The Effectiveness of a Training Program based on the Social Story Strategy for Developing Self-Determination Skills among Students with Autism Spectrum Disorder

Amal H. AL haosawi and Maher T. Sharadqah

College of Education, Umm Al-Qura University, Makkah, Saudi Arabia

Summary

The study aimed to identify the effectiveness of the training program based on the social story strategy for developing self-determination skills among students with autism spectrum disorder. The population of the study consisted of all students with autism spectrum disorder in the Desired Hope Association for People with Disabilities in Makkah Al-Mukarramah and the sample of the study consisted of (6) students. The study used the quasi-experimental approach with one group. To achieve the objectives of the study, the ARCS scale for self-determination skills was used , Hassan Al-Masry (2018). The results of the study revealed, through comparing the students' performances in their pre and post-tests regarding to the ARKS scale and through their answers on the scale, the effectiveness of the training program based on the social story for developing the skills of self-determination among students with autism spectrum disorder. The results also showed that there were statistically significant differences after applying the program when significance level was (0.001). The result came in favor of the post-test.

Keywords:
self-determination, autism spectrum disorder, the social story.

1. Introduction

Disability is a natural part of the human environment. It does not underestimate any principle or right of the students' rights to live independently, make decisions, practice the professions that they tend to, enjoy the right of self-determination, and contribute to the society. During the past decades, many initiatives called for the right of self-determination as a right of disabled people and as a basic concept for developing educational programs and for providing transitional services (Balbid and Gharib, 2021).

Based on that , the concept of self-determination is considered as one of the newest and most recent concepts in the world of people with special needs in general and people with autism spectrum disorder in particular since it is a basic right for them to have opportunities to solve their problems and make their decisions as well as choose their tendencies and desires in various areas in their lives (Al-Hamadi and Rabaa'a, 2019). The students with autism spectrum disorder need to learn self-determination skills to overcome shortcomings and weaknesses in communication and social interaction, as well as in self-regulation, self-control, and problem-solving; Which is consider as a barrier and an obstacle to the successful transition from one stage to another (Al-Zari, 2014). As self-determination skills contribute to the development of the ability to choose, make decisions, set goals, and solve problems.

It is also worth mentioning that many researchers have used several educational and therapeutic programs, strategies and methods to overcome behavioral problems, including the social story, which is one of the effective strategies used in teaching students with autism spectrum disorder the desired and appropriate behaviors. Following the short social story as a strategy in teaching students with autism spectrum disorder also helps them to comprehend and be aware to the social situations in society and to reconcile with the changes that occur. It also teaches them skills and behaviors according to their abilities. The social stories that are used with students with autism spectrum disorder depend on a set of clear simplified sequential images that describe a specific situation and provide information about that situation with a greater emphasis on events and actions expected to occur in similar situations. The social stories are considered as an effective strategy to present information for children with autism spectrum disorder (Weshahi and Rabie, 2017).

It should be noted that students with autism spectrum disorder rely on visual learning as well as they prefer expressive sequential and organized pictures and drawings that attract their attentions since these images contain different ideas that are easy for them to understand. These images also generate the desire among students to imitate them (Washahi and Rabie, 2017). From this point of view, the two

researchers consider the necessity of developing a training program based on the social story strategy to develop these skills that constitute self-determination among students with autism spectrum disorder

The research problem:

Since the skill of self-determination has an effective role and a significant impact on developing the independence as well as it has the ability to solve problems and take appropriate decisions that face students, with autism spectrum disorder, in their daily lives, many studies have emphasized the importance of including the skill of self-determination in the individual educational program for students, and linking it to long and short-term goals (Al-Quraini, 2017). However, the lack of the basic skills among students in the early stages of their development, which has a big role in promoting self-determination, will affect them negatively; they will not be prepared to conduct their lives in the future (cook, 2015).

Perhaps it is appropriate to mention that many studies have urged teaching self-determination skills to students, with autism spectrum disorder, including a study that was conducted by Wehmeyer and others (Wehmeyer et al., 2000), which emphasizes the importance of teaching self-determination skills to people with autism spectrum disorder in order to be able to live independently and make their own life decisions (Balbid, Gharib 2021). Accordingly, the research problem was identified in the following main question:

To what extend is the effectiveness of a training program based on the social story strategy to develop self-determination skills among students with autism spectrum disorder?

The following Sub-questions have branched out from the main question.

1. To what extend is the effectiveness of a training program based on the social story strategy to develop the autonomy skill among students with autism spectrum disorder?

2. To what extend is the effectiveness of independence skill among students with autism spectrum disorder through (personal care, interaction with the environment, work based on preferences and interests in the leisure time, community participation and interaction, After -school guidance and personal expressions)?

3. Are there any statistically significant differences between the averages of pre-measurement scores among students with autism spectrum disorder and averages of post-measurement scores on the Arx scale for developing self-determination skills?

2. Previous studies

The two researchers tackled a number of studies that dealt with training programs regarding to people with autism spectrum disorder. These studies were also based on the social story strategy to improve the skills of people with autism spectrum disorder. The studies had been showed according to their recentness as follows:

It is worth mentioning that the study conducted by Balubaid and Gharib (2021) , entitled the effectiveness of a training program to acquire self-determination skills for students with autism spectrum disorder , aimed to identify the effectiveness of a training program to acquire students with autism spectrum disorder self-determination skills. The study followed the quasi-experimental approach to achieve its objectives. The population of this study consisted of all students with autism spectrum disorder in Saudi Arabia, while the sample of the study was taken from 22 students with autism spectrum disorder in Jeddah, their ages ranged from six to ten years old. The major findings of this study are: there is an effectiveness of the proposed training program in improving the skill of self-determination for people with autism spectrum disorder and improving their acquisition to this skill.

Al-Omari (2021) conducted a study entitled the effectiveness of a training program based on social stories to develop some social skills and its impact on reducing the severity of emotional disorders among the mentally handicapped. This study aimed to reveal the effectiveness of applying a training program based on social stories for students with mental disabilities and who are able to learn. This study used the experimental method with a quasi-experimental design with a pre and post measurement in order to achieve its objectives. The population of this study consisted of all male students with mental disabilities at the Institute of Intellectual Education in Taif. Their ages ranged between nine to twelve years. The sample of the study consisted of 12 students. Their IQ ranged between 55-70 regarding to the Wechsler-Bellevue Intelligence Scale.

The study used several scales, the most important ones are: the social skills scale, the emotional disorders scale, and the proposed training program for social stories. This study concluded several results which are: the effectiveness of the proposed program that led to reduce the emotional disturbances among the sample of the study. This study recommended to follow a variety of methods in teaching and training people with mental disabilities, including social stories as their benefits in providing this category with social skills and reducing their negative emotions. The researchers also affirmed the necessity of concentrating on the social skills among students with special needs in order to improve their communication with others in the society and ease their integration into society.

Regarding to Al-Jabali's study (2020) entitled the effectiveness of a training program based on self-determination theories to develop decision-making skills among students with learning disabilities. The study aimed to identify the effectiveness of a training program based on theories of self-determination among students with learning disabilities in Jordan. The sample of this study was identified from 30 students with learning difficulties. This study followed the experimental method to achieve its objectives. The researcher prepared a 12-week training program based on the theories of self-determination that was applied to the study sample, which was divided into two equal groups, an experimental group and a control group. This study concluded several results, the most important ones are the following : the experimental and control groups got a weak score in the premeasurement of self-determination, while the experimental group got a medium score in the same scale. This shows the effectiveness of the proposed program in the study.

Al-Quraini (2017) conducted a study entitled the reality of providing self-determination skills for students with multiple disabilities and their importance to them from their teachers' point of view. These studies aimed to identify the reality of providing self-determination skills to students with multiple disabilities. The sample of this study consisted of 185 male and female teachers from special services centers in the city of Riyadh - Kingdom of Saudi Arabia. This study followed the descriptive survey method to achieve its objectives, and relied on the questionnaire as a main tool for collecting data from the target study population. This study concluded several results, the most important ones are the reality of providing self-determination skills to students with disabilities is still average, despite the importance of these skills in the individual educational programs which are directed for their treatment. This study recommended the need to raise awareness among students with disabilities about the importance of possessing the skills of self-determination.

3. Methodology

The use of the quasi-experimental approach is necessary in this study to make it appropriate with the purposes. The study seeks to search the effectiveness of the training program based on the social story strategy to develop the autonomy skill among students with autism spectrum disorder, as it represents the population of the study which is all students (females and males) with autism spectrum disorder in the Desired Hope Association for persons with disabilities. The research sample, which was chosen randomly, consisted of (6) students.

The researchers used the Arks scale for self-determination, the Egyptian version, which consists of six main dimensions. It was verified by a committee of (9) arbitrators of psychology and special education professors and workers with special needs to ensure the suitability and ability of the tool to achieve the objectives of the study. The scale was also amended based on the written notes and the recorded amendments attached by the arbitrators. In addition, a factor analysis was conducted to ensure the validity of the Arabic version of the scale. However, it was found that the four dimensions that belong to one axis which is a self-determination. The values of saturation is between (0.88, 0.95), which are high and statistically acceptable values, as well as all sub-dimensions belong to these four dimensions. Saturation values also were greater than (0.60), which are high and statistically acceptable values.

The stability was also verified by calculating the stability using the way of (Alpha Cro-Nbach). The stability was (0.971) for people with intellectual disabilities, and (0.969) for those with autism spectrum disorder. This indicates that the scale has a high degree of stability. The stability coefficient was calculated through the split-half method. The reliability coefficient of the half-segment stability coefficient (total) was (0.924), which is very high and indicates the stability of the tool. In addition to using

the re-test method. The scale was applied to the same sample after one month from the first application. It was to calculate the Pearson correlation coefficient and all the values were at the 0.01 level.

The two researchers also built the training program based on the social story strategy to develop some self-determination skills among students with autism spectrum disorder as a scientific basis. Each autism specialists participated in the program to be taught how the program works. So that, the statistics can apply the program with the students to confirm the skills among the students. So, it helps people with autism spectrum disorder to acquire greatly the skills of self-determination.

The credibility of the program that was adopted by a group of arbitrators who are specialized in the field of special education and who are faculty members in Saudi universities seeks to achieve the objectives of the study and take their notes and amendments attached by arbitrators to obtain the best goal of the program.

Based on the nature of the study and the goals that the study sought to achieve, the data were analyzed using the Statistical Package for Social Sciences programs (SPSS) where the correlation coefficient (Pearson), Cronbach's alpha and split-half method using the (Spearman's) equation were used. The frequencies, averages and standard deviations were used for personal variables, Tests were also conducted for the correlated samples to measure the effectiveness of the program as well as a Wilcoxon test for two correlated samples was conducted.

4. Findings

The results related to the main question of the study, which was answered by answering the first sub-question, which dealt with the effectiveness of the training program based on the social story strategy for developing the autonomy skill for students with autism spectrum disorder showed that there were statistically significant differences at the level of $\alpha = 0.05$ between the ranks of the group members' scores in the pre and post measurements on the scale of the social story strategy to develop the dimensional autonomy skill after applying the program for the post measurement in which the arithmetic mean for the pre measurement was (4.3) and for the post measurement (35.5). The magnitude of the impact was (85.7%)

which indicates to the effectiveness of the program. Table (1) shows that.

Table (1). Results of the T-test to find out the differences between the pre and post measurements of the social story strategy scale for developing the skill of autonomy:

Group	N	X	SD	DF	T value	Sig	M
Pre measurement	6	4.3	5.86	5	17.171	0.00	0.857
Post measurement	6	35.5	2.07				

Notice: 'N': *Number; 'X': 'Arithmetic Mean'; 'SD': 'Standard Deviation'; 'DF': Degrees of freedom; 'Sig': Statistical significance; 'M': Magnitude of the impact.*

As for the second sub-question, which focused on the effectiveness of the autonomy skill among students with autism spectrum disorder through the followings (personal care, interaction with the environment, work based on preferences, community participation and interaction, after-school guidance, personal expressions) the results showed that the arithmetic averages for self-determination skills ranged between (0.28-1.50) and the highest arithmetic average was for the first dimension (personal care) with (1.50) which was in the first rank , followed by the fourth dimension (community participation and interaction) with an arithmetic average (1.37) which was in the second rank, followed by the third dimension (work based on preferences and interests in leisure time) with an arithmetic average (1.34) and it was in the third rank, followed by the dimension of (personal expressions) with an arithmetic average (1.33) which was the fourth place, followed by the second dimension (interaction with the environment) with an arithmetic average (0.88) and it was the fifth rank, followed by the fifth dimension (After-school guidance) with an arithmetic average (0.28) it was the last rank. The arithmetic average for the tool as a whole was (1.11). Table (2) shows the results that clarify the above.

Table (3) Arithmetic averages and standard deviations of the dimensions of self-determination skills (n = 6)

#	dimensions	X	SD	rank
1	personal care	1.50	0.11	1
2	Interact with the environment	0.88	0.47	5
3	work based on preferences and interests in leisure time	1.34	0.21	3
4	Community participation and interaction	1.37	0.15	2
5	After-school guidance	0.28	0.09	6
6	Personal expressions	1.33	0.63	4
-	Tool as a whole	1.11	0.18	-

Notice: **'X'**: *'Arithmetic Mean'*; **'SD'**: *'Standard Deviation'*.

The results of answering the third sub-question , which tried to recognize to what extend the differences are between the average scores of the pre-measurement for students with autism spectrum disorder and the average scores of the dimensional measurement on the ERREX scale for the development of self-determination skills, which were calculated arithmetic averages and standard deviations of the responses of the study sample in the two measurements The pre- and post-measurement on the ARKS scale for the development of self-determination skills. Table (3) shows this:

Table (3). *Arithmetic averages and standard deviations to the responses of the study sample members on the ARKS scale for developing self-determination skills in the pre and post measurement.*

The group	number	X	SD
Pre-measurement	6	4.3	5.86
Post-measurement	6	35.5	2.7

Notice: *'X': 'Arithmetic Mean'; 'SD': 'Standard Deviation'.*

It is noticeable in Table (3) a higher average in the responses   of the group members in the dimensional measurement on the ARKS scale for the development of self-determination skills, that the arithmetic average of the tribal measurement was (4.3) while the arithmetic average   of the dimensional measurement reached to (35.5. So, to determine the significance of the differences, the Wilcoxon test was used (Wilcoxon-Test) for two correlated samples to indicate the differences between the mean scores of the sample members in the pre and post measurements on the Arks scale for developing self-determination skills. Table (4) shows that:

Table (4). *The results of Wilcoxon-Test for two correlated samples to indicate the differences between the mean ranks of the sample members in the pre and post measurements on the Arks scale for developing self-determination skills*

the rank	#	X	ranks	z	SD
negative ranks	0	0	0	-2.201	.028
positive ranks	6	3.50	21.00		

Notice: 'X': 'Arithmetic Mean'; 'SD': 'Standard Deviation'.

]Table number (4) shows that there are statistically significant differences at the level of α = 0.05 between the grades of ranks of the group members in the pre and post measurements on the Arks scale for developing self-determination skills in the post-measurement after applying the program in which the value of (z) was (-2.201) and its significance level is (0.028). This result confirms the validity of this hypothesis for the dimensional measurement where the arithmetic average of the pre-measurement was (4.3), and the arithmetic average of the dimensional measurement was (35.5).

Discussion of the findings:

The results of the main question that were collected by answering the sub-questions of the current study indicated that there were statistically significant differences between the scores of the students in the pre and post measurements on the scale of the social story strategy for the development of the dimensional autonomy skill. This indicates the effectiveness of the program in developing the autonomy skill among students with autism spectrum disorder as

well as a higher level of autonomy after applying the program.

The result can be explained that the use of the social story strategy and its advantages contributed to increase the effectiveness of the program. Also, taking into account the characteristics of the sample, who are students with autism spectrum disorder, during preparing the program contributed to increase its effectiveness. In addition to that the two researchers focused on giving verbal and non-verbal directions to the students and removing the internal and external distractions during the program apply. As a result, an appropriate educational environment was provided that contributed to improving the skill of autonomy through the social story method and helped them in improving their life quality and future success socially. This result is in agreement with the study conducted by (Lau & Win, 2018).

This result can also be explained by the fact that the two researchers chose the social story method to develop the autonomy skill among students with autism spectrum disorder, which is commensurate with their characteristics and abilities. So, this contributed to increasing the effectiveness of this program, since the appropriateness of social types in the social story method contributed to increasing the vocabulary among children with autism spectrum disorder. As a result, the social and academic aspects become positive among those children, especially the skill of autonomy. Social stories also played an important role in improving social behaviors for children with autism spectrum disorder, such as initiative, participation, and asking questions. They also helped autistic students to be able to face the difficulties in their life, understand and form appropriate responses to daily events around them.

This result agreed with the findings of the study of Balubaid and Ghareeb (2021), which revealed several effectiveness of the proposed training program in improving the skill of self-determination for people with autism spectrum disorder and improving their acquisition to this skill.

The results related to the second sub-question also indicated that the skill entitled (personal care) came in the first rank. The two researchers attributed this to acquisition of social skills by students with autism spectrum disorder, which may be due to the fact that students practice this skill daily at home and with instructions coming from their families such as folding and replacing clothes, preparing snacks, doing some household chores that suit their abilities such as making their beds, keeping their personal belongings, doing some simple first aid, and taking care of themselves.

Whereas the skill of (community participation and interaction) came in the second rank. The two researchers attributed this result to the development of the student's ability to participate in the community, such as (going to the cinema, going for shopping, scouting and trips) and doing some activities with their parents such as going to restaurants, and practicing extracurricular activities with peers inside the house or in the public places which are from the reality of the daily life of a student with autism spectrum

The skill of (work based on preferences and interests in leisure time) came in the third rank. This result was explained by having those students with autism spectrum disorder to the skill of taking decision for what they prefer to do in leisure or weekend activities. In addition to their involvement in school-related activities. They can do some communication skills, whether they are verbal, such as communicating over the phone with friends and family, or non-verbal, such as writing messages through the modern technological applications and social networking sites. Some of them also prefer listening to music.

The skill of (personal expressions) was in the fourth rank. This result was explained that students with autism spectrum disorder need a daily help from their parents in choosing the clothes and personal items. Also choosing their hairstyle, and gifts for the family and friends. However, they have been involved in some things that they can have a role to participate in, such as choosing to decorate their own room and choosing how to spend their personal money.

The skill of (interaction with the environment) was in the fifth rank. This result was explained that students with autism spectrum disorder do not show any interest in making friends with others of their age. They also do not prefer using the post office, nor do they realize the importance of time and punctuality because they do not know its importance to the others.

The skill of (After-school guidance) was in the last rank. This result was explained by the fact that students with autism spectrum disorder follow the instructions and guidance issued by the school and according to the plans that the school sought to achieve during a certain period of time. So, students with autism spectrum disorder cannot choose or practice school activities based on their professional interests.

These results agreed with the findings of the Al-Quraini study (2017) which indicated that the reality of providing self-determination skills for students with disabilities is still average despite the importance of these skills in the individual educational programs directed to treat them. This study recommended the need to raise awareness among students with disabilities about the importance of possessing the skills of self-determination.

The results related to the third sub-question indicated that there were statistically significant differences for the application of a training program based on social stories among students with autism spectrum disorder in the dimensional measurement. This contributed to the fact that the various social stories that were used in the program have improved the level of self-determination skills as it suits the stage of students with autism spectrum disorder, in terms of its content, such as: the storyboard (representing the story with a puppet, acting the story in the puppet theater, representing the story by embodying roles, and displaying the story using PowerPoint program) and various types of social stories that are appropriate according to the school stage.

The two researchers also attributed this result to the fact that the social story has a role in improving the autonomy skill among students with autism spectrum disorder as the information was presented in the simplest form and presented in an easy way and the possibility of repeating the story more than once. In addition to the feedback accompanying the exercises and interaction positively as well as the dialogue that takes place between the characters of the social story (graphic, audio, printed story, PowerPoint presentation, story representation) and its clear role in the story. Reducing the crowded characters in the story so that as the students do not be distracted. This result agreed with the study of Al-Omari (2021) and the study of Calmiri et al. (Camelleri et al., 2021).

The nature of the program, which includes various visual social stories such as text, images, and recorded voice, motivates students with autism spectrum disorder to learn. It improves the level of autonomy skill, gives them an opportunity to analyze and interpret the events of the story, employs all senses, and makes the process of transferring information easy. In addition it adds fun and entertainment to the process of teaching and learning. Therefore, all of this contributed to improving the autonomy skill of students with autism spectrum disorder. This result agreed with the findings of Al-Jabali study (2020). The results revealed that there were differences between the experimental and control group for the experimental group, which indicates the effectiveness of the proposed program in this study.

6. Conclusion

In conclusion, this study aimed to identify the effectiveness of the training program based on the social story strategy to develop self-determination skills for students with autism spectrum disorder. Where the current study suggests the need to expand the adoption of educational programs based on social stories to develop the autonomy skill among students with autism spectrum disorder. It also suggests to hold training courses for teachers who teach students with autism spectrum disorder about the use of social stories in the educational process. The study recommends to concerted efforts and cooperation between teachers of autism spectrum disorder and educational technology experts in preparing, implementing and designing the social story in line with educational and scientific standards. In addition to raise the cognitive and professional competence of special education teachers in general and teachers of autism spectrum disorder in particular.

Arabic Reference:
[1] Balbeed, Raghad, Reem Gharib (2021). The effectiveness of a training program to acquire self-determination skills among students with autism spectrum disorder. Journal of Special Education and Rehabilitation, 24 (12), 213-244.
[2] Al-Jabali, Ahmed (2020). The effectiveness of a training program based on the theories of self-determination in developing the decision-making skills among students with learning difficulties. Journal of Educational and Psychological Sciences, 4 (9), 62-79.
[3] Hammadi, Sarah and Baba, Ahmed (2019). Measuring the extent of possession of self-determination skills among students with learning disabilities at the intermediate stage in the Kingdom of Saudi Arabia. Palestine University Journal for Research and Studies, 9(4), 144-174.
[4] Al-Zari, Nayef (2014). Introduction to autism, basic concepts and methods of intervention. Amman: Dar Al-Fikr.
[5] Omari Hani bin Saeed (2021). The effectiveness of a training program based on social stories in developing some social skills and its impact on reducing the severity of emotional disorders among the mentally handicapped. Journal of the College of Education in Ismailia, 49, 1-40.
[6] Al-Qarini, Turki bin Abdullah (2017). The reality of presenting self-determination skills for students with multiple disabilities and their importance for them from their teachers' point of view , Journal of Educational and Psychological Sciences, 18(2), pp. 196-219
[7] Weshahi, Samah Nour, and Rabie, Somaya Mahmoud (2017). The effectiveness of using social story strategy in improving language development and social use for language among children with autism disorder. Journal of Special Education and Rehabilitation, 16, 82- 125.127-147.

Foreign Reference:
[8] Cook, B. A. (2014). Exploring how school staff support the development of self-determination in individuals identified with autism spectrum disorders in Connecticut Public High Schools. Southern Connecticut State University
[9] Camilleri, L. J., Maras, K., & Brosnan, M. (2021). Mothers' and practitioners' insights on the use of digitally mediated social stories with children on the autism spectrum: A convergent mixed-methods study. Research in Developmental Disabilities, 119, 104104.
[10] Lau, B. T., & Win, K. M. (2018). Differentiated Animated Social Stories to Enhance Social Skills Acquisition of Children with Autism Spectrum Disorder Handbook of research on human development in the digital age (pp. 300-329): IGI Global.
[11] Wehmeyer, M. L., Palmer, S. B., Agran, M., Mithaug, D. E., & Martin, J. E. (2000). Promoting causal agency: The self-determined learning model of instruction. Exceptional Children, 66(4), 439-453.