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**Prosocial digital games for inclusion in the primary classroom**

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Much of the discussion of digital games tends to focus on the possible negative aspects, including that children and young people are spending too much time playing games and that violent video games lead to violent behaviours in real life. Actually, the evidence about the latter is mixed with research often showing short-term effects on behaviour rather than longer-term impacts (Warburton, 2018). At the same time, there is good evidence that games-based approaches to learning, and the opportunities to play prosocial digital games specifically, can lead to improved social skills, understanding, behaviours and academic outcomes over the longer-term (Jones, Greenberg & Crowley, 2015; Stewart et al., 2013). Prosocial skills can be described as voluntary, positive behaviours towards others such as helping, co-operating, turn-taking, empathising and trusting (Padilla-Walker, 2016).

The importance of children’s development of prosocial competence for health, well-being and good academic outcomes is well established, to the extent that Public Health England (2015) has recommended that facilitating the development of prosocial skills should be an inclusive strategy that targets all learners. Similarly, prosocial digital games have been identified as potentially powerful tools for inclusive pedagogy in part because they do not ‘…depend exclusively on formal literacy and numeracy to teach skills and convey social messages’ (Harrington & O’Connell, 2016; p.657). Studies into the early teaching of prosocial skills have yielded positive findings, such as nurture groups for young children with social, emotional, behavioural, and learning difficulties (Cooper & Whitebread, 2007), and ‘Circle of Friends’ for children with special educational needs or disabilities (Frederickson & Turner, 2003). Therefore, it is worth considering the role that prosocial digital games could play in this context too.

With this aim in mind, the *ProsocialLearn* project, funded by the European Commission’s Horizon2020 programme, created a series of digital games for primary-aged children to support their learning and experiences of prosocial skills. The games were intended to be available for all children and designed to ensure they were easy to access and use. Evaluations of the games took place in real classrooms so that findings are appropriate and relevant for schools and practitioners. More information about the project can be found here: <http://prosociallearn.eu/>

**The schools and children involved**

 The project evaluated the new digital prosocial games in schools in the UK, Greece, Italy and Spain. 374 children aged 8 to 12 years were involved in a range of different evaluation activities at five different mainstream primary schools, and 20 teachers or teaching assistants provided feedback. A carefully controlled evaluation design was implemented in the UK, Greece, and Italy, whereas Spanish teachers and children gave more general feedback on their use of the games. In all cases, there was no targeting of specific groups of children, or exclusion of any participants; our approach was an inclusive one such that any child (whose parents provided consent) could take part.

**Design and measures**

Details of the exact study designs differed slightly between each country to take into account local factors and needs, such as timetabling and the ‘fit’ of the research design within term-time plans. In Greece and Italy children were split into two groups with one group continuing with ‘business as usual’ and the second group having some dedicated time to play the prosocial games over a period of 2-3 weeks. The groups then swapped around. In the UK this was slightly different, with both groups playing the prosocial games, but one group playing for longer than the other (4 weeks, compared to 2 weeks). Despite these slight differences in project design, the same measures were used for: (1) teachers to assess whether children’s prosocial skills changed during the evaluation, and (2) children to judge whether their own and classmates’ prosocial skills had changed. These measures included:

* the five-item prosocial behaviour scale of the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997; e.g. ‘considerate of other people’s feelings’, ‘shares readily with other children’), which was completed by teachers;
* a peer assessment form (Farmer & Rodkin, 1996) where children were asked to nominate on paper up to three peers who best fit descriptors for eight items (e.g. ‘cooperative’, ‘popular’, ‘disruptive’, ‘leader’); and
* the six-item social competence sub-scale of the Self-Perception Profile for Children (Harter, 2012; e.g. ‘some kids find it hard to make friends’, ‘some kids know how to make classmates like them’), where each child had to decide on the statement that was most like him/her, and then rate each statement as to whether it was ‘not true’, ‘somewhat true’ or ‘certainly true’ about themselves.

Teachers and children also gave feedback on the games, via interviews and short questionnaires respectively. In Spain, children and teachers gave feedback on their use and experiences of playing the games via short questionnaires only. This was a planned part of the project design, whereby we undertook more in-depth data collection in the UK, Italy and Greece due to having established research teams in those countries. In Spain, we deliberately took a more ‘hands off’ approach to see what schools would do with the games without us playing a direct role.

**Example games**

The two main prosocial digital games used were *‘Laika’* and *‘Pushy Paddles’*:

*‘Laika’* is a game for supporting children’s skills for cooperation (e.g. helping and learning about others), friendship (e.g. learning about others, sharing about oneself and joining in a conversation) and feelings (understanding social cues). It is a single-player game (although children played in pairs and small groups in the present study) with four episodes, which can take 20-40 minutes each to play. A dog detective investigates the theft of the Golden Bone from the dog park by interviewing the dog-residents and gaining clues.

*‘Pushy Paddles’* is a numeracy game that incorporates skills for cooperation (e.g. solving a problem as a group, paying attention to others, asking for help, helping others, taking turns), friendship (not interrupting others, being an active listener) and feelings (dealing with boredom, stress or self-control). The game requires three players, each with their own role, and they can select their avatar from a number of different choices. One player must ride the platform from the bridge to the chest at the end of the water without hitting any obstacles. This is achieved with the help of the other two players who must use their paddles to steer the floater around the obstacles and to the chest. Together, the players have to solve maths-based problems to find the best route. Once a player reaches the chest, that player will be given a series of rewards that he must distribute amongst all players.

**Key Findings**

* In the UK, 25 children took part from a mainstream primary school. The children who played the games for a longer period of time (four weeks) judged themselves to be more socially competent at the end of the study compared to the group who played for two weeks. Children also gave higher scores to the prosocial characteristics of other children (‘Cooperative’, ‘Popular’ or ‘Good at school work’) at the end of the study. This suggests that they became more aware of the way that other children behaved.
* In Greece, 185 children took part from a mainstream primary school. Children gave higher prosocial scores to other children (‘Cooperative’ or ‘Athletic’), and teachers judged children to show significant increases in their prosocial behaviours, at the end of the study.
* In Italy, 91 children took part from two mainstream primary schools. Children’s judgements about their own social competence increased at one of the schools during the period of gameplay, but not at the second school.
* In Spain, 73 children took part from a mainstream primary school and gave feedback on how much they liked the games and how easy and understandable the games were to play. Children were very positive about the games and keen to play them again.
* Teachers and teaching assistants from the UK, Greece, and Italy were very positive about children’s experiences in playing the games, and about the potential of the games for supporting children’s learning and understanding of prosocial skills. Spanish teachers were less enthusiastic, mainly due to some technical difficulties experienced when playing the games.

**Conclusions**

These findings present a very encouraging basis for continuing to explore the use of prosocial games in the primary classroom, and investigating children’s responses and learning. The majority of children and teachers accepted the games as enjoyable and valid tools for supporting prosocial learning in the classroom context. Considering that teachers’ scepticism regarding the value of educational technologies in the classroom is still relatively high (e.g. Teo, 2015), demonstrating such acceptability in a cross-cultural sample is noteworthy, even though the sample of teachers was small overall.

**Implications for practice**

* The prosocial digital games can be played in different ways e.g. by targeting particular groups of children, or by dividing the class so that some children play the games while others work on related tasks, or as a whole class activity;
* The games can be embedded within different aspects of the curriculum to support or emphasise different learning outcomes e.g. *Laika* was useful for prompting discussions about peer pressure in class; *Pushy Paddles* requires prosocial skills to complete successfully and also incorporates maths problems from the Key Stage 2 curriculum;
* Children generally enjoyed working together to discuss and solve problems, and recognised that this was an important aspect of the games;
* The games generate interest, discussion and excitement, all of which need to be carefully managed;
* The games were operated through an online platform that automatically logs data. This was used to create a Student Performance Dashboard which shows how many children demonstrated the skill(s) the games support, as well as the skills each child showed during gameplay. This feature could be very useful for teachers in providing real-time formative feedback, though was not part of the formal evaluation of the study.

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