academicJournals

Vol. 11(14), pp. 1279-1287, 23 July, 2016
DOI: 10.5897/ERR2016.2831
Article Number: 68BB11D59513
ISSN 1990-3839

http://www.academicjournals.org/ERR

Educational Research and Reviews

Review

Learning disabilities: Current policy and directions for community involvement among the Arab community in Israel

Samaher Jabareen-Taha* and Haitham Taha

Department of Social Work- Haifa University, Israel.
Department of Learning Disabilities and the Cognitive Lab for Reading and Learning Research, Sakhnin College, Israel.

Received 23 April, 2016; Accepted 20 June, 2016

This article seeks to identify and review the basic characteristics of learning disability which are specifically mentioned in the literature. In addition, the article intends to conduct a brief analysis on learning disability policy in Israel and the differentiation problems at the level of awareness among the Arab society in Israel. Despite the fact that during the past twenty years this field earned a significant progress in Israel, lags in awareness and educational policy between the Arab and the Jewish communities in Israel still rises. These lags could be attributed to different causes like parents awareness toward the effect of learning disabilities on the academic domain of the students. The article raises the question of the ways that programs of community involvement suggest for increasing awareness on behalf of parents and educators concerning learning disabilities. This intervention model is presented by a suggested ecological quarto-model as a recommended model toward intervention in the Arab community in Israel.

Key words: Learning disabilities, Arab community in Israel, intervention, awareness.

INTRODUCTION

Learning disability is a term that refers to a heterogeneous group of disturbances in the acquisition of learning skills. Such disturbances are not resulted from a physical disability, mental retardation, sensory disturbance or emotional disorders (NJCLD, 1994). Since the term "learning disability" has been suggested by "Samuel Kirk" in 1963, the increase in knowledge regarding has been evident as a result of the increasing research done in this specific area (Hallahan and Mercer, 2002). The introductory research on this field intended to promote a comprehensive understanding to the sub disabilities that are included in this term. It also sought to expand knowledge on the areas of diagnosis and intervention including adjustment in the methods of diagnosis and testing (Siegel, 2012).

Undoubtedly, the process of learning is complex; it involves the acquisition of different academic skills. Accordingly, the acquisition of a specific skill is being regarded as a process that relies on functional and cognitive processes based on the simultaneous work of

*Corresponding author. E-mail: samahertaha@gmail.com.

different brain systems (Fingelkurts, Fingelkurts and Kähkönen, 2005; Pennington, 2009). For the purpose of understanding the etiological causes of learning disability, the research has largely focused on the human neurosciences sciences from neurological, cognitive and developmental aspects (Matejko and Ansari, 2012; Nicolson and Fawcett, 1999). As mentioned above, learning disability is a group of heterogeneous disturbances in the acquisition of academic skills such as reading, writing and math. The disability in the acquisition of reading is known as dyslexia, while the disabilities in writing and math are known as dysgraphia and dyscalculia respectively (Pennington, 2009). According to McNulty (2003), learning disability has implications on the individual's life beyond those concerning his or her academic achievements. These implications manifested by an impact on the child's emotional and social life.

Learning disability: sub-types, etiology characteristics and treatment

Reading disability- Dyslexia.

Reading disability refers to the ineffectiveness in the acquisition of word reading skills and of reading fluency, in a way that does not match with what is expected from the reader according to his or her chronological age and grade level (Snowling, 2008). Therefore, reading disability is a failure in the acquisition of fluent reading skills which may also leads to a lack of the development of spelling skills also due to the developmental relationship between spelling and reading skills (Coltheart, 2005; Vellutino et al., 2004).

The academic characteristics of children with reading disability (disorder) as noted in the "Diagnostic and Statistical Manual of Mental Disorders-5" of the American Psychiatric Association (APA, 2013) are the following:

1. Difficulties in word decoding and word reading fluency.
2. Difficulties in Reading comprehension.
3. Spelling inaccuracies.

From a cognitive perspective, different explanations behind the development of reading disability have been suggested; for example, Snowling, (2001) postulates the phonological deficit explanation which suggests that reading disability could be a result of inadequate development of phonological awareness and phonological processing skills. This explanation is an acceptable one among different researchers who mainly studied the disability in alphabetic systems, such as Arabic, Hebrew and English (Share, 2008; Vellutino et al., 2004).

The phonological awareness is the ability in identifying the sounds the spoken words (Anthony and Francis, 2005). Ziegler and Goswami, 2005 argues that this awareness constitutes the basics for the acquisition of the correspondences between the sound structure of the word and its written representation. This process is considered as a basic process during the earlier stages of the reading acquisition, and might influence reading fluency afterwards (Ehri, 2005). Accordingly, many researches have shown that children with reading disability have a phonological processing deficit that explains their failure in the acquisition of reading skills (Snowling, 2001; Vellutino et al., 2004; Taha et al., 2014). The neurocognitive research reveals that the ineffectiveness of neurological systems that are specialized in the phonological processing of spoken words is one of the etiological reasons of the reading disabilities (see; Finn et al., 2013). For example, a non-typical activation in the" Insula" (Figure 1), a region at the left hemisphere of the brain, was expected among disabled readers in comparison to that which was measured among typical readers (Ackermann et al., 2009). It was also suggested that in light of the primary difficulty in the acquisition of decoding processes among children with reading disability, brain systems which are intended for visual word recognition of words in the left tempro-occipital area (Figure 2) or what is known as visual word forming area (VWFA), do not develop effectively among children with developmental reading disability. According to Shaywitz and Lyon (2006), this ineffective development of the VWFA leads to ineffective visual recognition of the written words.

According to the research data garnered in the study of reading disability and the sources of the disability, intervention programs for strengthening the phonological decoding skills were suggested to enable efficient and automatic word recognition. For example, Shaywitz et al., (2004), suggested intervention program focusing on intensive training for improving the phonological awareness among children. Such exercises were designed to enhance the phonological decoding skills. The research findings that examined the effectiveness of these programs showed a significant improvement in reading ability and word recognition skills in addition to the increased efficiency of the left tempro-occipital brain regions, which is associated with word recognition, as a direct result of the intervention.

Recently, software based programs for interventions to overcome cases of difficulties in fluent reading, by accelerating the "brain-reading" systems, were suggested. This technique relies on accelerating the presentation of the text in front of the reader and to enforce him or her to read in a speeded way (Breznitz, 2006).
The findings which are reported by researchers that examined programs of acceleration of the mentioned type showed an increased efficiency of the brain systems specialized in word identification (Breznitz et al., 2013).

Writing disability [Dysgraphia].

The term writing disability refers to the ineffectiveness in performing the writing skill from different aspects: The

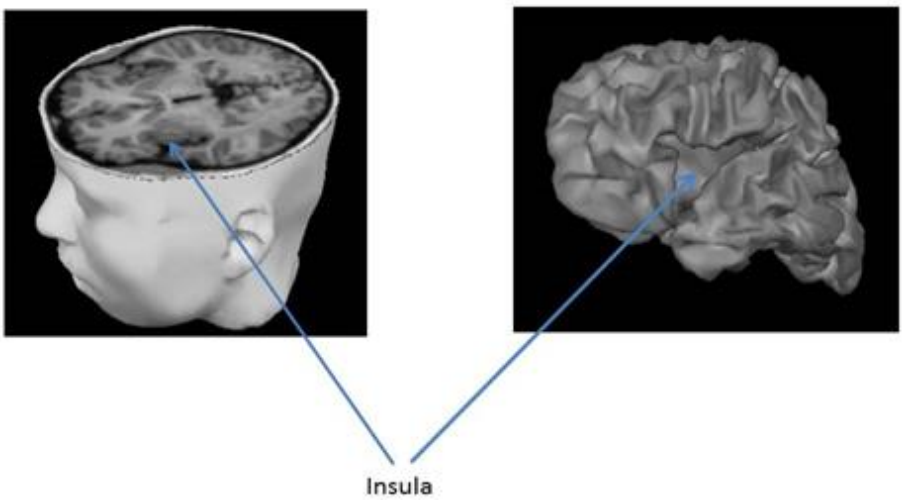

Figure 1. The Insula in the left brain hemisphere.

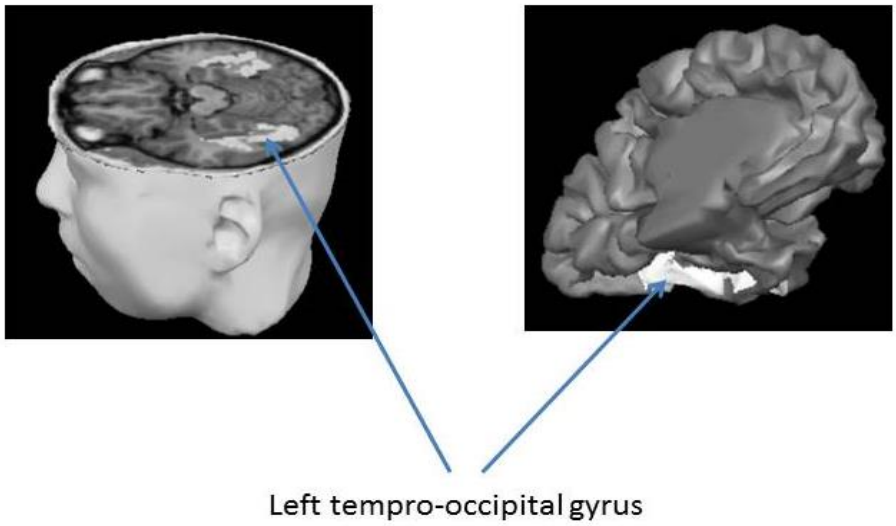

Figure 2. The left tempro-occipital region.

quality of hand-writing and readability (The grapho-motor aspect), ineffective spelling and writing and ineffective writing expression (Pennington, 2009). Regarding the grapho-motor aspect, writing is a motor process that is targeted to drawing the letters' templates that represent the written word (Ratzon et al., 2007). This relies on both perceptual and motor processes in planned and continuing process (Sandler et al., 1992). A deficit in the cerebral systems which are responsible on integration between perceptual input and motor processes may reveal into developmental difficulties considering the readability of handwriting (Kulp and Sortor, 2003). In addition, upon the acquisition of the process of writing, it basically relies on the quality of planning of the whole motor movement of the hand that enables the drawing in accordance of the sequence of letters. Delays in the process of motor planning may make it difficult to learn and produce such movements in a proper fashion (Sandler et al., 1992). From a neuropsychological perspective, it was indicated that disability in the integration between sensory information is attributed to parietal lobes of the brain, where less effectiveness of such regions constitute an explanation for the ineffectiveness of the processes of visual-motor integration (Andersen and Zipser, 1988). On the other hand, ineffectiveness of the frontal regions of the brain lobe makes the processes of motor planning difficult (Dum and Strick 2002).

Abu Rabia and Taha (2004), postulate that incorrect spelling of words might be basically related to an initial reading disability. As mentioned previously, reading disability refers to ineffectiveness in the development of brain systems which are specialized in the recognition of the written words. It also refers to difficulty in the development of the ability of learning letter-sound correspondences (Taha et al., 2014). Such deficits in the development of the brain systems may lead to a difficulty in writing words correctly due to the lack of an efficient storage of orthographic patterns of words in the memory which is known as the lexical route (Coltheart, 2005). Such developmental deficits of the lexical route may lead into spelling inaccuracies. For the illustration of the mutual relationship between the development of reading and spelling, we can refer to the kindergarteners' way of spelling. Error can be observed when kindergarteners are asked to write words. However, due to the still-undeveloped mental orthographic lexicon or the lexical information about words at this early age, those kindergarteners may find it difficult to spell words accurately and mainly rely on phoneme-grapheme correspondences only as the predominate strategy of spelling. Abu Rabia and Taha, (2006) argues that this ineffective way of spelling could reveal into the performing of spelling mistakes. For such example, these errors are known as phonetic or regular errors (Abu Rabia and Taha, 2004, 2006; Coltheart, 2005). Accordingly, this is explained that writing errors made by children with reading disability is because of their ineffective orthographic knowledge. On the other hand, writing expression disability refers to the ineffectiveness in producing a composition that represents a mental idea through integrating fitting verbal expressions with presenting ideas in a coherent, fluent and sequential fashion. Certainly, such difficulty is attributed to ineffectiveness in the expressive language skills. In addition, it was suggested that such difficulty is related to the area of language disturbances (Pennington, 2009).

The grapho-motor writing disability is usually treated through implementing programs of treatments that cultivate the grapho-motor ability such as occupational therapy (Ratzon et al., 2007). On the other hand, problems in writing expression and difficulties in spelling skills are carried out through intervention programs of involvement that deal with writing and reading skills. These interventions usually consider that the didactical aspects and learning strategies is what makes these writing functions more efficient (Pennington, 2009).

Dyscalculia

Dyscalculia is a difficulty in the acquisition of the basic mathematical skills and knowledge about numbers, arithmetical facts and calculations. This difficulty may disturb the ability of learning math afterwards (Henik et al., 2011). The developmental process of knowledge on math is different from the processes of the acquisition of reading and spelling since it deals with a continious learning of incremental mathematical knowledge, while the knowledge on specific skills is required in decoding, word recognition and spelling is repetitive (Landerl et al., 2009).

Children with dyscalculia may demonstrate a difficulty in learning quantitative problems, manipulating quantities, learning numbers facts and numerical knowledge, and problems in learning basic arithmetical facts and procedures (Butterworth et al., 2011). From the cognitive point of view, the research attributes the failure in learning math among children with dyscalculia to the difficulty in understanding the quantitative magnitudes, is which leads to leads to a difficulty in learning the quantitative value of numbers (Dehaene, 2011). This difficulty is known as the difficulty in the development of numerical cognition (McCloskey, 1992). Various studies show that children with dyscalculia suffer from a delay in the development of the quantitative knowledge which is represented by symbolic digits (Wynn, 1992). Other studies indicate that there are some children with dyscalculia who encounter difficulty in learning mathematical problem solving skills due to difficulties in their executive functions (EF) (Vandersson, 2008). Executive functions is an umbrella term that includes a group of cognitive abilities that enable the planning of cognitive and behavioral action, performing and producing it until reaching a final goal (Lezak, 2004, p. 611). Although the process of performing the cognitive processes, there is a need for a sufficient recruitment of attention (Andersson, 2008). Accordingly, it was argued that children with attention deficit hyperactivity disorder (ADHD) most likely suffer from difficulties in math due to the ineffectiveness of the EF among this group of children (Miranda et al., 2012).

Considering the deficit in the development of numerical cognition, the neurological explanation is attributed to the ineffectiveness of the Intra-Parietal Sulcus (IPS) in the parietal lobe (Figure 3). Various studies indicate that among children with dyscalculia, the typology of this sulcus is different from typical children (Kadosh, 2007). While the ineffectiveness attributed to the EF is explained through dysfunctions to the pre-frontal brain regions (Andersson, 2008). Nowadays, intervention programs for students with dyscalculia are mainly conducted through employing didactic methods in which the child goes through intensive exercises in studying math and workout plans and strategies for the purpose of cultivating the numerical and arithmetical knowledge (Shalev, 2004). Those interventions also involve cultivating cognitive skills that are related to math. Usually, computer training software programs can constitute basic tools for the processes of treatments for the purpose of activating an intensive activation for brain systems responsible for numerical processing (Cohen-Kadosh et al., 2013;

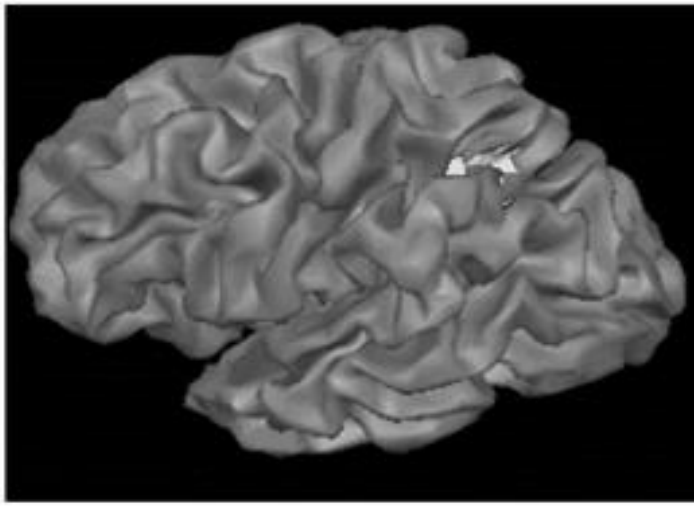

Figure 3. The Inter-parietal sulcus.

Räsänen et al., 2009).

The Socio-emotional domain.

The negative experience of failure that children with learning disability go through in the academic experience may lead to adopting a low academic self-concept (Chapman et al., 2000). According to Chapman et al. (2000) such academic self-concept (the self-belief in the personal ability to learn) is shaped toward reaching after the first years of school, as the child has been already going through several experiences of academic failures. Such poor academic self-concept negatively influences the general self-concept. Accordingly, such low general self-concept involves emotional fears and difficulties which may have a negative impact on the personality of children with learning disability (Scarborough and Parker, 2003). Also, it was found that emotional difficulties that will develop on behalf of children with learning disability could have direct implications on their cognitive ability. This was explained by the notion that the emotional imbalance and the fears that accompany children with learning disability become additional reasons to recruit cognitive resources during the process of learning beside the disability itself (Owens et al., 2012). These difficulties will be also an additional cause for academic failures. Therefore, the process of intervention for learning disabilities must take into consideration the following elements: the emotional aspect, strengthening the self-esteem and making the methods of dealing with experiences of failure and disappointments much more efficient. This treatment enables children to experience success and positive learning experiences and accordingly to reveal into high degree of self-confidence and consequently it may significantly improve the self-academic concept as well.

Learning disabilities in the Arab community in Israel

The field of learning disability in Israel, in general, has earned special attention since the "Margalit committee" published its report in 1997 (Israeli Ministry of Education, 1997). The "Margalit committee" headed by "Malka Margalit" was set up by the minister of education "Zvollon Hammer". According to the committee report, it was indicated that various institutions in Israel were not sufficiently effective and organized in dealing with learning disability. The findings also revealed that there were no clear policy regarding the treatment of learning disability in Israel. In the aftermath of this committee, the minister of education established a body for learning disability that dealt with implementing regulations in the educational system including specific accommodations for learning disabled students throughout exams. Accommodations constitute a stage in the process of intervention that is directed to dealing with the difficulties that facing children with learning disability in accordance to the type of disability. Those accommodations change the regular way that children are tested with (Zuriff, 2000). Empirical findings support the notion that Accommodations were found to accelerate reading comprehension among learning disabled students. For example, Runyan (1991) examined the effects of extra time on the ability of university students with and without

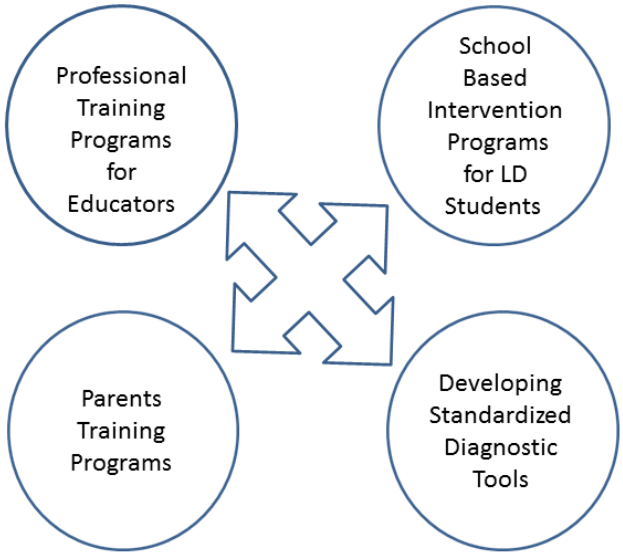

Figure 4. The suggested ecological quatro-model toward intervention in the Arab community in Israel (Abbreviation: LD= Learning Disabled).

learning disabilities to complete a reading comprehension test under timed and extra-time conditions. It was found that that there is a significant difference between scores of students with learning disabilities and normally achieving students under timed conditions and that there are no significant differences in test performance between students with learning disabilities and normally achieving university students when students with learning disabilities are provided extra time. Accordingly, school and regional committees' were set up for the purpose of arranging the treatment process of children with learning disabilities in Israel. Mainly, this process includes the arrangement of the diagnosis process, and approving the suggested accommodation for each student.

Nowadays, learning disability is perceived as a disability that necessitates specific attention from the school. The fact that learning disability is attributed to ineffective neurological functions, it requires that the educational system adapt the teaching methods, learning and testing accommodations for the purpose of enabling children with learning disability to achieve the full academic potential they have. This perspective is one of the essential perspectives that the general director of the minister of education emphasize in the field of accommodations (Israeli Ministry of Education, 2003). As a result, accommodations for learning to disabled students became a central point of interest among schools and educators in Israel since the previous report of "Margalit committee" was published in 1997. This was evident by the remarkable growth in the number of accommodations that were used and approved for students with learning disabilities during the years 2000-2007. This fact is based on the data that was reported by Schiff et al. (2010), as it has been extracted from the working paper that was submitted to the department of education and teaching in the "Central Bureau of Statistics in Israel". According to this survey, a remarkable growth was noticed in approving the applications for accommodations that were submitted by students from the 10^{th} into the 12^{th} grades in Israel, for both Arab and Hebrew sectors (Figure 4). These accommodations are usually divided into three levels depending on the way and the level of change by which the given accommodation could produce on the regular way of examination.

For example, accommodations from level "A" are those to be considered as simple accommodations and usually do not extremely change the regular way of examination. For example, allowing time extension for answering the exam questions. However, accommodations from level "B" are supposed to produce a moderate change in the way of examination or receiving the answers from the student for making the exam and the answering way suitable with students' need. For example, ignoring spelling mistakes which is being made by the student during his or her answering process. While on the other hand, accommodations from level "C" are supposed to change the regular way of examination in extreme way according to the student needs. The approval of accommodations form level "C" is considered as complex process which requires an expanded process of diagnosis, while the application for approving such accommodations should be submitted to professional committee in the ministry of education (The Ministry of

Education in Israel, 2003). According to Schiff et al. (2010), the growth in the number of the accommodations that were approved in Israel was observed on the three levels of accommodations; A, B and C. The number of the accommodations was increased form 11.2% and was used by students in 2000 to 19.9% in 2007. Yet, until the present days, a lack of awareness among certain populations in Israel, like the Arab community, is noticeable concerning this issue. For example, awareness about learning disability in the Arab society in Israel is lower than that in the Jewish society in Israel. The lack of awareness is manifested through a wrong diagnosis for children with disabilities and their application to the relevant framework (Jabareen and Agbariya, 2010, pp. 38-39). Also, such lack of awareness could be considered as main reason for the differences that were reported by Schiff et al. (2010) on the number of the accommodations that were used by Arab students (5.7% from the students in the 10^{th} into 12^{th} grades) compared to students from the Hebrew sector (23.9% from the students in the 10^{th} into 12^{th} grades). However, it should be mentioned here that some researchers tend to postulate that in spite of formal published statistics, where the numbers of learning disabled students in the Hebrew community are higher than those in the Arab community in Israel, but in fact the realty is not as this. For example, Abu Rabia and Maroun (2005) postulate that the frequent consanguineous marriage type in some Arab communities in Israel is potential cause on high rates of reading disabilities among this population. In light of their postulation, Abu Rabia and Maroun examined whether the rate of reading disabilities among offspring of first-cousin parents could be compared to the offspring of unrelated parents; and whether reading-disabled children of first-cousin parents were more disabled in phonological awareness and phonological decoding than reading-disabled children of unrelated parents and normally reading younger children. Abu Rabia and Maroun examined these questions by investigating 814 pupils of the 4th, 5th, and 6th grades. Two experimental groups were chosen from this population; a reading-disabled group of twenty-two pupils who were children of first-cousin marriages and twenty-one pupils who were children of unrelated parents beside to control group which consisted of twenty-one younger normally reading pupils at the same reading level. All the groups were tested on non-words, real words, phonological, orthographic and working memory measures. The results indicated that the rate of reading disabilities among children of first-cousin parents was higher than that of the children of second-cousin parents, distantly related parents, or unrelated parents. Another obstacle that interferes with learning disabilities treatment in the Arab community in Israel is the lack of standardized diagnostic tools for assessing academic and related cognitive skills for different ages and especially for kindergarten children and adult students (Mazzawi, 1997). Just recently, a standardized reading diagnostic battery was published for children from first into sixth grades. Unfortunately, the lack of those standardized tools led to a higher risk of inaccurate diagnoses for students in Arab society in Israel (Assadi, Ibrahim, Ben-Simon and Shany, 2014).

There are several factors that explain gaps in the level of awareness between the two populations and accordingly leading to significance difference in the level of diagnosis and intervention administrations (Jabareen and Agbariya, 2010, pp. 38-39). For example, a lack of a comprehensive training for educational staffs in Arab schools in Israel at the area of learning disabilities is an important cause for the lack of awareness among these staffs. This may have negative implications on the staffs' ability to identify children with learning disability in the class and impedes an early involvement on their behalf. In addition, a lack of awareness about this field among parents is evident due to lack of community programs targeted to increase awareness among parents concerning their impact on the emotional and academic life of their children and their interaction within the family that might be damaged as a result of their disability. Such community programs are more common in the Jewish society than they are in the Arab society in Israel (The Israeli Jewish Joint Distribution Committee, 2006). This leads to the difference in the awareness between Arab and Jewish parents.

Programs for increasing awareness among educational staffs and parents may contribute to improving involvement for identifying and treating children with learning disability at early ages. This may also lead to creating a comfortable learning atmosphere on their behalf. The success of these children in their studies may minimize their public or secretive drop out from school as well as decreasing the level of violence and juvenile delinquency that may resulted from their drop out from school (Sveta et al., 2000). The intervention at this level of the educational staffs may include also the issue of developing standardized diagnostic tools for assessing academic and related cognitive skills for different ages using the support of academic professional services. As mentioned above, in the Arab community in Israel is the lack of standardized diagnostic tools for assessing academic and related cognitive skills for different ages and especially for kindergarten children and adult students (Mazzawi, 1997). This lack negatively contributes to the "false diagnosis" of students as having developmental learning disabilities or not. Standardized diagnostic tools contribute to the true diagnosis and the suitable intervention as a result.

These programs of involvement could be implemented within the framework of schools through advanced courses, learning, professional training at the levels of school and community and even a comprehensive school based, intervention programs for students with learning disabilities. The suggested school intervention programs are supposed to be designed in a way that could enable

professional identification of students with learning disability, and also to enable an intervention for strengthening their academic and social skills. The effectiveness of those school programs could be a matter of collaboration between the educational system and the parents. Accordingly, effective model of intervention that could be suggested for such community should work as an ecological one while different domains should be involved in such intervention.

See figure 4 as suggested quarto-level model for such intervention. Community involvement and intervention programs which aim to support students with learning disabilities were reported in different studies in the word-class literature. Considering the social domain of intervention for learning disabled students, Smith and Shu (2000) reported that interventions by parents, teachers, and the students' peers were often effective. Also, Smith and Shu (2000) suggested that teachers require guidance on fostering peer support and altering the role of bystanders, initially during teacher training education and later in ongoing in-service sessions. In compatible manner, Smith and Myron-Wilson (1998) contended that alongside school-based interventions, work is required with parents and families; they argued that parents might need for professional support to realize that their behavior may contribute to their child's difficulties. According to Mishna (2003), in adapting schoolwide interventions to suit the particular school and students in order to increase the likelihood of success, it may be necessary to incorporate accommodations for the students with LD in a manner that does not single them out.

The criticism around different intervention programs and how they can cover the learning disabled students' needs has been discussed by different researchers. For example, Kavale et al. (2005) published a large discussion about the limitations of the well know Response-to-Intervention approach which intended to identify students according to their response to validate and monitor instruction. Students who do not respond receive either more intensive or different instruction. The progress continues to be monitored, while the failure to respond may qualify a student for special education. Despite the fact the this approach has been supported by different researchers (for example; Barth, et al., 2008; Fletcher and Vaughn, 2009;), Kavale et al. (2005) argue that fundamental issues related to RTI have not been resolved, while better strategy may be to more rigorously implement existing identification criteria (for example., discrepancy and psychological processing deficits) in a structured psychometric framework. Eventually, an inappropriate involvement could constitute a cause for other problems in the community and society such as violence and juvenile delinquency.

Thus, in order to achieve awareness at the level of children, there is a need for involvement in increasing awareness at the level of educators, teachers and parents.

Conflict of Interests

The authors have not declared any conflicts of interest.

REFERENCES

Abu-Rabia S, Maroun L (2005). The effect of consanguineous marriage on reading disability in the Arab community. *Dyslexia*, *11*(1):1-21.

Abu-Rabia S, Taha H (2004). Reading and spelling error analysis of native. Read. Writ. 17(7-8):651-690.

Abu-Rabia S, Taha H (2006). Phonological errors predominate in Arabic spelling across grades 1–9. J. Psycholinguist. Res. *35*(2):167-188.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

Andersen RA, Zipser D (1988). The role of the posterior parietal cortex in coordinate transformations for visual-motor integration. Can. J. Physiol. Pharmacol. 66(4):488-501.

Andersson U (2008). Working memory as a predictor of written arithmetical skills in children: The importance of central executive functions. Br. J. Educ. Psychol. *78*(2):181-203.

Anthony JL, Francis DJ (2005). Development of phonological awareness. Curr. Directions Psychol. Sci. 14(5):255-259.

Assadi I, Ibrahim R, Ben-Simon A, Shany M (2014). A System for diagnosis reading disability and writing skills in Arabic. Retrieved from: http://www.hebpsy.net/articles.asp?id=3160 (Hebrew).

Barth AE, Stuebing KK, Anthony JL, Denton CA, Mathes PG, Fletcher JM, Francis DJ (2008). Agreement among response to intervention criteria for identifying responder status. Learn. Individ. Diff. 18(3):296-307.

Breznitz Z (2006). Fluency in reading: Synchronization of processes (page: 36-48). London: Lawrence Erlbaum Associates.

Breznitz Z, Shaul S, Horowitz-Kraus T, Sela I, Nevat M, Karni A (2013). Enhanced reading by training with imposed time constraint in typical and dyslexic adults. Nature Commun. 4:1486.

Butterworth B, Varma S, Laurillard D (2011). Dyscalculia: from brain to education. Science 332(6033):1049-1053.

Chapman JW, Tunmer WE, Prochnow JE (2000). Early reading-related skills and performance, reading self-concept, and the development of academic self-concept: A longitudinal study. J. Educ. Psychol. 92(4):703.

Cohen Kadosh R, Dowker A, Heine A, Kaufmann L, Kucian K (2013). Interventions for improving numerical abilities: present and future. Trends Neurosci. Educ. 2(2), 85-93.

Coltheart M (2005). Modelling reading: The dual-route approach. In: Snowling, M.J. & Hulme, C. (Eds). The Science of Reading. Oxford: Blackwells Publishing.

Dehaene S (2011). The number sense: How the mind creates mathematics. Oxford University Press.

Dum RP, Strick PL (2002). Motor areas in the frontal lobe of the primate. Physiol. Behav. 77(4):677-682.

Ehri LC (2005). Learning to read words: Theory, findings, and issues. Sci. Stud. Read. 9(2):167-188.

Fingelkurts AA, Fingelkurts AA, Kähkönen S (2005). Functional connectivity in the brain—is it an elusive concept?. Neurosci. Biobehav. Rev. 28(8):827-836.

Finn ES, Shen X, Holahan JM, Scheinost D, Lacadie C, Papademetris X, Constable RT (2013). Disruption of Functional Networks in Dyslexia: A Whole-Brain, Data-Driven Analysis of Connectivity. Biol. Psychiatry 76(5)397-404.

Fletcher JM, Vaughn S (2009). Response to intervention: Preventing and remediating academic difficulties. Child Dev. Perspect. 3(1):30-37.

Hallahan DP, Mercer CD (2002). Learning disabilities: Historical perspectives. Identification of learning disabilities: Research to practice. In: R. Bradley., L. Danielson., & D. P. Hallahan, (Eds.). Identification of Learning Disabilities: Research to Practice. Routledge. pp. 1 - 67

Henik A, Rubinsten O, Ashkenazi S (2011). The "where" and "what" in developmental dyscalculia. Clin. Neuropsychol. 25(6):989-1008.

Israeli Ministry of Education. (1997). The report of the professional committee for Examine the abilities realizations of learning disabled students in Israel: Margalit, M. Available at: http://makom-m.cet.ac.il/pages/item.asp?item=302.

Israeli Ministry of Education. (2003). General director of the ministry of education instructions' for accommodations in exams for learning disabled students in high schools. Available at: http://cms.education.gov.il/educationcms/applications/mankal/arc/sd4bk4_3_25.htm.

Jabareen Y, Agbariya A (2011). Education on Hold: Government Policy and Civil Society Initiatives to Advance Arab Education in Israel. Dirasat, Arab Center for Law and Policy: Nazareth. Available at: http://www.dirasat-aclp.org/arabic/files/education-on-hold_dirasat_2010.pdf.

Kadosh RC, Walsh V (2007). Dyscalculia. Curr. Biol. 17(22):R946-R947.

Kulp MT, Sortor JM (2003). Clinical value of the Beery visual-motor integration supplemental tests of visual perception and motor coordination. Optometry Vision Sci. 80(4):312-315.

Landerl K, Fussenegger B, Moll K, Willburger E (2009). Dyslexia and dyscalculia: Two learning disorders with different cognitive profiles. J. Exper. Child Psychol. 103(3):309-324.

Matejko A, Ansari D (2012). Developmental Cognitive Neuroscience and Learning. In Encyclopedia of the Sciences of Learning. Springer US. pp. 961-966

Mazzawi A (1997). The educational consulting services and psychological education system in Israel. Available at: http://makom-m.cet.ac.il/pages/item.asp?s=1&id=200&defid=-1&page=4&item=301

McCloskey M (1992). Cognitive mechanisms in numerical processing: Evidence from acquired dyscalculia. Cognition 44(1):107-157.

McNulty MA (2003). Dyslexia and the life course. J. Learn. Disabilities 36(4):363-381.

Miranda A, Colomer C, Fernández I, Presentación MJ (2012). Executive functioning and motivation of children with attention deficit hyperactivity disorder (ADHD) on problem solving and calculation tasks. Revista de Psicodidáctica 17(1):51-71.

Miranda A, Colomer C, Fernández I, Presentación MJ (2012). Executive functioning and motivation of children with attention deficit hyperactivity disorder (ADHD) on problem solving and calculation tasks. Revista de Psicodidáctica 17(1):51-71.

Mishna F (2003). Learning disabilities and bullying double jeopardy. J. Learn. Disabilities 36(4):336-347.

National Joint Committee on Learning Disabilities. (1985/1994). *Learning disabilities and the preschool child.* In Collective perspectives on issues affecting learning disabilities: Position papers and statements. Austin, TX: Pro-Ed. pp. 37-48.

Nicolson RI, Fawcett AJ (1999). *Developmental dyslexia: The role of the cerebellum.* In Dyslexia: Advances in theory and practice. Springer: Netherlands. pp. 173-196

Owens M, Stevenson J, Hadwin JA, Norgate R (2012). Anxiety and depression in academic performance: An exploration of the mediating factors of worry and working memory. School Psychol. Int. 33(4):433-449.

Pennington FB (2009). Diagnosing Learning Disorders: A Neuropsychological Framework. NY: Guilford Press

Räsänen P, Salminen J, Wilson AJ, Aunio P, Dehaene S (2009). Computer-assisted intervention for children with low numeracy skills. Cognitive Dev. 24(4):450-472.

Ratzon NZ, Efraim D, Bart O (2007). A short-term graphomotor program for improving writing readiness skills of first-grade students. Am. J. Occup. Therapy 61(4):399-405.

Rubinsten O, Henik A (2009). Developmental dyscalculia: heterogeneity might not mean different mechanisms. Trends Cognitive Sci. 13(2):92-99.

Runyan MK (1991). The effect of extra time on reading comprehension scores for university students with and without learning disabilities. J. Learn. Disabilities 24(2):104-108.

Sandler AD, Watson TE, Footo M, Levine MD, Coleman WL, Hooper SR (1992). Neurodevelopmental study of writing disorders in middle childhood. J. Dev. Behav. Pediatrics 13(1):17-23.

Scarborough HS, Parker JD (2003). Matthew effects in children with learning disabilities: Development of reading, IQ, and psychosocial problems from grade 2 to grade 8. Ann. Dyslexia, 53(1):47-71.

Schiff Y, Shimoni E, Portnoy H (2010). Students receiving accommodations for the matriculation examinations: Characteristics and achievements. The Central Bureau of Statistics – Department of Education and Teaching Forces: Jerusalem. Available at: http://www.cbs.gov.il/www/publications/pw58.pdf

Shalev RS (2004). Developmental dyscalculia. J. Child Neurol. 19(10):765-771.

Share DL (2008). On the Anglocentricities of current reading research and practice: the perils of overreliance on an" outlier" orthography. Psychol. Bull. 134(4):584.

Shaywitz BA, Lyon GR, Shaywitz SE (2006). The role of functional magnetic resonance imaging in understanding reading and dyslexia. Dev. Neuropsychol. 30(1):613-632.

Shaywitz BA, Shaywitz SE, Blachman BA, Pugh KR, Fulbright RK, Skudlarski P, Gore JC (2004). Development of left occipitotemporal systems for skilled reading in children after a phonologically-based intervention. Biol. Psychiatry 55(9):926-933.

Siegel LS (2012). Confessions and reflections of the black sheep of the learning disabilities field. Aust. J. Learn. Difficulties 17(2):63-77.

Snowling M (2001). From language to reading and dyslexia. Dyslexia 7:37-46.

Snowling MJ (2008). Specific disorders and broader phenotypes: The case of dyslexia. Q. J. Exper. Psychol. 61(1):142-156.

Smith PK, Myron-Wilson R (1998). Parenting and school bullying. Clin. Child Psychol. Psychiatry 3:405-417.

Smith PK, Shu S (2000). What good school can do about bullying: Findings from a survey in English schools after a decade of research and action. Childhood 7:193-212.

Steinbrink C, Ackermann H, Lachmann T, Riecker A (2009). Contribution of the anterior insula to temporal auditory processing deficits in developmental dyslexia. Hum. Brain Mapping 30(8):2401-2411.

Taha H, Ibrahim R, Khateb A (2014). Exploring the Phenotype of Phonological Reading Disability as a Function of the Phonological Deficit Severity: Evidence from the Error Analysis Paradigm in Arabic. Reading Psychol. 35(7):683-701.

The Israeli Jewish Joint Distribution Committee. (2006). People with disabilities in the Arab community in Israel: An opportunity for social change: Sandler-Laf & Shahak. Available at: http://www2.jdc.org.il/sites/default/files/arabs-disability-heb.pdf

Vellutino FR, Fletcher JM, Snowling MJ, Scanlon DM (2004). Specific reading disability (dyslexia): what have we learned in the past four decades?. J. Child Psychol. Psychiatry 45(1):2-40.

Ziegler JC, Goswami U (2005). Reading acquisition, developmental dyslexia, and skilled reading across languages: a psycholinguistic grain size theory. Psychol. Bull. 131(1):3.

Zuriff GE (2000). Extra examination time for students with learning disabilities: An examination of the maximum potential thesis. Appl. Measure. Educ. 13(1):99-117.