### DELIVERABLE D10.4
Psychological experiments and evaluation with adult and child players

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<tr>
<td>Responsible for task</td>
<td>Agnieszka Rynkiewicz (ASCM) <a href="mailto:rynkia@spectrumascmed.com">rynkia@spectrumascmed.com</a></td>
</tr>
</tbody>
</table>
| Author(s)           | Agnieszka Rynkiewicz(ASCM) rynkia@spectrumascmed.com  
|                     | Kacper Ptaszek (ASCM) kacper@spectrumascmed.com  
|                     | Karol Ligmann (ASCM) karol@spectrumascmed.com  
|                     | Ofer Golan (BIU) offer.golan@biu.ac.il  
|                     | Shahar tal (BIU) shahar0190@gmail.com  
|                     | Shimrit Friedenson (BIU) shimfri@gmail.com |
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### Versioning history

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<td>Agnieszka Rynkiewicz (ASCM), Kacper Ptaszek (ASCM), Karol Ligmann (ASCM), Ofer Golan (BIU), Shahar tal (BIU), Shimrit Friedenson (BIU)</td>
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Declaration by the scientific representative of the project coordinator

I, as scientific representative of the coordinator of this project and in line with the obligations as stated in Article II.2.3 of the Grant Agreement declare that:

- The attached report represents an accurate description of the work carried out in this project for this reporting period;
- The project (tick as appropriate):
  - □ has fully achieved its objectives and technical goals for the period;
  - ■ has achieved most of its objectives and technical goals for the period with relatively minor deviations;
  - □ has failed to achieve critical objectives and/or is not at all on schedule.

**ACHIEVED OBJECTIVES**

- Recruitment and assessment of children and their parents
- Feedback on the virtual environment in preparation of the open trial
- Parent-child training program feedback in preparation of the open trial

**NOT ACHIEVED OBJECTIVES**

- The evaluation of the use of the platform translated in Polish. The trial starts beginning of January 2015.

Name of scientific representative of the Coordinator:

*Björn Schuller*

Date: 31/12/2014

Signature of scientific representative of the Coordinator:
Table of Contents

1. Introduction ...................................................................................................................... 5
2. Psychological experiments and evaluation with adult and child players ...................... 5
3. Conclusions .................................................................................................................... 8
4. Deviations ...................................................................................................................... 8
5. References ..................................................................................................................... 9
1. Introduction

This report comprises a detailed description of the achievements on the work package WP10 – Psychological experiments and evaluation with adult and child players within task 10.4 for two partners responsible for this task: ASCM and BIU. The main aims of work within this task are: the assessment of parents’ broader autism phenotype, measurement of the magnitude of stress in the parent-child system, the assessment of how ASC children understand emotions before and after usage of the VE (Virtual Environment), and the assessment of adult-child interaction during collaborative playing with the VE with successful completion of joint tasks.

2. Psychological experiments and evaluation with adult and child players

ASCM research team assessed 39 Polish children and their parents (one child was excluded). There were 33 children with Autism Spectrum Conditions (ASC) (17 boys, 16 girls) and 6 with the diagnosis of Attention-Deficit Hyperactivity Disorder (ADHD) (3 boys, 3 girls). In majority of cases (80%) the diagnosis was confirmed by a psychiatrist. The mean age of evaluated ASC children was 7 years 8 months. All our children were tested by ASCM research team with ADOS-2, Autism Diagnostic Observation Schedule, 2nd Edition which is a semi-structured, standardized assessment of communication, social interaction, play/imaginative use of materials, and restricted and repetitive behaviors. Children were tested with Module 3 of ADOS-2 and during two activities of Module 3 (Demonstration Task and Cartoons) we recorded their gestures with Kinect using the application developed by Italian partner, UNIGE. We analyzed different parameters as one example presented in Fig.1.
Fig. 1. Comparison of the length of gestures in different abilities measured in ADOS-2 according to sex in ASC group.

All Polish parents were assessed with Polish adaptation of the Parenting Stress Index-3 (PSI-3) [R. Abidin 1995, PL: E. Pisula, 2012] which measures the magnitude of stress in the parent-child system. The vast majority of parents considered themselves to have good parental skills (62% vs. 72%), and reported positive changes to their own personality after the child was born and as a result of child nurturing process (82% vs. 75%). Despite many life challenges, over a half of the responding parents were happy with their personal life (55% vs. 53%), in particular with their family relationships (67% vs. 64%) and friendship (79% vs. 63%). The full description of the results on our experiments with the Kinect, ADOS-2 and PSI-3 are in the Appendix 2 to [D9.5].

Polish recruited parents were also assessed with SCQ Current and SCQ Lifetime, The Social Communication Questionnaires (SCQ) [M. Rutter et al., 2003, PL: E. Pisula, 2012]. SCQ consists of 40 statements referring to different aspects of child's daily performance/behaviours. SCQ includes 2 sheets - one referring to the current situation (maximum 3 months preceding the evaluation date, SCQ Current), while the other refers to the child performance across longer time perspective (since birth until present, SCQ Lifetime). We analyzed different parameters of SCQs as one example Fig.2. More results are in the Appendix 2 to [D9.5].
ASCM research team also assessed Polish parents' broader autism phenotype and their emotion recognition competence with:

- **FACES test** [S. Baron-Cohen et al., 1997, PL: A. Rynkiewicz and K. Ptaszek, 2013]

Recruited ASC and ADHD children were assessed with:

- **AQ** [Autism Spectrum Quotient, B. Auyeung et al., 2008, PL: A. Rynkiewicz, E. Pisula, I. Łucka, 2010]
- **FACES test** [S. Baron-Cohen et al., 1997, PL: A. Rynkiewicz and K. Ptaszek, 2013]

Full description of the detailed results with above tests are in the Appendix 2 to [D9.5].

ASCM research team also prepared all necessary materials to the Open Trial to see the effects of the VE (Virtual Environment) on emotion recognition, of both the child and the parent. Participants' feedback was collected as an important element of the user experiment, both the child and the parent. The full description of ASCM experiments' results has been prepared for publication to a peer-reviewed journal.

While working with Polish and Hebrew version of the programs, the research teams in Poland (ASCM) and Israel (BIU) supported the parents of the intervention group through weekly phone calls. It allowed for the assessment of adult-child interaction during collaborative playing with the program with successful completion of joint tasks. The parents were debriefed for the purpose of improving the ASC'S inclusion intervention.

Analyze of collected feedbacks is presented based on the participation of both families from Israel and families from Poland in the intervention group. It is important to note that this is a feedback that has being collected through the parent’s perspective.
3. Conclusions

While ASCM research team detailed scientific results are in Appendix 2 to [D9.5], the feedback on the VE and parent-child training program are as follows:

Feedback on the virtual environment: The parents' comments about the game are varied. Some of the kids love the professor and find him funny and enjoyable. Others found it a bit boring in comparison to other computer games that they play. Most of the kids find the game more enjoyable as the game progresses. Polish parents’ feedback on games can be found in [D9.5].

Intervention perceived effectiveness: Most of the parents said that they could see a difference in their child during the last weeks of the intervention, especially when it comes to their children identifying emotions (from face expression or sound) and giving names to their feelings and the feelings of those around them. One parent reported that her son said he loved her out of the blue – something that never happened before. Another said the now when she reads her son a bed time story he understands the deeper meaning of the story and not just the visible plot.

Parent-child training program feedback: parents that used the accompanying training intervention found it useful and intriguing. However, most parents did not utilize the program to its maximum, and did not conduct all the activities that have been defined. Conclusions will be driven regarding a way to enhance parent's motivation. It seems that one of plausible solutions lies in integrating the parents-child activities program to the computerized environment and rewarding the children who conduct with their parent's none-computer activities. The feedback about the VE quality and suggestions will serve the improvement on the software.

4. Deviations

Due to the delay in delivering the resource material for translation of the ASC Inclusion platform in Polish, the trail was postponed to the beginning of January 2015.
5. References


