

# Information dossier on measurement instruments for the pilot test

## Summary

### Introduction

The main contribution of the e-Confidence project in the scientific context will be the validation of an experimental methodology for the design and evaluation of serious game mechanics, as well as the overall design for a game aiming to introduce changes through ABA procedures within a defined scope i.e. Safe use of internet and Bullying.

The *Information dossier of measurement instruments to be applied in the pilot test* refers to conceptual and operational description of variables in the e-Confidence project that will be assessed both prior (pre-test), during gaming (experimental treatment) and after the gaming experience (post-test). In order to verify whether the use of e-Confidence games causes cognitive, emotional and behavioural changes in the variables considered as dependent, a quasi-experimental, pre-test-post-test design with experimental and control groups will be followed.

Experimental groups will participate in an educational activity (playing one of the e-Confidence games: Safe use of Internet or Bullying). In order to assert the efficacy of the experiment, a separated control group of students will not engage in the use of serious game, but will still be evaluated by the same external metrics as the tested groups. Additionally, two experimental groups will serve as control for each other.

According to the goals of the project and considering safe use of internet and bullying contexts in which the serious games will act, several variables and corresponding instruments are described in *Information dossier of measurement instruments*. In the pre-test and post-test, we will focus on knowledge, behaviour, and variables derived from the Theory of planned behaviour (TPB: attitudes, perceived behavioural control, subjective norms and behavioural intentions) related to safe internet use and bullying, as well as on personal variables (social skills, assertiveness, empathy, and friendship). All TPB and personal variables will be assessed by using self-reported instruments that will be applied online. During gaming sessions, different behavioural indicators will be recorded (e.g. user choices in game scenarios), in order to track behaviour changes in safe use of internet and bullying behaviour.

Although there are many measures to be applied in the e-Confidence pilot test, the final version of the online questionnaire will be designed taking into account the time constraint for questionnaire administration as well as developmental characteristics of adolescent participants.

In following text, we will describe target behaviours and other dependent variables, as well as instruments for their assessment.



## Description of variables and measurement instruments

### Safe use of internet

The safe use of the internet constitutes a complex concept that involves a large number of behaviours. For the present study, based on literature review (D.2.1), we selected a series of indicators regarding the safe use of internet structured in seven dimensions, envisaged in the proposal for the design of the serious game: device security, online registrations and passwords, web browsing, email, social networks, instant messaging, and image management. To measure the knowledge about the safe use of the internet of the students we are going to develop a questionnaire specifically designed for the study. The questionnaire will be composed of multiple choice questions that presents fictional situations related with the safe use of the internet. The behavioural measures will be applied pre-test and post-test, as well as during gaming activities. For the pre-test and post-test assessment, questionnaire will be applied. During gaming sessions, user choices in game scenarios will be recorded as well as other behaviour indicators such as number of trials needed to achieve the goal behaviour, reaction time etc.

### Bullying

Bullying is aggressive behaviour or intentional 'harm doing', which is carried out repeatedly and over time in an interpersonal relationship characterized by an imbalance of power. According to studies four groups could be involved in bullying: bullies, victims, bully-victims and bystanders. Knowledge about bullying will be assessed by adjusted version of the questionnaire devised by Yoon and Kerber (2003) and adjusted by Costley and Han study (2013). Students on a three point scale should rate to what degree vignettes describe bullying situations, their beliefs about the seriousness of the event portrayed in the vignette, the amount of empathy they have for the student victim in the vignette, and how likely they are to intervene in these situations. Besides, as a measure of coping strategies students would evaluate appropriateness of possible reactions in bullying situations. Bullying behaviour will be measured with two global items from the revised Olweus Bully/Victim Questionnaire (OBVQ, Olweus, 1996). Bystander behaviour will be measured with one item about their usual reaction when witnessing bullying situation.

### Variables from Theory of Planed Behaviour (TPB)

The Theory of planned behaviour (TPB) helps to explain which influences affect an individuals' involvement in specific behaviours. The TPB states that behaviour is a direct function of behavioural intention, which subsequently is determined by an individual person's attitude, subjective norm and perceived behavioural control.

**The attitude** refers to the degree to which a person has a favourable or unfavourable evaluation of specific behaviour. As target behaviours, we selected safe use of internet, bullying and protecting the victim. The attitude of the students towards the safe use of internet is defined as the feeling of favourableness or unfavourableness regarding the development of protocols of safe navigation. To measure this construct, we will use items adapted from the proposal by Taylor and Todd (1995). The



students' attitudes toward bullying will be assessed by separately rating their evaluation of bullying and protecting the victim by means of the several semantic differential scales.

**Perceived behavioural control (PBC)** is conceptualized as the perceived ease or difficulty of performing the behaviour. The self-efficacy component of PBC deals with the ease or difficulty of performing a behaviour, with people's confidence that they can perform it if they want to do so. Three items for the perceived behavioural control and three for the self-efficacy will be applied for each target behaviour (safe use of internet and protecting the victim).

**Subjective norm** is defined as perceived social pressure to perform or not to perform the behaviour. Previous studies examining the predictive value of subjective norm on behavioural intention found that the more an individual believes that important others think he should perform the behaviour, the more motivated he/she will be to comply with the pressure exerted by these others (Heirman & Walrave, 2012). We propose three different dimensions related with the subjective norm for safe use of internet: general subjective norm, peer influence and superior influence. The subjective norm for bullying will be assessed with the scale that will be constructed for the purpose of the present study and for target behaviour of protecting the victim. It will consist of six items using the same pattern as in safe use of internet scale.

**Behavioural intentions** refer to direct antecedent of behaviour and indicate subjective probability that the subject would perform the action. The TPB questionnaire regarding the safe use of the internet will have three items to measure the behavioural intention. As the previous dimensions, the items will be adapted from the proposal by Taylor and Todd (1995). The behavioural intention for the bullying behaviour will be assessed with the questionnaire that will contain three items aimed as measuring behavioural intention to protect the victims of bullying.

## Personal variables

**Social skills** represent the ability to perform those behaviours that are important in enabling a person to achieve social competence (Spence, 2003). There is a huge number of social tasks that young people need to be able to deal with, such as requesting help, offering assistance, saying *no*, requesting information, offering invitations etc. Children involved in bullying often lack social skills. Matson Evaluation of Social Skills with Youngsters (MESSY, Matson, Rotatori, & Helsel, 1983) is a rating scale aimed to measure social skills in children. Since the instrument is quite demanding and some of its subscales overlap with other included constructs, we plan to use only part of the appropriate social skills subscale.

**Assertiveness** means standing up for your personal rights - expressing thoughts, feelings and beliefs in direct, honest and appropriate ways. It is one of the most important aspects of social competence. Bullies as well as victims reported less assertive strategies in reaction to provocation than not involved children (Camodeca, Goossens, Schuengel, & Terwogt, 2003). However, assertive peer bystanders can play important role when witnessing bullying episode. Children's Assertive Behavior Scale (CABS, Michelson & Wood, 1982) is a behaviourally designed self-report instrument for children. It covers many problematic social situations, each one with 5 response options on a passive-assertive-aggressive response continuum. Students choose the one response that best reflects their usual way of responding to that social situation. Since the instrument is quite exhaustive, we plan to use maximum of 10 situations including items from different groups of social skills.



**Empathy** has usually been defined as the ability to experience the same feelings as those of another person in response to a particular situation (Nesdale, Griffiths, Durkin, & Maass, 2005). Studies on bullying point out that bullies have little empathy for their victims (Olweus, 1993), so the development of empathy should be considered as an important component for intervention programmes designed to reduce bullying behaviour. Bryant's Empathy Index (Bryant, 1982) is a self-report instrument for assessing empathy in children and adolescents. For the purpose of the eConfidence research, we plan to use Empathic Sadness subscale (de Wied et al., 2007) for the assessment of empathy, as that subscale refers to responsiveness to another person's sadness that could be crucial when witnessing bullying situation.

**Friendship** can be defined as mutually agreed-on, reciprocated relationship. Friendships provide opportunities for positive social experiences, but having friends also might protect a child against victimization (Boulton, Trueman, Chau, Whitehand, & Amatya, 1999). The Friendship Questionnaire (Bierman & McCauley, 1987) consists of concrete and specific questions referring to positive and negative peer interactions in school setting and at home. In the eConfidence pre-test and post-test assessment, several questions from Positive Interaction subscale will be used, referring to interactions typical for school setting.

### Variables related to user experience

In the experimental group, the post-test will also include items related to quality and usability of the game, and user experience provided by the game. These measures will be developed within WP5, D.5.1. All measures will be applied online.

## References

- Bierman, K. L., & McCauley, E. (1987). Children's descriptions of their peer interactions: Useful information for clinical child assessment. *Journal of Clinical Child Psychology, 16*(1), 9-18.
- Boulton, M. J., Trueman, M., Chau, C., Whitehand, C., & Amatya, K. (1999). Concurrent and longitudinal links between friendship and peer victimization: Implications for befriending interventions. *Journal of Adolescence, 22*(4), 461-466.
- Bryant, B. K. (1982). An Index of Empathy for Children and Adolescents. *Child Development, 53*(2), 413-425.
- Camodeca, M., Goossens, F. A., Schuengel, C., & Terwogt, M. M. (2003). Links between social information processing in middle childhood and involvement in bullying. *Aggressive behavior, 29*(2), 116-127.
- Costley, J. H. M., Sueng-Lock, H., & Ji-Eun, L. (2013). Preservice teachers' response to bullying vignettes: The effect of bullying type and gender. *International Journal of Secondary Education, 1*(6), 45-52.
- De Wied, M., Maas, C., Van Goozen, S., Vermande, M., Engels, R., Meeus, W., ..., Goudena, P. (2007). Bryant's empathy index: A closer examination of its internal structure. *European Journal of Psychological Assessment, 23*(2), 99-104.
- Heirman, W. & Walrave, M. (2012). Predicting adolescent perpetration in cyberbullying: An application of the theory of planned behavior. *Psicothema, 24*, 614-620.



Matson, J. L., Rotatori, A. F., & Helsel, W. J. (1983). Development of a rating scale to measure social skills in children: The Matson Evaluation of Social Skills with Youngsters (MESSY). *Behaviour Research and therapy*, 21(4), 335-340.

Michelson, L. & Wood, R. (1982). Development and psychometric properties of the Children's Assertive Behavior Scale. *Journal of Behavioral Assessment*, 4(1), 3-13.

Nesdale, D., Griffiths, J., Durkin, K., & Maass, A., (2005). Empathy, group norms and children's ethnic attitudes. *Applied Developmental Psychology*, 26, 623–637.

Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Malden: Blackwell Publishers.

Olweus, D. (1996). *The revised Olweus Bully/Victim Questionnaire for Students*. Bergen, Norway: University of Bergen.

Spence, S.H. (2003). Social skills training with children and young people: Theory, evidence and practice. *Child and Adolescent Mental Health*, 8, 2, 84–96.

Taylor, S., & Todd, P. (1995) Understanding Information Technology Usage: A Test of Competing Models, *Information Systems Research*, (6) 2, pp. 144-176.

Yoon, J. S., & Kerber, K. (2003). Bullying: Elementary teachers' attitudes and intervention strategies. *Research in Education*, 69(1), 27-35.

