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Usability of a Jamming Mobile with 3-6-Year-Old Children for Enhancing Feelings of Social Inclusion and Facilitating Musical Learning

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Abstract

JamMo is a new musical education software. An inter-disciplinary team from 5 different EU countries developed the software as part of an EU-funded project. The software was developed to facilitate feelings of social inclusion and musical collaboration amongst children aged 3-12. A pilot study was conducted with a version of the game aimed at 3-6 years. Twenty-eight children aged eight participated in the pilot study. Five sessions were delivered with JamMo over the period of eight weeks at a primary school in London, each focussing on a different JamMo game (composition, singing or improvisation). The games were played on mobile phones and on a desktop computer. Prior and subsequent to the sessions, a questionnaire on the children's musical and IT backgrounds was administered, as well as an instrument for assessing social inclusion. Observations and video recording were conducted during the sessions. Statistical analysis was carried out. The results showed that children who were classified as socially excluded prior to the sessions felt significantly more socially included subsequent to them. Observation and video data illustrated that such children were completely immersed in the sessions and willing to collaborate with their peers. The participant children's musical ability and their attitudes towards music and IT activities had considerably improved during the sessions. Thus, JamMo 3-6 could be used by educators, parents and other professionals working with young children in order to facilitate musical learning, collaboration and feelings of social inclusion in children.

Keywords

Music technology, social inclusion, musical games, mobile devices

Introduction

The UMSIC Project

The 'Usability of Music for the Social Inclusion of Children' (UMSIC - www.umsic.org) project is an ICT collaborative project for 2008-2011 funded by the European Union's Seventh Research Framework Programme [FP7]. The project's aim is to develop and use modern music technology to promote a greater sense of inclusion for children aged 3-12 across Europe, especially those who may be in danger of marginalisation. In particular, UMSIC addresses two main groups of children, which are at high risk of marginalisation: (i) children with social, attention or emotional disorders and (ii) children with recently-arrived immigrant status and with no or limited host country language skills.

UMSIC brings together a team of software designers, technologists, engineers, psychologists and educators from around Europe. The project is led by the University of Oulu (Finland), in partnership with the University of Central Lancashire (UK), University of Zurich (Switzerland), University of Jyväskylä (Finland), Systema Technologies (Greece), Lappeenranta University of Technology (Finland) and the Institute of Education, University of London (UK). Collectively, the researchers have been working with one of the world's largest phone manufacturers, Nokia, to develop the first mobile interactive learning environment for musical creativity in order to promote social inclusion of young children.

JamMo

The main outcome of the UMSIC project is the JamMo software for creating, enjoying and sharing music (www.jammo4kids.org). JamMo is designed to provide karaoke-style singing games, music loop composition sequencing and touch-screen virtual musical instruments with two differentiated interfaces to suit the 3-6 and 7-12 age groups and learners with specific needs. JamMo is being developed to allow children to share their music and collaborate informally with peers using familiar modern technologies in a range of networking settings (i.e. locally over a wireless network or nationally/internationally via the Internet).

JamMo utilises a comprehensive bank of musical material (songs, backing tracks, loops and other samples) and multi-language voice-overs all provided by members of the UMSIC consortium. This material has been designed to be as culturally accessible as possible and a range of world music styles are represented. This material is distributed between the two distinct versions of JamMo, designed for the needs of younger and older children. JamMo has been designed to operate on the Nokia N900 mobile phone/handheld computer. JamMo and its associated musical and audio material are licensed under the terms of the GPL (GNU Public License) version 2 and are freely available to download from UMSIC project websites and the Maemo software repository.

Target groups

The target group for the UMSIC project was children who were perceived as being in particular danger of being marginalised. These included recently-arrived immigrant children growing up in bi-cultural contexts and children with moderate learning

difficulties (such as attention deficit disorders) (UNESCO, 2010; Van Winden, 2001). The intention was to develop a music software that could be used easily by children (including those that fall into the target groups) in a variety of contexts (such as a school and at home).

The target groups were chosen due to the fact that one of the major challenges in pre-schools and schools across Europe is the inclusion of an increasingly diverse range of learners with particular needs (Frederickson & Furnham, 2001; Tisdall et al., 2006; UNESCO, 2010). Learning requires self-regulation and communication skills supported by an effective and supportive context-sensitive scaffolding (Frederickson & Furnham, op. cit.). Therefore, impaired language skills and learning disabilities are a major threat for positive child development (Atkinson et al, 2002). This may further lead to: lower self-esteem; lack of social relationships; problems in self-regulation; lower academic achievement; and behavioural disorders (Atkinson et al, op. cit., UNESCO, op. cit.). Hence, it is important to try to prevent this negative cycle from developing by assisting children to feel socially included early on.

Assessing participants' feelings of social inclusion and musical and IT backgrounds in order to assess whether JamMo facilitated feelings of social inclusion in the participant children, as well as musical learning, background information for such factors was gathered prior and subsequent to the JamMo sessions. However, there are gaps in practice as to what is meant by social inclusion and how it is to be assessed (Gestrich & Raphael, 2008; MacDonald & Leary, 2005; Molden et al., 2009). In particular, assessing social inclusion with specific groups of individuals (such as immigrants) has proved to be a real challenge (Atkinson et al., 2002; Odena, 2005). In pedagogical and clinical settings, questionnaires are reported to be the most effective method for such an assessment, given the time-constraints often involved in the assessment process (Hearberline et al., 2007). However, there is no formally-established questionnaire that has specifically been formulated to assess the whole concept of social inclusion. Therefore, a new instrument for assessing the concept was developed for the purposes of the current study (see Appendices for the instrument).

The questionnaire used for gathering information on the children's musical and IT background factors was adapted from a previous study (Welch et al., 2006). The questionnaire had been developed as part of the study by drawing on a wide range of literature (Odena, 2007; O'Neill et al., 2001; Welch et al., op.cit.). It was initially piloted with young musicians and found to be reliable in gathering valid information on young people's musical and IT backgrounds (Welch et al., 2006).

Methods

In order to investigate the potential effectiveness of JamMo, a classroom-based pilot study was conducted. The study was carried out in a large primary school in West London. The pilot study took the form of 'action research' and was designed in close collaboration with the host school. A range of whole-class, small group and pair activities were designed using the JamMo software and these were delivered over a series of five sessions during the autumn school term of 2010. The first session took place on 21 September and the last on 15 December.

Participants

The school in West London was chosen on the basis of existing links with members of the research team and a potentially close fit with some of the UMSIC target user. The school selected a Year 4 class (8 years old in the UK system) to participate in the project. They were well-placed as an age group to work with both JamMo versions, given that some of the pupils were developmentally below their chronological age on several core school measures. At the outset of the sessions, there were 29 pupils on the class register (14 girls and 15 boys). The class had a high percentage of pupils for whom English was an additional language (EAL), with native speakers of Arabic, French, Kurdish, Lingala, Pashto, Turkish, Somali, Urdu and Jamaican dialect all present.

Ethical issues

Parental permission was sought on the research team's behalf by the Deputy Head Teacher both for participation in the project and also for the school to video record the pupils using JamMo in the final session. In the event, a very small number of pupils did not return their permission slips in time and so the Class Teacher arranged alternative activities for them and they were not included in the final school session.

Permission was requested from the Head teacher, Deputy Head and Classroom teacher to administer the questionnaires to the pupils. The teachers and pupils were assured that the data would be treated with confidentiality and stored in locked cupboards, as well as in password protected computers. The participants and the school were informed that the data would not be used for any other purpose than the current study and that they would not be passed onto any third parties. The teachers and the participants were assured that the ethical guidelines of the British Education Research Association would be followed throughout the study.

Questionnaire and social inclusion instrument

The Class Teacher arranged for his pupils to complete the questionnaire on demographic, music and IT background factors on the research team's behalf. Since this group were at the lower end of the age range for which the questionnaire had been designed, he advised that it would be best for the pupils to complete the instrument in four 5-minute 'sittings' in order for them to remain fully focused on its content. The social inclusion instrument was also administered during these sessions. These data were to be used as a baseline that presented the pupils' background knowledge and experience in music and IT, their demographic factors (such as the country they were born in and the language they felt most comfortable speaking with) and their feelings of social inclusion prior to JamMo sessions. The same set of data were gathered subsequent to the JamMo intervention in order to assess for any changes in the mentioned factors.

Content of sessions

Two distinct technology 'setups' were used to run the JamMo application within the five sessions that comprised the pilot project. These were a mobile phone platform and laptop. The laptop/projector setup was used in sessions 1, 2, 3 and 4 that took

place in both the Class Teacher's classroom and the classroom belonging to the Deputy Headteacher/ICT Coordinator. The mobile phone-platform was the set up used in sessions 2 (second half) and 5. The five sessions embraced a range of whole class, group and paired activities using the JamMo software.

In session 1, it was important to introduce the pupils to the concepts underpinning the JamMo application, to explain that this was still experimental software and that it was important for the pupils to provide feedback on possible improvements. An initial introduction to the project and the software linked the pupils' pre-existing music technology knowledge to JamMo's sequencing view. This was followed by group composition activities on JamMo. Two distinct activities were designed to be delivered using JamMo during sessions 2, 3 and 4 with small groups of between 4 and 6 pupils. Over the course of these three sessions, all members of the class were able to participate in at least one of the two activities, which typically lasted between 30 to 45 minutes each. The session covered a range of composition activities (such as composing music to suit a picture or to match a popular music band).

Pair activities were a feature of the second part of session 2 and the whole of session 5. These made use of the Nokia N900 phones setup. In essence, these were designed as opportunities for the pairs of participants to interact freely with the composition features of the JamMo software, with individuals taking it in turns to 'drive' the Nokia phones. The aim of these activities was to provide as much freedom as possible for the pupils to explore JamMo's creative possibilities.

Data analysis

Session 5 was video recorded for data analysis purposes. Permission for this was obtained from the children's parents, as well as from the school. One of the researchers also observed all the session and recorded observed findings on an observation sheet.

Data gathered via observation and video-recording were analysed qualitatively. Data gathered via the social inclusion instrument and the music and IT background questionnaire were analysed quantitatively. Data gathered from the children's compositions while playing with the JamMo were also analysed quantitatively with the use of a new software that analysed the loops of the compositions,

Results

Social inclusion

One-way ANOVAs were used in the analysis with the data gathered with the social inclusion instrument and the background questionnaire. The data were entered into an Excel-file.

The most significant finding was that the pupils felt more socially-included subsequent to the JamMo sessions compared to prior to them ($p < 0.05$). In particular, statistically significant differences ($p < 0.05$) were recorded for the following items: 'I can be sure my friends take my side if I have an argument.'; 'Having a few really close friends is more important than trying to be friends with everybody.'; 'I would be

sad if I had to leave my school.'; 'Other children like me just the way I am.'; and 'I like to see my school friends outside school.' . The pupils agreed with the above statements more strongly subsequent to the JamMo intervention.

The video footage from session 5 was analysed by the research team. In the analysis, special attention was paid to school behaviour between the pupils and any psychological benefits that seemed to arise from the session. The majority of the pairs (10 from 11) worked effectively and engaged in significant social activity while playing with JamMo. A great deal of talking was recorded between the pairs, including: sharing ideas, giving advice and suggestions (such as: 'Try that icon.', 'The music from that picture sounded very nice.', 'Well done, that's great'.).

Although caution is needed in the interpretation that the finding is a direct outcome of participation in the JamMo activities, an increase in social skills and behaviour throughout the JamMo intervention was recorded, as evidenced in the video recording and as reported by the classroom teaching and the pupils themselves. Such behaviours included: talking with one another; collaboration; sharing of ideas; working in pairs; encouraging comments made towards one's partner; working in groups; and willingness to share compositions with the rest of the group. The classroom teacher and teaching assistant stated that at least some of the pupils who were generally quiet and didn't interact with their peers demonstrated a wider range of social skills as a result of the sessions. Moreover, many of the pupils considered as more socially excluded by the teacher and the teaching assistant also enthusiastically engaged in the activity (including immigrant and SEN children) (see Figure 1).

>>>> **Figure 1 around here. Caption: 'Figure 1. Pupils playing with the JamMo composition game 3-6 in pairs on mobile phones'.** <<<<

Music making and learning

Pearson correlations were calculated between the responses received for the music questions and the meaned social inclusion ratings. Four statistically significant findings were recorded: a) the higher the number of days per week that the children played a musical instrument with their families, the more socially included the children felt ($p < 0.05$; 0.003); b) the higher the number of days per week that the children played a musical instrument with their friends, the more socially included the children felt ($p < 0.05$; 0.001); c) the higher the number of days per week that the children sang at school, the more socially included they felt ($p < 0.05$, 0.001); and d) the higher the number of days per week that the children sang with their friends, the more socially included the children felt ($p < 0.05$; 0.045). Compositions were produced by pupils during pair work with JamMo 3-6. The 108 compositions produced during session 5 varied in their levels of musical sophistication and in their adoption of common musical conventions. However, the majority appeared to fall within reasonably predictable age-ranges on the well-established Swanwick-Tillman 'spiral' model of musical development (see Figure 2).

>>>>Figure 2 around here. Caption: 'Figure 2. The Swanwick-Tillman spiral model of musical development (1985)' <<<<

Perceptions on music and IT activities

The children's perceptions of musical and IT activities were more positive subsequent to JamMo sessions than prior to them ($p < 0.05$). Particularly significant statistical differences were recorded for the following musical statements: 'I like doing musical activities very much': 'For me, being given a chance to take part in musical activities is very important' and 'I enjoy the musical activities I do at school'. The most significant statistical differences were recorded for the following IT statements: 'I like doing computer activities very much' and 'For me, being given a chance to take part in computer activities is very important'.

The children reported that they enjoyed musical activities to a greater extent after having had a chance to play with JamMo. Comments by the children on such activities included:

'It was mint to do stuff with JamMo. It's so cool that I want all my friends to do it too.' Boy, 8, Somali

'I never did this good music activities before. It-is much more fun than some other music stuff we do.' Girl, 8, Afghani

'I like music activities more now. I never used to do much of them, but now I know I can.' Boy, 8, Iraqi

The children also reported that they enjoyed IT activities more after the JamMo sessions.

Below are a couple of quotes provide by the children:

'I never used mobile phones like these before. They are ace!' Boy, 8, English

'It was fun. I think I can do a lot more with computers now and enjoy it too.' Girl, 8, Jamaican

'I play more with my own phone and computer now. I think I known now how I can enjoy IT more.' Girl, 8, Nigerian.

>>>>Figure 3 around here. Caption: 'Figure 3. A pair playing the JamMo composition game 3-6 on a mobile phone'<<<<

Conclusion

The pilot study with eight-year olds generated some evidence that the activities on the 3-6 JamMo interface appeared to facilitate feelings of social inclusion, as well as to develop children's musical skills and knowledge. Statistically significant differences were recorded between the children's feelings of social inclusion prior to

and subsequent to JamMo sessions. Effective musical learning was also reported as a result of JamMo sessions. Although caution needs to be taken in drawing a conclusion that the improvements were a direct result of the JamMo intervention, the results imply that JamMo could be used by parents and education professionals in a variety of contexts in order to facilitate feelings of social inclusion and musical learning in children.

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UMSIC Children's Survey [v5]

Introduction and Ethical text

Please will you help with our research?

We are a team of researchers who work for the Institute of Education at the University of London. Our team is led by Professor Graham Welch. We are currently helping the European Union to find out about what children think about doing activities with computers and music. We also want to learn a bit more about children's families and friends, the languages they speak and what they think about their school.

Researchers in Finland, Switzerland and Greece are asking children who live there the same questions. The information we all find will be used to help make a new musical game for mobile phones. The more children help us, the better we can make the game. We also want to find out what children think about the game and whether it helps them with their music.

We would like you to help us by answering the questions on the next few pages. You don't have to answer these questions and you can stop at any time. You can also leave any questions that you don't want to answer blank. You will be able to ask for help or for more time if you need to.

We would like you to tell us your name so that we can ask for your help again in the future. However, we won't tell anyone else your name and will change all the individual names in our reports – and the name of the school – so that no individual can be identified. Your teacher has seen the questions but we will not tell them or anyone else about your answers unless we

think someone might be hurt. If so, we will talk to you first about the best thing to do. We will keep all the information you give us in a safe place.

We want to know what you really think so put the answer that matches how you feel. There are no right or wrong answers. Don't worry about what the person next to you has put. They may have different ideas.

We hope you will enjoy answering these questions. Some children may feel unsure. If you have any problems with the research project, please tell the researcher who visits your school or your teacher.

Thank you very much for your help!

The London UMSIC Research Team

Institute of Education
University of London

Some questions about you and your family

1. What is your name? _____

2. How old are you? _____

3. Are you a boy or a girl? (Please tick) I am a boy I am a girl

4. How long have you lived in Britain?

- I have lived in Britain my whole life.
- I have lived in Britain for more than one year.
- I have lived in Britain for less than one year.

5. If you were not born in Britain, please tell us where in the world you were born?

6. In which country in the world do you feel at home?

7. How many brothers and sisters do you have? _____

8. What language do you speak with you mother?

9. Which language(s) do you speak with **your family**?

10. Which language(s) do you speak **outside** your family environment?

11. Which **one** language do you feel **most comfortable** speaking?

Some questions about your musical activities

Please tick the box that best describes how long you spend doing each of the following activities.

	Never	Not very often	About once a week	Every few days	Every day
12. How often do you listen to music by yourself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. How often do you listen to music with other people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. How often do you dance to music by yourself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. How often do you dance to music with other people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. How often do you watch music videos on your own?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. How often do you watch music videos with other people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. How often do you use a computer to make up your own music?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. How often do you use a computer to make up music with other people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. How often do you talk about music with your friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. How often do you swap or share music with friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. How often do you use the Internet to find out about music?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Some questions about the singing you do and the musical instruments you play

Singing

We would like you to tell us about the singing that you do. Please tick the boxes that best describe how long you spend doing different types of singing activities. Please also tell us if anyone helps you with your singing.

	Never	Not very often	About once a week	Every few days	Every day
23. How often do you sing by yourself ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. How often do you sing with your family ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. How often do you sing with your friends ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. How often do you sing in school lessons ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27. Does anyone give you singing lessons, or help you with your singing?

No, nobody helps me with my singing	Someone in my family helps me with my singing	A friend helps me with my singing	A teacher at school helps me with my singing	I have singing lessons outside school	Someone else helps me with my singing
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Musical instruments

28. Please write down the name (or names) of any musical instruments that you play.

If you play an instrument, please tick the boxes that best describe how long you spend playing a musical instrument. Please also tell us if anyone helps you with your instrument.

	Never	Not very often	About once a week	Every few days	Every day
29. How often do you play an instrument by yourself ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. How often do you play an instrument with your family ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. How often do you play an instrument with your friends ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. How often do you play an instrument in school lessons ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

33. Does anyone give you lessons on your musical instrument or help you with your playing? *You can leave this question blank if you don't play any instruments at all.*

- | | | | | | |
|-------------------------------------|---|-----------------------------------|--|--|---------------------------------------|
| No, nobody helps me with my playing | Someone in my family helps me with my playing | A friend helps me with my playing | A teacher at school helps me with my playing | I have instrument lessons outside school | Someone else helps me with my playing |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

34. Which musical instrument would you like to learn?

35. Did you ever begin and then **give up** playing a musical instrument?

- Yes No

If YES, why? _____

What do you think about musical activities?

We would like to know whether you agree or disagree with each of the following sentences. For each sentence, please put a circle around the face that best matches how you feel about it.

36. I like doing musical activities very much.



37. I would be good at a new musical activity.



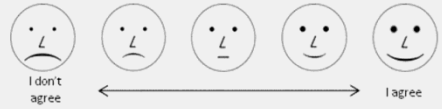
38. Some people are good at music. Some are not. There is nothing you can do about it.



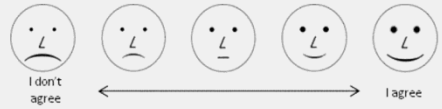
39. Musical activities are very important to me compared with the other things I do.



40. For me, being given the chance to take part in musical activities is very important.



41. My parents think that doing musical activities is very important.



42. Most of my friends think that musical activities are very important.



43. Girls are more interested in musical activities than boys.



44. Boys are more interested in musical activities than girls.



45. I enjoy the musical activities I do in school.



46. I enjoy music outside school.



47. I would be more popular with people if I took a bigger interest in music.



48. I find musical activities easy.



49. I often feel left out of musical activities that happen in school.



50. I often feel left out of musical activities that happen out of school.



51. How many people in **your family** play a musical instrument? Please tick the correct box.

No one

One

More than one

52. How many people in **your family** sing?

No one

One

More than one

53. How many of **your friends** play a musical instrument?

No one

One

More than one

54. How many of **your friends** sing?

No one

One

More than one

55. Please write in the box **the kinds** of music that you like to listen to.

56. Please write in the box your **favourite musicians, singers, or bands**.

Some questions about computers, games consoles, MP3 players and mobile phones

	Never	Not very often	About once a week	Every few days	Every day
57. How often do you use a games console by yourself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58. How often do you use a games console with friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59. How often do you use a games console with someone in your family?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60. How often do you talk about games consoles with your friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61. How often do you use a desktop or laptop computer in school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62. How often do you talk about desktop or laptop computers with your friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63. Outside school, how often do you use a desktop or laptop computer on your own?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64. Outside school, how often do you use a desktop or laptop computer with friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65. Outside school, how often do you use a desktop or laptop computer with someone in your family?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66. How often do you use social websites like Club Penguin, Bebo, Facebook or Netlog?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

67. What game or activity do you like best on a games console?

68. What game or activity do you like best on a desktop or laptop computer?

69. Do you have your own MP3 player?

Yes No

70. The next few questions are about mobile phones. **If you don't have a mobile phone, then you can leave these questions blank and go on to Q71.**

About how many calls do you think you make or receive on your mobile phone each day?

About how many texts do you think you send or receive on your mobile phone each day?

Do you like to use your mobile phone for anything else apart from making calls or sending texts? If you do, please tell us about the other things you like to do with your phone.

What do you think about computer activities?

We would like to know whether you agree or disagree with each of the following sentences. For each sentence, please put a circle around the face that best matches how you feel about it. When we say 'computer activities' we mean anything that you do with a desktop or laptop computer, or a games console.

71. I like doing computer activities very much.



72. I would be good at a new computer activity.



73. Some people are good at computers. Some are not. There is nothing you can do about it.



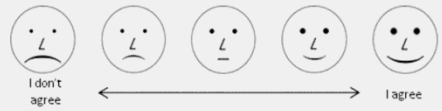
74. Computer activities are very important to me compared with the other things I do.



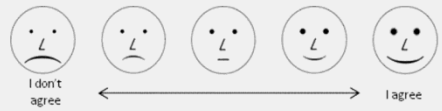
75. For me, being given the chance to take part in computer activities is very important.



76. My parents think that doing computer activities is very important.



77. Most of my friends think that computer activities are very important.



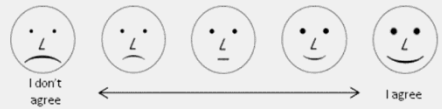
78. Girls are more interested in computer activities than boys.



79. Boys are more interested in computer activities than girls.



80. I enjoy the computer activities I do in school.



81. I enjoy computers outside school.



82. I would be more popular with people if I took a bigger interest in computers.



83. I find computer activities easy.



84. I often feel left out of computer activities that happen in school.



85. I often feel left out of computer activities that happen out of school.



Some questions about your school and your friends

We would like to know whether you agree or disagree with each of the following sentences. For each sentence, **please tick or put a circle around the face** that best matches how you feel about it.

86. The children in my class at school are very friendly.



87. I like going to school.



88. It is important to me to have friends.



89. I feel I belong in my neighbourhood.



90. I am never lonely.



91. It is important that other children like me.



92. I have lots of friends in school.



93. I have lots of friends outside school.



94. Other children are pleased for me to join their games.



95. I like spending time on my own.



96. I like to see my school friends outside school.



97. Other children ask me to play with them.



98. I feel left out of things at school.



99. Other children like me just the way I am.



100. I would be sad if I had to leave my school.



101. I prefer to be on my own and not with other people.



102. I prefer doing schoolwork on my own, not in a group.



103. Saying goodbye to friends is hard if I know I will not see them for a while.



104. My friends always give me help if I need it.



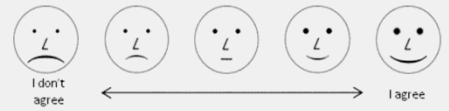
105. It is more important to have a few really close friends than trying to be friends with everybody.



106. I can be sure my friends will take my side if I have an argument.



107. I feel I belong in my class at school.



108. It is important to me to have friends I can turn to at any time.



109. I like doing activities that involve lots of other children.



110. I get along well with children in my class.



111. I get asked to take part in activities out of school.



Thank you!!