

STUDENTS WITH DYSPRAXIA AND INCLUSIVE EDUCATION

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With a specific focus on students with dyspraxia, this literature review addresses classroom practice that can help all children to participate by focusing on strategies for students' specific learning needs and the implications for schools. This paper reviews the literature on the development of effective ways of including young students with developmental coordination disorder and their difficulties in school environment. It addresses three research questions: a) reasons of exclusion for being unable to engage in learning b) evidence based strategies to enhance their participation in learning, and c) possible educational plan for a student or a group of students in school community to enhance inclusion and effective learning. The scope of this review includes students with dyspraxia who have learning disabilities and require academic intervention and strategies to engage in effective learning through inclusion in regular schools. The review involves 17 recent scholarly journals from 2002 to 2015 that reflect study findings on academic engagement of students with dyspraxia. The review is summarised and discussed in topical categories by defining key concepts and reflecting on the research questions through response to learning needs of students' with dyspraxia for inclusive education in regular schools.

INTRODUCTION

International mandates of inclusive education reinforce to include all children in regular school. However, due to many reasons in real education setting, a number of students with special needs are still remaining out of the regular education system. This exclusion is sometimes invisible for students' physical existence inside the school while not participating in the classroom learning properly due to their unattended special need of learning. This study addresses three research questions: a) reasons of exclusion for being unable to engage in learning b) evidence based strategies to enhance their participation in learning, and c) possible educational plan for a student or a group of students in school community to enhance inclusion and effective learning. The scope of this review includes students with dyspraxia who have learning disabilities and require academic intervention and strategies to engage in effective learning through inclusion in regular schools. The review involves 17 recent scholarly journals from 2002 to 2015 that reflect study findings on academic engagement of students with dyspraxia. The essay is summarised and discussed in topical categories by defining key concepts and reflecting on the research questions. The study highlights that awareness, collaboration and appropriate response to learning needs of students' with dyspraxia have great impact to enhance effective inclusive education for students with disabilities in regular schools.

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DEFINING KEY CONCEPTS

Dyspraxia

The term 'dyspraxia' is defined as disability of praxis that means inability to utilise voluntary motor abilities effectively in action from play to structured skilled tasks of everyday life. This is also known as developmental coordination disorder which is a neurological disorder that happens within the brain in motor planning difficulty (Edmonds, 2013, Udoh & Okoro, 2013). This disorder handicaps students' learning process in main three processes of brain function for motor planning. The difficulty occurs in forming the idea of using a known movement to execute, planning action to execute the idea and carrying out the planned movement for the action (Udoh & Okoro, 2013). This disability is not caused by muscle or nerve damage (Dixon & Addy, 2013; Brookes, 2005; Gibbs, Appleton, & Appleton, 2007).

Students with dyspraxia or 'dyspraxic' learners are often labelled as slow, clumsy or messy learner (Dixon & Addy, 2013; Sugden, 2007; Vize, 2010). There is no obvious signs or symptoms to identify easily though the students show several behavioural symptoms like; poor writing and drawing ability, short attention span, difficulty in following teachers' instructions and frequent falling or bumping in the classroom or playground. Dyspraxic learners also cannot read fluently or have difficulty in the insight comprehension as well as find problem in reading loud. In addition, they also have poor hand writing or the writing ability (Gibbs *et al.*, 2007). Dyspraxic students seem unusual in running, walking and even standing as well as eating with their messy and untidy way of expression. As they have difficulty in learning new games and game rules, their options for making choice get difficult as well. These difficulties may result with other developmental disabilities as comorbidity with dyslexia, autism and attention deficit hyperactivity disorder. For example, poor sequencing skills of dyspraxia affect the order of letters comprehension in words, the order of letters in words or the order of words within a sentence that is known as dyslexia (Brookes, 2005; Dixon & Addy, 2013; Udoh & Okoro, 2013; Vize, 2010).

Inclusion and Inclusive Education

The term inclusion refers to the widespread concerns of disadvantaged students including students with special educational learning needs in contrast of the exclusion from school. Inclusion is an approach that allows developing relationships and ensures a curriculum for everyone to feel valued, respected and achieved the goals of education in regular education setting (Dixon & Addy, 2013). Legislative mandates of inclusion and Individuals with Disabilities Education Act (IDEA) force the movement to ensure inclusive education for all with effective improved academic achievement in students' life (Evans & Lunt, 2002; Portwood, 2001). One of the most positive outcomes of inclusive education is an increased awareness

by many teachers and related professionals for many children with specific learning difficulties who have been labelled as hyperactive, clumsy, and difficult or problem-learners (Dixon & Addy, 2013).

Identified possible reasons of exclusion from participation in learning process at school

Research says that ideally inclusion is not happening for several reasons like attitudes and beliefs of staff, resource difficulties and limitations of school provisions as prime reasons (Evans & Lunt, 2002). The study also says that students with sensory difficulties are easy to include in school as student yet difficult to deal with their behavioural expression in later interaction. Researcher comments that inclusion is like a fancy word for education by great deal of writing it in recent years as well as some effective efforts towards inclusive education movement. Facilitating learning in an inclusive setting is seen in reality that many students with special need like dyspraxia are expected to manage within the classroom without additional support resources that are supposed to provide by the school (Coffield & O'Neill, 2004; Dixon & Addy, 2013; Vize, 2010). Research findings also show that these students are excluded from schools for their disruptive behavioural outcome because of their special learning needs.

Misconception and unawareness about dyspraxia

Dyspraxia affects students in whole range of skills and areas of performances and mostly unnoticed by the teachers in many situations (Vize, 2010). The misconceptions are sometimes confused with poor physical strengths and students are addressed as lazy, stupid, naughty and disruptive in the academic settings (Brookes, 2005). Dyslexic students require special education support but it's mostly not evident disability (Udoh & Okoro, 2013). For instance, their special needs are not visible like a student with visual impairment or paralysis with assistive devices.

Dyspraxic students are somehow included in school as general student due to its unseen profile in early age of schooling without proper diagnosis. Behaviour issues results due to internal conflict among them for the expectation from the school class environment to compete with peers in academic achievement. Study highlights that almost eighty percent of student diagnosed with dyspraxia by age seven have mental health issues which cause most of the negative social behaviour as a result of frustration (O'Riordan, 2011). Moreover, students' learning needs turns into disruptive behaviour due to impulsivity to any emotional stress in classroom. A very important factor that teacher often perceive behaviours as outcome disruptive intention rather perceive as effect of dyspraxia. Due to the comorbidity with dyslexia, students have more difficulties in behaviour and learning as well as the expectation of their school and peer groups (Gibbs *et al.*, 2007).

Brookes (2005) considers this condition for exclusion of dyspraxic students from the school.

Study has explored that whether dyspraxic students are being afforded with education rights in the classroom for all (Edmonds, 2013). The lack of knowledge among teachers about dyspraxic students along with its hidden nature of disorder creates more difficulty in educational setting. School teachers are to some extent unaware of dyspraxia as they have lack of information during their training in professional courses (Edmonds, 2013; O'Riordan, 2011). In addition, the findings show that peer rejection, higher rates of delinquency, challenging behaviour and substance abuse are also the result of hidden cause of dyspraxia. Study findings also shows that failing to meet expectations creates increased level of disengagement in learning.

Sensitivity issues towards physical environment of school

Students' with dyspraxia are often sensitive to environmental factors such as bright lights and loud noises and are often uncomfortable to different environmental stimuli. Sometimes students have some kind of oversensitivity to certain texture like school uniform fabric, woollens or school chairs with different texture. Students' behaviours also associated with their sensitivity to auditory stimuli like classroom noise, verbal instruction of teachers. These factors make difficult to keep attention for students' with dyspraxia due to their disability in ideation, plan and execution (Dixon & Addy, 2013; Kinnealey *et al.*, 2012). The stress of being at school sometimes leads to poor behaviour in response. Because, they work harder than other in the same activity due to their level of concentration in continuous try and giving short break to start for the next activity will allow them more connected with the classroom lessons (Brookes, 2005; Dixon & Addy, 2013). The school time is often tiring for the students with dyspraxia as they cannot show sufficient concentration in schools setting.

Poor self-esteem and de-motivation

The poor muscle coordination concept sometimes misguides to understand students with dyspraxia as it is seen absolutely fine rather it is the problem in process of coordination. These attitudes from teachers and peers towards them ultimately affect dyspraxic students to engage with the environment and further involvement in that particular activity because of de-motivation. Students at an early age in school often accept themselves for what they are labelled. Though they remain silent in the group, this mindset causes their unseen isolation due to poor self-esteem and confidence along with increased delinquency (Edmonds, 2013). The reason behind this situation is not to be affected by bullying as being an odd person rather to hide their performance limitation in front of others. Moreover, if students find that their learning needs are repeatedly forgotten or not recognised by teachers

then they lost interest in classroom learning process. As a result, eventually they reject school (Dixon & Addy, 2013).

Students with dyspraxia face difficulty in estimating distance and assessing the space because of the lack of consequences of motor coordination. Notably, most students with dyspraxia face problem when they are said to come front in the class for circle time in group activity through verbal instruction. They often struggle to judge the location with fellow students and interrupt by bumping, stepping on others which eventually lead to total mess in the classroom and seems that they are disrupting the activity through their behaviour. This condition often enables the maximum impact of decreasing self-confidence and self-esteem of these students and also maximizes the tendency to leave school (Dixon & Addy, 2013; Edmonds, 2013).

Strategies for engaging students with dyspraxia in learning

In current study the research reflects that in the field of education both teachers and dyspraxic students have been raised an atmosphere and culture of contradiction (Coffield & O'Neill, 2004). The social inclusion is so far visible by having the student in classroom physically. However, the inclusive education is yet to achieve by proper accommodation and adjustment with the system in the school. Before including the dyspraxic students in the regular school for effective inclusion, an attitude of motivation, awareness and acceptance from teachers is highly required (Brookes, 2005; Mann, 2006; O'Riordan, 2011; Vize, 2010). Dyspraxia as a hidden disability faces more challenges and difficulties to observe misbehaviours in classroom activities whether the cause is not being able to respond in learning or intentional avoidance of participation (Udoh & Okoro, 2013).

A well informed teacher helps to understand dyspraxic students' symptoms through behavioural outcomes (Dixon & Addy, 2013). For example, teachers should focus on the students who are less inclined to participate in play or perhaps less active and more anxious about how to get into the play. Structured and focused teaching with multisensory activity helps to allow the student to respond in the classroom activity. The brain condition of poor motor control is a lifetime situation, yet dyspraxic students can perform better with appropriate intervention to do naturally though in slower rate. Dixon and Addy (2013) suggest that giving reward to their expected behaviour and desired goal is not always effective to encourage. Teachers should be aware of using any negative tone for their delay or unwillingness to expose any different situations as well.

Teachers will be better placed to provide an educational environment that is enriching and inclusive for all children through more knowledge and recognition by listening to the voices and lived experiences of students' with dyspraxia, (Edmonds, 2013). According to Edmonds (2013), the experiences and suggestions by dyspraxic students in education is essential for teachers to pay attention to

students' voice of expression. Teachers can minimize their deficits in understanding the student only if they listen to the students' expression of desire in difficult situation. Because, Dixon (2003 as cited in Edmonds, 2013) mentions that the needs come directly from the children with genuine environmental factor that allows teachers initially to prevent disastrous consequences in the classroom for all students including dyspraxic students. This situation allows teachers to continue teaching learning process with enjoyment to make better time for dyspraxic students in school by creating interest for learning.

Students' active direct participation, priority based focus on daily living skills such as manual activities of drawing, writing, feeding, dressing etc., will help a dyspraxic student to learn more functionally and practically in inclusive settings (Sugden, 2007). The study based on several empirical data suggests that approaches to intervention for students with dyspraxia are divided into two categories: a) process or deficit-oriented approaches and b) approaches that teach specific functional skills (Edmonds, 2013; McKay & Neal, 2009; O'Riordan, 2011). Study remarks the fact that no single fully substantiated. The concern about teaching is a natural subsequent step of academic intervention. The approaches to intervention are focusing on to give remedies on deficit approaches which are mostly related with the sensory integration therapy by the occupational therapies directly related with the brain system. The other one is developing functional skills by academic functional intervention. In order to provide intervention in academic setting, teachers must develop effective strategies based on their observation about learning needs of students with dyspraxia. This will help the at-risk students to experience success in educational settings and to support these students in fine motor activities (Mann, 2006). This is why, timely and effective identification of dyspraxia is important for early intervention by classroom teachers. Hodge (2015) recommends about behaviour checklist in academic setting that is considered as helpful for teachers to identify students with dyspraxia through observation.

Attention and engagement are interchangeable terms that are associated with successful learning and are common problems for dyspraxic students (Kinnealey *et al.*, 2012). Hence, teachers along with their teaching strategies impact a lot for students with any special needs with no exception for students with dyslexia as well. For preschool students with dyspraxia teachers need to have readily available practical strategies to support both for children and their parents. For this reason, teachers' are supposed to observe students' skills areas like; catching, throwing, handwriting, drawing, cutting papers, sequencing and coping (Vize, 2010). Teachers' attitude of flexibility as well as empathy practically influences student with dyspraxia in school experience with a feeling of belongingness (Dixon & Addy, 2013; Sugden, 2007).

Students with dyspraxia learn differently and the main concern is that teachers need to know the effective pattern for engaging the students in learning (Dixon &

Addy, 2013). Research proposes that the recognised and accepted way of adaptation in environment is a real inclusive approach for student with dyspraxia in school accommodation (Coffield & O'Neill, 2004; Hodge, 2015; Kinnealey *et al.*, 2012). Accommodation in sitting arrangement for the students can make a difference. For example, if dyspraxic students sit near to teacher by facing closely it will ensure the maintenance of eye contact with teacher to keep attention. Moreover, selected group performer for the classroom group activity with dyspraxic students, would be useful to engage the students as well as overcome their unseen isolation (Brookes, 2005; Dixon & Addy, 2013).

Educational environment modifications and adaptations to facilitate learning are essential for many students to success in school (Kinnealey *et al.*, 2012). They claim that by putting the emphasis on impairments the focus is on altering the individual rather than altering school environment (Brookes, 2005). Considering the uncomfortable school uniform for students, school authority can alter the form by accommodation like putting velcro instead of shoe lace, elasticized shorts and trousers to be helpful for students' sensory issues (Dixon & Addy, 2013). In addition, using cutlery during school time can be another difficulty for the dyspraxic students. Teacher can make the environment by allowing alternate option for students with dyspraxia to avoid their unusual embarrassment in this kind of situation. The focus is to see the extent of affect by dyspraxia in learning, because, the greater the impact of dyspraxia on learning the greater the need for adjustment and accommodations in teaching learning process. Kinnealey *et al.* (2012) provide evidence that lighting can improve student comfort and attention and using sound absorbing walls benefit students to improve their students' attention and engagement in the classroom. Research also shows that sensory-based adaptations can improve attention in school environments that incorporate full-spectrum lighting experience with less stress, anxiety and improved behaviour attitudes, health, attendance, performance in academic achievement (Kinnealey *et al.*, 2012). Another study (Coffield & O'Neill, 2004) exhorts that most classroom practice for effective learning will be met with available resource required by the dyspraxic students.

Researchers and teachers, who work with challenged students with dyspraxia, require a curriculum that concentrates on level wise inductive learning strategies as a holistic approach and interdisciplinary units for engaging the student parallel to other students (Hodge, 2015; Mann, 2006; Sugden, 2007; Vize, 2010). These strategies would be useful when the instruction is learner centred. Furthermore, step by step instruction procedure helps students to master the basic skill with the easier material. For instance, in the school teachers can engage the student with lego blocks or other alternative tools to make the design or shape with what they are comfortable and can participate in target activity as dyspraxic students have poor handwriting or drawing (Evans & Lunt, 2002).

Proper adaptation and accommodation in curriculum and lesson plan for the special needs students is more effective to engage them in learning rather than the traditional common way for all. For example, using a computer in writing instead of pen and paper can minimize anxiety and stress during exam with more convenience. Sometimes giving extra time to the dyspraxic students will also help them to copy notes or finish the answer sheet as they need time to plan and response to questions. In order to do so, teachers shouldn't show ignorance or any anxiety to do this extra effort in teaching rather will encourage students to be more engaged in their desired activity of lesson (Dixon&Addy, 2013). For assistance in better learning strategy, accommodations like graphic organizers, spell checkers, word processors, mnemonics, tape recorders, speech-to-text software etc. can assist learners with their organizational writing and memory difficulties (Mann, 2006).

Any Structured Individualized Education Plan (IEP) helps everyone with dyspraxia as well as helps teachers to respond and plan for classroom management and set the goals for the students (Dixon& Addy, 2013; Pobar, 2004; Sugden, 2007). According to Brookes (2005), IEP is essential in guaranteeing the extra time in examination for students with dyspraxia which is sort of students' right and this influences their examinations. Detailed targets and strategies are supposed to be given according to the students' specific requirements. This information is included in student's IEP to set target in a collaborative way by teachers, therapist, psychologists and parents (Brookes, 2005; Coffield & O'Neill, 2004; Vize, 2010).

Enhancing Inclusion to remove exclusion for students with dyspraxia

The call for appropriate education in the least restrictive environment for all students was mandated by IDEA in 2004 (Kinnealey *et al.*, 2012). Vize (2010) emphasizes that to ensure education for students with dyspraxia everyone that includes all the professionals including teachers needs to be in the same team. Confusion for hidden disabilities is that teachers often have to fight hard to recognise before they are in a position to challenge the society. Teachers' role is to help these students with strong foundations on which later learning will be built. The situation needs to be recognised and strategies to be developed for ensuring their inclusion in academic learning. Coffield & O'Neill (2004) suggest that special education needs coordinator in every school can help to understand about dyspraxia as well as can help other general teachers to deal in academic learning system for studnets with dyspraxia.

Study result reflects that teachers urged for the awareness of principal, therapist, psychologist, paediatricians as well as the parents to identify students' special needs caused by dyspraxia (Edmonds, 2013; O'Riordan, 2011). The researcher stresses a strong demand for specialist teacher in primary schools to identify and support students with motor difficulties and their classroom teachers to make teaching learning more effective. A collaborative approach is recommended by Coffield and O'Neill (2004) to attain a whole school approach by the professional

development program to disseminate information among all the staff related to students with dyspraxia. Udoh and Okoro (2013) mentions about remedial teachers for special learning disability like dyspraxia to help in a collaborative way with other professionals as well as parents.

In order to promote inclusive practice in disability friendly schools, learning support system like teachers' training or conferences, workshop is important event to conduct annually that provides opportunity to increase awareness among teachers (Coffield & O'Neill, 2004). Through the workshop and training session for the teachers, awareness and communication across the professional will enhance the inclusive approach within the school and the community. Study also advocates that school should have the provision of monitoring, reviewing and evaluating the students' development in provided IEP accommodation for specific learning difficulties (Coffield & O'Neill, 2004; Pobar, 2004).

CONCLUSION

Inclusion should be in early years with useful adaptation for students. In order to ensure effective inclusion for students with dyspraxia, early identification by teachers is important to ensure academic intervention. Otherwise, the hidden nature of disability will increase disengagement in learning process (McKay & Neal, 2009). Developmental dyspraxia impacts learning enormously that often results in indirect or direct exclusion of the students from the schools (Udoh & Okoro, 2013). This literature review will enable the practitioners and teachers to understand the special need of students with dyspraxia as well as the urge of supporting them in classroom learning for inclusive education in regular schools.

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