). School age is also conducive to acquire elementary psycho-hygienic techniques (4th source of self-efficacy).

A study by Souza and Brito (2008) illustrates the role of self-efficacy for success in mathematics: the authors conducted their research among 122 pupils aged 8-13 using a questionnaire covering areas such as children's self-efficacy and self-image in mathematics. The outcomes were then compared to academic test outcomes. The correlation between the questionnaire and the test reached .444 (Pearson's correlation coefficient, significant at .01 level). The researchers concluded that high self-image and self-efficacy in mathematics also means better outcomes in this subject. By the same token, we can assume a reciprocal effect between self-efficacy and performance.

Upon entering adolescence, a question arises regarding one's own capacities and abilities: in other words, one's potential. Many young people and adults try to exercise their self-efficacy and control in as many areas of life as possible. They strive to achieve quantity and top outcomes: to gain power, earn money and/or reach the top in their group's hierarchy. The message of this period says: "the more, the better."

The adolescent's cognitive development enables the use of abstractions and metacognition. A child has a certain theory regarding his successes and failures and self-efficacy. The child is able to extract from various sources of intervention when we want to enhance his self-efficacy. In addition to the four (five) sources, an identity-seeking adolescent individual will appreciate

fair and consistent standards of behaviour maintained by adults, which will provide him with certain autonomy and respect.

Special features of transient moments in inclusive education

In the course of academic career students have to transfer from one level of education to another on several occasions. It is always a rather challenging moment and the transition certainly requires adaptation to new settings, procedures, social groups, skills, structures etc. Families of both children with and without disabilities often express similar worries (McIntyre, Eckert, Fiese, DiGennaro Reed, & Wildenger, 2010). The transition is also variously affected by developmental features of a certain period when it occurs (Knesting, Hokanson, & Waldron, 2008). However, considering students with disabilities included in mainstream education, such transitions may appear even more demanding as not only students adjust to the transition but also teachers need to adjust to new coming students with their special educational needs. Sometimes this factor may be even the most difficult one in the whole transient process.

Furthermore, students in mainstream education are usually expected to transfer between different levels of their education independently. They are not often offered any help to adjust to new academic requirements. This is sometimes different for students with disabilities as educators and other professionals are usually aware that inclusion may need more detailed and structured transition and thus they offer certain support to students from the very first moment of the transition.

Another aspect of transition which may differ in a group of students with disabilities is the character of transition. While students without disabilities transfer from one school level to another in accordance with the curriculum, students with disabilities either transfer within the described process or they transfer from segregated to inclusive education (DeVore, & Russell, 2007). The latter definitely involves a host of variables which vary from standard transitions of students without disabilities. Moreover, students feel often less secure and less successful in school settings than their peers without disabilities (Knesting, Hokanson, & Waldron, 2008). In the following text we focus on several features which appear crucial to transient moment in inclusive education.

Regardless of age and developmental period the importance of team work of educators seem to play an important role in the transition process (e.g. Conn-Powers, Ross-Allen, & Holburn, 1990; DeVore, & Russell, 2007; Hornby, & Kidd, 2001; Lillie, & Vakil, 2002; McIntyre, Eckert, Fiese, DiGennaro Reed, & Wildenger, 2010; Roberts, Keane, & Clark, 2008).

The TEEM Model created by Conn-Power, Ross-Allen and Holburn (1990) offers a complex five-step inclusive practice which emphasizes the role of team in the transition process:

1. Establishment of a planning team;
2. Development of goals and identification of problems;
3. Development of written transition planning procedures;
4. Finding broad support and commitment;
5. Evaluation of the transition process (Conn-Powers, Ross-Allen, & Holburn, 1990).

The group of educators involves parents and teachers (possibly from both schools - the school a student is transferring from and the school where he/she is transferring to), professionals involved in care of the students (e.g. social workers, school psychologists, school counsellors, administrators, speech therapists, school SENCO, and other special educators). McIntyre et al. (2010) even propose a school transition facilitator who would serve as a mediator and a guide not only to the student but also to other participants of the whole transition process.

In this context not only students' self-efficacy but also their parents' self-efficacy plays a noteworthy role. There is a significant relationship between parent self-efficacy to manage the school transition and children's school adjustment outcomes (Giallo, & Kienhuis, 2008). Depending on particular conceptualization and application, parental self-efficacy (PSE) has been proposed an antecedent, a consequence, a mediator, and a transactional variable of the transition process and child's academic career either. PSE as an antecedent has primarily involved PSE as an influence over parenting competence. Presumably, parents with high PSE exude confidence in acquiring and exercising effective parenting skills, and conversely, parents with low PSE may find it more difficult to parent effectively in the face of challenging situations of their child. PSE as a consequence may take on multiple forms. The most common one is that the ecological context influences PSE. Variables linked to socioeconomic disadvantage and neighbourhood characteristics as

well as school environment and school staff may undermine or limit the development of PSE, or may interfere with parenting competence which in turn limits PSE. Another consideration is that child problems of a particularly challenging nature (e.g. severe oppositional-defiant disorder or ADHD, autism, delinquent behaviour) may affect PSE (Jones, Prinz, 2005).

Parental self-efficacy as a mediator mainly concerns a link between ecological variables and parenting competence. Environmental conditions may undermine parental confidence and count for less effective parenting. PSE may operate as a transactional variable. For example, parents with higher levels of PSE may reflect greater success in parenting, resulting in better child outcomes, which in turn increase PSE further in a feedback loop. Similarly, parents who have lower levels of PSE may struggle with parenting, experience frustration and non-optimal child outcomes, and have PSE further undermined (Jones, Prinz, 2005). Efficacious parents, who evaluate themselves positively, know what they can do, as well as understand the likely effects of their various actions (Bandura, 1997), are also those who may have the greatest potential to become their children's primary educators, assume partnership roles with educators, and have impact on how school systems operate.

The multidisciplinary team work has a) temporal, b) personal, c) community, and d) educational characteristics. Considering the temporal aspects, the work of the whole team requires repeated meetings and continuous work to achieve a successful transition. DeVore and Russell (2007) conclude it took approximately two years to implement all planned actions to transfer children from segregated to inclusive education. In Roberts and her colleagues' study (2008) the average duration of a successful transition was nineteen months. The length of time in these cases was apparently affected by the fact that the transition was from segregated to inclusive settings. However, the aspect of time must not be omitted when we reflect outcomes of the team work in the transition process. The team needs to be available as long as possible.

Nevertheless, to achieve educational outcomes, it seems necessary to shorten the transient process as the longer it takes, the more it affects the development of self efficacy. When students face difficulties to adapt to a new school setting, they often fail academically as they first need to master other skills to survive at school. In Knestling and her colleagues' (2008) research it took a minimum of one term to feel more comfortable and efficacious at a

new school and thus start working on academic tasks properly. This period appears essential for the work of the "transition team".

The personal characteristics linked to the team work involve needs of all participants of the team. They not only propose and support the transition but they are also active implementers of the transition and create the interactions within the whole inclusive education. Even the student (no matter how old he/she is) is a member of the team from this point of view. Parents, teachers and other professionals have their own needs and expectations which frequently differ and/or become different in the course of the transition (Walker, Dunbar, Meldrum, Whiteford, Carrington, Hand, et al., 2012). Once they are neglected and not discussed in the team, they may convert into obstacles of the whole educational process (Conn-Powers, Ross-Allen, & Holburn, 1990).

The community aspect of transient team work focuses on becoming a member of community. The team needs to gain as broad support from the community as possible (Conn-Powers, Ross-Allen, & Holburn, 1990). Only then everyone involved in the educational process feels their responsibility for successful inclusive education. Another perspective of community aspect is that the team itself creates "a community of practice" (DeVore, & Russell, 2007) that reacts to the needs of professionals, students and their families, and other participants of the process. It is worth noting that building the community is also one of elementary indicators of the Index for inclusion (Booth, & Ainscow 2011).

Last but not least is the educational aspect which the team needs to focus on in the process of transition. These include various modifications of the instructions, class work, educational process for a particular student, and possible creation and continuous implementation of an IEP (Roberts, Keane, & Clark, 2008). Even though this appears as an obvious goal of education, successful transitions of students with disabilities showed that the development of organizational and social skills, mastering daily routines, and enhancement of self-monitoring and decision-making skills were prior to any educational outcomes (DeVore, & Russell, 2007; Knesting, Hokanson, & Waldron, 2008 ; Roberts, Keane, & Clark, 2008; Walker et al., 2012).

Considering the support and development of self-efficacy in such transient moments, mastery experiences of any kind are the primary source of self-efficacy development (Bandura, 1997; Bandura et al., 2003; Pajares, 2006; Schunk, & Meece, 2006; Schunk, & Zimmermann, 1997). Thus, developing

and supporting the whole list of the above mentioned skills before turning to academic achievements seems extremely vital.

Apart from stable, complex and thorough multidisciplinary team work another important feature of successful transition for students with disabilities is represented by various prevention programmes. Many of these programmes focus on early years and transitions from preschool to school educational settings (e.g. Redden, Forness, Ramey, Ramey, Brezausek, & Kavale, 2001; Roberts, Keane, & Clark, 2008; Walker et al., 2012). It is certainly worth considering the implementation of such prevention programmes supporting transient moments in inclusive education at all levels of educational career. The goal of prevention differs depending on variability of the programmes. One of very traditional prevention programmes of this kind is Head Start. Redden and her colleagues (2001) followed more than six thousand children involved in Head Start programme. Even though they stated efficiency of the programme, in some areas they concluded there seemed to be no prevention effect in certain groups of children with learning difficulties. Despite the participation in the programme children were later assessed with LD and/or SLI. However, the outcome which Redden's team followed was to identify a difference in the number of children who successfully transfer into the mainstream education and face no further difficulties in their academic career. The goal of the prevention was a zero disability. On the contrary, many transition prevention programmes are designed for children whose difficulties are already acknowledged (e.g. Roberts, Keane, & Clark, 2008; Walker et al., 2012). The goal of such programmes is to prevent failure after starting the attendance in mainstream schools. Under such circumstances, the observed programmes (i.e. Early Childhood Development Program, Aspect Satellite Class Project) appeared beneficial not only for students, but also for their families, teachers and other professionals working with the students.

Another important feature of the transition in the inclusive education involves continuity. The transition is not expected to happen from one day to another. When we consider either the work of the multidisciplinary team or the prevention programmes, their efficiency lies in gradual reduction of the intensity of their work. From intense support by members of the team students are guided to take the initiative and ask for further help when needed (McIntyre, Eckert, Fiese, DiGennaro Reed, & Wildenger, 2010). The number of hours spent in a prevention programme is decreased in favour of the amount of time spend in the mainstream education - yet, for some time stu-

dents combine attendance in both settings (Roberts, Keane, & Clark, 2008; Walker et al., 2012).

All the above mentioned factors influencing transition in inclusive education contribute to the so called universal design (Korbel, McGuire, Banerjee, & Saunders, 2011) which emphasizes the change in the perspective of disabilities. While historically they were perceived as individual deficiencies which need to be fixed, they are currently viewed as a sort of social situation which may either disable or enable an individual to learn and gain academic achievements depending on social circumstances and the overall environment of a student. In this regard, Hornby and Kidd (2001) even state that the inclusion should be more locational and social than curricular, otherwise the expected outcomes are much lowered. The authors observed work career and personal life of a group of students with disabilities who had been included in the mainstream education ten year after their graduation. Sadly, they concluded that the effect of inclusion under the conditions it had been carried out a decade before their research was not as beneficial as expected (Hornby, & Kidd, 2001).

Factors influencing inclusive education

When we think about the transient moments in the education process of students with disabilities, we must not pay attention only to the students. The focus has to be targeted on teachers and other students as well (Conn-Powers, Ross-Allen, & Holburn, 1990). Their self efficacy is supported when they learn how to interact with each other, they master communication with each other and develop skills leading to proper educational situations in which everyone has a particular role. These variables are involved in the TEEM Model which emphasizes development and needs support of all parties involved in the education (Conn-Powers, Ross-Allen, & Holburn, 1990).

Successful implementation of effective inclusive education depends on many factors, of which teacher efficacy is one of the most significant, as the study by Ahmmed, Sharma, and Deppeler (2013) illustrates. This study was undertaken in Bangladesh with data gathered from 708 primary school teachers. The aim was to identify variables that influence the efficacy of inclusive teaching in classrooms. The variables found to be significant predictors of such efficacy were: teachers' acquaintance with a student with a disa-

bility outside the classroom; contact with a student with a disability in the classroom; past success in teaching a student with a disability; and perceived school support.

Research also indicates a specific role of peers in the course of successful transition in inclusive education (e.g. Carter, Sisco, Melekoglu, & Kurkowski, 2007; Lillie, & Vakil, 2002; Slininger, Sherrill, & Jankowski, 2000). When care for students with disabilities is planned, more attention is paid to activities of adult educators. Even though students need interactions with peers, they often do not occur naturally for various reasons (Lillie, & Vakil, 2002). However, peer related interactions seem to reduce the number of necessary interactions with adults and support deeper involvement in instructional and classroom practices of students with disabilities. As they do not have to rely on adults offering their support, they become even more involved within their class (Carter, Sisco, Melekoglu, & Kurkowski, 2007).

Additionally, when teachers were interviewed on the outcomes of inclusive programmes, they often mentioned the social importance of whole inclusive model for students without disabilities (Walker et al., 2012). These interviews were conducted in the course of a prevention programme. This repeatedly emphasizes how important the transient moments are and how resourceful they may be within the development of all children and adolescents in the educational setting.

The importance of peers is also noteworthy in the context of the so called resilient classrooms (Doll, Zucker, & Brehm, 2004). The authors define such classrooms as social groups where students with various difficulties and disabilities develop their potential and function without any significant problems. The characteristics of the whole social group are considered the main influences of such resilience. These are: a) academic efficacy, b) academic self-determination, c) behavioural self-control, d) efficient teacher – student relationships, e) peer relationships, f) efficient home – school relationships.

The research in the field of self-efficacy is often oriented on the qualities of the teacher (e.g. Woolfolk Hoy, & Davis, 2006). Surprisingly, there is less focus on the included child. Klinger and Vaughn (1999) presented a synthesis of 20 US studies of programmes involving students with high incidence disabilities ranging from kindergarten age up to grade 12. They concluded that those with and without disabilities wanted the same activities, books, homework, grading criteria and grouping practices. Both groups recognised that since not everyone learns in the same way or at the same speed, teachers should

slow down instruction when necessary, explain concepts more clearly, and teach learning strategies.

A recent New Zealand study by Hornby (2010) challenged the assumption that inclusive education is applicable to all students with SEN, irrespective of their degree of disability. He studied former students of two special schools – one for students with learning disabilities and the other for students with behavioural difficulties - who had been re-included into mainstream schools for the last few years of their schooling. The results indicated that many of the students subsequently exhibited limited inclusion in their communities in terms of low levels of employment, education and community adjustment. The students also reported mainly positive experiences regarding their time in special schools or units and mainly negative experiences in mainstream classes. Hornby attributed these findings, in part at least, to the goals of education in the last few years of schooling which are primarily focused on academic attainments while vocational, social, and life skills may be more useful in assisting the student with SEN to make successful transitions to adult life.

Goals of promoting transient moments in inclusive education

When considering the sources of efficacy, one of the crucial aims of successful transition which promotes self-efficacy it the independence of students (Knesting, Hokanson, & Waldron, 2008). This requires development of their skills in a way which leads to self-efficacy. Therefore the moments of mastery experiences in the transition process appear so beneficial. Such independence also means a gradual reduction of supports and prompts. Students should learn to ask for help when needed, especially adolescent students in secondary schools.

However, this moment appears slightly controversial and deserves more attention of practitioners. Students with low self-efficacy tend to avoid asking for help in any situation as they regard the helplessness their own fault and failure (Ryan, Gheen, & Midgley, 1998). Thus, they get into a vicious circle of repeated school failures as they do not know how to work at school but simultaneously they are afraid to ask how to proceed with their work. This puts special demands on teachers. They may be the ones who can cut the circle when they pay more attention to students' reactions to instructions and school work and their adjustment in a class.

The second source of self-efficacy involves vicarious experience and learning by modelling. All participants in the process of transition look for experience and models of behaviour in their environment. When supporting a successful transition process we can offer positive models for the included student, his peers, for the teacher and parents too. For each participant we have to think about the attractiveness and similarity of the model to the person we want to support.

Praise and complaints (3th source of self-efficacy) pose an interesting question from the educational point of view. There is no clear answer as to how to respond to student's success or failure so that he/she retains his/her initiative and develops healthy confidence. It appears better to opt for positive encouragement. Praise, however, should not be applied without considering what we actually want to acknowledge – a person, one's competence, effort, or joy in solving a task? Carefully considered "dosing" of praise enables a student to enjoy his/her own success without being too dependent on other people's recognition. This trend is promoted by some popular, parenting handbooks, It remains, however, scientifically unproven.

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Does Cognitive-Mediational Intervention Enhance Inclusive Education? Preliminary Results from the Work in the Feuerstein Centre in Cluj-Napoca

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Abstract

In this paper we present a short description of our research activity in the Feuerstein Centre in Cluj-Napoca. We will discuss one intervention with documented efficacy that combines psychological tests and dynamic assessment methods with therapeutic techniques to promote change in children's cognitive functions. We will discuss through the case of a 7-year-old girl, Ella, the success of inclusion. The intervention helped her to adapt to school settings. We describe in detail the steps of the assessment and provide a theoretical discussion of the therapeutic processes involved.

Keywords

inclusive education, social strategies, behavioural strategies, constructivist strategies, mixed strategies

Introduction

Traditionally, there is a great interest in intelligence and cognitive abilities research at Babes-Bolyai University. The major dilemma "is intelligence modifiable or not?" was not only the title of a 1995 international conference (Beltran et. al, 1998), but also the start of a pursuit of evidence- based answers which could be helpful in responding to the big educational challenges that Romania has been faced with, in particular after the 1989 revolution: to im-

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prove the educational opportunities of the many children who were either excluded or left behind.

A major target and field of activity of the Applied Psychology Department at Babes-Bolyai University became therefore the implementation of groundbreaking research in the area of cognitive modifiability and mediated learning experience (Feuerstein, 1975; 1991, Roth, 1998, Szamosközi, 2008), in order to improve development, education and wellbeing of children in Romania and beyond, who experience barriers to learning (for whatever reason) and are at risk of school failure or exclusion. We carry out an extensive program of research, teaching and continuous professional development in the area of Inclusive Education and Modifiability. For this reason, the Feuerstein Centre in Cluj-Napoca was founded in 2010 with the authorization of The International Centre for the Enhancement of Learning Potential in Jerusalem, recently renamed the Feuerstein Institute, and founded by Reuven Feuerstein. Our activity focuses broadly on the causes and treatment of problems in cognitive, socio-emotional functioning and learning, leading to school failure, as well as on early prevention. The activities are structured in 4 domains: observational practice, training, research and translation.

Training

One objective of the Centre is to provide our students from the Master's Program with a place for practice and internship. We present them the elements of dynamic assessment (such as Feuerstein's Learning Potential Assessment Device (LPAD) and Tzuriel's cognitive modifiability), Feuerstein's Instrumental Enrichment (IE-basic and IE) the theory and practice of Mediated Learning Experience as well as other cognitive intervention and socio-emotional programs, counselling methods for family and school. We also emphasize the importance of using dynamic assessment measures besides static psychometric tests in the evaluation of children's abilities and functioning, having in mind the purpose of inclusive education. Although there are many authorized training centres all over the world to use Feuerstein's methods, Cluj-Napoca is one of the few places (besides Chile and Israel) where university students have the possibility to learn about this approach both on an academic level as well as in field practice.

The first part of the practice and internship of our MA students consists of observation, based on an in-house and internet-connected video system which is used as a basis for training, analysis and research. We also provide the students direct learning experiences with the children.

Research

The research division of Feuerstein Centre in Cluj-Napoca focuses on the area of cognitive modifiability mediated learning experience, the effect of cognitive-mediational intervention, validity and reliability of dynamic assessment methods, effects of training. Three doctoral research projects are in progress now. One is focused on comparing learning potential of schooled and unschooled children (homeless elementary school aged children, living in the Cluj area, who have never gone to school). The second explores the involvement of parents in their children's cognitive development. The purpose of the third research is to explore the importance of peer mediation in the activation of cognitive functioning and the role of peer mediation in inclusive education.

Translation

Another aim of the Centre is to make foreign materials for cognitive-mediational intervention available. Therefore we translated the Feuerstein Instrumental Enrichment Program- Basic (for young children) and Standard-version (for school aged children and adults), user guides and practical manuals into Romanian and Hungarian.

Observational practice

One of the main objectives of the Centre is to identify in time, to assess and to help children with low socio-economic status, learning disabilities, impaired or delayed cognitive – social – emotional development, but also "gifted" children, providing them positive learning experiences. Our main goal is to optimise their learning potential, to help them construct effective learning

strategies, strengthen their weaker skills and to develop and interact effectively with young people of their age.

There has been a lot of controversy in research about the effectiveness of cognitive intervention (Blok et al., 2005, Camilli et al, 2010, Goldstein& Naglieri, 2007, Guthke et al, 1997, Hansen, 2006, Lee et al., 1990). Particularly the lack of transfer seems to be a weak point. Although it is generally agreed that methods of cognitive-behavioural intervention are effective in improving adaptation of children with ADHD, ASD, LSES and children with delayed cognitive functioning, there is less evidence about the effect of mediated learning experience-based approaches on cognitive and socio-emotional functioning (Janos, 2001).

Our research focuses on the question whether participating in an out-of-school cognitive-mediation intervention program can help improving academic achievement as well as socio-emotional wellbeing and behavioural, adaptive abilities, in the case of children presenting a high-risk of school failure, leading to better inclusion in a mainstream setting.

Participants and methods

Participant children

Currently 18 children are attending the Feuerstein Centre. The characteristics (initial diagnosis and type of non-adaptive behaviour) of children are presented in the Table 1 below.

Table 1. *Initial diagnosis and type of non-adaptive behaviour of children attending the Feuerstein Centre* *

	Reason for why he/she is here			Total
Diagnosis (received from school psychologists or other authorized institutions)	Under achiever	Behavioural adaptation problem	Speaking, spelling difficulties	
ADHD		2 (1, 1)		2 (1, 1)
Autistic Spectrum Disorder		2 (2, 0)		2 (2, 0)
Intellectual impairment		1 (0, 1)		1 (0, 1)
Delayed development	1 (1, 0)	1 (1, 0)	2 (2, 0)	4 (4, 0)
Specific Learning disorder	5 (4, 1)		2 (1, 1)	7 (5, 2)
Emotional adaptation problems	2 (0, 2)			2 (0, 2)
Total	8 (5, 3)	6 (4, 2)	4 (3, 1)	18 (12, 6)

* The number of boys and girls are placed between the brackets

Additional social problems, motor difficulties or medical conditions, diseases of children: 5 children have low social economic status (2 of them are excluded by classmates for this reason); 6 children have motor difficulties (4 children cannot even hold a pencil), 2 children are diagnosed with epilepsy and are currently under medication.

Education: 3 children learn in special education settings, 1 in alternative school and the others (n=14) are included in mainstream education.

Instruments

The Instruments used in the Feuerstein Centre are divided in 2 categories: instruments used in diagnosis and instruments used in interventions (the list of the instruments used in the diagnosis is presented in Table 2.).

Table 1. *Tests and instruments used for diagnosis in Feuerstein Centre*

Assessed area	Psychometric tests	Dynamic assessment
Perception	Bender A And B Frostig Test	Organization of Dots
Cognitive	Raven (Standard and Coloured Progressive Matrices) Intelligence Test Wechsler Intelligence Scale for Children (IV)-WISC-IV Matrix Analogies Test – Expanded form, Naglieri Sindelar Meeting Street School Screening Test (MSSST) Goodenough Draw a Person Test	Feuerstein Variations on Raven's Matrices Analogies Of Feuerstein CATM – Children- Analogical Modifiability Test - Tzuriel ANALOGON (computer program for learning and transfer analogical problems in dynamic way)
Memory	Wechsler Intelligence Scale for Children (IV) Rey Tests (16 Words Memory Test, Complex Figure)	16 Words Memory Test (Feuerstein) Complex Figure Drawing Test (Feuerstein)
Higher Order Logical Thinking	Wechsler Intelligence Scale for Children (IV)	Representational Stencil Design (Feuerstein) Part - Whole/Functional Part- Whole, Progressions, Absurdities (Feuerstein)
Language	Peabody pictures	
Behaviour	CBCL - Child Behaviour Checklist	
Motor development	Meeting Street School Screening Test (MSSST)	
Early Development	Denver Scale Portage Scale	

Method

The intervention consists of six steps, presented in the following:

Step 1. Interview with the parents focusing on the following questions and data:

1. What is the problem/major concern?
2. Anamnestic data (birth, illnesses, medical conditions, comorbidities, adaptation at home and kindergarten/school, relationship

with parents, siblings, adults and other children, preferred activities, strengths and difficulties, living conditions, SES, etc.)

3. What do the parents want to be changed?

Step 2. Gathering information from educators, teachers and school psychologists.

Step 3. Evaluation of the child's cognitive abilities, socio-emotional functioning and behaviour, using psychometric tests, dynamic assessment instruments and behavioural checklists.

The cognitive deficiencies manifest themselves in the three phases of the mental act: (1) the input phase, (2) the elaboration phase, and (3) the output phase. The elaboration phase is considered the core of the mental act. Feuerstein defines 7 parameters by which the learning process can be analysed, categorized, and ordered: Content - subject matter; Operations - reasoning abilities and problem-solving skills activated by a lesson; Modality – it refers to instructions: the modality can be verbal, visual, graphic, numerical, tactile; Phase - 3 interconnected phases of cognition (input, elaboration, and output); Level of Complexity - quantity and quality of information provided to produce appropriate responses; Level of Abstraction - distance between mental act and object in which it operates; Level of Efficiency – it refers to pace at which a problem can be solved for a specified level of precision and accuracy.

Step 4. Elaboration of individualized intervention plans based on data gathered from previous steps.

Step 5. Periodic (monthly) evaluation of cognitive functioning and adaptation provided by parents, teachers.

Step 6. Follow-up : maintaining communication with parents and educational institutions even after the children stop attending the centre on a regular basis.

Our intervention is child- , family- and inclusion oriented. The intervention is structured on 2 levels: child, and child's social environment.

Working with the child

In the intervention phase we focus on enhancing cognitive functioning, emotional control, social functioning, visual-motor coordination, language development, speech therapy, using the Feuerstein's Instrumental Enrichment- Basic (FIE-basic) Programme and FIE-standard programme Instruments (Feuerstein et al., 2003), the Sindelar and Meixner methods for dyslexia, kinesiology prevention.

There has been sufficient evidence that a child's cognitive performance can be significantly modified through Mediated Learning Experience (Kozulin et al., 2011), therefore all of the activities are based on this principle. MLE is a special interaction between a mediator (A guide/therapist/parent) and the learner (patient/child) and stimulus. Feuerstein et al. (1991) qualified the mediating intervention as a specific human intervention which is different from just stimulating a child. The goal of the mediator is to adjust the stimuli and information, and to process it, so that it can be understood by the learner. Stimuli are the normal stimuli of a child's world, objects, events, actions (Batiz, 2009). This is a planned, intentional, and active process which focuses, interprets, elaborates, and generalizes the learner's direct experience with the world. Mediated learning intervention aims to create new cognitive structures. An interaction becomes a mediated learning experience when there is explicit intentionality from the mediator, with the child reciprocating that intention; an attempt to ''transcend'' the here-and-now, relate to other situations, to add a meaning to the stimuli, to regulate behaviour, to boost feelings of competence (Feuerstein, Rand, 1975, 1991).

Children attending to our Centre can also benefit of pet therapy (Samu the Labrador). Pet therapy builds on the pre-existing human-animal bond. Thanks to this natural relationship, pet therapy can aid progress toward goals in human physical, social, emotional, and cognitive function (Altschiller, 2011, Friesen, 2010). Pets can ease loneliness, reduce stress, promote social interaction, encourage exercise and playfulness, and provide them with unconditional love and affection. They may also learn responsibility, compassion, and empathy. Positive social interactions with animals can be generalized to positive human interactions. Studies have also shown that pets can help calm hyperactive or overly aggressive children. Friesen (2010) conducted a study with children and therapy dogs in a class room setting and found that the animals provide a social and emotional support system for the child,

with assumptions that because the animal seems non-judgmental to the child, it is perceived as comforting, raises the child's self-esteem and makes it easier for the child to express themselves.

Working with the child's social environment

Besides intervention for the children, we also provide counselling for the parents. Occasionally, we have meetings with the parents to establish progress and future goals, identify further needs. To practice the skills obtained here, we give homework to the children, asking parents to help (mediate) their children to complete the task, if needed, or to motivate them. Parents and/or siblings can also participate in the educational activities, together with the child. This is the main reason why we also organize activities in small groups of children. For example we tried to teach Organization of Dots in a small group. We often provide opportunities for children to use peer mediation, where students of the same age-group facilitate solving "problems" between each other, which we consider really effective. Effects of peer mediation include improved self-esteem, listening and critical thinking skills, and ensure a positive climate for learning, as well as reduced disciplinary actions and less fights. These skills are transferable to the outside of the "classroom".

In a few cases mediation has to be very intensive. We have to start at the most elementary level by recreating the mediation process, stimulating and developing children's capacity to learn. Children need a lot of attention and more personal investment from the parents. In some cases, where this is not possible, we are the ones who try to compensate this process with mediation.

One very special aspect of the institute's functioning is the organization of social activities, like birthday celebrations or a Saint Nicholas party. These celebrations contribute to the development of socio-emotional skills, the feeling of belonging to a group, which we consider really important. Children's social and emotional development can be an indicator of school readiness, and it is also recognized as an actual predictor of school success. While playing, children develop social skills, abilities to listen to an adult and to follow instructions, to start a task and bring it to completion on their own, and to work cooperatively with other children. All this makes it easier for them to learn in a school setting.

Collaboration with schools and other local institutions

The Feuerstein Centre collaborates with local schools and other local institutions. Teachers, school and educational psychologists have visited the centre and have referred children with different special needs from their schools to the centre. The institute's staff has also participated at parents' meetings in local schools, presenting the Institute and its purpose and objectives; the parents were very welcoming and open to "refer" their children to us.

The Institute collaborates with a local Foundation, called Caritas, which objective is to take care and provide support (food, social and educational support) for children with low social economic status (LSES) as well as Roma children from Cluj-Napoca. The foundation organizes different activities: homework groups - for different age levels, parent meetings, social activities, field trips, celebrations. We have volunteers, students taking part in these activities.

Results

Many children catch up really fast due to really good cognitive skills. Others are really slow in development and we have to provide them with many positive learning experiences, because they are afraid of failure.

We have received positive feedback from parents and teachers regarding the activities and the development of the children attending the centre. For example, children participating in the FIE-Basic program show a higher level of focusing in school activities, tend to be more reflective before solving problems, develop social skills used in relating, interacting with their peers and even, in some cases, helping their peers. Results of the mediation process are visible in both academic and socio-emotional development level.

We also emphasize the importance of continuous mediation and try to show parents and teachers the importance of using the mediation principles as often as possible, even in class and during breaks, or at home. One of the most difficult tasks is to change mentalities regarding the importance of experiencing a positive learning experience, getting positive feedback, encouragement. This is mostly because in Romania educational settings are constructed for individual learning, competition, for meeting objectives, goals, not needs, evaluation of the outcome comes first, and not the process of

learning. There is little emphasis on differentiated learning, meeting individual needs of children. But the good news is that teachers are becoming more open to learning.

In the following, we will present a case study of a good practice of inclusion, based on the previously presented method.

Short case presentation: Ella

Step 1: Meeting parents. A preliminary case history

Ella was a 7-year-old child referred to the Centre together with her parents by her school psychologist. The reason for the referral concerned Ella's inattention and hyperactivity, and frequent uncontrollable behaviour at school, during courses.

We collected the following background information (anamnesis): Ella was born in July, 2006. Ella's parents divorced, she is living with her mother and her stepfather. She was diagnosed with epilepsy at age two. At age 5 she had difficulties adapting at kindergarten. She is a first grader now. She was really overwhelmed by homework; she was convinced she could not fulfil any of her school related duties. She was not able to recognize the numbers or letters. She was diagnosed recently with ADHD (combined type). We administered the Child Behavioural Checklist (CBCL) – completed by her parents.

Meet the child. Assessment

Results on Wechsler Intelligence Scale (WISC-IV) show that she was below medium range, she had a raw score on verbal scale of 32, verbal IQ=78. On the Raven's Coloured Progressive Matrices: her score was 22 (A=9, B=5, AB=8), where she passed the 80 centile, above medium level. The results on WISC-IV and the Raven's Coloured Progressive Matrices were brought by her parents within her file.

During the dynamic assessment we observed the obstacles to Ella's effective performance. When she first came to us she used to hit her head and say: "I'm stupid!" At the beginning she did not watch closely, she did not pay attention to or listen to details; she always missed something, even if it was a

particularity or a core part of the task. Her work was often messy and care-less.

We used the Goodenough Draw – A – Person Test for evaluation of the child's intellectual potential (see Figure nr. 1.), Ella obtained a score of 75.

Figure 1. *Ella's drawing*

We administered the Children's Analogical Thinking Modifiability Test (CATM) (Tzuriel, 2001) to test cognitive modifiability and use of higher-order concepts and operations, used as a powerful tool for a wide range of cognitive processes and as a principal operation for problem solving activities. On pre-test, she had a score of 4 points. The pretest showed below average results. On the teaching phase the complexity of mediation was medium: we mediated analytic perception of shapes, developing a sub- and super-ordinate concepts (colour, size, form), planning, criteria selection as basis for comparison, need for precision and restraint of impulsivity. On post-test, after mediation she had a score of 10 points (4 errors out of 14). This is evidence that Ella has high learning potential; she was successful in transfer of the various skills and concepts taught previously, and she showed improved efficiency of performance.

We also used the Part-Whole; Functional Part-Whole; Concept Formation by inclusion and by elimination; Inferential Thinking, Progressions instruments from Feuerstein's LPAD-Basic (Feuerstein et al., 2002). In conclusion: she presented a weak narrative memory, problems of laterality, orientation in

space, lack of categorization and abstract reasoning, incapability of following instructions. We observed frequent shifts in conversation, she did not listen to others, did not follow details or rules of activities in social situations. She was often yelling and she could not control her behaviour. She was always calling for attention. On the other hand, the results of working with the dynamic assessment instruments showed that on all the cognitive functions and learning motivational factors, she was able to make significant changes. All LPAD tools aimed at developing higher cognitive functions. Ella started to search for relevant dimensions required for the solution; she searched systematically for correct answers. Her expressive language improved and also her coordination of pictorial analysis with verbal responses is better.

Meet the teachers, educators

According to Ella's teacher she had a tendency to make careless mistakes in school, and school-related tasks or all activities. She had difficulty finishing schoolwork or paperwork or performing tasks that require concentration. Frequently, she shifted from one uncompleted activity to another. She also had disorganized working habits. She always forgot her notebook, her utensils needed for writing, drawing, she did not bring them to school, and she did not even know the time schedule for school for the next day. Her forgetfulness in daily activities (for example forgetting to bring lunch) was really bothering. In conclusion: she often failed to complete tasks such as homework or chores. Her inattention led to difficulties to learn. By determining cognitive causes of student's error, educators can provide more targeted feedback and/or adjust their lessons to increase accessibility, as we mentioned above by analysing the learning process (the 7 parameters).

Elaboration plan. Intervention

The deficient cognitive, social and emotional functions which we observed helped us define the specific factors impairing successful mastery of the task in Ella's situation, suggesting types of strategies for their correction. In Ella's case we observed deficits in all three phases (input, output, elaboration). We had to intervene to all the phases of the mental act. The mediation was focused on correction of deficient cognitive functions and activation of available, but fragile functions, enrichment of the repertoire of mental operations, enrichment of the task-related content repertoire, and regulation of behav-

iour through inhibition and control of impulsivity, as well as the initiation of appropriate responsive behaviours. The level of complexity of intervention required to produce the desired changes was high. Ella had some benefits from pet therapy, too.

Implementation

Ella received Instrumental Enrichment-Basic sessions for a period of 30–45 weeks. She is attending the Centre two times a week, one session consisting of 2 hours. An intervention typically lasts 1 to 2 h, depending on attention span. The aim is each time to increase the attention span.

IE-Basic instruments used in the case of Ella were: Organization of Dots; From Unit to Group; Know and identify; Orientation in Space. In our plan are also included: Compare and Discover the Absurd; Identifying Emotions, From Empathy to Action. All tools are aimed to develop her cognitive functions in a figural, visual–motor modality using MLE. Ella learns to overcome difficulties caused by the difficulty of the tasks. All instruments promote analytic perception, conservation of form and size, planning, need for precision and restraint of impulsivity, systematic exploration of information, systematic following of rules, and consideration of several sources of information, comparison, categorization, inferential thinking and deductive reasoning, development of conceptual vocabulary, responding to verbal instructions. The last 3 tools also include: decoding behavioural and social cues that signify emotional states.

The institute's dog Samu is part of the team and with his help, Ella is calmer, she can control her behaviour better, she is more motivated, her self-esteem is higher than before the intervention (see Figure 2.).

Figure 2. *Ella's drawing during one session*

Feedback

We provide periodic feedback for the parents and school - teachers as well. We evaluate the child's progress. Providing her positive learning experiences she is showing good progress. Ella is more sociable; she can play with other children, she listens to others, she pays attention for a longer period than she did before intervention. At school her attention span increased, she is able to follow more complex instructions. Ella could adapt better to the classroom and her classmates. Ella is a successful example, considering that, based on the psychometric test results, she was diagnosed with intellectual disability.

As Professor Feuerstein claims, no matter how problematic a child, a situation or disability is, all children can improve their ability to learn. Ella's parents did not give up on her. They brought her to our Centre, because they were motivated to change. After intervention, using MLE, and FIE-basic, the inclusion seems the best choice for her. Ella has undergone dramatic transformations in her learning potential through the Feuerstein method.

Discussion and future perspectives

The progress observed directly in the children's behaviour, autonomy and performance and the positive feedback received form parents and educators, teachers, are really encouraging. The children attending the Centre are showing progress in both academic and socio-emotional level, in relating to peers, in accommodation to school requirements, these results providing evidence that cognitive-mediational intervention can contribute to the effectiveness of inclusive education. Although in most of the cases, there is a positive change and openness in teachers regarding our activities and application of some of the principles in the classroom, we also have examples of some teachers that find it difficult or time consuming to meet the individual needs of a child or to provide positive learning experiences in the educational setting. Therefore, we consider it very important to continue the work we started not only with the children, but also with teachers, parents, siblings, schools and other institutions that are open to collaboration. Teamwork is the most promising option for obtaining long-term results. Raising awareness, modifying attitudes and mentalities related to Special Educational Need (SEN) children and their potential is a crucial issue in Romania.

We also see the need for emphasizing the usefulness of peer mediated interventions in schools, in centres, considering its positive effects, like cognitive, socio-emotional development of both children and peers, acceptance of "differences" between children, the potential to modify attitudes, behaviour, expectations and beliefs. Learning how to learn should be our number one priority. So we should teach our children how to learn effectively.

Another future goal is to translate all the instruments into Hungarian and Romanian and to organize training and conferences for teachers and parents, focusing on mediated learning, showing positive examples, good practices, and facilitating the long term teamwork between the professionals working with children.

We are aware that our preliminary results are of a casuistic nature and do not carry enough scientific evidence. However, they motivate us to conduct researches in the future to contribute to the development of the existing empirical data, theory and instruments.

We have conducted a study with the children from Caritas and in the future we would like to teach them and their parents with the mediated learn-

ing experience through applying some of the FIE-B instruments in small groups.

Based on our work, we propose some practical advice for teachers and parents that can be implemented in the educational settings and can be useful in promoting inclusive education:

1. Focus on the strengths of the child
2. Organize teambuilding activities for the children
3. Provide opportunities and teach peer mediation
4. Communicate and collaborate continuously with the persons involved in the education of the child
5. Explore the benefits of video interaction guidance
6. Group administration of the instruments in classes as a part of school curriculum
7. Structure the child's environment and activities
8. Teach children how to learn
9. Include activities that promote transfer of learning

As a future perspective, we are confident that eventually the MLE principles and maybe some of the instruments could become a part of the school curriculum. One of the main targets for the future is the dissemination of the Feuerstein Method through MA students who will become school psychologists and will use this method in current practice in schools.

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