A teachers' perspective on technologies impacting on socialisation levels of children with imaginary friends

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1. Abstract

Current research thought on children with imaginary friends has demonstrated that these children possess socialisation problems, are typically the eldest or only children, commonly lose their imaginary friends by the time they reach the age of 7 and create these imaginary friends to fill a void or gap in a relationship with their primary caregiver or peers. This study aimed to gain a deep insight into the teachers' experiences of children with imaginary friends, their socialisation problems and if technology plays a role in these socialisation problems. Qualitative research was carried out with 4 primary school teachers describing their experiences with semi-structured interviews. Quotes from the transcripts were categorised and 8 themes along with sub-themes were developed using thematic analysis. The implications of these themes highlighted that interactive play should be encouraged while excessive technology use should be minimised.

2. Introduction

2.1 What are the characteristics of children who have imaginary friends?

What is the difference in children with imaginary friends versus those without? One of the earliest researchers of children with imaginary friends Margaret Svensdon, found in her study that the parents of 35 children with imaginary companions described their children as having some sort of personality dysfunction or disorder which included; fear of physical activity, sensitivity, timidity in the presence of other children and a reserved demeanour. Another early study by Ames and Learned (1946) concluded that children whose imaginary companions were stuffed animals had a lot of social difficulties and adjustment problems, with their stuffed animals taking the place of real life friends that these children struggled to acquire. The study also describes some of the children as; 'fearful of new people', 'plays quietly and is slow to adjust to a group', and 'gets along badly with children'. From this very dated research, one could conclude that children with imaginary friends seem to have many social problems. However, while this research focused solely on the problems of children with imaginary friends, it failed to compare the characteristics that these children displayed with children without imaginary friends. This research also found some positive behaviours of the children who had imaginary friends such as engaging in less aggressive play and cooperating with adults.

A study by Singer & Singer (1990) ceased the myth that children with imaginary friends are too shy to make real life friends. They observed 111 children playing at a day care centre over the course of a year and found that children with imaginary friends were less fearful and anxious in their play with other children and they were also found to smile and laugh more than children who did not have imaginary friends. Mauro's longitudinal study also found that children with imaginary friends had higher levels of creativity than those without imaginary friends (1991).

2.2 Who are the children with imaginary friends? Birth order effects

Where are children with imaginary friends in the family structure? Research by Ames and Learned (1946) found that children with imaginary friends are usually only children or are the eldest. This may be because they are less socialised as they do not have siblings or have siblings that they cannot interact with in a social sense as they are infants or babies. In fact, the majority of children with imaginary friends studied by Svendsen (1934), had no siblings. Gleason et al. (2000) also found that the children with imaginary companions were more likely to be firstborn and only children. It is clear from the research that children who have imaginary companions tend to be either the eldest or only children.

The birth order effect which was proposed by Alfred Adler proposed that the order of birth and ordinal position in the family a child is in can affect their personality and development. He proposed that children who are only children prefers adult company and uses adult language and has difficulty sharing with peers. With Adler's theory, it could be suggested that only children are not exposed to as many play based situations when they are younger and may create an imaginary friend to fill this void. It could also be suggested that the eldest child is forced to grow up and become mature too quickly to set an example for the younger siblings, and therefore may find comfort in creating an imaginary friend to feel child-like again.

2.3 Children with imaginary friends; why do children create them?

There are many suggestions in research as to why children create imaginary friends in the first place. There are two strong arguments as to why children create these imaginary friends. Firstly, a poor relationship with their primary caregiver and secondly low socialisation levels. In recent research, it has been found that children with imaginary friends have lower socialisation levels and are accepted less by peers than those without imaginary friends. It has been found that children who have imaginary friends (either invisible or stuffed animals) create these imaginary friends because of a poor relationship with either caregivers or peers. Children use imaginary companions to cope with various problems, but is a positive adaptive response (Taylor et al., 2004).

Another argument for why children create imaginary friends is perceived competence. In a study by Harter & Chao (1992) teachers judged children with imaginary friends to be less competent and less socially accepted by peers. Children's descriptions of themselves and their

imaginary friends on the Pictorial Scale for Perceived Competence and Social Acceptance for Young Children revealed striking gender differences: Boys created super competent companions who were more competent than themselves, whereas girls created incompetent companions who were less competent than themselves (Harter & Chao, 1992).

2.4 What counts as an imaginary friend? Invisible friends verus stuffed animals

Experts in the field disagree on terming imaginary play with a stuffed animal as an imaginary companion. In 1934, Margaret Svensdon published some of the first works on children with imaginary friends in which she defined an imaginary companion as an invisible character, who has a name and is referred to in conversations, is directly played with for a period of time over several months but has no objective basis. An argument for excluding stuffed animals as imaginary companions is that they already have an existence and physical appearance which is independent of the child's imagination. What researchers have suggested is that an imaginary companion can only be truly imaginary if it completely exists through the child's imagination and the environment around them does not interfere.

However, Walton (1990) suggested that a stuffed animal is much more to a child than an adult perceives. If a child uses a stuffed dog to become the role of the dog, they are using their imagination to give this role to the stuffed animal (Taylor et al., 2001). To investigate this idea further, Benson and Pryor (1973) interviewed a 16-year old girl who had used her stuffed dog as a companion during her childhood. When she went to show them her beloved companion, she was shocked to find the state he was in was far from what she remembered when playing with this stuffed toy as a child. She felt as though she was seeing it for the first time how other adults would see it. Young children can sometimes build detailed fantasies involving their toys.

Another reason why stuffed animals should be considered as imaginary companions is because children that create animal companions are often bought a stuffed toy of this animal by the parents to help the child to live out their fantasy. However, when children are asked to describe their stuffed toy, they often do not describe the correct features of this stuffed toy. Instead, their imagination has led them to associating their stuffed animal as an imaginary companion. For example, a girl who was asked in a study to describe her dolphin described it as 'big as the door, with sparkles and stripes, and lived far away on a star' unlike real life dolphins (Taylor et al., p. 12, 2001).

Research by Gleason et al. (2000) revealed differences between invisible companions and personified objects (e.g., stuffed animals or dolls) in terms of the pretend friends' stability and ubiquity, identity, and relationship with the child. Relationships with invisible companions were mostly described as sociable and friendly, whereas personified objects were usually nurtured. The mothers of these children reported that personification of objects frequently occurred as a result of acquiring a toy, whereas invisible friends were often viewed as fulfilling a need for a relationship. This argument of whether stuffed animals should be considered as imaginary companions can be for the reader to decide.

2.5 What happens to these imaginary friends as the children get older?

Newson and Newson (1976) found that most children no longer had imaginary companions by the time they were 6 or 7 years old. However, this research was based on parental report, which even for pre-schoolers can be inaccurate or incomplete (Taylor & Carlson, 1997). Given the tendency of older children to act out fantasy less overtly than younger children, parents might underestimate the ages at which imaginary companions are abandoned or be unaware of newly created ones. Research by Taylor et al. (2004) found that 65% of children in the study up to the age of 7 had imaginary companions at some point during their lives. By the time a child reaches the age of 7, they will spend the same amount of social time with friends and peers as they do with adults (Taylor et al., 2004). This could also explain why children lose imaginary friends at this age, as peers and friends become more important in the child's social world than earlier years. Imaginary friends seem to be most apparent between the ages of 4 and 8, which according to Piaget, is a time of pre-operational thought, where children are egocentric and they tend to view the world only from their own perspective (1964).

2.6 What does psychoanalysis say about children with imaginary friends?

Interestingly, older theories by psychoanalysts suggested that children with imaginary friends had underlying mental illnesses and that having an imaginary friend as an adult was considered neurosis. Imaginary friends appear in many different forms, sometimes for the purpose of fantasy play and sometimes as mechanisms to 'work through' problems. Sigmund Freud (1923) proposed that we have three processes of the mind; the id, ego and superego. The

unconscious part of the mind which is the id operates according to the pleasure principle where gratification is sought and pain is avoided which may translate to a child creating an imaginary friend. The two biological drives of the id, the eros and thanatos where the eros is stronger allows us to survive rather than self-destruct and may be projected through a child creating an imaginary friend to stop self-destruction and instead survive through struggles they may be experiencing (1923). The unconscious translates through defence mechanisms, projection and transference which could all be manifested by creating an imaginary friend to channel this energy from the unconscious in a healthy way. Freud suggests that children create them as a means of compensating for an unhappy or lonely childhood. He also felt that creativity is an attempt to solve conflict generated by unexpressed biological impulses such that unfulfilled desires are driving the force of the imagination (Meng & Freud, 1963).

2.7 Children with imaginary friends and their socialisation problems

It has been found by Taylor et al. (2004) that children with imaginary friends have lower socialisation levels and are accepted less by peers than those without imaginary friends. Children who have imaginary friends (either invisible or stuffed animals) create these imaginary friends because of a poor relationship with either caregivers or peers (Taylor et al., 2004). This poor relationship with their primary caregiver has detrimental socialisation effects for the child as this person is the one human that infants and toddlers spend most of their day socialising and interacting with. If interactions between the child and caregiver is low, then socialisation problems may arise which could lead to a child creating an imaginary friend to fill the void of this poor relationship. However, despite these findings, Taylor et al. (2004) added that children with imaginary companions are actually less shy than other children and are more sociable.

With socialisation problems, making friends in primary school can also be a problem and there may be a resistance of acceptance from the child's peers. This could explain why children carry on having imaginary friends from infancy to late childhood. Research evidence begs that children with imaginary friends should be viewed from a positive perspective rather than a negative one. Research has found that higher self-ratings of peer acceptance were correlated with high levels of fantasy in the social free play of children ages 4 to 8 (Flannery & Watson, 1993). Hoff (2005) found that children who had imaginary friends tended to have better creativity levels than those without imaginary friends. According to Somers and Yawkey

(1984), imaginary companions promote originality of ideas. Therefore, children having imaginary friends should be viewed as a positive factor of childhood development.

2.8 Does technology play a role in socialisation problems?

Before the internet and huge social media sites like Facebook, Instagram, and Snapchat, many children spent their days in arcades playing electronic games and playing video games at home. While for the most part, going to the arcade with friends was a social outing playing together and having fun, there were also instances where children were playing alone and for many hours at a time, forming an electronic relationship with these machines which followed the onset of an addiction. Graham (1988) described fruit machine playing in an arcade as a 'peer group centred activity' (p.22) which supports the claim that going to the arcade is a social event. Graham also believed that peer groups helped to prevent an individual becoming dependent to these games. On the other extreme of playing video games, Selnow (1984) reported that those who play video games use them as electronic friends. This term being used was tested by Scheibe and Erwin (1979) who concluded that players were reacting to video game machines as if they were real people. As players become addicts, they become socially withdrawn and begin to lose their friends and eventually the machine becomes their best friend (Griffiths, 1997). Zimbardo (1982) concluded from his work that computer game play is socially isolating and prevents children from developing social skills.

However, there is research evidence that contradicts these findings. Rutkowska and Carlton (1994) reported from their study that there was no difference in sociability between high and low frequency players and concluded that these games foster friendships. This study was complimentary to Phillips et al., (1995) who found no difference in social interactions between players and non-players. These findings suggest that for the average child video game player, there is little to be concerned about. However, children who spend hours each day using technology can become addicted and isolate themselves from the social world and instead, intertwine themselves into this virtual online world. This virtual online world can be dangerous and have detrimental effects on children causing socialisation problems.

One study by Harman et al., (2005) found that children between the ages of 11 and 16 had less developed social skills and higher levels of social anxiety when they pretended to be something that they were not on the internet and that the amount of time they spent on the internet did not affect these factors. What is interesting about this study is that the way we

represent ourselves on the internet was more detrimental to socialisation problems rather than the amount of time that was spent on the internet.

The motto today seems to be 'everything in moderation' for the generation of children (Griffith, 1997). If technology is being used in moderation and not too much per week, over time there should not be any serious socialisation problems for children. Unfortunately, the online world is now a part of making social connections and networks and is difficult to completely shut off from our everyday lives.

2.9 Technology usage within the classroom setting today

Predominantly in the last 5 years, technology has been implemented within the Irish education system and has been introduced to classrooms. How comfortable are teachers with this presence of technology use when there is already a huge concern about technology use outside of the classroom for children today? The program AISTEAR can be very beneficial for schools for children who are having developmental problems, but also to children who need to explore free and fantasy play (Keane, 2014). Depending on self-efficacy levels, a teacher may implement a high, low or no level of technology within the classroom (Moersch, 1995).

Teachers must also address parents' concerns about their children's exposure to technology. Children of all ages are increasingly exposed to and becoming adept at using a variety of different technology, with 81% of Irish children now online. Many parents feel there is a benefit to using technology in an educational setting. However, many educators have observed children who use technology to such an extent at home is negatively influencing their behaviour and physical activity levels in pre-school. Some educators struggle with aggressive and violent behaviour when pre-schoolers copy violent TV programs or videogames that they have been exposed to through older siblings (Earlychildhoodireland.ie, 2015). Again, educators and parents should stress that technology should be used in moderation.

2.9.1 Teachers' experiences of children with imaginary friends; do they believe technology plays a role in their socialisation patterns?

This study will seek to put a modern-day twist on previous research. In today's society, technology plays a predominant role in the lives of children and adults and is now the new form of socialisation. This new form of socialisation is through a computerised screen. A rationale for this research is that there may be different results when compared with previous research. Our social world has evolved rapidly in the last 10 years with the use of technology. The advances in technology in the last few years has changed the way humans socialise and communicate immensely. Nowadays, much of our time connecting with others and socialising is through a computerised screen. In today's terms, what is usually meant by socialising and communicating is making phone calls, texting, face-timing and posting updates about our day. This type of socialisation deprives a child of face to face contact and physical interaction with their primary caregiver, as well as depriving free play and imagination throughout early development. According to Ginsburg (2007), the decrease in free play can be explained by children being passively entertained through television, which has harmful effects. This study seeks to highlight the importance of gaining insight into the opinions of the teachers as they experience first-hand the factors that surround how children interact with the social world. The main factor of investigation which affects the socialisation levels of children with imaginary friends is the use of technology.

This study will investigate if technology plays a role in children having low socialisation levels and if technology is making these imaginary friends less common. This investigation will be conducted from a primary school teachers' perspective. Teachers spend many hours each day with young children, observing them in their natural environment and engaging with them in imaginary play or indeed playing with their imaginary friends. With technology creeping its way into everyday teaching, the opinions of primary school teachers are hugely important to this investigation of socialisation patterns of these school aged children. This study wants to investigate if the teachers feel that children who have imaginary friends do so because of low socialisation levels and if the ever-increasing role that technology plays in our everyday lives plays a role in socialisation patterns for children. The approach of this study aims to explore an area which has been overlooked, teachers' experiences of imaginary friends which is just as valuable as an investigation of parents' experiences or the children themselves.

3. Method

3.1 Participants

Participants were 4 female primary school teachers aged 24-45 who have worked with children between the ages of 4 and 8 in the last 5 years. These teachers had first-hand experience of children with imaginary friends and of how technology has influenced socialisation problems for these children. The teachers were recruited using personal contacts and by approaching 2 school principals who suggested some teachers from 4 different schools who have taught children with imaginary friends. Participation was voluntary.

3.2 Design

The design used was a semi-structured qualitative study which enabled the researcher to focus on the research questions while at the same time giving the teachers the opportunity to describe their perspectives and relate their experiences. The interview intended to answer 3 research questions:

Do children with imaginary friends have socialisation problems?

Is it believed by the teachers that there is a relationship between a high use of technology and socialisation problems for children?

Do teachers believe that children who have imaginary friends have them because of these factors or is technology making these imaginary friends less common?

The levels of teaching innovation framework (LoTi) is a framework which measures the levels of technology used within a classroom setting (Moersch, 1995). The levels range from 0=non-use, 1=awareness, 2=exploration, 3=infusion, 4=integration, 5= expansion, and 6=refinement. This framework was used for the teachers to answer which level of technology is used within the classroom setting (See Appendix C).

The key variables of interest in this research were the use of technology and the relationship it had with children's socialisation problems. If teachers believed that a high use of technology causes socialisation problems, then did this cause a child to create an imaginary friend or is technology making them less common? These key variables of interest were considered by the researcher in the design of the interview questions. The interview questions were open ended questions which intended to gain a thoroughly deep insight into the feelings, beliefs and experiences of the teachers. Questions were chosen based on previous research findings to determine if the current study's findings correspond. (See Appendix 2).

3.3 Materials

Materials used were an information sheet along with a consent form which informed and briefed the teachers about what was going to happen in the study (See Appendix B). A recorder was used to record the interview. Upon completion of the interviews, a laptop was used to transcribe the interviews and analyse the data using NVivo 11. The selection of a room that was not affected by noise was important for recording interviews without interruption.

3.4 Procedure

A pilot study was conducted with a teacher to determine if the questions being asked were suitable for the research and if there were children with imaginary friends in the classroom setting. The pilot questions were approved by the teacher based on the suitability and coverage of the research topic. These same questions were used in the subsequent interviews and responses were recorded. Before the interviews were conducted, a recorder was tested to ensure the interview was recorded clearly.

Interviews took place in the primary school after school hours to prevent any distractions or noise. The teachers were briefed about the study while reading the consent form and were given the time to raise any questions or concerns before the interview began. As the teachers were nervous before the interview they were given the opportunity to read over the questions in preparation for answering. Teachers signed the consent form before the interview began. Once recording commenced the interview began and the 3 research questions along with supporting questions were asked in sequence. These questions were open ended and allowed for further questions and detail into their experiences, opinions and beliefs about children with

imaginary friends and technology use. When the last question was answered, the recording was finished. The teachers were thanked for their time and offered to be sent on the results of the study upon completion as well as contact details for the researchers' supervisor should they have any concerns or questions. To protect anonymity, each teacher was assigned as *'Interview 1/2/3 and /4'* and if any content in the interview could possibly identify the teacher or the child, it would not be quoted in the results. The interviews were then recorded and transcribed.

3.5 Data Analysis - 6 Steps of Thematic Analysis

When the interviews were recorded and transcribed, the data was analysed and thematic categories were created to select themes. Braun and Clarke (2006) outline 6 decisions that should be made prior to analysis. Firstly, what counts as a theme was selected bearing in mind the research questions. Both the prevalence of themes and their relevance in relation to the research question were taken into consideration when analysing the data. A detailed account of these themes selected from the data was outlined using the semantic approach to provide a rich and detailed description of the data set from the 4 interviews. Themes were inductive and generated in a model using NVivo. This type of analysis provides a detailed description of the data set with a focus on teachers' experiences of children with imaginary friends. Themes were analysed at a semantic level. In this way the themes were identified within the "explicit meanings of the data" (Braun & Clarke, 2006). Therefore, thematic analysis was carried out within a realist model, taking the language from the dataset in direct relation to the experience of the teachers.

3.6 Ethics

Before the study and interviews were conducted, ethical approval was sought from the Dublin Business School ethics committee. Ethical approval was granted because all possible ethical issues such as informed consent and right to withdraw were addressed in the proposal.

4. Results

4.1 Thematic Analysis

The researcher was familiarised with the data from the interviews by transcribing and reading through the interview responses. Themes and sub-themes were generated by hand before being processed on NVivo 11 which made the researcher even more familiarised with the data before analysis on NVivo began. Braun and Clarke (2006) describe the transcription process as the most important in thematic analysis because it allows for close attention to the data, interpretation and analysis. When transcription of the interviews was completed, initial codes were created using the entire data set of interviews and content that related to the teachers' experiences of children with imaginary friends was coded.

The data was categorised into themes from the coded content and the codes were categorised into each theme. Sub-themes were created based on their relationship with the main themes. The main themes were then re-examined to establish if these themes were suitable to the content of the coded data. Clear definitions and names were then given to the themes and sub-themes. On completion of the analysis a report was produced of each theme which related back to the research questions and previous research on children with imaginary friends. A mind map was also produced to give a clear picture of the teachers' experiences of children with imaginary friends.

4.2 Theme 1: Birth order effect for children with imaginary friends

Two of the children that had imaginary friends were only children, while one of the children was the eldest which were sub-themes of the birth order effect and relate to research by Gleason et al. (2000). However, one of the children was the youngest, who had an older brother with special needs.

4.3 Theme 2: Characteristics of the children with imaginary friends

The boy with the imaginary friend in interview 1 is a '*lovely child to an adult'* and he has a great personality when *'things are going his way'*. He is very intelligent and can go off in *'a total tangent talking about things and is very obsessed with things he's interested in'*. The child had a fidget spinner which was great but then if *'he lost his temper the fidget would go*

flying across the room' and then with the library books *'he pulled the whole library out when I turned my back'*. Sometimes he just *'needs a few minutes to himself'*.

The girl with the imaginary friend in interview 2 was very *'expressive and imaginative'*. The things the teacher would hear and see written by the child with the imaginary friend was *'exceptionally imaginative'* and were *'highly embellished'* with *'creative juices'* which corresponds with research by Mauro (1991) of children having imaginary friends being more creative.

The boy with the imaginary friend in interview 3 has a *'very active imagination'*. He is *'very busy dizzy'* and *'fits from one thing to another a lot'* and would not *'have very good concentration'*. He is *'well behaved'* and is a *'very kind, good child'*. He is *'very helpful'* and his *'writing would be very imaginative but all over the place'*. The imaginary friend appeared shortly after a birthday party the boy attended where his older cousins convinced him that the van across the road was coming to take him. This event *'made him hysterical about being taken for over a year'* and *'he worried about people in his family very much, such as becoming ill and dying. He had a major fear of bad things happening to everyone he knew and became very insecure and hugely attached to his mother and would be hysterical when she would leave and come back'*. This development of the imaginary friend after the event instilled fear in the child could be related back to research by Ames and Learned (1946). The child gravitates towards certain games like *'little Lego figures and gentle games and would not be interested in war games or violent games which is reflected in his gentle personality'*. His sensitive personality can be related back to early work by Svensdon (1934).

The boy with the imaginary friend in interview 4 was very articulate and his language was '*more adult than other children'*. He behaved in a more adult way in some circumstances with the way he *'explained things'* and the way he would speak to the teacher. This supports Adler's theory of only children who tend to behave in a more adult way in certain circumstances (1928).

4.4 Theme 3: Age of the children with the imaginary friend. Sub-theme: if they lost the imaginary friend, what age did this occur at?

The boy with the imaginary friend in interview 1 is 7 years old and has not yet lost his imaginary friend. However, *'he repeated junior infants, so he is in senior infants at the moment'*. The teacher felt that *'further up an imaginary friend would be a big problem and it would cause major friend issues. Children are very good, kind and accepting but there is a limit and if a child still has an imaginary friend come 2nd or 3rd class its going to have an effect on their friendships'*.

The girl with the imaginary friend in interview 2 was 6 when she expressed having an imaginary friend. She is 8 now and the teacher believes that the child has *'kind of maybe toned things down in a little bit in terms of expressing detail or that level of detail'* because the teacher felt it was to do with *'social norms and the child being aware of what others perceive them to be'*. Taylor & Carlson (1997) found that older children do not express imaginary friends as overtly as younger children. The boy with the imaginary friend in interview 4 had an imaginary friend *'for a longer period of time than other children'*. He was 7 going on 8 at the time when he still had an imaginary friend. The teacher was not sure when or if the child lost the imaginary friend as he left the junior side of the school after 2nd class so she did not teach him again. This boy had still not lost his imaginary friend or even toned down the amount the imaginary friend was present in his life contradicting previous research by Newson & Newson (1976).

The boy with the imaginary friend in interview 3 is 7 years old and he lost his imaginary friend last summer. His imaginary friend first appeared 6 weeks into being in junior infants. This child corresponds with previous research that children develop imaginary friends at the age of 4 and lose them by the time they are 7 years of age (Taylor et al., 2004).

4.5 Theme 4: Did these children have imaginary friends, stuffed animals as friends, or a sub-theme of one or both?

The boy in interview 1 had one imaginary friend but '*he might get a different imaginary friend, or he has a habit of becoming very attached to a teddy'*. The teacher is not sure what

triggers the imaginary friend, *'it's very random and he doesn't seem too heartbroken to be honest when an imaginary friend is sent across the room'*. The teacher does not feel that the child is *'too reliant'* on his imaginary friends and that his imaginary friend *'might be more kind of a crutch or someone that comes along when he wants to talk about his things that maybe other children aren't interested in'*. The boy in interview 3 had imaginary friends and talked to his toys and teddy's. The teacher found it strange that *'this particular child while he had the imaginary friend he had very little use of technology but since his imaginary friend has disappeared'* this has changed. Research by Walton (1990) expressed that a stuffed animal means much more to a child than an adult perceives.

The girl in interview 2 had just one imaginary friend and was *'very convinced of the existence of this imaginary friend'* and could not *'understand why the teacher wasn't nearly part of it'*. The teacher felt that whatever need might be needed by the psyche '*is met by this imaginary friend which might be temporary'* and that *'these needs that are created in the psyche are met by an imaginary friend'*. The teacher felt that for this child the imaginary friend was a '*little bridge'* and was a *'great source of consolation'* for this child who struggled socially. The boy in interview 4 had one imaginary friend which stood out to the teacher as she found in her previous years of teaching that children might have several imaginary friends or imaginary things. The teacher always felt that *'these children had something to work through or they were practicing conversations or practicing their play for a period of time and that if it was healthy for them to release whatever they needed to do through that and then they could go on to form friendships with real humans when they had practiced it with their own imaginary friends'*. Gleason et al. (2000) found that an imaginary companion was viewed as fulfilling a need for a relationship.

4.6 Theme 5: Do these children have a lot of real life friends? Sub-theme: Do social norms play a role in the expression of an imaginary friend?

The boy in interview 1 does not have a lot of real life friends but this is down to his lack of interest in making friends and being egocentric rather than being shy. *'The other children don't seem to react to the imaginary friend at all, but that doesn't seem to bother him… he's not disappointed that they're not making space for the imaginary friend'*. The teacher has encouraged other children to go over to him and ask him to play but he does not

want to play their game, he wants to play his own game. He likes to include other children in his game if he gets to pick them, but the teacher feels this is more of an ego thing rather than him wanting to make friends. He will now join in and do a jigsaw with peers unlike last year, but he still will do his own separate part and will not join in with them. Even with the blocks he will make his own thing while the other children will build blocks together.

The girl in interview 2 struggled a little bit and did not have a lot of real life friends. The teacher set up a lot of activities around inclusion so it would be easier for her to make friends. The teacher felt that the girl now aged 8 has toned down the presence of the imaginary friend because as they get older the '*self-conscious develops within the human'* and '*they become much more aware of what's acceptable and what's not'*. The teacher felt it was to do with '*social norms and the child being aware of what others perceive them to be and maybe it's a little bit whacky'*. This is a sub-theme of a child not losing an imaginary friend will encounter more socialisation problems as they get older.

The boy in interview 3 contradicted previous research by Taylor et al. (2004) because he does not have a poor relationship with his peers and has a lot of real life friends. He is '*very sociable'* and '*would have no trouble making friends'*. The teacher described his play skills as being excellent. He is in a room of 19 children and is the only one who displayed having an imaginary friend. However, in the past the teacher has '*suspected a couple of kids having an imaginary friend'* but they would totally deny it. The teacher felt that '*kids are very aware there is certain things expected of them and they have to be completely socially normal and behave in a certain way to not disappoint their parents which is just a small village in rural Ireland kind of thing'*.

The boy in interview 4 did not have a lot of real life friends as the teacher felt he '*didn't have as many play based situations at home he didn't have many friends maybe before he started school'*. She thought '*he had less time to play as a young child with other children'* because he was an only child to parents of an older age.

4.7 Theme 6: Children with imaginary friends and their relationship with their caregiver

All 4 of the children in this study had a good relationship with their parents which contradicts past research by Taylor et al., (2004) where it was claimed that having a poor relationship with a primary caregiver resulted in a child creating an imaginary friend to fill the void of this poor relationship. The boy in interview 1 has *'home life very happy and very organised for him and everything is done for him so he's more than well looked after'*. He is an only grandchild too so he gets all the attention. The girl in interview 2 has *'very positive, very rich caregiving'* and *'you can really tell that this child is so loved and so cared for'*. The boy in interview 3 *'has an excellent relationship with his parents. He has a fantastic mother and a very loving father'*. The boy in interview 4 had a good relationship with his parents too.

4.8 Theme 7: Did these children with imaginary friends have socialisation problems?

The teacher felt that the boy in interview 1 has socialisation problems as he has *'no interest in the children in the room… and can't really pretend to be interested'*. In junior infants there were a lot of other issues and keeping him safe was the big priority but the focus this year is trying to make friends. Games will be set up for him to engage with peers. *'He'll play it for a while and then he kind of wanders off… but he won't initiate the game himself'*. This supports early research by Ames and Learned (1946) that this child is 'slow to adjust to a group' and gets 'along badly with children'. He likes to be in charge and choose the children to play with rather than joining in a game that is not his. This child does have a temper when things are not going his way so you have to *'coerce him and kind of jolly him along'*. The other children are very understanding. He could have a *'complete meltdown and 5 minutes later they are back over chatting to him'*.

The teacher gave the opinion in interview 2 that the girl was quite sociable even though she struggled to make friends. The teacher did not feel as though the girl has socialisation problems. The teacher in interview 3 felt that the boy definitely did not have socialisation problems. His best friend is in the class below him as he is in a class of all girls. The teacher described him as *'very sociable, with a lot of cousins… and would have no trouble making friends'*. This supports research by Singer & Singer (1990) who found that children with imaginary friends were less fearful and anxious in their play with other children.

The teacher in interview 4 felt that the boy did have socialisation problems. The teacher said that *'he found it difficult to get down to a play level with his peers. He would be more comfortable to sit and have a conversation with me about something than actually get down on a par with his peers and play…'*.

4.9 LoTi Framework

The teachers from interview 2, 3 and 4 chose level 4 as the level of technology that was used within their classroom setting which is known as integration. This means that technology-based tools are integrated to provide children with a rich context of understanding concepts, themes and processes. The teacher from interview 1 chose level 3 as the level of technology used within the classroom setting. This level of infusion means that spreadsheets, calculators, multimedia and telecommunication applications are used by the teacher.

4.9.1 Theme 8: The role of technology in socialisation problems

All 4 teachers agreed that technology is causing huge socialisation problems not just in children with imaginary friends, but in children without them too. The teacher in interview 1 said that 1 hour of the school day is technologically based, with an interactive whiteboard used for teaching and games, and on a wet day at break time they will watch songs on YouTube. She felt that the boy with the imaginary friend *'is on the computer a bit too much'* and that he *'would be telling me about stuff and you know a lot of it is educational stuff which is great but it's all coming off the internet…'*. He is very clever and his parents do not realise what he is doing online. *'He got Minecraft up on that white board one day when I went to the door and I mean there was nothing on it only my desktop and it's not like I've been on Minecraft so however he managed to do it without the keyboard he managed to get it…'*. It shows that he is very clever technologically, yet he *'doesn't know how to go and set up a game for himself'*. Children are *'happier to play at home on tablets and stuff than to play with their friends or go out and look for the neighbour'* which compliments research by Ginsburg (2007). The teacher gave the opinion which is a sub-theme that '*technology has affected how they do play definitely and how they even talk and mix with each other. And other side effects like children not being able to run after a ball and being tired after 5 minutes not wanting to play'*. This is

complimentary to research by Zimbardo who concluded that computer game play is socially isolating and prevents children from developing social skills (1982).
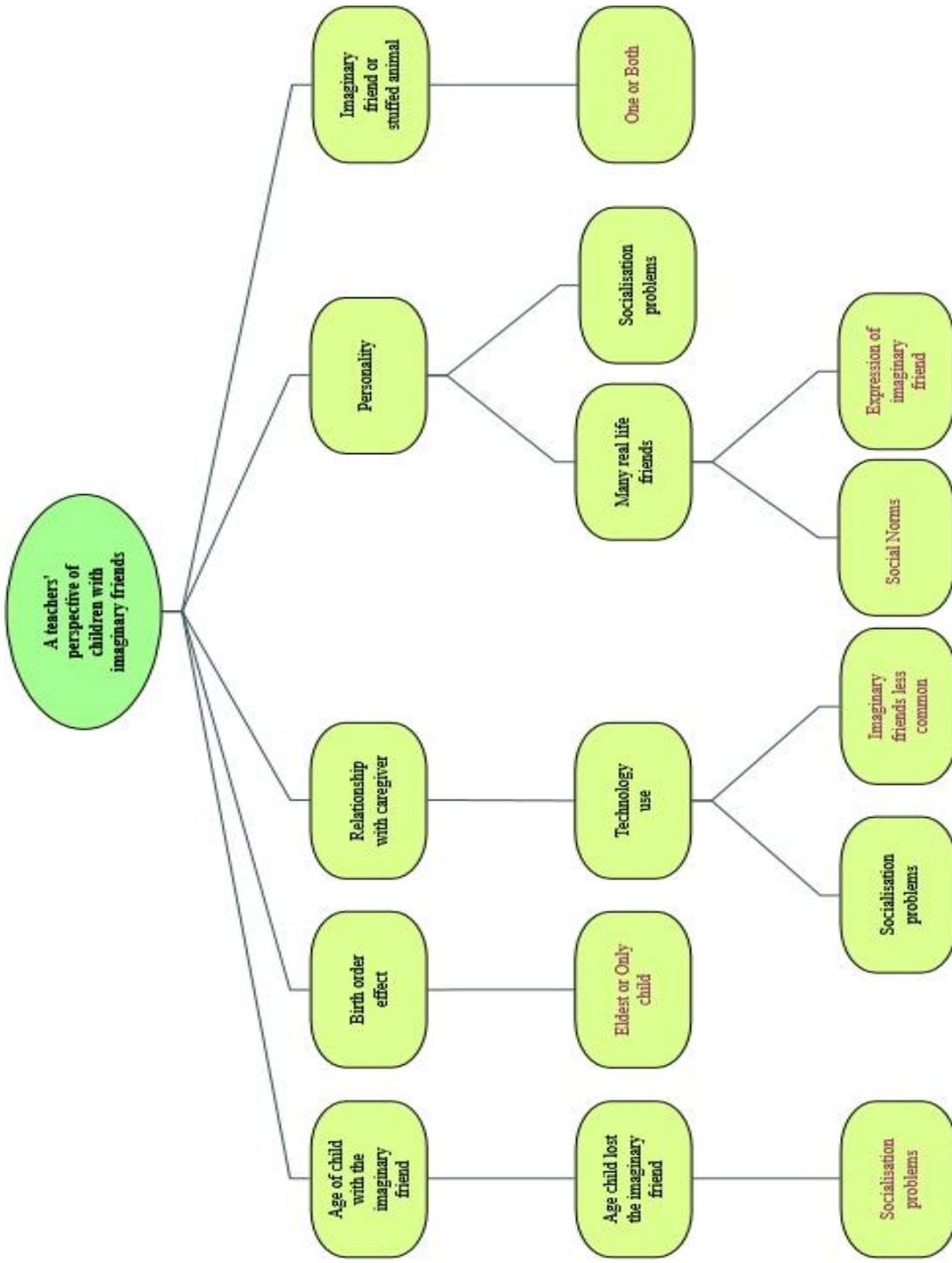
The teacher in interview 2 expressed that technology is causing socialisation problems in children and that in the *'past 3 to 4 years the priority needs tend to be centring more and more around emotional and social'* instead of helping children with their spelling and she feels she is working in a pastoral role of *'watching the emotional side of things, giving children the kinds of tool box to discuss their emotions, being aware of them and how to manage them…'*. She feels she has taken on this role because *'technology is eating up the time that would otherwise be spent on socialisation'*. She also feels that *'technology impacts on social skills'* which is another sub-theme. This compliments research by Zimbardo (1982).

The teacher in interview 3 also felt that technology is causing socialisation problems in children with and without imaginary friends. She thinks *'children are all too often left sitting in front of a TV or tablet and you know it's difficult when parents are working to keep every side going and they would often use the technology to pacify the children or bribe them'*. Sometimes the *'technology takes place of a person and people and children can find it easier when they don't have to engage with another person if they find it difficult'* which compliments research by Selnow (1984). She explained that the boy with the imaginary friend is using too much technology now because *'he was completely disengaged from the social world and would play all evening long if he could get away with it and when it was time for the tablet to be put away a big tantrum and argument would break out and he would be generally more irritable and tired and not able to engage in a real conversation because of it…'*. This behaviour also compliments research by Zimbardo (1982).

The teacher in interview 4 felt that technology is a huge problem and it is *'becoming more apparent every single year from having a conversation with a child and they can't maintain eye contact with you. They don't have the basic communication skills'*. This is also a sub-theme. *'They're more bored in class, they have shorter attention spans. I find them very cranky and irritable when they come in in the mornings and the children that are really cranky and irritable, if you question them they are the ones that have been watching TV in the*

mornings…'. The teacher has also noticed *'hearing language that I wouldn't have heard a few years ago we'll say got to do with like sexual content. The kids don't know what they are talking about but it still really concerns me because they are using the language and if you ask some of them where they have heard it it's always from games not even TV anymore'*.

4.9.2 Mind map generated from NVivo

A teachers' perspective of children with imaginary friends

- Imaginary friend or stuffed animal
  - One or Both
- Personality
  - Socialisation problems
  - Many real life friends
    - Expression of imaginary friend
    - Social Norms
- Relationship with caregiver
  - Technology use
    - Imaginary friends less common
    - Socialisation problems
- Birth order effect
  - Eldest or Only child
- Age of child with the imaginary friend
  - Age child lost the imaginary friend
    - Socialisation problems

Black font denotes main themes

Purple font denotes sub-themes

5. Discussion

5.1 Technology use and it's future for children with and without imaginary friends

It can be concluded from the results reported by the primary school teachers that technology use is stamping out creativity and making imaginary friends less common, which is a sub-theme of technology use. Technology is causing socialisation problems not just in children with imaginary friends, but those without them too. The way children play has dramatically changed since the prevalence of technology has invaded our lives. According to the teacher in interview 1, *'there's not many of them that would go home every evening and go out and play like we would have years ago'*. The teacher in interview 1 explained that *'technology definitely is affecting the way they play together, even if they're playing Minecraft together but it's all online to each other, they come in here and games like Jenga which some have never seen. They're not playing normal games at home. Like before Christmas we did pass the parcel and I had to explain the rules'.* Traditional interactive play-based games and going to the arcade with friends (Graham, 1988) and fostering friendships by going out to play in the arcade (Rutkowska & Carlton, 1994) are being replaced with video games and playing online with friends rather than physically interacting with peers which is extremely worrying.

The teacher in interview 2 stated that as the years have passed, children having imaginary friends has become less and less common which is a sub-theme of technology use and may be because technology has exploded in our lives. The teacher in the 2nd interview makes a good point in that *'people need to be much more aware of policing it and martialling it… there just aren't parameters but it has exploded exponentially the whole technology thing and there are no rules and families then vary in their ability to set rules and establish them and create the kinds of environments where technology is not banned but a happy medium'.* As educators and parents, they need to be fully aware of the power they are putting in a child's hand when they give them a piece of technology that has access to the internet and the dangers of being online. It could be recommended that rules are put in place early on so that there are no secrets or arguments between the child and parent about technology use. It could also be suggested that there should be information evenings on technology in schools to help parents understand the full extent to how powerful and dangerous technology can be for a child's socialisation problems.

The teacher in interview 3 interestingly pointed out that the child with the imaginary friend had very little technology use but when he reached the age of 7 he was more inclined to spend time on his tablet and this is when the imaginary friend disappeared. It could be suggested from this observation of the teacher that technology is preventing creativity (Mauro, 1991) and making them lose real friends for technological ones (Griffiths, 1997). If technology usage became prevalent around the time he lost his imaginary friend, maybe it was the reason he lost the imaginary friend. It could then be suggested that technology usage is making these imaginary friends less common in young children.

The teacher in interview 4 thought that *'children nowadays are never idol, they are never bored, they don't have time to invent an imaginary friend, they don't have time to invent games, they don't have time to play with something to take a toy apart and put it back together because they are constantly busy'*. She also observed that technology is making it difficult for children to distinguish between what is real and what is not anymore. She has a young student who believes a minotaur which is half bull half human is real and is completely convinced that this is a real thing. She felt the child thought that the game with the minotaur is genuinely real that it would be hard for a young child to understand that it is not real and that it is imaginary.

It can be concluded from the interviews of these teachers that technology is causing socialisation problems for all children, not just children with imaginary friends. It affects how they play together, socialise and communicate with each other. The predominance of technology in our lives unfortunately can not be prevented. However, it is important that as parents and educators of children that we find a balance of not having excessive exposure to technology and yet enough so that it has minimal socialisation effects on children.

5.2 Birth order effect

The ordinal position in the family of these children with imaginary friends in this study met the criteria of past research by Svendsen (1934) and Gleason et al. (2000). However, one of the children had an older brother with special needs. Despite her not meeting the criteria of her ordinal position to have an imaginary friend, having an older brother with special needs could explain why this child had an imaginary friend because the child could not communicate

in a social sense with her older brother and therefore she may have felt that she was the eldest child in the family.

5.3 Age of the child losing an imaginary friend

Research by Newson and Newson (1976) indicated that by the time a child reaches the age of 7, typically this is around the age a child loses his or her imaginary friend. While one of the children lost his imaginary friend at the age of 7, one of the other children still had his imaginary friend at the age of 7, while the other 2 children had still not lost their imaginary friend by the time they reached the age of 8. The boy in interview 1 *'repeated junior infants so he is in senior infants at the moment'* which may explain why he has not lost his imaginary friend. He has not yet moved up to the next classroom and therefore his peers are more accepting and understanding of his imaginary friend regardless of his age.

From the second interview, the teacher felt it is the likely case that children do not necessarily lose their imaginary friends at the age of 7 because of maturity, but tone down or pretend that they do not have imaginary friends anymore because '*they become much more aware of what's acceptable and what's not'.* It is expected from the literature that children lose their imaginary friends by the age of 7, but clearly this is not necessarily always the case. The children that had not lost their imaginary friend by the age of 7 compliments research by Taylor & Carlson (1997) as they stated that children who are older do not express their imaginary friend as overtly as younger children, which may be mistaken by parents as their child having lost an imaginary friend.

5.4 The role of social norms in the expression of an imaginary friend

The teacher said before Christmas she was asking the children individually at her desk what they were asking Santa for Christmas and one of the boys who is 6 '*told me he asked for Thomas the tank engine but not to tell anyone in class because they would laugh at him because it is for babies'.* The fact that children so young are aware of what is socially acceptable means they would hide their true emotions or interests just to have friends.

5.5 Were the research questions addressed?

The study did address the research questions through the results and discussion of this investigation. The teachers did believe that there was a relationship between a high use of technology and socialisation problems in children with and without imaginary friends. Some of the teachers did believe that children who had imaginary friends had socialisation problems and expressed that technology is making these imaginary friends less common.

5.6 Criticisms of past research

Research by Taylor et al. (2004) blamed the parents for children having imaginary friends in the first place. They felt that it was a poor relationship with the primary caregiver that caused a child to fill this void of a poor relationship by replacing it with an imaginary friend (Taylor et al., 2004). However, from this investigation all the children had a good relationship with their parents. Why did they have an imaginary friend then? Perhaps this research should have considered the approach of psychoanalysis instead of blaming the parents for a child having an imaginary friend. It seems much more logical to conclude that a child develops an imaginary friend for filling a gap of some sort in his or her life (Meng & Freud, 1963), which was the opinion of all of the teachers in this study.

Despite these criticisms, much of the past research has complimented the findings from this investigation. A child with an imaginary friend was usually an only child or the eldest (Gleason et al., 2000) which corresponded with this study. The age of the children developing an imaginary friend at 4 also corresponded with this study. However, research on the age of losing an imaginary friend was 7 years old, but 3 of these children still had an imaginary friend at the age of 7 and two went on to still have their imaginary friend by the time they were 8 years old. Research on children with imaginary friends lacking real life friends (Taylor et al., 2004) was true for 3 out of the 4 children with imaginary friends. According to past research, children with imaginary friends were said to have socialisation problems (Ames & Learned, 1946) which was true for 2 out of the 4 children in this study.

5.7 Future research

Future research should consider interviewing more primary school teachers to gain an even more in-depth insight into their beliefs, opinions and experiences of children with imaginary friends and if they feel that technology is playing a role in their socialisation patterns. A teachers' perspective is just as important as a parents' perspective of a child with an imaginary friend, but teachers can offer a more objective, non-biased and honest answers about these children. It could also be considered that children with imaginary friends could also be interviewed, to find out personally how technology plays a role in their lives.

Future research should also consider gender differences, which was not explored in this investigation. Past research has shown that girls who develop imaginary friends do so on a nurturing basis while boys develop children with imaginary friends who are more competent than themselves, a sort of idol that they can look up to (Harter & Chao, 1992). It would be interesting to investigate if this is still the case today for children. By interviewing children and using different measures, one could investigate what technology is doing to the young, innovative and creative young mind of a child.

5.8 Where to next?

What is the future for children with imaginary friends when technology is taking away their creative and imaginative play skills? From the teachers that were interviewed, they recognised that in the past 10 years, children with imaginary friends are becoming less and less common. It needs to be considered deeply why these imaginary friends are essentially disappearing. More opportunities such as after school clubs or play dates without any technology present could promote more play based interactive situations for children. These play-based situations can activate a child's creative mind and imagination rather than simply pacifying a child with technology to pass their day.

Many primary schools have been left without resource or special needs assistants to help children with developmental issues. Students who are qualifying to become teachers should be required to take a developmental psychology course to equip themselves to deal with children with developmental issues as one of the teachers mentioned much of her techniques were trial and error to see what did and did not work for a child with developmental issues.

Regulations should also be put in place for technology use for young children by both educators and parents to stop the harmful effects of excessive technology use. Imaginative play and creative thinking in children should be encouraged when displayed, rather than spending their time not interacting with others and sitting quietly playing a video game. Imagination and imaginary play should be encouraged, while technology use should be discouraged!

References

Adler, A. (1928). Characteristics of the first, second, and third child.

Ames, L. B., & Learned, J. (1946). Imaginary companions and related phenomena. Journal of Genetic Psychology, 69, 147–167.

Benson, R. M., & Pryor, D. B. (1973). "When friends fall out": Developmental interference with the function of some imaginary companions. *Journal of the American Psychoanalytic Association*, *21*(3), 457-473.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.

Earlychildhoodireland.ie. (2015). *Early Times Technology*. Retrieved from: https://www.earlychildhoodireland.ie/wp-content/uploads/2015/08/Early-Times-technology-article-v1-MHB-22-05-2015.pdf

Flannery, K. A., & Watson, M. W. (1993). Are individual differences in fantasy play related to peer acceptance levels? *Journal of Genetic Psychology*, 154, 407– 416.

Freud, S. (1923). Psycho-analysis. *Standard edition*, *18*, 235-54.

Gleason, T. R., Sebanc, A. M., & Hartup, W. W. (2000). Imaginary companions of preschool children. *Developmental Psychology*, *36*(4), 419.

Graham, J. (1988). Amusement machines: dependency and delinquency. *Amusement machines: dependency and delinquency.*, (101).

Griffiths, M. (1997). Friendship and social development in children and adolescents: The impact of electronic technology. *Educational and Child psychology*, *14*, 25-37.

Harman, J. P., Hansen, C. E., Cochran, M. E., & Lindsey, C. R. (2005). Liar, liar: Internet faking but not frequency of use affects social skills, self-esteem, social anxiety, and aggression. *CyberPsychology & Behavior*, *8*(1), 1-6.

Harter, S., & Chao, C. (1992). The role of competence in children's creation of imaginary friends. *Merrill-Palmer Quarterly (1982-)*, 350-363.

Hoff, E. V. (2005). Imaginary companions, creativity, and self-image in middle childhood. *Creativity Research Journal*, *17*(2-3), 167-180.

Jung, C. G. (1928). On psychic energy.

Keane, S. (2014). Aistear in a junior infant classroom. Putting theory into practice. *An Leanbh Óg, the OMEP Ireland Journal of Early Childhood Studies*, *8*, 215-226.

Mauro, J. (1991). The friend that only I can see: A longitudinal investigation of children's imaginary companions (Doctoral dissertation, University of Oregon, Eugene, 1991). Dissertation Abstracts International, 52, 4995.

Meng, H. E., & Freud, E. L. (1963). Psychoanalysis and faith: The letters of Sigmund Freud and Oskar Pfister.

Moersch, C. (1995). Levels of technology implementation (LoTi): A framework for measuring classroom technology use. *Learning and Leading with technology, 23,* 40-40.

Newson, J., & Newson, E. (1976). Seven years old in an urban environment. London: Allen & Unwin.

Phillips, C. A., Rolls, S., Rouse, A., & Griffiths, M. D. (1995). Home video game playing in schoolchildren: A study of incidence and patterns of play. *Journal of adolescence*, *18*(6), 687-691.

Piaget, J. (1962). Play, dreams, and imitation. London: Routledge & Kegan Paul.

Piaget, J. (1964). Part I: Cognitive development in children: Piaget development and learning. *Journal of research in science teaching*, *2*(3), 176-186.

Rutkowska, J. C., & Carlton, T. (1994, April). Computer games in 12-13 year olds' activities and social networks. In *British Psychological Society Annual Conference.*

Scheibe, K. E., & Erwin, M. (1979). The computer as altar. *The Journal of Social Psychology*, *108*(1), 103-109.

Selnow, G. W. (1984). Playing videogames: The electronic friend. *Journal of Communication*, *34*(2), 148-156.

Singer, D., & Singer, J. (1990). The house of make-believe. Cambridge: Harvard University Press.

Somers, J. U., & Yawkey, T. D. (1984). Imaginary play companions: Contributions of creative and intellectual abilities of young children. *The Journal of creative behavior*, *18*(2), 77-89.

Svendsen, M. (1934). Children's imaginary companions. *Archives of Neurology & Psychiatry*, *32*(5), 985-999.

Taylor, M., & Carlson, S. M. (1997). The relation between individual differences in fantasy and theory of mind. Child Development, 68, 436 – 455.

Taylor, M., Carlson, S. M., Maring, B. L., Gerow, L., & Charley, C. M. (2004). The characteristics and correlates of fantasy in school-age children: imaginary companions, impersonation, and social understanding. *Developmental Psychology*, *40*(6), 1173.

Taylor, M. (2001). *Imaginary companions and the children who create them*. Oxford University Press on Demand.

Walton, K. (1990). Memesis As Make-Believe.

Zimbardo, P. (1982). Understanding psychological man: A state of the science report.

Consent Form

It is important to stress that children who have imaginary friends should not be viewed negatively or treated differently. Instead, it should be viewed positively as recent research has shown that children with imaginary friends are more creative than those without them.

The purpose of this study is to gain a deep insight into the experiences, beliefs and opinions of primary school teachers about children with imaginary friends and the relationship technology has with these children. A primary school teacher has first-hand experience with children with imaginary friends and as a result may have beliefs about factors that influence these imaginary friends i.e. a high use of technology, low socialisation levels, a low number of friends or a poor relationship with their caregiver.

The questions that will be asked are intended to gain insight into your experiences with children with imaginary friends. An audio device will be used in this interview for the purpose of data analysis ONLY and will not be disclosed after the analysis has been completed.

Your participation is completely confidential, and the details about the children that are discussed in this interview will also remain confidential. The data from these interviews will be stored safely and this data will be destroyed appropriately after 2 years upon the completion of this study.

There may be no personal benefit from your participation, but the knowledge received from this interview is very important for this study. Your participation is voluntary. Refusal to participate or withdrawal of your consent at any time without reason will not result in any penalty or loss. Your participation is greatly appreciated.

If you have any questions or concerns after the interview has been completed, enclosed is the contact email address of my supervisor where any questions or concerns can be addressed.

Dr. Patricia Orr – █████████

I _____ have read, understood and agree to consent and participate in this study.   Date / /

Interview Questions

1. Have you taught children with imaginary friends in the last year?
2. Do you think that technology plays a predominant role in the classroom?
3. Do you feel that the children with imaginary friends have socialisation problems?
4. If so, could you explain this in further detail?
5. Do these children with imaginary friends have a lot of real life friends?
6. Could you describe the characteristics of the children with imaginary friends?
7. Based on your experiences, how is the relationship of the children with imaginary friends with their caregiver?
8. Are these children only children, have siblings, eldest, middle, or youngest child?
9. How many children are in the same class as the child with the imaginary friend?
10. Do you feel that there is a relationship between a high use of technology and socialisation problems?
11. If so, do you feel this may have been a contributing factor to them having an imaginary friend?
12. Is there anything you would like to add?

Appendix C

The LoTi Framework

Level	Category	Description
0	Nonuse	A perceived lack of access to technology-based tools or a lack of time to pursue electronic technology implementation. Existing technology is predominately text-based (e.g., ditto sheets, chalkboard, overhead projector).
1	Awareness	The use of computers is generally one step removed from the classroom teacher (e.g., integrated learning system labs, special computer-based pullout programs, computer literacy classes, central word processing labs). Computer-based applications have little or no relevance to the individual teacher's instructional program.
2	Exploration	Technology-based tools serve as a supplement to existing instructional program (e.g., tutorials, educational games, simulations). The electronic technology is employed either as extension activities or as enrichment exercises to the instructional program.
3	Infusion	Technology-based tools, including databases, spreadsheets, graphing packages, probes, calculators, multimedia applications, desktop publishing applications, and telecommunications applications, augment isolated instructional events (e.g., a science-kit experiment using spreadsheets/graphs to analyze results or a telecommunications activity involving data-sharing among schools).
4	Integration	Technology-based tools are integrated in a manner that provides a rich context for students' understanding of the pertinent concepts, themes, and processes. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processors) is perceived as a tool to identify and solve authentic problems relating to an overall theme/concept.
5	Expansion	Technology access is extended beyond the classroom. Classroom teachers actively elicit technology applications and networking from business enterprises, governmental agencies (e.g., contacting NASA to establish a link to an orbiting space shuttle via the Internet), research institutions, and universities to expand student experiences directed at problem solving, issues resolution, and student activism surrounding a major theme/concept.
6	Refinement	Technology is perceived as a process, product (e.g., invention, patent, new software design), and tool to help students solve authentic problems related to an identified real-world problem or issue. Technology, in this context, provides a seamless medium for information queries, problem solving, and/or product development. Students have ready access to and a complete understanding of a vast array of technology-based tools.