

## Investigating the Effectiveness of Educating Cognitive Processing based Social Skills on Improvement of Social Skills and Life quality in students afflicted with dyslexia

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### Abstract

This study seeks to investigate the effectiveness of educating cognitive processing based social skills on improvement of social skills and life quality in students afflicted with dyslexia. This test was administered in a quasi-experimental method through pretests and post-test on the control group. The study population included all the male students of Kohhdasht city in the academic year 2014-15 aging 12 to 16. The research sample included 30 dyslexic male students chosen among dyslexic students after structural clinical interview and teacher's reports and placed randomly in the experiment and witness groups. Mathson's social skills scale (1983) and social life (SF-36) were used to sum up the data. The results of the multivariable covariance analysis (MANCOVA) shows that teaching cognitive processing based social skills has a positive effect on the improvement of the social skills and life quality in the dyslexic students ( $P < 0.001$ ). Since dyslexic students experience depression and loneliness in addition to educational problems and show lower levels of social interaction compared to the normal students, this intervention can help improve their social skills.

**Keywords:** cognitive processing-based social skills, social skills, life quality, learning disorders, students

### Introduction

All the students in literate societies have the right to literacy and according to the system of training and education, students are expected to be able to read fluently and comprehend what they have read by the end of the elementary level, thus they must be able to read in order to learn (Education for all, 2011). As a result, there are great concerns about students who have reading (and writing) problems in the school. So, it must be noted that reading problems are associated with the educational system and guarantee no position in psychology. However, dyslexia is usually associated with other neuro-developmental disorders such as disruptive behavioral disorders

and anxiety increases in the people afflicted with dyslexia (Karl & Iles, 2006; quoted by Margaret, Snowling and Hulme, 2012). Thus, dyslexia must also be considered from a psychological point of view: decoding problems (dyslexia) and comprehension disorders (Kine, 2010 and Hulme and Snowling, 2009; [4]. These 2 different types of dyslexia have 2 different reasons and require different treatments. In the fifth edition of Diagnostic and Statistical Manual of Mental disorders (DSM-5), the term dyslexia is not used and neuro-psychological disorders category is used in its place. Of all different disorders whose beginning dates back to pre-schools stage or before that, this category only includes learning disorders and communication disorders. There

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are 3 different forms of dyslexia and 7 different forms of communication disorders, but what is vague in DSM-5 list is the internal relationship between different disorders.

Dyslexia is damage that influences the decoding skill and is replaced by the “reading disorder” in DSM-5. The recommended definitions of DSM-5 of dyslexia generally has the following features:

1- problems in the accuracy and eloquent reading which are not compatible with educational opportunities or intelligence skills. 2- Disorder in criteria 1 without the matching power of the eye shows a significant intervention with educational development and daily life activities which require these reading skills. Spelling problems are not included in (DSM-5), while dyslexic people have problems in spelling and writing which are usually more severe and lasting than their other reading problems (Brook, 1990; Magan, 2009[4] . Contrary to reading disorders which take place in decoding skill in the level of the word, poor comprehenders perform a satisfactory decoding, yet they have problems understanding what they have read (Hulme et al., 2011; quoted by Margarit et al., 2012).

One of the possible problems in people with learning disorders is the problems associated with social skills. Social skills is a set of acquired behaviors which enable an individual to establish an effective relationship with others and refrain from unwise social reactions. Cooperation, participation, giving help, starting a relationship, asking for help, complementing and appreciating others are examples of such behaviors. Learning these behaviors and establishing an effective relationship with others are some of the most important achievements of childhood period. Unfortunately, not all children manage to acquire such skills [18], thus they usually face negative

reactions from their peers. Those children who have acquired sufficient social skills are more successful than those without such skills in establishing a relationship with their peers [8], (DeRosier, 2010) and learning in educational environment [37], [19]. Slow mouski & Dann (1996; [21], describe cognition and social skill as a process which enables kids and adolescents to predict and understand others’ behaviors, control their own behavior and regulate their social interactions. The research results indicate that children with learning disorders have problems in interpersonal skills [25], (Wiener, 2004), depression and other disorders associated with mood [39], [31], social information processing [11]. more problems in social interactions and social skills [2], high levels of social rejection and loneliness [16], and adjustment problems [7], [30], (Weiner, 2004; [9]. One of the variables which can influence different aspects of the life of the students with dyslexia is the quality of life. Life quality is a range of the objective needs of each individual which are acquired is relationship with his individual understanding of the sense of goodness. The favorable quality of life does not necessarily mean absence of disease; it means the sense of wellness in various mental, social, performance and spiritual terrains (Zhang, Wisniewski & Bauer, 2006). As the quality of life is not a concerned with quantity and has different definitions and connotations for various individuals, World Health Organization (WHO) considers quality of life as a multidimensional concept and defines it as each individual’s understanding of his life, values, goals, standards and personal interests. Sense of security, emotional conflicts, personal believes, the goals and levels of tolerating failures influence the way an individual perceives himself (the sense of satisfaction or dissatisfaction) (WHO, 2007).

Today, new educational methods are used in the field of psychology to treat people with certain learning disabilities, one of which is education of cognitive processing-based social skills. Over the recent years, cognitive processing or, in other words, problem solving in education of social skills has gained greater acceptance [5]. As this approach makes people think, it will be much easier to generalize the social skills trained and people start learning skills more actively in comparison with the direct education approach. Instead of teaching social skills individually to each person, we tried to teach them problem solving skills based on their social conditions. Attempts were made to improve social problem solving skills in such a way that the individuals may pass different social conditions successfully (Veber & Strawton, 1998; quoted by Tekin Arsalan & SucoGlu, 2007). These skills help individuals gain a positive feedback in social environments, prevents them from encountering negative feedbacks, and facilitate interpersonal relationships for them [36].

After extensive researches, Addpow (2005; [36]. concludes that elementary students with abnormal behavior are capable of successfully acquiring social skills (quoted by Karimi et al., 2009). Jane [22] arrived at the conclusion that students afflicted with dyscalculia which have undergone trainings about cognitive processing-based social skills showed a higher level of social adjustment in their interpersonal relationships as compared to their peers in the control group. Bajanli (2008; quoted by Brian, 2010) showed in his research that teaching social skills improves interpersonal relationships, emotional, social and educational efficiency. Curtis & Elliot [13] arrived at the conclusion that teaching the cognitive processing-based social skills results in welfare, social, emotional and psychological improvement in mentally retarded students. The

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results of their researches showed that students in the experiment group benefited from a higher level of social adjustment as compared with students in the witness group. [28], [23] in their research titled "Investigating the effectiveness of educating social skills on the improvement of social and emotional skills in the students afflicted with dyscalculia" realized that such education helps improve the social and emotional skills of the students in the experiment group as compared to the witness group. In a research titled "The effectiveness of teaching cognitive processing-based social skills in improving the quality of interpersonal relationships in the students afflicted with special learning disabilities", Narimani, BagianKoolehMarz and Abbasi [5] realized that teaching such skills results in the improvement of the interpersonal relationship of the students afflicted with special learning disabilities.

On the whole, considering the psychological properties, behavioral problems, mood states (anxiety and stress), limited interpersonal relationships, experiencing negative emotions by these students [23], comorbidity of dyslexia with other mental disorders of the childhood period, high prevalence of this disorder among students and the role of teaching social skills as key factors in success; thus improving the health and reduction of psychological problems of such students and the research gaps in this field and using the results of this research for pathology and treatment of those suffering from learning disabilities are important necessities of this study. Thus, the goal of the present research is to investigate the effectiveness of teaching cognitive processing-based social skills on improvement of social skills and life quality of dyslexic students.

## Methodology

Research design: in this study, we used semi-experimental research design. The experiment design of the current research includes a pretest – posttest design with the witness group and consisted the following executive stages: 1- accidental replacement of the participants; 2- administering the pretest and collecting data; 3- administering the independent variable (teaching the cognitive processing-based social skills) on the experiment group, and 4- administering the posttest and collecting the data.

**Community, sample and sampling method:** the study population of this research included all the dyslexic male students of the junior high school level in Koohdasht city in the academic year 2014-15 who were introduced as dyslexic students based on their teachers' diagnosis. Available sampling method was utilized in this research. 10 junior high schools were selected among all the junior high schools of Koohdasht. Then, interviews were held with the teachers of these schools and students suspected of dyslexia (numbering 40) were introduced based on the criteria of DSM-IV-TR. As the study population was limited, the research sample also formed the study population based upon which, 40 dyslexic students were selected according to the diagnostic criteria of this research and placed in the experiment and witness groups (15 people each group). Concerning the choice of sample, we must point to the fact that in the experimental method, each subgroup must include at least 15 people and if the selected sample is to be a real representative of the population and if the research is to have a high level of external validity, the number of participants in the sample is to be equal to the number of those in population [1]. Through application based upon the reports recorded in the student's file

(intelligence and diagnosis tests and teachers' reports) and the structural clinical interview based on DSM-IV-TR; the entrance and exit criteria of the participants' homogeneity standards were observed: A- entrance criteria which include receiving dyslexia diagnosis, aging 12 to 16 years old; having the average IQ in Raven's colorful progressive matrix test (Abedi et al., 2011) and absence of sensual, neurological disability; B- exit criteria including severe accompanying disorders such as attention defect/hyperactivity, oppositional defiance disorder (ODD) and depression and having an IQ level below 85 in Raven's progressive matrices test. Considering the morality standards, all the respondents and their parents were asked to fill the moral form of agreement for participating in the research. The researchers also guaranteed to teach the cognitive processing-based social skills to the witness group, too. The following tools were utilized to collect data in the present research:

**1- Structural clinical interview for DSM-IV disorders:** SCID is a semi-structural clinical interview which is used for diagnosis of axis one disorders based on DSM. In a research conducted by Besco et al, the potential uses of SCID for use in mental health clinic were tested and the final conclusion was that SCID can be used to guarantee an accurate and valid diagnosis (Mohammad Khani, Tabesh&Tamanaieefar, 2005).

**2-Raven's intelligence test:** this test was designed by Raven (1962; quoted by Seyed Abbas Zadeh, Ganji & Shirzad, 2003) in England to measure the intelligence in the age group of 9 to 18 and includes 60 items (5 series, each including 12 items). The internal consistency coefficient and the retest validity coefficient were respectively reported as 0.90 and 0.82. The

correlation of this test with intelligence tests of Veksler, Stanford-Bineh, mazes of Proteos and Goodinov's Homunculus were in the range of 0.40 to 0.75. This correlation has been reported to be higher in non-verbal tests. The criteria for choosing the individuals is having an IQ of at least 90 or above.

**3- Mathson's social skills scale:** the social skills measurement scale developed by Mathson et al. in 1983 to measure the social skills of people aging 4 to 18 was used to measure the social skills of the students. The initial form of this scale included 62 statements which was later reduced to 56 statements after the agent analysis by Yousefi&Kheyr which described the social skills of individuals. To answer it, the participant must read each statement and choose his answer based on a 5-degree Likret type scale which ranges from 1 (never) to 5 (always). Questions 7-8-10-11-14-17-20-21-24-27-28-30-36-38-39-41-42-45-47-50-51-54 are exceptional and they are valued in a reverse format. The tool marks range from 56 to 280 where adolescents are divided to three groups with low (56 to 130), average (131 to 205) and high (206 to 280) social skills. The validity of this tool in the research conducted by Yousefi and Khayer [41] was measured around a Cronbach's alpha of 0.86. The validity coefficient of this scale in the present research was calculated to be around 0.84.

**3- Life quality scale (SF-36):** this questionnaire is a useful tool to help people know their health. This questionnaire includes 36 questions which measure the 8 micro scales associated with health: physical performance, physical role, physical pain, social performance, emotional role, general health, freshness and mental health. What's more, SF-36 also provides 2 general measurements of the performance: the total score of physical health scale (PCS) which measures

the physical dimension of health and the total score of mental-social scale (MCS) which measures the mental-social dimension of health. The participant's score ranges from 0 to 100 where higher scores indicate a better quality of life. Researches on the quality of life show that this questionnaire has a high level of validity and reliability (Mac Horney, Ware & Raczek, 1993; Grat, 1997). In Iran, the validity and reliability of this questionnaire (SF-36) was first measured by Iran Montazeri et al. [29] on 4163 people within the age range of 15 years and above most of whom were married. The validity coefficient in 8 dimensions ranged from 0.77 to 0.95, while this coefficient was 0.65 in freshness. On the whole, the results indicated that the Iranian version of this questionnaire with a high level of validity and reliability can be an appropriate tool for measuring the quality of life [29].

**The process of conducting the research:** after making the arrangements and getting permission from the bureau of education and training of Koohdasht and complying with the moral considerations and stating the research goals, parents and teachers were informed about the goals of the research and the consent of the parents and research sample students was achieved for their participation in the project. Then students with dyslexia were diagnosed and underwent clinical interviews. In addition to justifying the students and stating the goals of this research, students were asked to take part in the treatment period of this disorder. Then, both experiment groups received trainings on cognitive processing-based social skills while the witness group received no intervention (during the administration of educational intervention, the witness group merely received the usual class trainings). The treatment sessions included 8 classes each 45 minutes held in a place specified by the bureau of training and education of

Koohdasht city. During these sessions and after the end of training, students in both groups took the posttest. Finally, the data collected was analyzed by the single-variable covariance analysis (MANCOVA) test. Assuring the students about the secrecy of the information and preparing them mentally and psychologically for participating in the research were some of the ethical points complied with in this research. Meanwhile, no reduction of the participants was observed in any of the control and experiment groups. Intervention of the cognitive processing-based social skills was administered over 10 sessions by 2 master holders in clinical psychology in the place specified by the bureau of training and education of Koohdasht city. Having made the arrangements with parents, the trainings were scheduled to be held on Fridays when schools were close.

**The therapeutic program of teaching cognitive processing-based social skills based upon TekinArsalan et al.'s approach [36]**

“The program of teaching cognitive processing-based social skills” is a plan devised by the researcher by considering the educational approach of TekinArsalan et al [36] for intervention in the students’ special learning disabilities. In the program, the stages of social decoding, social decision, social performance, social evaluation of cognitive comprehension approach during education of social skills were pursued.

**First and second sessions:** introduction and identification of the general situation; this session was held with the purpose of familiarizing students with the researcher and providing mutual understanding and stating what the researcher expects from students. Teaching the five skills of social decoding, social decision,

social performance, and social evaluation of cognitive comprehension approach during education of social skills were pursued. At the beginning of each training session, some information and explanations were given to the students with especial learning disabilities about the necessity of acquiring the social skill in question.

**Third and fourth sessions:** in each session of teaching five skills of social decoding, social decision, social performance and social evaluation of cognitive comprehension approach; then the picture drawn for the first story was presented to the students and the story was read to them. Following the presentation of each stage of skills, the researcher used to ask the questions of this stage from himself loudly and provided the expected answers loudly, too (model making). Then the researcher would tell the student “it is your turn now”. The student was asked to ask himself the questions of education stages and display the behaviors he has observed.

**Fifth and sixth session:** different methods were used in teaching cognitive processing-based social skills such as active discussion, brainstorming, feedback, half-finished stories and solving hypothetical problems. This program evolves around education of social skills through the structure of story’s frame along with complementary activities. The goal of this program is to increase the number of strategies that students with special learning disabilities have in social dealings and while facing vague situations or social problems. It is designed based upon education of four fields in school: diagnosing emotions and feelings, its root and role in one’s behaviors and others’ reactions, controlling impulses, social problem solving skill and favorable social skills. In order to teach each field, stories were written which define the skills

indirectly and describe the benefits of utilizing them and the methods of applying them. Complementary activities were also designed to increase children's participation and, as a result, their accuracy level, attention and learning.

**Seventh session:** various methods of utilizing story's frame in this program were as follows: 1- the researcher reads the story, presents pictures and speak about the theme of the story through semi-structured questions, 2- group members take turns reading the story, presenting pictures and speaking about the theme of the story through semi-structured questions, 3- the therapist reads the story and children practice and act it out, 4- group story making: in this method, the therapist starts a story with the purpose of stating a particular subject (a skill or social problem) and asks the students to add a sentence to it one by one. In order to guide the story towards its determined goal, the therapist adds something to the story or asks questions, 5- making stories through prepared sentences: in this method, the sentences of a story are written on cards and handed out to students (each sentence on a separate card). Students put the sentences in such an order that a story is formed, then take turns reading their stories for others and discuss the theme of the stories, 6- making stories

based upon pictures: each child is given cards of pictures (6 to 8 cards) and they are asked to build up two or three stories based upon the picture and tell it to others, 7- generalized discussion: the goal of the sessions of observation generalization is to check to see if the students are capable of showing appropriate social skills in different situations and environments by asking questions (what's happened? What can I do? Which behavior should I show? What is the result of such behavior?) from themselves based upon the cognitive processing approach (which he is expected to have learnt by the end of educational sessions). Considering data collection for generalization sessions (contrary to educational sessions), the therapist did not model the four stages of cognitive processing approach for the students, he merely presented pictures, read stories and educated. "What would you do if you were in the place of the one who is in the picture?" then students were expected to ask themselves the necessary questions and give answers based on the stages they had learnt previously. 4 new stories and their relevant pictures never previously used were presented in the generalization session.

**Eighth session:** summing up and practicing trainings and administering posttest.

## Results

Table 1. the mean and standard deviation of social skills marks in the pretest and posttest of the groups studied

variable	component	experiment				control			
		pretest		posttest		pretest		posttest	
		M	SD	M	SD	M	SD	M	SD
physical health dimension (PCS)	physical performance	13.42	2.12	21.45	2.10	15	2	16.54	2
	physical role performance	8.18	1.25	13.12	1.11	9	1.16	9.89	1.52
	physical pain	9.17	1.15	4.32	1.23	6.23	1.03	6.56	1.32
	general health	15.56	2.52	21.18	1.15	11.14	1.89	12	2
	total	46.33	6.17	60.07	6.85	41.37	6.05	44.99	7.20
	freshness	14.15	2.23	20.18	2.15	12	2	12.12	2
mental social dimension	social performance	11.36	1.70	17.24	2	10.10	1.01	10.56	1.36
	role of emotion	10.17	1.03	16.18	1.25	9.56	1	10	1.18
	mental health	13	2	18.53	2	12	2	12.33	2.15
	total	48.68	7.12	72.13	8.12	43.66	7.03	45.01	6.84
	social skills	total	176.32	4.14	208.09	6.15	176.80	4.74	180.70

As it is seen in table 1, the mean (and standard deviation) of the total score of the pretest of dyslexic students in the pretest of physical health test in experiment and control groups were respectively 46.33 (and 6.17) and 41.37 (and 6.05). The total score of the posttest of the students in experiment group in physical health dimension is 60.07 (and 6.85) and the score of control group students is 44.99 (and 7.20). The mean (and standard deviation) of the total score of the pretest of mental social dimension in experiment and control groups were respectively 48.68 (and 7.12) and 43.66 (and 7.03). The total score of the posttest of the students in experiment group in mental social dimension is 72.13 (and 8.12) and the score of control group students is 45.01 (and 6.84). The mean (and standard deviation) of the total score of social skills was 176.32 (and 4.14). The total score of the posttest of the students in the experiment group in social skills is 208.09 (6.15). The mean (and standard deviation) of the total score of the pretest of the students in the control group in social skills is 176.80 (and 4.74). The total score of the posttest of the students in the control group in social skills is 180.70 (4.73). In other words, after education of cognitive processing-based social skills, experiment group students possessed more favorable social skills.

As it can be observed in the table, there is not so much difference in the pretest stage between the scores of the students in the experiment and control group in terms of quality of life and social skills which indicate low levels of life quality and social skills. After teaching the cognitive processing-based social skills, the total score of the students in the experiment group increased which indicates improved quality of life and social skills as a result of such education.

Table 2: the results of Levene's test about the presupposition of equality of the two groups' variances in the total scores of social skills variable

Box's M	DF1	DF2	F	P
5.116	91	4.784	1.212	0.106
Levene's	Levene			
	DF1	DF2	F	P
social skills	1	28	0.223	0.651
physical performance	1	28	0.154	0.717
physical role performance	1	28	0.112	0.803
physical pain	1	28	0.564	0.217
general health	1	28	0.926	0.214
freshness	1	28	0.819	0.203
social performance	1	28	1.223	0.118
emotional role	1	28	0.918	0.215
mental health	1	28	0.456	0.389

Before utilizing multivariable variance analysis parametric test, Box's and Levene's tests were used to comply with its hypothesis. Based on the Box's test which was significant for none of the variables, the condition of variance/covariance matrices was observed correctly (BOX= 5.116 and F=1.212=0.106). Based on Levene's test and its insignificance for all variables, the condition of variances equality between groups is complied with.

Table 3. information associated with the credential indicators of multivariable covariance analysis test

situation	test	value	F	DF of hypothesis	DF of Error	P	ES	statistical power
group	Pilai effect	0.654	31.145	9	20	$p \leq 0.001$	0.654	1/000
	wikle's lambda	0.154	31.145	9	20	$p \leq 0.001$	0.654	1/000
	Hotling effect	18.361	31.145	9	20	$p \leq 0.001$	0.654	1/000
	Roy's biggest root	18.361	31.145	9	20	$p \leq 0.001$	0.654	1/000

The results of Wikle's Lambda test showed that the influence of group on combination of life quality and social skills is significant [Wilks, F (20 and 9)= 31.145,  $p \leq 0.001$ ]. This test considered the capability of utilizing multivariable covariance analysis (MANCOVA) possible. The results indicated a significant difference in one of the variables studied in both groups. In other words, the hypothesis that teaching

cognitive processing-based social skills helps improve social skills and promote the life quality of the dyslexic students is confirmed in the significance level of  $p \leq 0.001$ .

Table 4. the influence of pretest and cognitive processing-based social skills on social skills and life quality in dyslexic students

variable	component	SS	DF			MS	F	P	ES
			Group	Error	Total				
quality of life	physical performance	68.451	1	25	30	68.451	11.256	$p \leq 0.001$	0.289
	physical role function	72.321	1	25	30	72.321	13.356	$p \leq 0.001$	0.316
	physical pain	48.523	1	25	30	48.523	10.421	$p \leq 0.001$	0.212
	general health	110.512	1	25	30	110.512	25.365	$p \leq 0.001$	0.312
	freshness	124.365	1	25	30	124.365	31.412	$p \leq 0.001$	0.589
	social performance	55.456	1	25	30	55.456	11.123	$p \leq 0.001$	0.334
	emotional role	117.368	1	25	30	117.368	28.709	$p \leq 0.001$	0.555
	mental health	236.709	1	25	30	236.709	41.489	$p \leq 0.001$	0.654
social skills	social skills	346.217	1	25	30	346.217	44.05	$p \leq 0.001$	0.680

The results of table 4 indicate a significant difference between the mean of physical performance ( $F(25 \text{ and } 1) = 11.256, p \leq 0.001$ ), physical role performance ( $F(25 \text{ and } 1) = 13.356, p \leq 0.001$ ), physical pain ( $F(25 \text{ and } 1) = 10.421, p \leq 0.001$ ), general health ( $F(25 \text{ and } 1) = 25.365, p \leq 0.001$ ), freshness ( $F(25 \text{ and } 1) = 31.412, p \leq 0.001$ ), social performance ( $F(25 \text{ and } 1) = 11.123, p \leq 0.001$ ), emotional role ( $F(25 \text{ and } 1) = 28.709, p \leq 0.001$ ), mental health ( $F(25 \text{ and } 1) = 41.489864, p \leq 0.001$ ) and social skills ( $F(25 \text{ and } 1) = 44.05, p \leq 0.001$ ) between teaching cognitive processing-based social skills groups and control group. In other words, such results indicate promotion of social skills and life quality of the students of experiment group as compared with the control group.

### Conclusion and discussion

The goal of the present research is to investigate the effectiveness of teaching cognitive processing-based social skills on improvement of social skills and life quality of dyslexic students. The results indicated that teaching cognitive processing-based social skills has a positive effect on improvement of the social skills of the

dyslexic students. These results are in line with the results of other researches (e.g. Brian, 2010; John, 2011; Gourtiz and Eliot, 2012; Momeni et al [28] and Bagian Kooleh Marz et al, 1993) indicating that teaching cognitive processing-based social skills helps improve interpersonal relationships and social and cognitive skills in students afflicted with learning disabilities. In an attempt to describe these results, we can say that

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attending social skills education sessions increases the possibility of normalizing dyslexia for students and their families, because in majority of the cases, only one person is formally diagnosed with learning disability and this sense of loneliness and exceptionality is disturbing (Lout & Schefield, 2007). As a matter of fact, participating in sessions of educating social skills helps students admit their problems and deal with them rationally. Expressing successful and failing experiences in the presence of people with plenty of common individual characteristics gives him a sense of self-observation, friendliness, responsibility and self-efficiency. Thus, teaching social skills provides an opportunity for the students to immediately face their problems and feel they have skills which help them enjoy a joyful relationship, despite educational problems. What's more, the education was designed in such a way that made students think and meditate, because it was based upon questioning and thinking and various emphases were made that student refrain from providing quick and impulsive answers and think more deeply. On the other hand, reduction of isolating behavior and an increase in social problem solving behaviors are probably due to the fact that students' practical and verbal participation for finding solutions is greatly emphasized and their favorable behaviors and responses are encouraged [3]. This state has probably resulted in acquiring positive experience and improving the attitude of the students to one another, promotion of interpersonal relationships and reduction of his isolating behavior. Cognitive strategies for these students are steps taken to improve the kid's cognition and help him get out of the role "a defeated person". Selecting inappropriate social goals such isolation of the students afflicted with learning disabilities can indicate their rejection by their peers (Brian, 2010).

In another attempt to explain the results, we can say that since students afflicted with learning disability (dyslexia, mathematical disorder) have low levels of social skills, weak interpersonal relationships [3], low physical and mental welfare, they usually encounter noticeable problems in personal and emotional adjustment and emotions regulation [23] which result in the absence of interpersonal relationship between them. After teaching social skills, these students started to benefit from skills of establishing social relationship, regulating and managing emotions and the art of friend making. As they received positive feedback from group and the researcher, more favorable social goals tend to last longer in them and they showed less unfavorable feeling towards their peers. As a matter of fact, the individual difference of children in terms of social, cognitive, and emotional relationships is associated with their level of acceptance by peers and family. As the level of relationship with peers increases, the kid chooses more socialistic goals (the most important of which is social problem solving). Although these students show less self-efficiency and more negative feelings, the results of the posttest indicated a reduction of unfavorable social behaviors in them after they were taught social skills. On the other hand, the oral review of the previous session's homework in the beginning of each class showed that students had practiced the skills they had learnt at home in their relationship with family members and particularly their mothers which could probably lead to higher levels of mental security and sympathy between parents and kids (BagianKoolehMarz et al., 2014).

The results also showed that teaching cognitive processing-based social skills is quite effective in improving the quality of the life of dyslexic students. These results are in line with the results of other researches (e.g. Brian, 2010; John, 2011;

Gurtiz& Eliot, 2012; [28], BagianKoolehMarz et al., 2014). In describing these results, we can say that children and adolescents suffering from this disorder behave unsuitably because they haven't learnt the correct methods. The most important problem of such people is about their inability in evaluating and monitoring their behavior which renders them unable to wait, thus they start doing something without thinking about its consequences which usually results in their social isolation and mental damage. Yet, cognitive processing-based social skill which entails self regulation, evaluation, and improvement which makes people reinforce the skills they have learnt and do their homeworks and accomplish their social responsibilities without needing help from others [6]. Thus based upon the results of the researches one of the best methods for improving the behavior of the kids and adolescents afflicted with learning and behavioral disorders is to teach them the techniques of cognitive processing-based social skills (Hades, Karol, Katania, Cotton, Barker, Scofield, and Labman, 2010). This type of training helps students learn observe their behavior themselves internally, evaluate their behavior, consider its consequences and embark upon self encouragement or punishment. Self-control is very useful because it helps children and adolescents manage their behavior in the absence of the elder's support and observation and teaches them to feel responsible about what they do and have a sense of responsibility towards their behavior. This sense of responsibility helps them improve mentally. Thus, teaching cognitive processing-based social skills to dyslexic students improves their self control level, and, as a result, many of their problems such as problems in communication skills and disturbing behaviors reduce and their social skills and life quality improve. We can also say that dyslexic students have more problems

than normal students in interpersonal skills (Lad & Troop-Gordon, 2003; Weiner, 2004), mood disorders and depression (Weiner & Schneider, 2002; Seidiridis, 2007), social information processing (Boominger and Kimhi-kind, 2008), social interaction and social abilities [2], high levels of social rejection and loneliness (Stell, Jones, Piarel, Van Akir, Farmier and Rodkin, 2008), and adjustment problems (Al-Yagan and Micolinser, 2004; [30], Ayorbach, Kros-Tsor, Manor and Shalo, 2008). What's more, low educational progress also results in their rejection, because the majority of normal students prefer to make friends with students who have not just educational progress, but also creative social interactions, too (Barat et al., 2008). Since dyslexic students face higher levels of damage in social skills and family interactions and experience low educational performance [33], these experiences, isolations, rejections and ignorance might result in different behavioral patterns. The majority of the children who are rejected display aggressive and impulsive behavior and tend to be dissociable [34]. Thus, all these factors can affect the level of their quality of life. Shortly put, the results of this research showed that teaching cognitive processing-based social skills can influence the increase of social skills and life quality. Based on this, we can point to 2 sets of the practical and theoretical consequences of the research. In the practical level, preparing educational programs and interventions and altering characteristic features can teach an individual the appropriate and efficient skills and strategies for promotion of social skills. In the theoretical level, the results of the present research can help enrich the current theories associated with personality, social skills and cognitive processing.

Among the limitations of this study, we can point to the fact that this sample was merely restricted

to the city of Koozdasht which makes it difficult to generalize it to other cities. The study population merely included male students of the junior high school level which makes it hard to generalize the results to female students. Concerning the great prevalence of this disorder in the childhood and adolescence period and great number of references to therapeutic centers, conducting psychological researches associated with this social damage can make a great contribution to diagnosing and treating the mental problems in such people. It is recommended that educational programs on cognitive processing-based social skills be taken into consideration in order to improve the interpersonal relationships and identify and express emotions in schools and families by psychologists and consultants. It is also recommended to use this therapeutic method on the comorbid disorders with learning disorders such as conduct disorder, oppositional defiance disorder (ODD), and attention deficit/hyperactivity disorder. The results could then be handed out to consulting centers for further and future use.

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