



## LEGO® Therapy


Using Lego in a social skills intervention



**Gina Gómez de la Cuesta**  
Action Research Leader, the National Autistic Society  
Autism Research Centre, University of Cambridge  
georgina.gomez@nas.org.uk



Your autism clarity



## Outline of talk

- What is Lego therapy?
- Research evaluating the effectiveness of Lego therapy
- Pilot study of using Lego therapy in a school setting
- Future research ideas



## Interventions targeting social skills

- Scarcity of well-validated social skills programmes
- Heterogeneous outcomes
- Many approaches seem difficult, irrelevant or un-engaging
- Children with ASC have little intrinsic motivation to learn social skills
- Improvements don't generalise to every day life




## Possible way forward?

Use children's natural interests to promote the development of social, communication and play skills  
(Attwood, 1998)







## Research at the ARC



- 3-D children's cartoon series
- Designed to teach emotion understanding in 2-8yr olds with autism
- Significant improvement in emotion recognition following 4 weeks intervention in 5-8yr olds with ASD (Golan et al, submitted)




## Research at the ARC



Mindreading DVD-Rom  
A systematic guide to emotions

- Improvement in recognition of emotions on DVD-Rom but limited generalisation

(Golan et al; 2006)

[www.jkn.com/mindreading](http://www.jkn.com/mindreading)


**LEGO** **LEGO Therapy** 


- LEGO is a systematic toy that is appealing to children with autism (and others!)
- Can LEGO be adapted to teach social skills?





**What is LEGO Therapy?** 


- Dan LeGoff, Philadelphia
- Collaborative building of sets:
  - In groups of 3
  - ‘Engineer’ – reads instructions
  - ‘Supplier’ – finds bricks
  - ‘Builder’ – builds the model
- Children do the problem solving



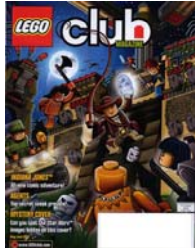
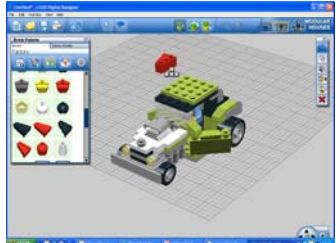
**What is LEGO Therapy?** 


Freestyle building using any type of bricks (no instructions)  
e.g. Design and build a castle in pairs


**Other activities** 

- Stop-action movies
- Lego Factory
- Join Lego Club and send in pictures of your models

**Skills practised** 

- Joint Attention
- Communicating ideas
- Listening to others
- Collaboration
- Joint problem-solving
- Compromise
- Turn taking
- Sharing
- Shared enjoyment!



**Lego Club Levels** 

- Lego Helper
- Lego Builder
- Lego Creator
- Lego Master
- Lego Genius



*Your autism clarity*

### Research



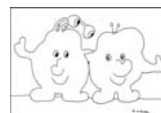
- **LeGoff (2004)**
  - 6-16 year olds with autism.
  - 12- 24 weeks of Lego Therapy
  - More improvement in Lego group than on waiting list
- **LeGoff (2005)**
  - After 3yrs, those receiving Lego Therapy improved significantly more in social skills compared to children receiving standard (eclectic) mental health provision.

### Owens et al (2008)



- A comparison of LEGO Therapy with the Social Use of Language Programme (SULP) and no intervention

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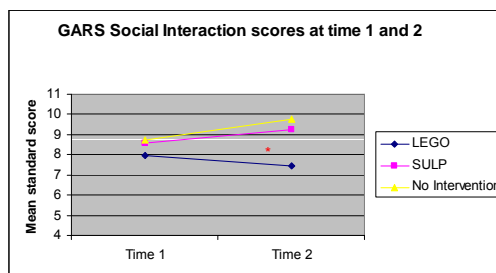


### Study set-up



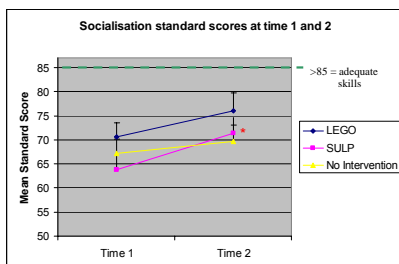
- 6-11 year olds
- HFA or AS
- IQ > 70
- 31 children randomly assigned to get Lego therapy or SULP
- 1 hour therapy per week for 18 weeks
- 3-5 children per group
- Outcome measures taken at start (t1) and end (t2) of therapy.
- Age and IQ matched comparison group – no intervention

### Results: Socialisation of GARS



\* P < 0.05

### Socialisation on Vineland

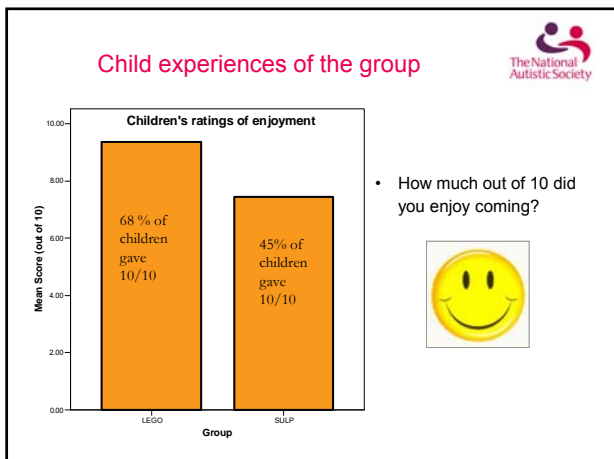
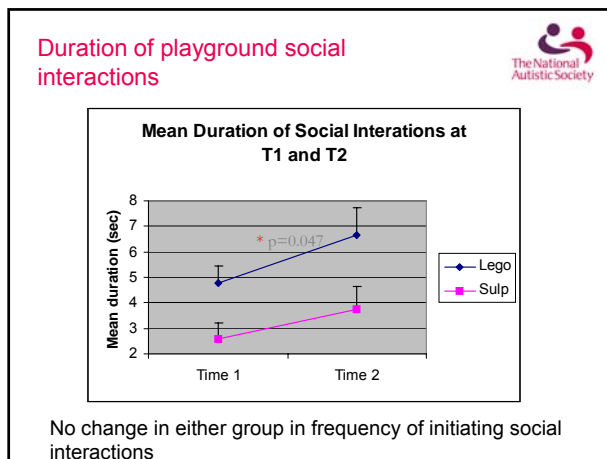
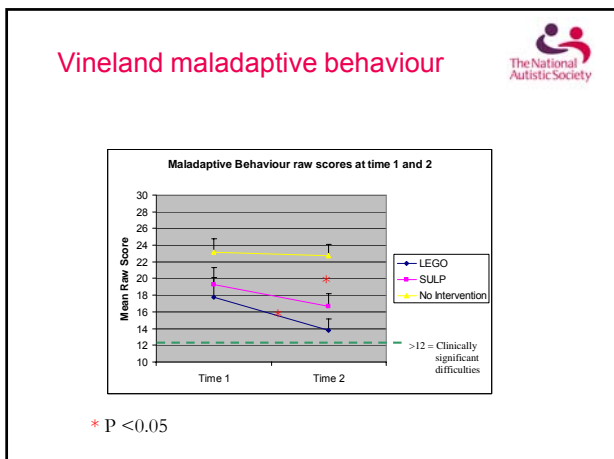


\* P < 0.05

### Communication- Vineland



\* P < 0.05



- 
- LEGO group...
    - 'His favourite activity of the week'
    - 'It's great having some group/club that your child *wants* to come to and feels *no* stress about attending. This is a first.'

- ### Implications
- Lego Therapy may be an effective way to motivate some children with autism to develop social skills
  - Need a larger scale, RCT to evaluate effectiveness fully.
  - Could it be used in schools?

- ### Pilot study
- Need to do a larger scale RCT
  - Easiest to do this in school setting
  - First need to assess feasibility of using Lego therapy in schools
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### Lego therapy in school




- Inclusion class within a mainstream primary school for children with autism spectrum disorders
- 9 pupils consented to take part in the study
- Teachers trained in how to do Lego therapy and given manual




### Design



- Within subjects, baseline design with repeated measures
- Outcome measures at start (T1) after 6 week baseline (T2) and after 6 week intervention (T3)
- Measures were teacher and parent questionnaire
- Treatment fidelity assessed using videos of the group sessions




### Participants




N	9
Age (yrs)	Mean= 8.9 SD= 1.3
Gender	Male= 7 Female = 2
IQ	Mean = 104.7 SD = 16.6
Verbal IQ	Mean= 103.2 SD= 18.8
Gilliam Autism Rating Scale Autism Quotient	Mean = 82.4 SD=20.7

### Intervention




- 1hr per week of Lego therapy
- All 9 children in same session, split into groups of 3
- 3 teachers (one per group)

### Results: Treatment fidelity



- Checklist of key activities:
  - Session structure
  - Children's activities
  - Teacher's responses – in event of social difficulty, in event of rule-break, in event of positive social behaviour
- Each of the 6 sessions was watched, and the checklist completed for each of the 3 teachers
- Session structure and appropriate children's activities adhered to in 100% of the sessions.

### Results: Treatment fidelity



- Teacher behaviour more variable

Teacher	1	2	3
Praise good building	100%	100%	100%
Prompt children to help each other build	83%	100%	100%
Highlight presence of social problems	100%	73%	58%
Prompts children to solve social problem	67%	55%	37%
Gives opportunity to solve social problem	71%	73%	32%
Provides suitable alternative behaviour	47%	41%	47%
Asks children to role play solutions	8%	18%	0%
Practice previous strategies	0%	0%	0%
Highlights rule break	No opp	100%	No opp
Allows children to prompt each other about rules	No opp	100%	No opp
Praises positive social behaviour	100%	94%	86%


### Treatment fidelity



- Good session structure
- Appropriate activities
- Good praise for positive social behaviour and good building
- Did not highlight presence of all social problems
- Did not allow children to come up with own solutions to problems enough
- Rarely role-played positive alternatives following social difficulties




### Teacher and parent rating



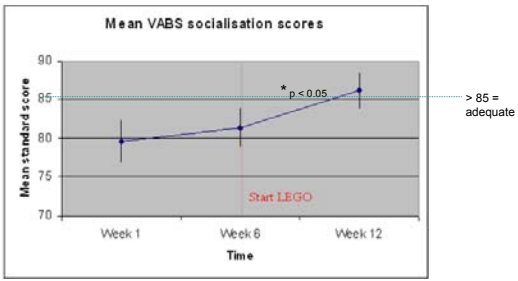
- Teachers completed 'socialisation' subscale of the Vineland Adaptive Behaviour Scales
- Parents completed the social skills subscale of the Gilliam Autism Rating Scale

		Week 1	Week 6	Week 12
VABS Socialisation Teacher Rating	Mean	79.62	81.38	86.13
	S.D.	7.99	7.22	6.85
GARS-SI Parent Rating	Mean	7.38	7.38	7.38
	S.D.	3.25	2.88	4.07

### Teacher rating



- No sig increase in socialisation score over baseline period
- Significant increase in socialisation score over intervention period (Wilcoxon signed ranks test;  $z = -2.043$ ,  $p = 0.031$ )



### Discussion



- Children improved in teacher rated, but not parent rated social skills
- Treatment fidelity in terms of session structure and activities good
- Treatment fidelity in terms of therapist behaviour variable
- Need further training/ mentoring to carry out groups
- Need much larger scale studies to fully evaluate effectiveness




### Future research questions



- Which element of therapy is active element? Building in groups, therapist input or both?
- How long does the intervention need to last?
- Are any gains maintained over time?
- What about generalisation/ clinical relevance of change?
- How does it compare to other similar interventions?
- Can you do similar things with different toys?



### Acknowledgements



- Professor Simon Baron-Cohen
- Dr. Ayla Humphrey
- Dr. Dan LeGoff
- Darlington Primary School
- The teachers, parents and children who participated
- Lego Ltd for some free Lego to use in the study
- MRC for funding Gina's studentship

