Social facilitation of laughter and smiles in preschool children

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Author Note

The authors would like to thank parents and children who took part in this study and the owners of the preschool for allowing us to conduct research on their premises.

Abstract

Surprisingly little research has investigated the social dimension of laughter in preschool children. This experiment studied children’s responses to amusing video clips in the presence or absence of peers. The sample consisted of 9 boys and 11 girls aged 31-49 months (mean 39.8, SD 4.2) who watched three cartoons under three different conditions: individually, in pairs, or in groups of 6 or 8. The social viewing conditions showed significantly higher numbers of laughs and smiles than the individual viewing condition. On average children laughed eight times more in company as on their own, and smiled almost three times as much. No differences were found between pairs and groups, and no association was found between subjective funniness ratings and group size. This suggests that the presence of even a single social partner can change behaviour in response to humorous material. It supports the idea that laughter and smiles are primarily flexible social signals rather than reflexive responses to humour.

(158 words)

*Keywords:* preschoolers, laughter, smiles, humour, peer groups

*Appendix 1*

*Consent letter and information sheet*

**CONSENT LETTER**

**Laughter in pre-school children: is it a social thing?**

Dear parents,

I would like to ask permission for your child to take part in a fun research project on children and laughter which two fellow female researchers and I are conducting as part of our BSc Psychology degree at Birkbeck, University of London. The project is being supervised by Dr. Caspar Addyman from the Birkbeck Babylab.

The project will take place in the next few weeks during the children’s normal pre-school sessions, however, no child will be obliged to take part if they choose not to. The children will be video recorded whilst watching a short humorous Cbeebies (or similar) clip and it will all be overseen by either Sally or Debbie.

Attached to this letter, you will find an information sheet about the study. We hope you will be happy for your child to take part in our study on laughter, and would very much like to share the outcome of our study with you if you are interested, and answer any questions you might have.

If you are happy for your child to take part, please could you complete, date and sign where indicated below and return the letter to me.

Many thanks

[names removed]

* I consent to my child (name) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_taking part in the above study.   
    
  Name (parent): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
    
  Signature (parent): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please tick

|  |  |
| --- | --- |
| * I have had the details of the study explained to me and willingly consent for my child to take part.  My questions have been answered to my satisfaction and I understand that I may ask further questions at any time. |  |
| * I understand that I may withdraw my consent for the study at any time without giving any reason.  Furthermore I understand that I will be able to withdraw my child’s data at any time before the project is written up. |  |
| * I understand that my child will remain anonymous and that all the information given will be used for this study only. |  |
| * I understand that all information collected will be kept in confidence.  This means we (the researchers) will only tell those who have a need or right to know. |  |

**INFORMATION SHEET**

**Laughter in pre-school children: is it a social thing?**



Laughter is an essential part of everyday life, occurring across all cultures. In fact, it is such a common occurrence that we often forget we are doing it at all!

Rather than being learned, laughter seems to be an instinctive and spontaneous behaviour that babies do from a very young age. Laughter can be thought of as a kind of hidden social language which we all speak and which binds us together. As such, it is an important means of communication, creating strong bonds between people of all ages.

Whilst many studies have investigated spontaneous social laugher in adults, there have been fewer studies looking at this in children. We therefore thought it would be interesting to investigate spontaneous social laughter in pre-school children.

Our study will involve the children looking at short (5-minute) humorous video clips (from a Cbeebies episode or similar) to observe spontaneous laughter, as part of a group and individually. It will also involve filming the children while they watch so that the amount of laughter can be properly measured.

To protect your child's anonymity, all information collected will be kept in confidence and no one outside of this project will see the recordings. Reports based on this study will not mention individuals. Your child’s file will be given a code number rather than a name for us to identify it. Only staff members working on the project will have access to the recordings.

If you would like any further information, or have any questions, please do not hesitate to contact any of us on the contact details below.

We very much hope you would like your child to take part in this exciting project on children's laughter.

Many thanks,

[names removed]

*This project has received ethical approval from the Department of Psychological Sciences Research Ethics Committee of Birkbeck University of London.*

**If you have any questions, please contact:**

[contact information removed]

*Appendix 2a*

*Bernard Bear videos*

|  |  |  |  |
| --- | --- | --- | --- |
| **Video code** | **Part 1** | **Part 2** | **Total Length** |
| Video 1 | Season 3, Episode 26: The Cook | Season 3, Episode 38: Merry Christmas | 6 minutes 35 seconds |
| Video 2 | Season 3, Episode 50: The Leak | Season 3, Episode 46: Wallpaper | 7 minutes 43 seconds |
| Video 3 | Season 3, Episode 16: Ice Skating | Season 3, Episode 2: The Balloon | 6 minutes 38 seconds |

*Appendix 2b*

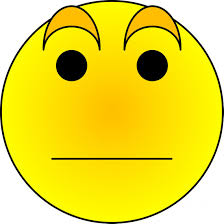
*Presentation orders*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ORDER** | **N** | **Session 1**  **(Video 1)** | **Session 2**  **(Video 2)** | **Session 3**  **(Video 3)** |
| A | 6 (3m, 3f) | Individually | Pairs | Group |
| B | 8 (4m, 4f) | Pairs | Group | Individually |
| C | 6 (2m, 4f) | Group | Individually | Pairs |

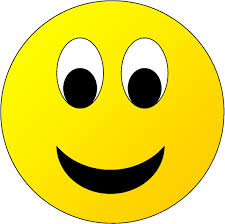
*Appendix 3*

*Visual aid for subjective funniness ratings*

Not Funny (NF)



Quite Funny (QF)



Very Funny (VF)



*Appendix 4*

*Timetable for testing/Recording sheet*

**GROUP A:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Round 1: Individually** | **Video code** | **Tested (tick)** | **Notes** |
| A01 | [name removed] |  |  |  |
| A02 | [name removed] |  |  |  |
| A03 | [name removed] |  |  |  |
| A04 | [name removed] |  |  |  |
| A05 | [name removed] |  |  |  |
| A06 | [name removed] |  |  |  |
|  | **Round 2: Pairs** | **Video code** | **Tested (tick)** | **Notes** |
|  | A01 and A02 |  |  |  |
|  | A03 and A04 |  |  |  |
|  | A05 and A06 |  |  |  |
|  | **Round 3: Groups** | **Video code** | **Tested (tick)** | **Notes** |
|  | Group 1F: A01, A02, A03, A04, A05 and A06 |  |  |  |

**GROUP B:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Round 1: Pairs** | **Video code** | **Tested (tick)** | **Notes** |
|  | B07 and B08 |  |  |  |
|  | B09 and B10 |  |  |  |
|  | B11 and B12 |  |  |  |
|  | B13 and B15 |  |  |  |
|  | **Round 2: Groups** | **Video code** | **Tested (tick)** | **Notes** |
|  | Group 1T: B07, B08, B09, B10, B11, B12, B13 and B14 |  |  |  |
| **Code** | **Round 3: Individually** | **Video code** | **Tested (tick)** | **Notes** |
| B07 | [name removed] |  |  |  |
| B08 | [name removed] |  |  |  |
| B09 | [name removed] |  |  |  |
| B10 | [name removed] |  |  |  |
| B11 | [name removed] |  |  |  |
| B12 | [name removed] |  |  |  |
| B13 | [name removed] |  |  |  |
| B14 | [name removed] |  |  |  |

**GROUP C:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Round 1: Group** | **Video code** | **Tested (tick)** | **Notes** |
|  | Group 4W: C15, C16, C17, C18, C19 and C20 |  |  |  |
| **Code** | **Round 2: Individually** | **Video code** | **Tested (tick)** | **Notes** |
| C15 | [name removed] |  |  |  |
| C16 | [name removed] |  |  |  |
| C17 | [name removed] |  |  |  |
| C18 | [name removed] |  |  |  |
| C19 | [name removed] |  |  |  |
| C20 | [name removed] |  |  |  |
|  | **Round 3: Pairs** |  |  |  |
|  | C15 and C16 |  |  |  |
|  | C17 and C18 |  |  |  |
|  | C19 and C20 |  |  |  |

*Appendix 6*

*Coding sheet*

|  |  |  |
| --- | --- | --- |
| **CHILD** | **ID** | **REVIEWER** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **GROUPS** | | | | | | | | | | | | | |
| Code:   Total Laughs:   Total Smiles: | **0 s** | **10 s** | **20 s** | **30 s** | **40 s** | **50 s** | **60 s** | **70 s** | **80 s** | **90 s** | **100 s** | **110 s** | **120 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **130 s** | **140 s** | **150 s** | **160 s** | **170 s** | **180 s** | **190 s** | **200 s** | **210 s** | **220 s** | **230 s** | **240 s** | **250 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **260 s** | **270 s** | **280 s** | **290 s** | **300 s** | **310 s** | **320 s** | **330 s** | **340 s** | **350 s** | **360 s** | **370 s** | **380 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PAIRS** | | | | | | | | | | | | | |
| Code:   Total Laughs:   Total Smiles: | **0 s** | **10 s** | **20 s** | **30 s** | **40 s** | **50 s** | **60 s** | **70 s** | **80 s** | **90 s** | **100 s** | **110 s** | **120 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **130 s** | **140 s** | **150 s** | **160 s** | **170 s** | **180 s** | **190 s** | **200 s** | **210 s** | **220 s** | **230 s** | **240 s** | **250 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **260 s** | **270 s** | **280 s** | **290 s** | **300 s** | **310 s** | **320 s** | **330 s** | **340 s** | **350 s** | **360 s** | **370 s** | **380 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **INDIVIIDUALS** | | | | | | | | | | | | | |
| Code:   Total Laughs:   Total Smiles: | **0 s** | **10 s** | **20 s** | **30 s** | **40 s** | **50 s** | **60 s** | **70 s** | **80 s** | **90 s** | **100 s** | **110 s** | **120 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **130 s** | **140 s** | **150 s** | **160 s** | **170 s** | **180 s** | **190 s** | **200 s** | **210 s** | **220 s** | **230 s** | **240 s** | **250 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **260 s** | **270 s** | **280 s** | **290 s** | **300 s** | **310 s** | **320 s** | **330 s** | **340 s** | **350 s** | **360 s** | **370 s** | **380 s** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

*Appendix 7*

*Master data table*

**MEAN SCORES PER CHILD PER CONDITION**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Child's code** | **Group** | | **In pair** | | **Individually** | |
|  | **Laughs** | **Smiles** | **Laughs** | **Smiles** | **Laughs** | **Smiles** |
| A01 | L - 1.5 | S - 5.5 | L - 21 | S - 10 | L - 0.5 | S - 1 |
| A02 | L - 16 | S - 24 | L - 7.5 | S - 28 | L - 0 | S - 13 |
| A03 | L - 0 | S - 8 | L - 8 | S - 15 | L - 0 | S - 0.5 |
| A04 | L - 5 | S - 9 | L - 14 | S - 18 | L - 0 | S - 2.5 |
| A05 | L - 0 | S - 2 | L - 0 | S - 4 | L - 0 | S - 1 |
| A06 | L - 1 | S - 6.5 | L - 2 | S - 2.5 | L - 0 | S -18 |
| B07 | L - 0 | S - 6 | L - 1 | S – 9.5 | L – 0.5 | S - 3 |
| B08 | L - 6 | S - 22 | L – 6.5 | S - 16 | L - 2 | S – 7 |
| B09 | L - 11 | S – 12.5 | L – 8.5 | S - 9 | L – 0.5 | S – 4 |
| B10 | L - 12 | S - 12 | L - 7 | S - 12 | L - 0 | S – 3 |
| B11 | L – 1.5 | S – 11.5 | L - 0 | S – 4.5 | L - 0 | S - 1 |
| B12 | L – 23.5 | S - 13 | L - 2 | S – 13.5 | L – 0.5 | S - 1 |
| B13 | L - 14 | S – 27.5 | L – 12.5 | S - 18 | L – 2.5 | S – 10.5 |
| B14 | L - 27 | S - 20 | L - 20 | S - 27 | L - 0 | S - 1 |
| C15 | L - 16.5 | S - 10.5 | L - 16 | S - 6 | L - 10.5 | S - 3 |
| C16 | L – 9.5 | S – 8.5 | L - 12 | S - 9.5 | L - 0.5 | S - 2 |
| C17 | L - 11.5 | S - 10.5 | L - 4 | S - 9 | L - 0 | S - 2 |
| C18 | L – 6.5 | S - 23 | L - 10 | S - 12 | L - 1 | S - 3 |
| C19 | L – 1.5 | S - 3 | L - 0 | S - 2 | L - 0 | S – 3.5 |
| C20 | L - 0 | S – 2 | L - 0 | S – 2 | L - 0 | S - 2 |

*Appendix 8*

*Accessing our data and running our analyses.*

Addyman, C., Fogelquist, C., Levakova, L., & Rees, S. (2017). Social laughter in preschool children: Dataset, analysis scripts and supporting materials.   
FigShare. <https://doi.org/10.6084/m9.figshare.554935>

**Data**

All coded data from this study have been made available. The raw videos cannot be publically shared due to privacy and data protection issues, interested researchers should contact the lead author directly at [c.addyman@gold.ac.uk](mailto:c.addyman@gold.ac.uk).

The main experimental data is shown Appendix 7 above. This is found in the Excel file **SocialTV.xlsx.**

**Analysis –**

To generate all the statistics and figures shown in the paper full R scripts have been made available

*Method 1 – Using R*

1. First install the R Statistical Computing Software <https://www.r-project.org>. For ease of use, we recommend using R via the RStudio desktop application
2. Download the data file and the two analysis scripts from the link at the top into a single folder:  
    **SocialTV.xlsx  
    SocialTV.R  
    SocialTVplots.R**
3. Open **SocialTV.R** from inside RStudio and evaluate the commands step by step.

*Method 2 – Using Jupyter notebooks.*

1. First install a Jupyter environment on your PC. <http://jupyter.org/install>
2. Launch the Jupyter system. It should open in your web browser.
3. From the link at the top of the page download the data file and the two R analysis scripts and the jupyter file into a single folder:  
    **SocialTV.xlsx  
    SocialTV.R  
    SocialTVplots.R** **SocialTV.ipynb**
4. In Jupyter navigate to the folder you just saved and open SocialTV.ipynb
5. Follow the instructions in the file.