

TRR 13: Does a Lego based therapy intervention promote social interaction in individuals with autism?

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Background/Context

This research paper details the Lego based therapy intervention work completed within Pendle Community High School and College to support and engage young people with Autism Spectrum Conditions (ASC) to interact socially with others. The research focuses on observations of group interaction over a period of time to consider the impact of the Lego based therapy on social interaction between the group participants during the individual sessions.

Context

Pendle Community High School and College is an 11-19 special education facility for 121 students with severe or profound and multiple learning difficulties, many of whom have additional complex learning and medical needs. Within the school, there are currently 46 pupils with a diagnosis of autism.

Focus

Analysis of students within the Post-16 college identified six students with a diagnosis of ASC who experienced significant issues with social interaction. Issues included being isolated in social settings or dominating conversations in an inappropriate manner; for example, only talking about their personal topic of interest.

Research Questions

1. Does Lego based therapy support students with ASC to develop their ability to socially interact with others within the specific session?
2. Do students begin to generalise these skills into other social settings?
3. Are students with ASC motivated to participate in Lego based therapy?
4. How do students respond to the roles within the Lego based therapy group?

What are Autistic Spectrum Conditions?

Autism is a lifelong, developmental disability that affects how a person communicates with and relates to other people, and how they experience the world around them (National Autistic Society, 2018). Autism refers to a range of conditions characterised by some degree of impaired social behaviour, communication and language, and a narrow range of interests and activities that are both unique to the individual and carried out repetitively (World Health Organisation, 2017). The triad of impairments include:



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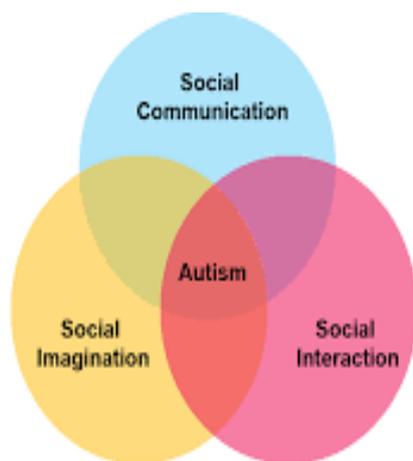


Figure 1: The triad of impairments

seem aloof to others or stand too close to others which may affect their ability to make friends.

It is recognised that many children with autism experience difficulties when interacting social with others. They are often unable to understand and express their needs as well as being unable to interpret and understand the needs of others. This can impair their ability to share interests and activities with other people. They may also not respond to non-verbal forms of communication e.g. facial expressions, physical gestures and eye contact.

Children with autism may also develop singular, obsessive interests, which can occupy them for long periods of time. Researchers have studied using these strong interests to promote the development of social and communication skills (Attwood, 1998; Greenspan and Weider, 1998; Koegel and Koegel, 1995).

What is Lego Therapy?



The definition of the Danish word Lego is to play well (Whitworth, 2009).

LEGO based Therapy is a social development program which was pioneered by Dr Daniel B LeGoff, an American paediatric neuropsychologist, almost accidentally by observing two children in his waiting room sharing their interest in Lego.

Until the 1990's, there had been few published descriptions of effective social interaction interventions for children with autism. Although it had been noted that children with autism were uninterested in social interaction with others, there had been no successful interventions to support them to overcome these hurdles. Previously, social skills programmes had focussed on areas of impairment (Hurley- Geffner, 1995 in Potter & Whittaker 2001) which involved modelling role play of social situations and offered a range of rules that could be followed during social situations. However, children were not necessarily able to transfer or execute these skills in real life situations. In addition, some children with autism could gain a negative perception of having to participate in the intervention programme because they are not good at socialising and may view these as irrelevant (Gomez de la Cuesta, 2010).

WHAT IS LEGO THERAPY? CONTINUED

Daniel B LeGoff was intrigued when he observed two of his clients interacting excitedly in the waiting room of his clinic. Both boys had previously displayed low motivation for interacting socially with others. After discussion with their parents, Daniel B LeGoff worked with the boys together building and sharing construction sets. He observed that when working on a joint project with a shared interest, the boys cooperated fully with social interaction strategies such as turn taking, sharing, following social rules and using greetings. LeGoff identified that a key strategy for building and sustaining interaction involved dividing the tasks within the construction building between the two boys. The 'Engineer' gave verbal descriptions of the pieces needed and directions about how to assemble them. The 'Builder' followed his instructions and put the pieces together. There were opportunities for checking with each other that the pieces were in the correct places.

The two boys were happy for other children to join in with the Lego group and soon LeGoff had seven children working on a construction project.

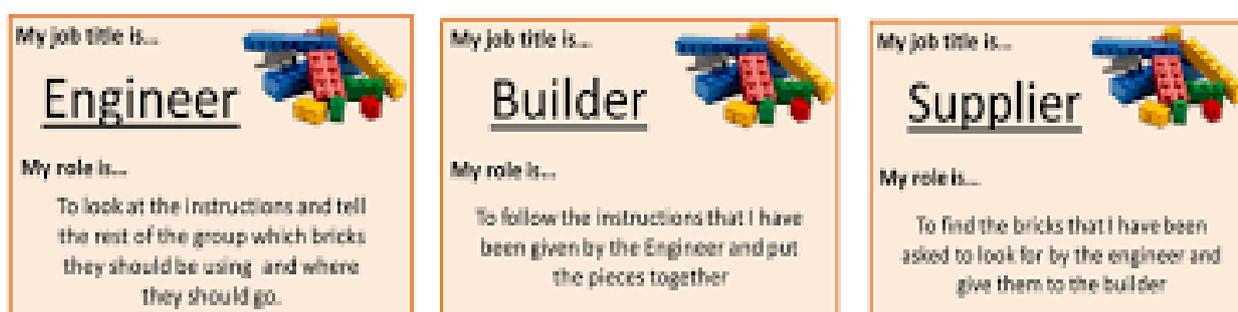


Figure 2: Summary of Engineer, Builder and Supplier job roles

Although, they were developing their social interaction skills it became clear that there was a need for increased structure and a consistent set of rules for children to follow. The Lego based therapy evolved into groups of three and now included an additional role of the 'Supplier' who would hand the pieces to the 'Builder' after being instructed by the 'Engineer'.

Research projects conducted by LeGoff clearly demonstrate the impact of the social interaction intervention. LeGoff published an initial outcome study in 2004. After 12 weeks of Lego Therapy, he observed significant improvements for a group of children with autism in the frequency of their self-initiated interactions and also the duration of their interactions in unstructured situations. He also identified a reduction in rigidity and aloofness. Those children who carried on for a further 12 weeks made additional gains in these areas and showed a greater ability to adapt to social situations (LeGoff and Sherman, 2006). Progress was maintained over the three year period, supporting the idea that the intervention benefits participants over a long period and has a lasting impact of their ability to deal with social situations.

Research Process

I was interested in the benefits of Lego Therapy and had researched pre-existing theory empirical research. However, all the participants in previous studies were high functioning and cognitively able children with a diagnosis of autism. They were all able to communicate using verbal language and had a strong interest in Lego.

In this research project, I wanted to study the effectiveness of Lego Therapy in a special school for students with Severe Learning Difficulties and Autism. This meant that I had to consider both the attention span and the manual dexterity of the students involved in the intervention.

DATA COLLECTION

- Two groups were established with three participants in each group. The intervention took place on a weekly basis for a period of 30 minutes over 5 weeks.
- Each group were given a new model to construct on a weekly basis. The group were required to work collaboratively together in order to complete the model. They followed rules with clear expectations.
- Each group was observed closely. The number and type of interactions was recorded during each session. These were:-
 - Number of responses to peer.
 - Number of interactions with peer.
 - Number of responses to adult.
 - Number of interactions with adult.

EVALUATING IMPACT

- In response to one of the initial research questions, it was evident that the students were motivated to join the sessions. They were particularly keen to find out what models they would be building and asked this in advance of the session. Engagement is crucial to learning and thus it was deemed an invaluable intervention tool within school. The results regarding the development interaction in this short study were inconsistent, however the motivation of the participants to join in a collaborative project has enough value to continue with the intervention.
- The students all made progress towards their Individual Learning Targets linked to their social communication. This was confirmed by their form teachers which demonstrates that students were beginning to generalise their skills in other sessions.

Findings

Data recorded of the total number of interactions (including initiations and responses) showed some inconsistencies. Only one student increased their number of interactions with others over the period of time. The rest of the cohort displayed inconsistent results on a weekly basis.

The anecdotal evidence was particularly useful when trying to establish reasons for this. For example; Pupil 2 displayed fairly consistent results for interactions with others on a weekly basis except for Week 1 and Week 3 which the observers related to the following factors:

- Week 1: Quiet due to newly introduced activity.
- Week 3: Criticised by others in his role as Builder.

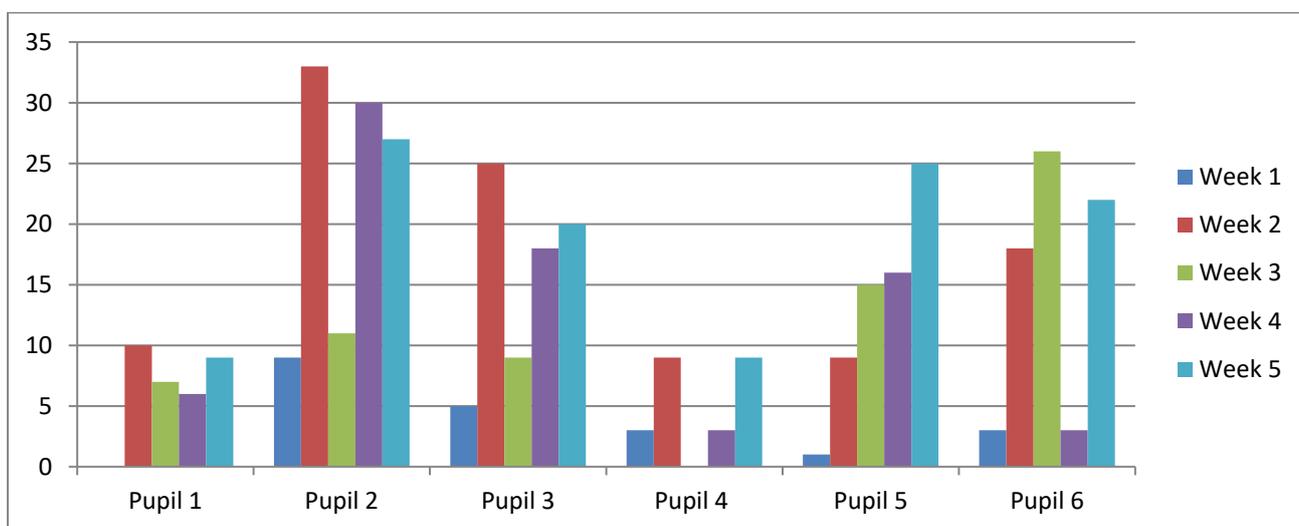


Figure 3: Total Number of interactions on a weekly basis

FINDINGS CONTINUED

The tally charts of types of interactions enabled the data to be analysed further and in different ways. It was very clear that the number of initiations with adults decreased over time. This was expected as the students were more familiar with the activity and aware of the rule to 'work it out together' approach.

However, it was reassuring to see this was reflected in the data collected. It was also clear that the number of interactions had increased over the period of time for all of the students. The increase was dramatic for 4 of these students which are highlighted in green:-

WEEK 1

Responses	Pupil 1	Pupil 2	Pupil 3	Pupil 4	Pupil 5	Pupil 6
Peer to Peer	0	0	1	2	0	0
Peer to Teacher	0	2	0	0	0	0
Initiations						
Peer to Peer	0	3	2	1	1	2
Peer to Teacher	0	4	2	0	0	0

WEEK 5

Responses	Pupil 1	Pupil 2	Pupil 3	Pupil 4	Pupil 5	Pupil 6
Peer to Peer	2 (+2)	3 (+3)	6 (+5)	3 (+1)	1 (+1)	0
Peer to Teacher	0	5 (+3)	2 (+2)	0	0	1 (+1)
In						
Peer to Peer	4 (+4)	10 (+7)	7 (+5)	0 (+1)	15 (+14)	1 (-1)
Peer to Teacher	0	11 (+7)	3 (+1)	0	0	1 (+1)

This demonstrates a huge impact considering the short term of the intervention and small number of the cohort. Clearly further investigations over a longer period of time would be interesting to explore.

Recommendations

The intervention should be undertaken for a longer period (12 weeks) and adapted to the needs of the participants in the group in the following ways:-

- Opportunity to construct a highly motivating model e.g. Harry Potter / Star Wars.
- Opportunity to build with materials that are appropriate to manual dexterity of participants.
- Opportunity to choose a role within the group that they enjoy.
- Opportunities for free style model building both within the therapy sessions and during leisure time.

Further Research

Based on this project, it would be useful to research the impact of this intervention over a longer period as well as with younger children. It would be useful to continue to monitor the types of interaction and frequency of these. It would also be useful to continue to record the anecdotal evidence.

A further variation would be to apply the principle of collaborative working in Lego Therapy to other motivating games such as Minecraft.

Benefits of Teacher Research

From a teacher perspective, the benefits of completing this teacher research have been:

- Time to observe and reflect upon strategies that support students alongside colleagues in order to adapt and refine the implementation of strategies in the future.
- Greater knowledge and understanding of a widely recognised intervention in our educational setting.
- A network of support from other teacher researchers with regular opportunities to share our work and seek ways for further exploration.

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