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**Children's perceptions of the use of computers as a
play-based activity in Reception**

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Abstract

Early Years settings now incorporate ICT in their continuous provisions to provide exposure to different ICT mediums and to support the learning of ICT skills. Learning through play is central to the Early Years Foundation Stage, and it is hoped that children view learning ICT skills as play. This study investigates children's perceptions of their interactions with laptop computers as a play-based activity. Children's views on the use of computers as play, work and/or learning were elicited through a mixed method approach including a questionnaire, semi-structured interviews using the Activity Apperception Story Procedure (AASP), and naturalistic observations. Based on observations and the results of the AASP, it is argued that a degree of adult scaffolding is needed to enhance the learning outcomes of using computers as a play-based activity and that children view the use of computers as play regardless of adult participation.

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Introduction

Children are exposed to Information and Communications Technologies (ICT) in their everyday lives. It is natural that children want to explore the technologies that they are exposed to and which they see adults using regularly. Many pre-school and reception settings now incorporate ICT in their continuous provisions to provide exposure to different ICT mediums and to support the learning of ICT skills.

ICT refers to a number of different digital technology mediums, including computers, cameras, telephones, recording devices and digital games. This study focuses on the use of laptop computers in the reception classroom. Small laptop computers can be used in the reception classroom as part of a continuous provision and play-based activity. It is commonly accepted that play is central to Foundation Stage learning and the development of young children (Keating, Fabian, Jordan, Mavers & Roberts, 2000). This study aims to investigate children's perceptions of their interactions with laptop computers as a play-based activity. The central questions addressed are:

- (i.) Do children view the use of computers as play or work?
- (ii.) Do children think they are learning when using the computers?
- (iii.) Does accessing the computers as part of independent play provide effective learning outcomes?

In this study, children's perceptions of play, work and learning with respect to computer provisions are analysed and their abilities in accessing the computers with and without adult support are observed. It will be argued that a degree of adult scaffolding is needed to enhance the learning outcomes of using computers as a play-based activity. This small-scale study supports the assertion that children view the use of computers as a play activity regardless of adult participation and support, and that children value and often ask for support when using computers.

Literature review

There is much debate in the literature regarding the benefits and detriments of children using digital technology within the Early Years. However, there is little empirical evidence to substantiate either

positive or negative claims (Plowman & Stephen, 2005). This study focuses on children's perspectives of using computers as a play-based activity rather than the 'effects' of computing exposure. That play is an important aspect of children's development and learning is not refuted in literature and children's perspectives on play have been widely researched over decades (Howard, Bellin & Rees, 2002). Literature on children's perception of play and ICT is emerging and research by Howard, Miles and Rees-Davies (2012) and Stephen and Plowman (2008) are reviewed below.

The use and nature of ICT provisions in classrooms is changing rapidly and arguably outstripping the pace of peer-reviewed education research on the topic. In cases, the relevance of older publications on the topic can be questioned. Classroom provisions are presently moving away from traditional computers to tablets and hand-held devices that are more intuitive for use by young children.

Technology-based society

Children today grow up in a technology-based society where the use of ICT is embedded in everyday life. It is inevitable that children will be exposed to digital devices through "socially situated practices" (Plowman, McPake & Stephen, 2008: p. 304) in the home, community and school. This involves children observing adults around them who are unintentionally modelling the use of computers. Some children start reception already able to access applications on a computer. However, computers are often designed for use by adults in the work environment and rely on reading and writing in order to use computer applications, which means children do not necessarily naturally 'pick it up' or learn how to use a computer independently (Plowman & McPake, 2013).

The use of computers in the Early Years setting is an emotive topic that has generated numerous claims for and against it. The Alliance for Childhood (2012) and educational psychologist Healy (1998) claim using computers in the Early Years hinders the developmental process and is counterproductive to learning as activities at computers are not as effective at developing understanding as traditional activities. Advocates for the widespread use of ICT claim that it "can make a key contribution to children's social and intellectual development" (Stephen & Plowman, 2003: p. 225).

Learning through play with computers

Play and exploration in the Early Years Foundation Stage (EYFS) is a key element in children's learning and development. It is now widely accepted that meaningful learning is achieved in an environment where children play together with continuous provisions that enhance creativity, investigation, problem-solving, and ownership of the acquired knowledge or tasks (Broadhead, 2006). Learning through play supports cognitive, social, emotional and physical development (Keating et al., 2000). Play may have certain characteristics which make an activity fun and amusing. However, defining what is 'play' depends on individual perceptions, particularly that of the individual involved in the playful activity. A study on children's perception of play, work and learning by (Howard, 2002) revealed that children found 'play' within an Early Years setting to be activities that occurred without teacher presence, on the floor rather than at a table, and independently chosen and accessed by the child. McInnes, Howard, Miles and Crowley (2011) further suggest that providing children with more choice and control with provisions and allowing children to contribute to the planning and construction of provisions reduced the likelihood of children perceiving teacher presence to be 'not-play'.

If computers are to be incorporated in the EYFS, they should be accessed as a play-based activity among the many continuous provisions in the EYFS environment. The reasoning for providing computing as a play-based activity is that children display greater motivation, engagement, problem solving skills, meta-cognition and self-regulation when accessing an activity through play (McInnes et al., 2011; Whitebread, 2008). However, research by Plowman and Stephen (2005) and Stephen and Plowman (2008) suggests that learning at computers through free play leads to unproductive encounters and that 'adult guided interaction' at the computer allows for greater development of computing skills. Children's learning at a computer is generally a result of trial and error, observation, copying and demonstrations by more experienced users. Plowman et al., (2008) found that in the reception classroom environment children access computers fleetingly and their progress is often halted by operational difficulties, an inability to read instructions and an inability to complete tasks within the computer application or game. Furthermore, games did not always support children's learning by providing reasoning or explanations for why answers to a game were correct or incorrect (Plowman & Stephen, 2005). Stephen & Plowman (2008) suggest that adult guided interaction can provide the necessary scaffolding to enhance learning by demonstrating, explaining and physically guiding children in how to use computers. This adult guided interaction

includes helping children with: the technical functions of the computer; accessing applications; returning to an activity when independent attempts failed; suggesting alternative methods of accomplishing a task at the computer; sharing the experience and successes; and sharing the fun. In contrast, adult guided interaction during free-play is counter-intuitive to the EYFS ethos of learning through play and goes against the assertion of Howard (2002) that adult interference during children's play may inhibit their play, and independence, and diminish their engagement.

The level of engagement and overall learning outcomes from accessing an activity depend on a child's perception of the activity and if they perceive it to be playful (Howard et al., 2002). Therefore, if children perceive adult interaction as formal instruction and less like play, it may be that children will perceive computing activities with adult guided interaction as work or something other than play (Howard et al., 2012). However, if children still perceive accessing computers alongside adult interaction as play, then scaffolding during that play-based activity can provide an effective learning environment. Research conducted by Howard et al. (2012) demonstrated that children still perceived computing provisions as play regardless of teacher presence and that children's engagement with adults at computers remained high.

Effective teaching and learning with computers

The level of effective scaffolding of teaching and learning at computers is dependent on the computing affinity, confidence and skill of the teacher. Aubrey and Dahl (2013) observed that teachers sometimes struggle to understand age-appropriate pedagogy for scaffolding and struggle to provide appropriate guided interaction at computers. Observations made by Plowman and McPake (2013) revealed that most teachers tend to support children with basic operational skills, such as manipulating the cursor or mouse, taking turns at computers and the learning from the computer application package or game. Plowman and McPake (2013) suggest that learning with digital technology should extend beyond operational skills and move towards understanding different cultural and work-related uses of technology, such as understanding the role of technology in society. This requires teachers to be proficient and confident ICT users who understand the roles and uses of technology themselves and should extend scaffolding beyond simple operational skills. Plowman, Stephen and McPake (2010) identified two types of adult guided interaction to scaffold children with computers:

- (i.) proximal scaffolding, involving face-to-face interaction between the adult and child, including supporting children with operational skills; and
- (ii.) distal scaffolding, involving planning activities and providing resources and opportunities for learning with computers.

Plowman et al. (2010) argues that both forms of scaffolding are needed for effective teaching and learning at computers.

Providing adult guided interaction at computers is consistent with Vygotsky's theory of socio-cultural learning in which adults support, encourage and extend children's understanding (Whitebread, 2008) by drawing on cultural and material resources (Plowman et al., 2010). The element of play or perceived play by the individual involved is important to maintain that level of engagement, motivation, meta-cognition and self-regulation. Siraj-Blatchford (2008) suggests approaching teaching and learning with digital technology in the EYFS holistically by involving ICT in all elements of play and classroom culture, for example, playing with technology and being technologists in role play. Reynolds, Treharne and Tripp (2003) emphasise the use of computers as a tool in all other aspects of the curriculum rather than as a subject in itself. This view of holistic teaching and learning with ICT can be characterised as distal scaffolding. Combining proximal and distal scaffolding within a play-based environment that is perceived as 'play' by children can provide the effective teaching and learning with computers.

Methodology

Children's perceptions of their interaction with the computer provisions as a play-based activity are studied by eliciting children's views on the use of computers as play, work and/or learning. This study was carried out in one reception class at a three-form entry school in Cambridgeshire. The reception class contains numerous continuous provisions that rotate according to the planning of the day. Small laptop computers are often used as an ICT provision, with four computers at a table. This provision is made available on at least one day per week. Similar computing applications to those on the laptops are available on the Interactive White Board (IWB) and are available to the class daily. The computing applications varied from online games with a learning intention, such as maths or phonics related games, to using a word processor to simply explore typing or a drawing program to make digital images.

For this study, the classification by children of computing provisions as play, work and/or learning was compared with their views of other continuous provisions. Observations were also made as to how children accessed the computers and how much adult guidance was given. The study was designed using a mixed-method approach and took place over three half-days in the Autumn term during the children's 'busy time' (free play). During busy time children may independently access continuous provisions provided in the classroom, including the laptop computers.

Sample groups

The study used two sample groups with children aged four to five years old: the whole class of 30 children (large sample group) and a group of four children selected from the class (small sample group). Children in the large sample group participated in a questionnaire to obtain quantitative data pertaining to their goal orientation. Children in the small sample group were selected from the larger group based on their responses to the questionnaire. The four children in the small sample group were selected based on their similar goal orientations, their good level of comprehension and verbal interaction, and their willingness to participate in further interviews. Two boys and two girls were selected to provide a gender balance. Qualitative information was obtained through semi-structured interviews using the Activity Apperception Story Procedure (AASP), which was conducted with the small sample group.

Mixed-methods research design

A mixed-method approach was used to gather and analyse both quantitative data and qualitative information. The mixed-method was chosen because it best suited the age and disposition of the sample group. A mixed-method was achieved through the use of a verbally delivered questionnaire with the large sample group, semi-structured interviews with the small sample group and naturalistic observations of all children at the computers.

Questionnaire

The 'Early Years Berkeley Method Questionnaire' (provided in Appendix 1) was used with the large sample group to obtain quantitative data regarding the class cohort's personal goal orientation. The questionnaire is a version of the Patterns of Adaptive Learning Survey (PALS) originally developed by Maehr and Midgley (1996), and adapted for young children. The PALS goal

orientation scale measures a child's personal achievement goals without including other motivational variables, such as perception of the classroom and learning environment (Anderman, Urdan & Roeser, 2005). Two of the three questions from the Berkeley Questionnaire were used for this study. The two questions are crafted to establish whether a child has a mastery goal orientation and a performance-approach goal orientation. The third question in the Berkeley Questionnaire, relating to a performance-avoidance goal orientation, was not used due to ethical considerations.

Because of the ages of the large sample group, the questionnaire was administered in one-to-one interviews using hand puppets. Puppets were used to maintain interest when attention spans were short and to remove the formality of a question-and-answer interview (Epstein, Stevens, McKeever, Baruchel & Jones, 2008). Specifically, the Berkeley Puppet Interview (BPI) was used. The BPI was established by Measelle, Ablow, Cowan and Cowan (1998), and uses two similar puppets to denote opposing trains of thought in the questionnaire. The researcher used each puppet to tell the child how the puppet felt with both positive and negative options, and the child was asked to choose which puppet she/he agreed with. The BPI is suitable for this age group as it allows children to respond verbally or non-verbally by pointing to the puppet (Measelle et al., 1998). The questionnaire administered with the BPI was used to identify the general goal orientation of the cohort and to identify four children for the small sample group best suited to and willing to take part in further interviews. Of 30 children in the class, 28 agreed to participate in the BPI.

Semi-structured interviews

Semi-structured interviews were conducted with the small sample group using the AASP devised by Howard (2002). The AASP was used to ascertain children's perceptions of activities (including computing activities) as play or work and their reasoning for it. The AASP was carried out in two phases. The first phase provided children with a sorting game, wherein they placed a set of photographs into boxes labelled as play or work. Photographs of the reception class and the children accessing the continuous provisions were taken in the week before the semi-structured interviews to be used in the AASP. There were a total of 28 photographs of children from the large sample group accessing different continuous provisions in the classroom and outside. Six of these photographs included images of children at computers; either the small laptops or the IWB. The photographs chosen included children accessing the continuous provisions while sitting at tables, on the floor, working independently or cooperatively, and with or without a teacher present. The second phase of

the AASP was to interview the children and elicit their reasoning for choosing play or work for a selected number of photographs and if they considered the activity to be learning. The questions asked during the phase two interviews included:

- (i.) establishing what was happening in the photographs;
- (ii.) asking if the children regarded it as learning; and
- (iii.) asking why they thought it was or was not learning.

The two-phased approach of the AASP enables triangulation of data to monitor its validity, consistency and reliability (Howard, 2002). The aim of using AASP is to identify if children perceive being at the computers as play or work and what conditions are present for children to perceive an activity as play or work. The conditions depicted in the photographs relate to spatial (e.g., at a table or the floor), type of activity (e.g., computers, writing or building blocks) and teacher presence (e.g., teacher support or independently accessing provisions). The sorting game during Phase 1 allowed children to give a response based on a visual stimuli, while the Phase 2 interview with fewer photographs allowed the children to justify, reflect and discuss what elements of a photograph made them think it was play or work and if they considered the activity to be learning.

Observations

Naturalistic observations were made of children accessing computers during busy time. The aims of the observations were to identify children's behaviour at the computers, establish what sort of activities were accessed, and what level of support the children needed to accomplish their desired objective.

Ethical considerations

This research study was carried out in accordance with the Ethical Guidelines for Educational Research from the British Educational Research Association (2011), BERA, and ethical issues have been considered throughout the course of this study. Prior to commencing the study, a proposal outlining the research approach and methods was drafted and presented to the University of Cambridge personal tutor, school mentor (class teacher) and school head teacher for approval. An

Ethics Checklist was performed and approved by the personal tutor. The Ethics Checklist ensured that all ethical consideration throughout the study, including: obtaining the necessary consents; confirming to the BERA guidelines; planning research methods that do not cause harm to participants in any way; and maintaining transparency and sharing research plans with the responsible school staff, were taken into account.

A letter of consent was approved by the class teacher and school head teacher. The head teacher confirmed that the school's existing permissions from parents included interviewing children and recording their responses for educational research. No further permission was required.

During interviews with children, sensitivity with regard to their age and disposition was considered. Questions used during the interviews were crafted as to not detract from the children's confidence, motivation, interest or self-belief in school. Children were invited to participate in the interviews by indicating to them the type of questions that would be asked and the activity to be carried out. Children were told that they did not have to participate in the interviews and that they did not have to answer questions if they did not wish to. Children could change their mind and not continue with the interview if they so chose.

In the interest of privacy, the school name, staff names and children's names have been changed. All recorded material, personal data and photographs taken (photographs used in the AASP) were destroyed at the end of the 2013/14 academic year.

Results and findings

The results and findings in this section pertain to the goal orientation of the large sample group and the perceptions of play or work from the small sample group and the perceptions of learning from the small sample group, all based on the questionnaire and interviews described in the preceding section.

Goal orientation

The Early Years Berkeley Method Questionnaire using the BPI was administered to as many children in the reception class as possible in order to determine the general goal orientation of the class cohort. Based on the two questions asked during the BPI, children revealed an agreement with

a mastery orientation or not, and an agreement with a performance approach orientation or not. Mastery orientation is attributed to children who are intrinsically motivated to learn or accomplish a task and have positive feelings towards school and schoolwork (Anderman et al., 2005), which is associated with adaptive patterns of learning (Chaplain, 2013). Performance-approach orientation is somewhat mixed and can be associated with either adaptive or maladaptive patterns of learning (Chaplain, 2013). Children with performance-approach orientation are driven by their desire to demonstrate their competence.

Of the 28 children who participated in the BPI, 25 children are mastery goal oriented, and 20 of those children are also performance-approach goal oriented. One child was not mastery but performance-approach goal oriented only. Figure 1 presents the number of children in the class who are mastery goal oriented and the number who are performance-approach goal oriented.

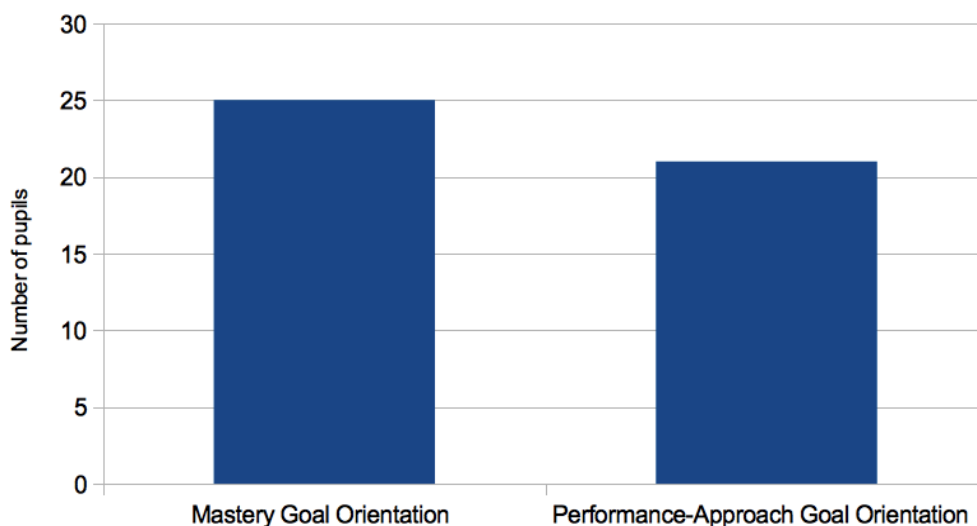


Figure 1: Personal achievement goal orientation for a sample group of 28 children.

Based on the results of the BPI and the children’s responses, four children were selected for the semi-structured interview. Only children with both a mastery and performance-approach orientation were chosen, to obtain the perceptions of individuals who valued school and the learning environment. Children were also chosen for their enthusiasm in responding to the questionnaire during the BPI and because of their high level of comprehension and potential to discuss ideas pertaining to play and work. Profiles of the four children and their comments during the BPI are

provided in Appendix 2. Beatrice and Henry were chosen because they responded by attributing the puppet's response to themselves by stating that they too wanted to learn as much as they could. Elizabeth was chosen because of her level of maturity and agency towards her work. Marcus was the youngest of the small sample group (summer born), yet he was very clear with his choices and during the BPI emphatically responded towards a mastery and performance-approach. At the time, three of the children were in the extension groups for phonics, reading and maths. Marcus was in the lower core ability grouping for phonics, reading and maths.

Activity Apperception Story Procedure

Phase 1 of AASP: Play or work?

During Phase 1 of the AASP children played a sorting game to classify 28 photographs as either play or work. Several conditions were depicted in these photographs as cues to prompt children to choose either play or work. These conditions included children accessing various continuous provisions in the following different ways: at a computer with or without an adult present; at the maths table with or without an adult present; at the writing table with or without an adult present; at the craft table with or without an adult present; at the sand/sensory tub with or without an adult present; on the floorspace; in the role-play or reading area; and outside. The aim was to establish if there was a similar pattern to the way they perceived computing provision with other provisions in the classroom. A description of the photographs used is provided in Appendix 3.

The Phase 1 results revealed that the small sample group had a clear idea as to what they consider work or play. Children classified all writing and maths activities at tables with a teacher present as work and almost all other activities as play. This is consistent with Howard (2002) who found that children are more likely to perceive an activity as work or learning if conducted with a teacher or at a table. A transcript of comments made on selected photographs during Phase 1 of the AASP is provided in Appendix 4. A log of the photographs with coded classification results of the choices made with respect to play or work is provided in Appendix 5.

Most of the photographed provisions were classified as play by the children, especially those outside, in the role-play and reading area, on the floor space or at the sand/sensory tub. All computer activities were classified as play by the small sample group. Children regarded activities at the computers as play regardless of teacher presence and interaction, which is consistent with the

findings of Howard et al. (2012). This is evident in children's responses to Photograph 5, where children are accessing the computers with the support of a teacher:

“They are actually playing, but they need some help playing.” – Elizabeth

“Playing, because that's an easy one.” – Henry

However, children distinguished between play and work at the maths table, and sometimes the writing table, based on the presence of a teacher.

At the Maths table, Photograph 22 depicts a child accessing a number puzzle with a teacher. The children clearly indicated this activity as work:

“Looks like Robert's doing a job.” – Elizabeth

“I know that's work.” – Beatrice

Photographs 10 and 21 were of children using maths resources at the maths table without a teacher present and both images were classified as play by the small sample group. Figure 2 presents the percentage of occasions provisions were characterised as play. Only those provisions carried out at tables are compared as all other provisions, such as those at the floorspace, outside and reading/role play area were classified as play.

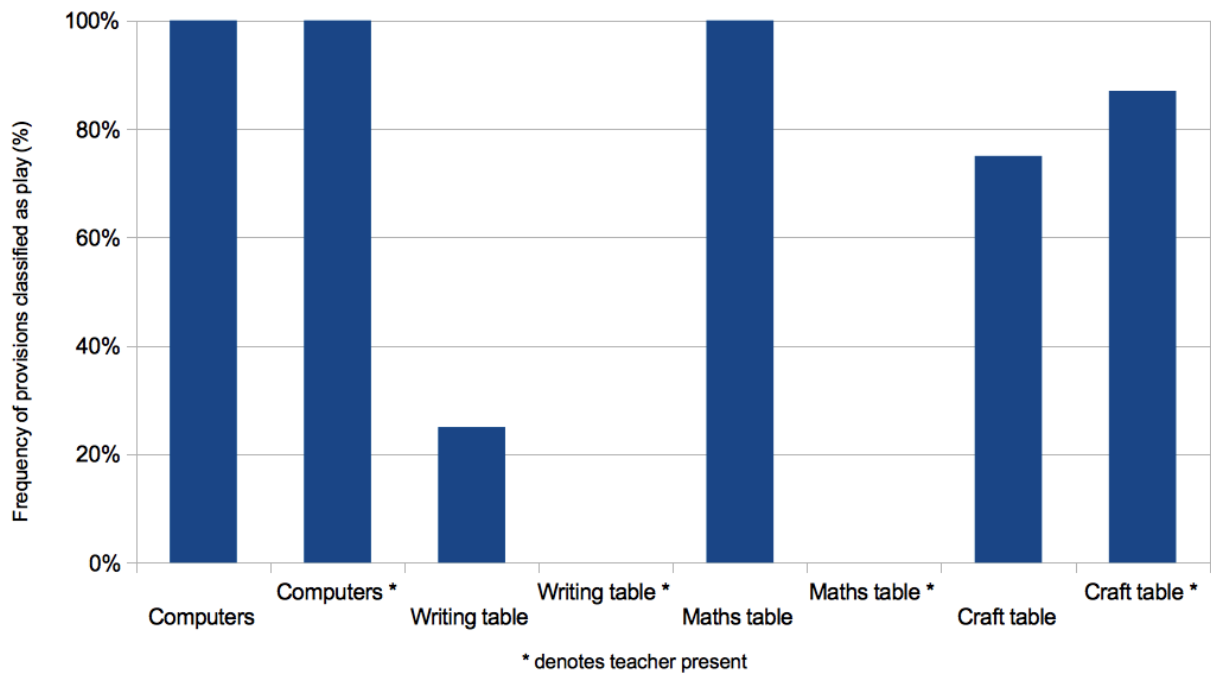


Figure 2: Frequency at which provisions at tables were classified as play. (Six photographs were at computers, of which two were with a teacher present. Four photographs were at the writing table, of which one was with a teacher present. Three photographs were at the maths table, of which one was with a teacher present. Three photographs were at the craft table, of which two were with a teacher present.)

The majority of activities carried out at the writing table were classified as work, while all activities at the writing table with an adult present were characterised as work. A gender difference in choice of play or work was evident when classifying images at the writing table. The girls classified every writing table image as work, while the boys classified Photographs 8 and 27 as play (see Appendix 5). Photographs 8 and 27 depicted girls at the writing table writing cards and writing about food. Photograph 9, which was characterised as work by all four children, depicted girls at the writing table writing number formations.

In summary, computing provisions were always classified as play regardless of teacher presence, consistent with the findings of Howard et al. (2012). Responses for other activities at tables were variable, depending on teacher presence, consistent with the findings of Howard (2002). The results of Phase 1 indicate that the answer to research question (i) in the Introduction is that children view the use of computers as play.

Phase 2 of AASP: Triangulation

Phase 2 of the AASP was used for triangulation and to check the validity and reliability of the classifications made in Phase 1. Reliability of qualitative research and interviews can be tested by replicating, comparing and validating the ideas (Cohen, Manion & Morrison, 2000) in both phases. A coded transcript of the Phase 2 responses is provided in Appendix 6.

Three out of the four children were consistent in their perceptions of which activities and conditions were play or work. Marcus was the only child who referred to a photograph as work in Phase 1 and later referred to it as play in Phase 2. Marcus was also the only child to identify painting and activities at the craft table as work, claiming that “painting is work, because I see them doing it”. This could be a reference to experiences outside of school, where painting is classified as work, such as painting and decorating. Marcus is the only summer-born child in the small sample group and the only child in the lower core ability groups.

Phase 2 of AASP: Perception of play and learning

Prior to commencing Phase 2, children were asked what their definition of work and play was. Beatrice’s response showed a clear distinction between the two:

“Working is when you do something very important and playing isn’t.” –
Beatrice

Children were shown a sub-set of photographs and asked to justify the classification of play or work. Children were also asked if they could identify instances of learning in the sub-set of photographs and if they believed one could play and learn at the same time. A detailed and coded transcript of the semi-structured interview and responses is provided in Appendix 6.

Beatrice, Henry and Marcus did not feel that one could play and learn at the same time:

“You can’t do two things at once.” – Henry

“You can’t do both jobs. Because you don’t have a long hand [sic].” –
Marcus

However, Elizabeth, the eldest among the four, felt that one can learn and play at the same time. Elizabeth’s sentiment was evident throughout the interview process with several comments alluding

to the combination of both play and learning. In photographs that Elizabeth classified as play in Phase 1, she made further comments in Phase 2 regarding play and learning.

In Photograph 21 (classified as play), a child is accessing maths resources at the maths table without a teacher present. Elizabeth displayed her appreciation of play and learning by stating:

“He looks like he’s learning how to do it. Using his imagination.” – Elizabeth

Elizabeth used the terms ‘imagination’ and ‘concentration’ several times, alluding to play with imagination and work or learning with concentration. For example, in Photograph 27 (classified as work by Elizabeth), where children are at the writing table without a teacher present, she confirmed the children were learning “because they are concentrating”.

In Photograph 5 (classified as play) children are accessing the computers with support from an adult. Elizabeth’s response to this photograph revealed her perception of learning in an activity she classified as play. However her response to this photograph is influenced by the teacher’s presence. Although Beatrice felt one could not learn and play at the same time, her response revealed otherwise:

“It looks like she’s learning from Mrs Tucker. Because she’s looking at Mrs Tucker and that’s how we learn.” – Elizabeth

“It looks a bit like learning and playing.” – Beatrice

It appears that both Beatrice and Elizabeth attribute learning to instruction or support from a teacher, consistent with the findings of Howard (2002).

In Photograph 22 (classified as work) one child is accessing a number puzzle with a teacher at the maths table. All children classified this as work and all children (except Beatrice who was not asked about this photograph) also confirmed this was learning:

“Mrs Tucker is showing him how to learn, because Mrs Tucker is with him.” – Henry

“Because I see him learning something.” – Marcus

Children appear to make a connection between work and learning and only sometimes make connections between play and learning. Teacher presence is a constant factor in all work-learning connections and some play-learning connections.

The photographs depicting children accessing the computers were emphatically classified as play. Only two of these photographs were also identified as demonstrating learning. Figure 3 provides an overview of the number of occasions computing provisions were classified as both play and learning between the four children.

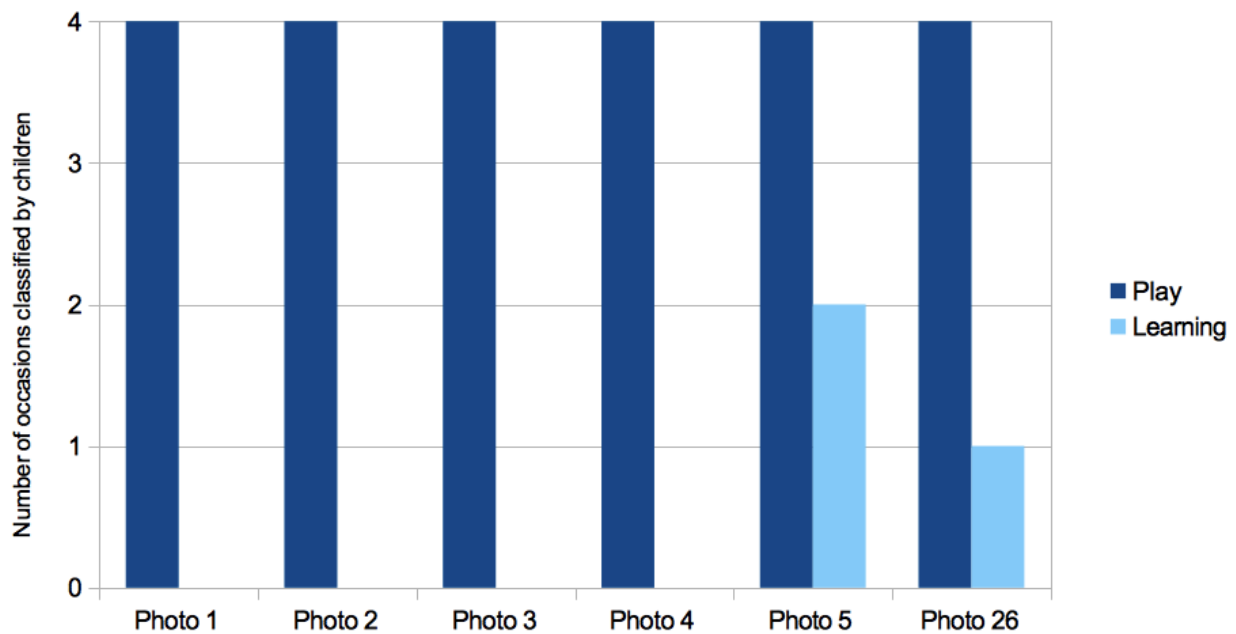


Figure 3: Overview of classifying computing provisions as play and learning.

Elizabeth and Beatrice chose Photograph 5 as learning. Elizabeth also chose Photographs 26 as learning, which is of children at the computers without a teacher present:

“Maybe Sally was looking at Mrs Tucker [referring to Photograph 5] and showing Jason how to do it [on the computer]. Because Sally has learnt from Mrs Tucker and Jason is going to learn from Sally.” – Elizabeth

In Photograph 5 Sally was sitting alongside and observing the teacher operating the computer. In Photograph 26 Sally was now helping Jason with an operational skill at the computer. It is evident that Elizabeth perceived these photographs as a chronology of learning, where Sally gained support and scaffolding from the teacher and is now able to provide support to her peers. This supports the assertion of Stephen and Plowman (2008) that effective learning at computers is associated with teacher support and scaffolding.

Photograph 4 (children at the computers with a teacher present) was not labelled as learning, although Henry did acknowledge that he was getting support from a teacher:

“I see Mrs Bell helping me.” – Henry

His statement suggests that he is aware he is getting support and possibly learning. However, he dismisses it as learning by stating it is play:

“I am playing games on the computer.” – Henry

It appears that the nature of the computer applications accessed may have a role in determining how children perceive a computing activity as play.

The results of Phase 2 indicate that the answer to research question (ii) in the Introduction is that most children do not think they are learning at the computers. Children mostly attributed learning to photographs classified as work, and particularly those with a teacher present, which is consistent with the finding of Howard (2002). However one child displayed an appreciation of learning at both play and work activities, including two computing activities, both with and without teacher presence. Howard et al. (2002) states that children who are exposed to a more play-orientated environment develop a broader perception of learning in both play and work activities, as demonstrated by Elizabeth.

General observations

In observing children using computers in the classroom, it was clear that children do not always access programs as intended. This is because once children start using a computer they begin to

arbitrarily play with the computer and change games. In this way children are exploring the computer and discovering how it works. However, this arbitrary play often leads to the child reaching a point where they cannot proceed further. Adult support at the computers usually consisted of occasional operational assistance with logging on, using the cursor, showing how to 'double click', where to click and returning to the desired program.

Based on the limited observations, the answer to research question (iii) in the Introduction is inconclusive. Observations would need to take place over an extended period of time to see if effective learning outcomes are achieved at the computers as a play-based activity. However, it was clear that children encountered difficulties and did not always access programs as intended without the direct support of a teacher present.

Analysis and critical reflection of adopted research method

The AASP was a suitable research method to determine children's perceptions of various provisions as play, work or learning, because it enabled reception children to simply categorise photographs in a play or work pile. The types of cues or stimuli in the photographs need to be consistent in order to establish a pattern of behaviour or preference based on those cues (e.g., teacher present, at table or on floor). This method was suitable for distinguishing how children perceived accessing the computers compared to accessing other activities, such as the writing table, and to identify a pattern as to which cues prompted children to choose play or work. However, this was a very small-scale study with only four children involved in the AASP. It is not possible to draw any firm conclusions based on such a small sample.

In the future this study could be extended to include a larger sample group with more diverse backgrounds and possibly from different schools. In addition, the semi-structured interviews could be extended to elicit perceptions of how children interact with others at the computers and their perceptions of the applications accessed at the computers. For example, asking questions regarding children's preference for using the computers alone, with a peer or with a teacher. It appears that the type of applications accessed on the computers may play a role in whether children perceive an activity as play. It would be interesting to perform this study in more detail with children accessing different applications on the computer (phonics games, writing exercise, maths games, drawing, etc) and examining which activities they perceive as play, or if all activities are still perceived as play.

Children's perspectives on learning at the computers could be further elicited using a mosaic approach as evaluated by Smith, Duncan and Marshall (2005), which could include: interviews with children, teachers and parents; eliciting responses to photographic stimuli of activities and screenshots of computer applications; observing role play activities with ICT; and eliciting children's responses to a collection of work carried out with the use of ICT (e.g., a computer literacy activity and a computer drawing activity).

Personal reflections and implications for the future

During the course of this research I have become aware of how easily small factors can influence a child's perception of an activity as play or work. Most importantly, I have come to appreciate how almost any learning activity can be provided as a play-based activity and how certain conditions can be planned to ensure that an activity is perceived as play. Interestingly, children's perception of computing as play was less sensitive to teacher presence, unlike being at the maths or writing table. This may also be because of the adult's perception of the computing activities. The teacher would provide the computers with a game to access and rarely provide proximal scaffolding during the course of the day. The teacher could view playing a game on the computer much like playing with trains in the small world area. Conversely, activities at the writing or maths table were often planned according to the learning intentions for that week and adult guided activities were often carried out at these tables. The teacher's own perception that a degree of learning and work is carried out at the writing and maths tables could be inadvertently transferred to the children.

Observations at the computing table lead me to believe that teacher scaffolding at the computers is necessary. That children are enthusiastic at the computers, and that they still consider it play despite a teacher presence is encouraging. I feel that learning digital technologies can be more effective and meaningful with appropriate proximal scaffolding and well planned and resourced distal scaffolding. Proximal scaffolding would involve active participation from the teacher – not just in operational skills support, but also discussing, enjoying and celebrating achievements in using applications at a computer.

For my future practice I will consider how and where I conduct adult guided activities to minimise the effect of activities being perceived as work, rather than play. For example, conducting maths guided activities on the floor. With regard to computing, I feel that learning can be achieved in

more ways than just 'screen time' at a computer. In my future practice I will consider incorporating ICT resources in other areas of the classroom, including the role play area, taking digital resources outside, and using ICT tools for purposes other than accessing games as an application on a computer. I feel it is more important to understand the purpose of a digital resource and use it within a context that gives it meaning. Operational skills will develop when the tools are used in the correct context with appropriate scaffolding. I will still use computers to access games, provided they are suitable, but I feel that computers could be used to effect a desired outcome in ways other than just games. Computers could be used as a tool in all other areas of learning. During direct computing access I will endeavour to plan with effective distal scaffolding and provide the necessary proximal scaffolding between myself and teaching assistant, or other adults in the setting.

References

- Alliance for Childhood. (2012). *Facing the screen dilemma: young children, technology and early education*. <http://www.allianceforchildhood.org.uk>. New York.
- Anderman, E. M., Urdan, T. & Roeser, R. (2005). The patterns of adaptive learning survey. In *What do children need to flourish? Conceptualizing and measuring indicators of positive development* (pp. 223-235). New York: Springer.
- Aubrey, C. & Dahl, S. (2013). The confidence and competence in information and communication technologies of practitioners, parents and young children in the Early Years Foundation Stage. *Early Years: An International Research Journal*, 33 (1).
- British Educational Research Association. (2011). Ethical guidelines for educational research. British Educational Research Association.
- Broadhead, P. (2006). Developing an understanding of young children's learning through play: the place of observation, interaction and reflection. *British Educational Research Journal*, 32(2), 191-207.
- Chaplain, R. (2013). Teacher expectation and pupil motivation. Lecture presented as part of PGCE Early Years and Primary Education Course. University of Cambridge, Faculty of Education.
- Cohen, L., Manion, L. & Morrison, K. (2000). *Research methods in education* (5th). London: RoutledgeFalmer.
- Epstein, I., Stevens, B., McKeever, P., Baruchel, S. & Jones, H. (2008). Using puppetry to elicit children's talk for research. *Nursing Inquiry*, 15(1), 49-56.
- Healy, J. M. (1998). *Failure to connect: how computers affect our children's minds and what we can do about it*. New York: Touchstone.
- Howard, J. (2002). Eliciting young children's perceptions of play, work and learning using the Activity Apperception Story Procedure. *Early Child Development and Care*, 172(5), 489-502.

- Howard, J., Bellin, W. & Rees, V. (2002). Eliciting children's perceptions of play and exploiting playfulness to maximise learning in the early years classroom. University of Exeter, England.
- Howard, J., Miles, G. E. & Rees-Davies, L. (2012). Computer use within a play-based early years curriculum. *International Journal of Early Years Education* 20(2), 175-189.
- Keating, I., Fabian, H., Jordan, P., Mavers, D. & Roberts, J. (2000). 'Well, I've not done any work today. I don't know why I came to school'. Perceptions of play in the reception class. *Educational Studies*, 26(4), 437-454.
- Maehr, M. L. & Midgley, C. (1996). *Transforming school cultures*. Boulder, CO: Westview Press.
- McInnes, K., Howard, J., Miles, G. & Crowley, K. (2011). Differences in practitioner's understanding of play and how this influences pedagogy and children's perceptions of play. *Early Years*, 31(2). 121-133.
- Measelle, J. R., Ablow, J. C., Cowan, P. A. & Cowan, C. P. (1998). Assessing young children's views of their academic, social, and emotional lives: An evaluation of the self-perception scales of the Berkeley Puppet Interview. *Child Development*, 69(6), 1556-1576.
- Plowman, L. & McPake, J. (2013). Seven myths about young children and technology. *Childhood Education*, 89(1), 27-33.
- Plowman, L., McPake, J. & Stephen, C. (2008). Just picking it up? Young children learning with technology at home. *Cambridge Journal of Education*, 38(3), 303-319.
- Plowman, L. and Stephen, C. (2005). Children, play, and computers in pre-school education. *British Journal of Educational Technology*, 36(2), 145-157.
- Plowman, L., Stephen, C. & McPake, J. (2010). Supporting young children's learning with technology at home and in preschool. *Research Papers in Education*, 25(1), 93-113.
- Reynolds, D., Treharne, D. & Tripp, H. (2003). ICT – The hopes and the reality. *British Journal of Educational Technology*, 34(2), 151-167.
- Siraj-Blatchford, J. (2008). "Please can we have another bit?" Information and communications technology in the early years: an emergent approach. In *Teaching and learning in the Early Years* (3rd, pp. 337-355). London: Routledge.

- Smith, A., Duncan, J. & Marshall, K. (2005). Children's perspectives on their learning: exploring methods. *Early Child Development and Care*, 175(6), 473-487.
- Stephen, C. & Plowman, L. (2003). Information and communication technologies in pre-school settings: a review of the literature. *International Journal of Early Years Education*, 11(3), 223-234.
- Stephen, C. & Plowman, L. (2008). Enhancing learning with information and communication technologies in pre-school. *Early Child Development and Care*, 178(6), 637-654.
- Whitebread, D. (2008). Introduction: young children learning and early years teaching. In *Teaching and learning in the Early Years* (3rd, pp. 1-22). London: Routledge.

Appendix 1: Early Years Berkeley Method Questionnaire

Question 1

Option A: At school I want to learn as much as I can.

Option B: At school I don't want to learn as much as I can.

Question 2

Option A: I like to show other children that I am good at my work.

Option B: I don't like showing other children that I am good at my work.

Appendix 2: Profile of smaller sample group and responses to the Early Years Berkeley Questionnaire

Child	Birthday	Ability Group	Mastery	Response during BPI	Performance	Response during BPI
Elizabeth	09/2008	Extension	Yes	Because he learns.	Yes	Because he would like to show everyone he is good at his work.
Beatrice	12/2008	Extension	Yes	Because I want to learn as much as I can at school.	Yes	Because I want to show people as much as I learn.
Henry	10/2008	Extension	Yes	Because I want to learn as much about how to read.	Yes	Because I do it, good to read stories [sic].
Marcus	07/2009	Lower Core	Yes	Because the rhino [option B (opposite) puppet] didn't want to do anything at school.	Yes	Because he [option A puppet] said he wanted to show everyone and the rhino [option B (opposite) puppet] said he didn't want to show everyone.

Appendix 3: Activity Apperception Story Procedure Phase 1: Log of photographs with descriptions

Photo	Description	Classification by Marcus	Classification by Henry	Classification by Elizabeth	Classification by Beatrice
1	Three boys at the Interactive White Board (IWB) playing a phonics game.	play	play	play	play
2	Three children at the mini laptop computers. One boy on one computer and two girls on the other computer.	play	play	play	play
3	One boy on a mini laptop computer accessing purple mash program.	play	play	play	play
4	Three girls and one boy at the computers with a teacher present providing operational support. Two of the girls are looking on and the other two children are sitting at a computer.	play	play	play	play
5	Three girls at the computers with the teaching assistant providing operational support to one girl. The Other two girls are sharing the other computer.	play	play	play	play
6	One boy and one girl at the craft table making christmas decorations with glitter.	work	play	play	play
7	Two boys and one girl at the craft table with a teacher present decorating christmas decorations with glitter.	work	play	play	play
8	Two girls and one boy at the writing table. Writing about favourites foods with images of food at the table.	play	work	work	work
9	Three girls at the writing table writing number formations and drawing images.	work	work	work	work
10	One boy and one girl at the maths table with numicon and numicon boards.	play	play	play	play
11	Two boys at sand/sensory tub with trucks.	play	play	play	play
12	Three girls on the floorspace at the tuft tray with string and beading activity.	play	play	play	play
13	Four girls in the role play areas.	play	play	play	play
14	Five boys and one girl outside with the tricycles.	play	play	play	play
15	Two boys on the floorspace with lego.	play	play	play	play
16	One girl on the floorspace with magnetic pattern boards.	play	play	play	play
17	Two girls and two boys at the writing table with a teacher present.	work	work	work	work
18	Two boys on the floorspace with construction equipment.	play	play	play	play
19	Two girls in the reading corner looking through their 'All About Me' books.	play	play	play	play
20	Four girls and one boy at the craft table with a teacher present doing a playdough/ numeracy activity.	play	play	play	play
21	One boy at the maths table with numicon and numicon boards.	play	play	play	play
22	One boy at the maths table doing a number puzzle with the teaching assistant.	work	work	work	work
23	Three boys on the floorspace at the small world play (castle).	play	play	play	play
24	One girl at the sand/sensory tub making cakes and pies.	play	play	play	play
25	One girl at the sand/sensory tub with a teacher present.	play	play	play	play
26	Three boys and one girl at the computers. Each have their own computer. Sally is supporting Jason with operational skills. Children are accessing busythings games.	play	play	play	play
27	Four girls at the writing table writing christmas cards.	play	play	work	work
28	Two girls at the sand/sensory tub with a teacher present.	play	play	play	play

Appendix 4: Activity Apperception Story Procedure Phase 1: Coded transcript of comments

Activity Apperception Story Procedure: Phase 1 comments to photographs during classification game

Description of some photographs used in Phase 1 and their respective responses (coded).

Transcript	Initial codes
<p>Photo 2: Children at a table with netbooks, without a teacher present. All children in the research study categorised this as play.</p> <p>Comments made on Photo 2 during phase 1: “Playing. I’m playing the mud game.” - Henry.</p> <p>Photo 5: Children at a table with netbooks, with a teacher present. All children in the research study categorised this as play.</p> <p>Comments made on Photo 5 during phase 1: “It looks like they need some help. They are actually playing, but they need some help playing.” - Elizabeth. “It looks a bit like learning and playing because they are on our thing [sic].” - Beatrice. “Playing, because that’s an easy one.” - Henry.</p>	<p>ICT / No teacher present Play</p> <p>Playing / Game</p> <p>ICT / Teacher present Play</p> <p>Need some help / Teacher presence Support / Playing Learning / Playing</p> <p>Playing</p>
<p>Photo 6: Children at the craft table, without a teacher present. All but one child (Marcus) in the research study categorised this as play. Marcus categorised it as work.</p> <p>Comments made on Photo 6 during phase 1: “Working, because painting is work.” - Marcus.</p> <p>Photo 8: Children at the writing table, without a teacher present. All but one child (Marcus) in the research study categorised this as work. Marcus categorised this as play.</p> <p>Comments made on Photo 8 during phase 1: “Farah looks like she is working.” - Elizabeth.</p> <p>Photo 9: Children at the writing table, without a teacher present. All children in the research study categorised this as work.</p> <p>Comments made on Photo 9 during phase 1: “Looks like they’re working. They are doing some writing.” - Elizabeth. “It looks like Elizabeth is doing some work.” - Beatrice.</p>	<p>Craft table / No teacher present Play and work</p> <p>Working / Painting</p> <p>Writing table / No teacher present Work and play</p> <p>Working</p> <p>Writing table / No teacher present Work</p> <p>Working / Doing something / writing Doing something / Working</p>

Transcript	Initial codes
<p>Photo 17: Children at the writing table, with a teacher present. All children in the research study categorised this as work.</p> <p>Comments made on Photo 17 during phase 1: “There’s you in there [teacher]. [pause] Working, because they’re doing a job.” - Elizabeth.</p>	<p>Writing table / Teacher present Work</p> <p>Teacher presence / Working / Doing a job</p>
<p>Photo 22: One child at the Maths table, with a teacher present. All children in the research study categorised this as work.</p> <p>Comments made on Photo 22 during phase 1: “Looks like Leo’s doing a job.” - Elizabeth. “I know that’s work.” - Beatrice.</p>	<p>Maths Table / Teacher present Work</p> <p>Doing a job Work</p>
<p>Photo 27: Children at the writing table, without a teacher present. Both girls Elizabeth and Beatrice categorised this as work. Both boys Henry and Marcus categorised this as play.</p> <p>Comments made on Photo 27 during phase 1: “Looks like they’re doing a little job, so looks like they’re working.” - Elizabeth.</p>	<p>Writing table / No teacher present Work and play</p> <p>Doing a job / working</p>

Code:

Statements pertaining to play.

Statements pertaining to work.

Statements pertaining to learning and teacher presence.

Appendix 5: Activity Apperception Story Procedure Phase 1: Log of photographs and coded classification results

AASP findings

Phase 1: Log of photographs and children's choices of work or play

Child	Marcus				t	t	c	ct	w	w	m	s	f	r	o	f	f	wt	f	r	ct	m	mt	f	s	st	w	st	
	Henry				t	t	c	ct	w	w	m	s	f	r	o	f	f	wt	f	r	ct	m	mt	f	s	st	w	st	
	Elizabeth				t	t	c	ct	w	w	m	s	f	r	o	f	f	wt	f	r	ct	m	mt	f	s	st	w	st	
	Beatrice				t	t	c	ct	w	w	m	s	f	r	o	f	f	wt	f	r	ct	m	mt	f	s	st	w	st	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
		Photograph number																											

Key:

work	
Play	
IWB/computers	
Teacher present	t
Writing table	w
Maths table	m
Craft table	c
Floor	f
Outside	o
Role play/reading	r
sand/sensory	s

- Photo 8 = Children at writing table working collaboratively with no teacher present.
- Photo 9 = Children at writing table working independently with no teacher present.
- Photo 17 = Children at writing table working independently with teacher present.
- Photo 22 = Child at maths table working independently with teacher present/support.
- Photo 27 = Children at writing table working independently with no teacher present.
- Photos 6 and 7 = Children at the craft table with and without teacher present.
- Photos 1 to 5 and 26 = Children at the IWB and computers working independently and collaboratively with and without teachers present.

The rest of the photos are children at various other continuous provisions, mostly on the carpet, sometimes at tables, outside, role play area and craft table working independently or collaboratively, with or without teacher present.

Appendix 6: Activity Apperception Story Procedure Phase 2: Coded transcript of interviews

Activity Apperception Story Procedure: Phase 2 Transcript of Interviews

Elizabeth's Interview with reasoning for choosing certain photographs as work or play (coded).

Transcript	Initial codes
<p>Teacher: What is work? Elizabeth: Doing some work. Teacher: What is play? Elizabeth: Playing.</p>	<p>Working / Doing something Playing</p>
<p>Photo 5: Play Teacher: What is happening in this photo? Elizabeth: Mrs Tucker is helping Sally with the computers. Teacher: Are they learning? Elizabeth: It looks like she's learning from Mrs Tucker. Teacher: Why do you say that? Elizabeth: Because she's looking at Mrs Tucker and that's how we learn.</p>	<p>ICT / Teacher present Teacher presence / Support Learning Observing teacher / Learning</p>
<p>Photo 16: Play Teacher: What is happening in this photo? Elizabeth: She looks like she's making a pattern with the squares. Teacher: Is she learning? Elizabeth: She must be using her imagination and concentration.</p>	<p>Floor / No Teacher present Imagination (playing) Concentration (working)</p>
<p>Photo 20: Play Teacher: What is happening in this photo? Elizabeth: They're playing with the play dough. Teacher: Are they learning? Elizabeth: They... [pause] Mrs Dawson might be telling them how to play it. Teacher: Why do you say that? Elizabeth: Maybe because Mrs. Dawson's there.</p>	<p>Craft table / Teacher present Playing Teacher presence / Support Playing Teacher Presence</p>
<p>Photo 21: Play Teacher: What is happening in this photo? Elizabeth: Jason's playing and making a pattern with numicon. Teacher: Is he learning? Elizabeth: He looks like he's learning how to do it. Using his imagination. Teacher: Why do you say that? Elizabeth: He might have to use his imagination otherwise it might not make sense.</p>	<p>Maths table / No teacher present Playing Learning Imagination (playing) Imagination (playing)</p>

Transcript	Initial codes
<p>Photo 22: Work Teacher: What is happening in this photo? Elizabeth: Mrs Tucker is showing number 3 at Leo [sic]. Teacher: Is he learning? Elizabeth: He's learning from Mrs Tucker so he can do it with Robert on his own. Teacher: Why do you say that? Elizabeth: Because Mrs Tucker is showing him how to learn.</p>	<p>Maths table / Teacher present Teacher presence / Support Learning Teacher presence / Support</p>
<p>Photo 26: Play Teacher: What is happening in this photo? Elizabeth: Ben is playing on the computer with the cards. Joe looks like he is playing a game with the grass [on the computer]. Teacher: Are they learning? Elizabeth: Maybe Sally was looking at Mrs Tucker [referring to Photograph 5] and showing Jason how to do it [on the computer]. Teacher: Why do you say that? Elizabeth: Because Sally has learnt from Mrs Tucker and Jason is going to learn from Sally.</p>	<p>ICT / No teacher present Playing on computer Playing on computer Observing teacher / Support Teacher presence / Support Learning</p>
<p>Photo 27: Work Teacher: What is happening in this photo? Elizabeth: They are getting busy. Looks like they are making christmas cards. Teacher: Are they learning? and Why? Elizabeth: [Yes] because the teacher might have told them what to do and because they are concentrating.</p>	<p>Writing table / No teacher present Working Teacher presence / Support Concentrating (working)</p>
<p>Teacher: Can you learn and play at the same time? Elizabeth: Yes.</p>	<p>Learnings</p>

Code:

Statements pertaining to play.

Statements pertaining to work.

Statements pertaining to learning and teacher presence.

Beatrice's Interview and reasoning for choosing certain photographs as work or play (coded).

Transcript	Initial codes
<p>Teacher: What is work? Beatrice: Work is doing something. Teacher: What is play? Beatrice: Working is when you do something very important and playing isn't.</p>	<p>Working / Doing something Working / Important Playing / Not important</p>
<p>Photo 1: Play Teacher: What is happening in this photo? Beatrice: Playing. Teacher: Are they learning? Beatrice: No. Teacher: Why do you say that? Beatrice: Because they're playing.</p>	<p>ICT / No teacher present Playing Playing</p>
<p>Photo 2: Play Teacher: What is happening in this photo? Beatrice: Claire is looking at Maddie playing on the computer, but she shouldn't really do that. Its playing on the computer. Teacher: Are they learning? Beatrice: No. Teacher: Why do you say that? Beatrice: They're playing because that was the time a week ago [sic].</p>	<p>ICT / No teacher present Playing on computer Playing on computer Playing / Play time</p>
<p>Photo 5: Play Teacher: What is happening in this photo? Beatrice: It looks a bit like learning and playing because they're on our thing [sic].</p>	<p>ICT / Teacher present Learning / Playing</p>
<p>Photo 9: Work Teacher: What is happening in this photo? Beatrice: Elizabeth's doing some work. Teacher: What is she doing? Beatrice: Numbers. Teacher: is she learning? Beatrice: No. Working. We're writing numbers but we couldn't used to do that [sic]. Teacher: Why do you say that? Beatrice: Numbers aren't learning.</p>	<p>Writing table / No teacher present Doing something / Work Working / Writing numbers Numbers</p>
<p>Photo 19: Play Teacher: What is happening in this photo? Beatrice: We are looking at Suzy's 'All About Me' book. Teacher: Are you learning? Beatrice: No. Playing. Teacher: Why do you say that? Beatrice: Because learning is when you find out things new [sic].</p>	<p>Reading area / No Teacher present Looking at books Playing Definition of learning (finding out</p>

Transcript	Initial codes
	about new things)
<p>Photo 21: Play Teacher: What is happening in this photo? Beatrice: He's playing [numicon]. Teacher: Is he learning? Beatrice: No. Teacher: Why do you say that? Beatrice: Because he's at the playing table [Maths table].</p>	<p>Maths table / No teacher present Playing At playing table</p>
<p>Photo 26: Play Teacher: What is happening in this photo? Beatrice: Playing [on computers]. Teacher: Are they learning? Beatrice: No. Teacher: Why do you say that? Beatrice: Because they're playing.</p>	<p>ICT / No teacher present Playing Playing</p>
<p>Photo 27: Work Teacher: What is happening in this photo? Beatrice: Playing. [Pause] Writing. Teacher: Are they learning? Beatrice: No. Teacher: Why do you say that? Beatrice: Because they're on the writing table and that's for writing.</p>	<p>Writing table / No teacher present Playing / Writing [Pause – changed her mind] Writing</p>
<p>Teacher: Can you learn and play at the same time? Beatrice: No.</p>	

Code:

Statements pertaining to play.

Statements pertaining to work.

Statements pertaining to learning and teacher presence.

Henry's Interview and reasoning for choosing certain photographs as work or play (coded).

Transcript	Initial codes
<p>Teacher: What is work? Henry: Doing good work. Teacher: What is play? Henry: Having fun.</p>	<p>Work (good) Play (fun)</p>
<p>Photo 1: Play Teacher: What is happening in this photo? Henry: Playing on whiteboard. Teacher: Are they learning? Henry: No. Teacher: Why do you say that? Henry: Because on a whiteboard, playing a game [sic].</p>	<p>ICT / No teacher present Playing on computer Playing</p>
<p>Photo 2: Play Teacher: What is happening in this photo? Henry: I'm playing on a computer. Mud game. Nice game. I love the mud game. Teacher: Are you learning? Henry: No. Teacher: Why do you say that? Henry: Because I'm on the computer playing.</p>	<p>ICT / No teacher present Playing on computer / Game Playing on computer</p>
<p>Photo 4: Play Teacher: What is happening in this photo? Henry: Playing on the computers. I can't remember what game I was playing. Teacher: Are you learning? Henry: No, I was playing. I see Mrs Bell helping me. Teacher: Why are you not learning? Henry: Because I am playing games on the computer.</p>	<p>ICT / Teacher present Playing on computer / Game Playing Playing / Teacher presence / Support Playing on computer / Game</p>
<p>Photo 9: Work Teacher: What is happening in this photo? Henry: Writing, and Clare is making a star and sun. Teacher: Is she learning? Henry: No. Teacher: Why do you say that? Henry: They had to do that, so they're writing it. Claire got something [template] so that she can help her [sic].</p>	<p>Writing table / No Teacher present Writing Instruction / Writing Support material</p>
<p>Photo 10: Play Teacher: What is happening in this photo? Henry: Building something [numicon]. Teacher: Is he learning? Henry: No. Teacher: What is he doing?</p>	<p>Maths table / No teacher present Building</p>

Transcript	Initial codes
Henry: Putting things in the right places.	Sorting
Photo 20: Play Teacher: What is happening in this photo? Henry: Playing with play dough. Teacher: Are they learning? Henry: No. Teacher: Why do you say that? Henry: Because there's play dough. There's a dice and I think I know why. If they roll and they get a number they put spots on the crocodile.	Craft table / Teacher present Playing Playing Learning materials
Photo 22: Work Teacher: What is happening in this photo? Henry: Matching the numbers. Teacher: Is he learning? Henry: Yes. Teacher: Why do you say that? Henry: Because Mrs Tucker is with him.	Maths table / Teacher present Matching numbers Learning Teacher presence / Support
Photo 25: Play Teacher: What is happening in this photo? Henry: Rachel is playing in rice. Teacher: Is she learning? Henry: No. Teacher: Why do you say that? Henry: Playing.	Sand tub / Teacher present Playing Playing
Photo 26: Play Teacher: What is happening in this photo? Henry: Playing on the computer. Ben is playing card games. Teacher: Is he learning? Henry: No. Teacher: Why do you say that? Henry: They're playing computer games.	ICT / No Teacher present Playing on computer / Game Playing on computer / Game
Teacher: Can you learn and play at the same time? Henry: No. Teacher: Why do you say that? Henry: Because you can't do two things at once.	

Code:

Statements pertaining to play.

Statements pertaining to work.

Statements pertaining to learning and teacher presence.

Marcus' Interview and reasoning for choosing certain photographs as work or play (coded).

Transcript	Initial codes
<p>Teacher: What is work? Marcus: Work is going to work. Teacher: What is play? Marcus: Playing is... over there [pointing to the classroom].</p>	<p>Going to work Play area</p>
<p>Photo 2: Play Teacher: What is happening in this photo? Marcus: On the computer. Teacher: Are they learning? Marcus: No. Teacher: Why do you say that? Marcus: Playing.</p>	<p>ICT / No teacher present Playing on computer Playing</p>
<p>Photo 3: Play Teacher: What is happening in this photo? Marcus: Drawing houses. Teacher: Are you learning? Marcus: No. Teacher: Why do you say that? Marcus: Because its play time.</p>	<p>ICT / No teacher present Drawing / Playing on computer Play time</p>
<p>Photo 4: Play Teacher: What is happening in this photo? Marcus: Play in the computer [sic]. Teacher: Are they learning? Marcus: No. Teacher: Why do you say that? Marcus: Because its play time.</p>	<p>ICT / Teacher present Playing on computer Play time</p>
<p>Photo 7: Work Teacher: What is happening in this photo? Marcus: Painting. Teacher: Are they learning? Marcus: Yes. Teacher: Why do you say that? Marcus: Because I see them doing it.</p>	<p>Craft table / Teacher present Painting (working) Learning Doing it / Doing a job</p>
<p>Photo 8: Play Teacher: What is happening in this photo? Marcus: Writing letters. Teacher: Are they learning? Marcus: No. Teacher: Why do you say that? Marcus: Because they're drawing.</p>	<p>Writing table / No teacher present Writing Drawing</p>

Transcript	Initial codes
<p>Photo 9: Work Teacher: What is happening in this photo? Marcus: Doing drawing. Teacher: Are they learning? Marcus: Yep. Teacher: Why do you say that? Marcus: Cause they're writing [sic].</p>	<p>Writing table / No teacher present Doing it / Doing a job / Drawing Learnings Writing</p>
<p>Photo 17: Work Teacher: What is happening in this photo? Marcus: They're working with you! Teacher: Are they learning? Marcus: No. Teacher: Why do you say that? Marcus: They're writing.</p>	<p>Writing table / Teacher present Working / Teacher presence Writing</p>
<p>Photo 21: Play Teacher: What is happening in this photo? Marcus: Playing with the numicon. Teacher: Is he learning? Marcus: No. Teacher: Why do you say that? Marcus: Because its play time.</p> <p>Photo 22: Work Teacher: What is happening in this photo? Marcus: Working. Try writing number on the ducks [sic]. Teacher: Is he learning? Marcus: Yep. Teacher: Why do you say that? Marcus: Because I see him learning something [sic].</p>	<p>Maths table / No teacher present Playing Play time Maths table / Teacher present Working / Writing Learnings Learning / Doing something</p>
<p>Teacher: Can you learn and play at the same time? Marcus: No. Teacher: Why do you say that? Marcus: Because you can't do both jobs. Because you don't have a long hand [sic].</p>	

Code:

Statements pertaining to play.

Statements pertaining to work.

Statements pertaining to learning and teacher presence.