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ISG for competence

Intelligent Serious Games for Social and Cognitive Competence

Usability evaluation, implementation phase and piloting

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Author	UM with input from all partners

For further information related to the ISG For Competence project please visit:
the project website (<http://isg4competence.eu>);
Facebook page ([facebook.com/ISG4competence](https://www.facebook.com/ISG4competence))

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O5: Usability evaluation, implementation phase and piloting (University of Maribor)

Usability Evaluation summary

Usability evaluation will be to produce a usability evaluation summary, describing and chosen:

- how and where the primary goals of the 3D simulations will be assessed (such as accessibility, effectiveness in dealing with issues regarding *social competencies* and *creativity*) and
- *evaluation methods* suitable to assessing the achievement of these goals (such as structured observation for accessibility and engagement; discovery methods to build confidence in the testing population in their ability to provide meaningful feedback; and post immersion interviews to assess effectiveness).

Matrix of usability evaluation and action plane for Implementation and Piloting

Usability evaluation	Implementation phase	Piloting
<p>Usability Evaluation summary</p> <p>Evaluation tools</p> <ul style="list-style-type: none"> • expert review forms, • observational checklists, • user questionnaires <p>Methodology</p> <ul style="list-style-type: none"> • Usability evaluation planning • Structured observation for accessibility and engagement • Iterative testing • Piloting 	<p>UM: June – August, 2018</p>	<p>UM: pre-piloting august, 2018 Piloting: September – January, 2018</p>

Evaluation materials will consist:

- expert review forms (Appendix 1),
- observational checklists,
- user questionnaires (Appendix 2).

and will be developed from May to July, 2017

Details of the test plan and the actual evaluation tools will be then developed to September, 2017 and agreed on by the partnership to the end of September, 2017. Evaluation results will be collated from across partner countries and an issue list formed in order of priority/severity of problems and used in the iterative development of the simulated scenarios.

This output aims to ensure that the four 3D interactive simulations are iteratively tested throughout the development cycle to ensure they meet their core aims (social competencies and creativeness); to carry out a longitudinal study for the qualitative appraisal of the project outputs with wider numbers of end users, to build scenario of use cases and testimonials for valorisation, to undertake soft outcomes measurements against agreed indicators for impact measurement of the addressing of attitudinized barriers.

Methodologies and approaches:

- Usability evaluation planning
- Structured observation for accessibility and engagement
- Iterative testing
- Piloting

Description of activities:

- *Develop usability evaluation planning document*
- *Development of evaluation materials*
- Organization of usability evaluation schedule with user groups in each country
- Identify from end user groups appropriate and willing beneficiaries for setting up case studies to pilot materials
- Recruit testers to carry out case studies (15 testers per country)
- *Develop evaluation methodology for case studies*
- Agree behavioural indicators for soft outcomes measurement tool
- Carry out piloting training courses to an agreed number of tests over an agreed period of time for the longitudinal evaluation of the project and the preparation of case studies
- Apply soft outcomes measurement methodology to case studies
- Complete observational checklists and gather additional informal feedback from beneficiaries
- Complete case studies
- Compilation of usability evaluation reports from each country - usability evaluation summaries
- Development of issues list based on usability evaluation reports, ordered by priority for refinement of scenarios
- Correction of usability issues in accordance with issues list

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Methodologies and approaches

Triangulation

In the social sciences, **triangle** is often used to indicate that two (or more) methods are used in a study in order to check the results of one and the same subject. The idea is that one can be more confident with a result if different methods lead to the same result. Triangulation is a powerful technique that facilitates validation of data through cross verification from two or more sources, in our case from experts (focus groups and teacher/trainer) and students - users. In particular, it refers to the application and combination of several research methods in the study of the same phenomenon. It can be used in both quantitative (validation) and qualitative (inquiry) studies and:

- It is a method-appropriate strategy of founding the credibility of qualitative analyses.
- It becomes an alternative to traditional criteria like reliability and validity.
- It is the preferred line in the social sciences.

By combining multiple observers, theories, methods, and empirical materials, researchers can hope to overcome the weakness or intrinsic biases and the problems that come from single method, single-observer and single-theory studies.

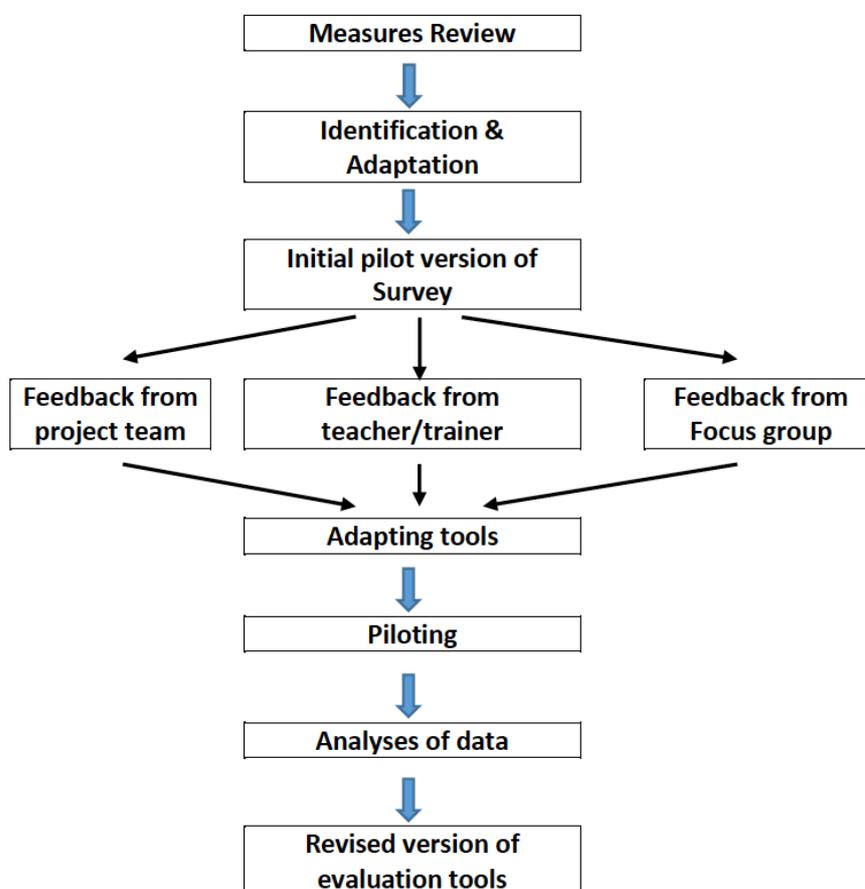
The purpose of triangulation in our research is to increase the credibility and validity of the results. Several scholars have aimed to define triangulation throughout the years.

Used Tools

To measure social skills and creativity is iterative process (See Figure 1) which included:

1. A measure review;
2. Identification and adaptation of draft questions;
3. Feedback from experts;
4. Feedback from focus groups and the teachers;
5. Piloting the tools;
6. Analysing the qualitative and quantitative data to revise the instruments.

Figure 1: Methodology preparing evaluation tools



Identification and Adaptation of Survey Questions

Following the measures review, experts specializing in survey and measure development and in child development identified potential survey questions that could be used in a school or program setting and administered to teachers and students repeatedly to measure changes in social competence and creativity over time.

Four principles guided the selection of the identified survey questions:

- 1) questions were aligned closely with the definitions of the target skills and competences;
- 2) questions for students were developmentally appropriate for administration with students;
- 3) the type and number of questions recommended did not place an undue burden on teachers or students; and



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- 4) whenever possible, questions were drawn from surveys that were documented to have strong psychometric properties (e.g., data analysis has shown that the items are reliable and valid) and/or had been tested and designed for younger and racially/ethnically or socioeconomically diverse children.

After selecting items from existing surveys, we will adapt questions when it was necessary to:

- 1) connect it with theory of gamification and ISG;
- 2) increase their age-appropriateness;
- 3) make the time frame consistent across questions; and/or
- 4) increase the comparability of the response categories across questions.

APPENDIX 1

Expert review forms AND observational checklists

Expert Survey (review form)

Please answer the following questions for each of your students.

Please think about the student's behaviour in the last reporting period. If this is the first report of the year/program, think about the student's behaviour since she or he has been in your class.

**On a scale from 1 to 5, how well do each of the statements describe the student's behaviour?
Would you say 1-NONE OF THE TIME, 2-A LITTLE OF THE TIME, 3-MORE OF THE TIME, 4-MOST OF THE TIME, or 5-ALL OF THE TIME?**

		NONE OF THE TIME	A LITTLE OF THE TIME	MORE OF THE TIME	MOST OF THE TIME	ALL OF THE TIME
1	Worked on tasks until they were finished.					
2	Kept working on an activity that was difficult.					
3	Waited in line patiently.					
4	Sat still when she/he was supposed to.					
5	Waited for what s/he wanted.					
6	Focused on tasks until they were finished.					
7	Worked well with peers.					
8	Resolved problems with peers without becoming aggressive.					
9	Was thoughtful of the feelings of her/his peers.					
10	Cooperated with peers without prompting.					
11	Understood the feelings of her/his own peers.					
12	Use creative way to solve task					
13	Think out of the box					

OBSERVATION

Observational checklists

		Not at all	A little	More	Most	A lot
1	Interacts nonverbally with other children with smiles, waves, nods, etc.					
2	Expects a positive response when approaching others.					
3	Expresses wishes and preferences clearly; gives reasons for actions and positions.					
4	Asserts own rights and needs appropriately.					
5	Is not easily intimidated by bullying.					
6	Expresses frustrations & anger effectively, without escalating disagreements or harming others.					
7	Gains access to ongoing groups at play and work.					
8	Enters ongoing discussion on a topic; makes relevant contributions to ongoing activities.					
9	Takes turns fairly easily.					
10	Has positive relationships with one or two peers; shows the capacity to really care about them and miss them if they are absent.					
11	Has "give-and-take" exchanges of information, feedback, or materials with others.					
12	Negotiates and compromises with others appropriately.					
13	Is able to maintain friendship with one or more peers, even after disagreements.					
14	Does not draw inappropriate attention to self.					
15	Accepts and enjoys peers and adults who have special needs.					
16	Accepts and enjoys peers and adults who belong to ethnic groups other than his or her own					
17	Think out of the box					

Appendix 2

Users Survey

Thank you for taking the time to answer these questions. This is NOT A TEST. There are no right or wrong answers. Please be honest when answering the questions. Your honest answers will help your school or program do a better job to help you learn!

Male Female

Class: _____

These questions are about different ways students may behave in school. Please mark the box that best describes you.

	Not at all	A little	More	Most	A lot
1 I can wait in line patiently.					
2 I sit still when I'm supposed to.					
3 I can wait for my turn to talk in class.					
4 I can easily calm down when excited.					
5 I calm down quickly when I get upset.					

These next questions are about how well you feel you can do your schoolwork with ISG. Mark the box that best describes you.

	Not at all	A little	More	Most	A lot
6 I can do even the hardest homework if I try.					
7 I can learn the things taught in school.					
8 I can figure out difficult homework.					

These next questions are about how you get your ISG work done. Mark the box that best describes you.

	Not at all	A little	More	Most	A lot
9 If I solve a problem wrong the first time, I just keep trying until I get it right.					
10 I try to find my solution					
11 When I do badly on a test, I work harder the next time.					
12 I always work hard to complete my school work.					



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The last set of questions will ask you how you feel about school. Please mark the box that best describes you.

		Not at all	A little	More	Most	A lot
13	I do my schoolwork because I like to learn new things.					
14	I do my schoolwork because I'm interested in it.					
15	I do my schoolwork because I enjoy it.					
16	I like to solve problems with games					

Thank you! You're done! Please follow your teacher's instructions.