Investigating the use of technology and its impact on child development in the early years:
A case study exploring practitioners' and parents' views

Daniela Laslau
Northampton University

Investigating the use of technology and its impact on child development in the early years: A case study exploring practitioners' and parents' views
Daniela Laslau – Northampton University

The main purpose of this research was to explore the perception of parents and practitioners on how technology contributes towards holistic development of children. This small-scale interpretive study set out to identify the participants' insights around the use of technology. It is recognised that children under the age of five should spend no more than an hour of screen time a day (World Health Organization, 2019; UNICEF, 2017). Despite technology becoming a growing phenomenon within England, the Early Years Foundation Stage is intending to remove it from the Early Years Framework and replace it with Natural World from September 2021 (DfE,2020).

This case study research involved questionnaires and semi structured interviews. There were eleven participants overall, four practitioners and seven parents, of which two participants extended their responses via semi structured interviews too. Questionnaires were distributed via a setting, within a town in the East Midlands of England.

The findings indicated that participants tend to allow children to access digital devices freely and see a benefit in supporting their educational development. There were disadvantages noted also, such as the impact on children's behaviour when technology is used for prolonged period.

The main conclusion of this study is that a greater understanding into how children learn to use technology though play is needed, for both practitioners and parents alike.

Literature Review

Technology, rooted in the word 'techne', is referring to 'art 'or 'skill' (Skbrina, 2015). Secondly, technology is defined as anything battery operated (Rossetti, 2020). Furthermore, a range of terms are used to describe children's technological resources that are part of their everyday life, as Palaiologou (2016, p.330) suggests, including: 'technologies', 'digital technologies', 'smart toys', 'screen based', 'digital media', 'Information and Communication Technologies (ICT)' to name just some. With such a rapid and vast evolution of technology, defining this can become imprecise. In a broad sense, technology is described by Bergen, (2008, p.88) as the 'design that meets a need'. However, technologies in contemporary early childhood, is considered the digital technology that is understood to have an impact on childhood (Palaiologou, 2016, p.330). Similarly, Volti (2009, p.6) defines technology as 'a system created by humans that uses knowledge and organization to produce objects and techniques for the attainment of specific goals'. It is therefore suggested that because technology is an integral part of children's everyday life, the concentration should be on how to use technology to benefit from it, rather than the terminology used.

Technology within the curriculum

The Statutory Framework for the Early Year's Foundation Stage is a mandatory framework for every EY provider in England (DfE, 2017) and technology is mentioned under the section, 'Understanding the world', with an Early Learning Goal as follows:

> 'Children recognise that a range of technology is used in places such as homes and schools" together with this sentence. "They select and use technology for a range of purposes.'
>
> (DfE, 2020; DfE, 2017).

Expanding upon this early year's goal, technology is also presented as children being imaginative, using what they have learnt about media and representing it in their own ways 'through design and technology' (DfE, 2017, p.12). However, the research identified how technology for young learners, age range three to fours', does not discuss screen-based technology. With only this as guidance, it is therefore suggested that it leaves the practitioner uncertain on how and when to use technology.

Moreover, it is asserted (NHSGGC, 2020; Royal College of Pediatricians and Child Health, RCPCH, 2018) that young children, under the age of five should spend no more than an hour on screen time a day (WHO), 2019; UNICEF, 2017). Interestingly, the DfE (2020) is to remove the term technology from the EY framework and replace it with Natural World from September 2021. On the pilot materials, technology is not mentioned at all. (DfE,2020). Goto (2019) argues that it is not the technology itself but how long and how the children are using it that should be a concern. Goto urges the English Government that teaching of technology in Early years should remain part of the framework because technology, used in moderation, can improve children's development, particularly in areas such as creativity and problem solving (Goto,2019; Nursery world, 2019).

Parents/carers view on technology use at home.

Bond (2014) suggests that the greatest fear in terms of technology use for children is that it is changing the nature of childhood. The rapid development of technology has made parents anxious about the control they have over their children's use of it (Clark, 2016, p.148). These fears are amplified by the parent's perceptions that children can become more skilled and more competent than the adults, in using technologies. Prensky (2001) describes children as 'digital natives' who are born in a digital era and completely competent in the use of technology as an important element of childhood (Marsh, 2014, p.47). It could be argued that the rapid development of technology leaves the parents less knowledgeable and in need of learning to integrate technology for their day-to-day use.

Even though parents are concerned about children's use of technology, it is still used to entertain children at homes, such us, television, DVD's, computer games (Postman, 1987,1994; Clark, 2016, p.148). Overall, Formby (2014) asserts that 73 per cent of parents agree that learning about technology use from an early age it is very important for progressing in school with a vast percentage of children engaging with a touch screen at home, for different activities such as songs, painting, and mainly educational games. It is therefore suggested that technology use may increase at home as times goes on, leaving parents behind further.

Practitioners' views on technology use in settings

Marsh et al., (2015) note that practitioners are intrigued using technology with young children, although they have no access to an appropriate pedagogical framework for understanding children's digital play. Expanding upon this, Edwards and Bird (2017) suggests that very little is known about how children in early years settings learn to use technologies though play. Because early years education is considered play-based and practitioners observe and assess children's play (Edward, 2013; Edwards and Bird, 2017) with a lack of understanding on how children learn to use technology it is suggested that integration and promotion of technology in early childhood is difficult to achieve (Aubrey and Dahl, 2014).

Technology has many benefits for supporting children's learning, such us learning new words, new songs, developing problem solving skills together with allowing creativity and freedom of expression. Practitioners' information and sharing of information is made easy with the help of technology and saves time, through worldwide communication, to mention only a few advantages (Bugby and Cadwell, cited in Sykes and Teszenyi, 2018). However, if the practitioners are 'digital immigrants' (Clark, 2016), it could be argued the use of technology can be taught or adapted to children from a different perspective that may not necessarily help the child to reach their full potential.

Methodology

This research adopted a qualitative approach, because views and opinions were needed and adopted a case study approach, which is a in depth study of a particular topic, (Shuttleworth,

2017; Bassey, 1999). It allowed an investigation of the phenomenon in detail. The data for this study were collected using two different methods.

Questionnaires were sent out to a setting and circulated through professional networks and to parents known from two other settings. Twelve questionnaires were sent out of which eleven participants responded. It was necessary that parents had children under 5 years old at the time of completion.

Semi – structured interviews were conducted with the purpose of ensuring a 'greater quantification' (MacNaughton et al., 2001, p.151) of reliability. Two participants agreed to an in-depth discussion, a professional and a parent were interviewed over the phone, due to the circumstances, for approximately an hour each. The semi- structured interviews were constructed with a balance of closed and open questions to strengthen the qualitative approach and to gain 'clear and accurate data' (Cottrell, 2014, p.152).

Ethics - For any research ethical considerations must be underpinned and that was done prior to the start of the research, such as relevant ethical permission letters sent for sign off from tutor's approval as per university ethical guidelines (British Educational Research Association, BEERA, 2018; Ethical Code for Early Childhood Researcher, EECERA, 2015) and this ethical process was adhered to throughout the research. Ethical consideration occurred throughout the whole research process, for example keeping the anonymity of the participants with consents letters, together with the right of participants to withdraw at any time from the research and their confidentiality kept (Robson,1993, 2016; Data Protection Act,2018). It was important that research was done 'with' children (Bolshaw and Josephidou, 2019), and not to children and this remained central to the process.

FINDINGS

As thematical analysis was undertaken on the qualitative elements of data, four different themes emerged from summarising the raw data, these were:

1) Communication

2) Children's behaviour

3) Time spent on devices

4) Benefits of using technology for young learners.

Findings from practitioners' and parent's questionnaires

Participant's responses (n=11) showed that over 90 % of the children have access to technology. Over 80 % of the children are using technology daily. It was also found that 29% of children spend half an hour on a device each day. Finally, it was revealed that just over 14% of children spend two hours or more on devices.

Findings from practitioners' and parents' interviews

It was found from the interviews that both professionals and parents are using technology daily. Similarly, children are free to use it when they initiate it. Participant 1 recognised the benefits of such, and stated that children 'learn to communicate and interact, learn new words, by using technology', 'engaging with family and friends that are far away',

Furthermore, the findings from the interviews suggest more benefits into using technology by children. Participant 1 expanded on this by declaring that children are using technology' to calm the child down', and to help 'learning new skills'.

Participant 2 on the other hand saw disadvantages of using technology and stated that child behaviour can be impacted upon by 'losing interest in other activities when technology is around, 'crying when devices are turned off'. However, children's behaviour is noted to also be positively affected, for example, participant 1 said that the child 'hasn't lost interest in other activities', 'technology is still seen as a privilege, 'likes outside also '.

Discussion

The current study found that over 80 % of children are using technology in settings and at homes daily. Televisions and tablets are in favour at home with over 70% of children accessing them, and 100% of setting participants using smart screens, which confirms Donohue's (2015) view that children notice the technology tools, such as televisions, tablets, smart screens, at a very early age; with their curiosity being aroused often by parents and practitioners or other significant adults in their lives (DfE, 2017). Although the majority favour the use of televisions at home and smart screens in settings, as Livingstone et al., (2015) point out, this could be because what is offered to them by adults in terms of technology is not necessarily their choice. It is therefore suggested that some children are using technology in a way that is influenced heavily by adult usage.

These results have found that about half of the parents are letting children use technology for an average hour a day and the other half for around two hours a day. Meanwhile, 50% of professionals are not monitoring the length of time children use the smart screen for, giving children the freedom to use technology for as long as the screen is on throughout the day, and in between different activities, such as lunch time, as and when children desire.

The responses suggest that professionals in this study are unsure how to measure or monitor technology use and as such children may be exceeding the recommendation that children under five should spend no more than an hour a day on digital technologies (WHO, 2019).

The findings suggest that majority of practitioners are giving the children freedom when using technology, although it is to be removed from the framework (DfE, 2020). It could therefore be argued that practitioners and children will probably still use technology as they are already used to it. However, Goto (2019) recommends retaining the use of technology within EYFS, but at the same time focusing on the purpose and duration of its use by children. It is argued that the use of technology should be purposeful. Livingstone (2019) and Reeves et al., (2019) argue that concerns about the use of digital technology in early years should focus on the content of screen time rather than the duration. It is therefore suggested that practitioners and parents should consider using technology for educational purpose (Cox,1993; Twining, 2020, p.1).

A significant finding from this study was that it was felt by 71 % of respondents, that children can easily disengage from technology, especially when someone communicates with them. 86% of parents stated that when explaining to the children the reason of ending the time on devices (such as dinner time, pause it for next time, or night-time), children disengage more easily. The results show similarities, (75%) within the setting, with reference to disengaging easily by communicating to the children. Therefore, these small-scale results, may disagree with those of Office of Communication (Ofcom, 2019) noting that around 19 % of parents are struggling to control their children's screen time. However, Ofcom (2019) are analysing a wider age range rather than concentrating solely on nursery aged children, as this study did.

Parents and practitioners' views on child behaviour

The findings do not align with WHO (2019) and UNICEF (2020) who establish that time spent for under-fives using technology should be less than an hour a day (NHSGGC, 2020; RCPCH, 2018) and even though parents agree with this, some find it difficult to keep within these time frames due to different circumstances, such as work or children not responding well to device being taken away.

While Volti (2009, p.6) defines technology as 'a system created by humans that uses knowledge and organization to produce objects and techniques for the attainment of specific goals', with children developing an attachment to technology tools (Richter, Robb & Smith,2011, cited in Ihmeideh & Alkhawaldeh, 2017, p.140), it could, therefore be argued that children developing an attachment to technology is the reason for changes in their behavior. However, when explaining to the child, the reason for ending the use of technology this strengthens the positive behavior that children show.

It was reported by some participants in this study that in some settings the whiteboard is on during most of the nursery day so children can choose to play on it whenever they wish to, and this is often a very popular activity. Corsaro (2017) suggests that children have less time to be children because of their exposure to technology from early days, and the constant use of technology, it is suggested, can impact on holistic development. Findings from the parents suggest that technology interferes with the child development, with parents reporting issues such as speech delay and lack of outside play.

Parents and Practitioners views on the benefits of the use of technology

Edwards and Bird (2015) found that technology in early years should be used in a play-based way and this study shows that over 75% of professionals and 85% of parents agree with this concept and are giving the children this opportunity of initiating the use of digital technology. It is noted however, that existing literature lacks a clear description of how children learn to use digital technologies though play and further observations are needed so practitioners can implement the use of technology more effectively (Edwards and Bird, 2015, p.170).

The results of this small-scale research further support the idea of using the technology for educational purposes, with 100% of practitioners confirming that it is used within their settings for learning new words, rhyme time songs, problem solving games, turn taking games. This contradicts the views of Corsaro (2017, p.38) who strongly believes that exposure to technology by young children can affect their development, in terms of speech delay, physical, emotional, and social development.

The outcome of this small-scale study corresponds with the digital world that children, parents, and professionals inhabit, in the sense that technology is an integral part of settings and homes alike, with an increase being seen in daily usage. This aligns with the view of Atherton (2018), who identifies children as being 'digital natives.' However, the outcomes of this research are in contrast with the guidance issued by both the DfE (2020) pilot and WHO (2019) which both focus on a reduction in the use of technology in EY.

Investigating the use of technology and its impact on child development in the early years: A case study exploring practitioners' and parents' views
Daniela Laslau – Northampton University

Summary

The evidence suggests that technology is on the rise in settings and homes with over 75% of participants considering the technology use as a valuable tool with several benefits, including improvements of communication. Conversely, concerns about the effects of technology use have been expressed, such as changes in child behaviour.

The main findings from this research were that settings and homes provide nursery age children with daily use of technology such as televisions, smart screen TV 's and other devices like tablets, for educational and entertainment purposes. On average 70% of participants are giving the children the opportunity of an hour and over a day of use whenever they request it. Surprisingly, almost all participants were reluctant to use technology with young children but still offering it daily. It could be argued that further guidance and strategies would be beneficial for the participants knowledge, for example how and when to use it and how to do so effectively.

The data findings confirm that the use of technology is increasing in educational settings and at home. It is also evident that generally participants believe technology benefits children's holistic development, however at the same time there is recognition that there can also be negative effects, for example changes in children's behaviour (Formby,2016; Kidron, 2019).

From these findings the study can conclude that technology is an important element of childhood (Marsh, 2014, p.47). It is an important tool which is part of children everyday life, with most children seeing the use of technology as a must (Clark, 2016). Furthermore, the evidence that emerged from this small-scale study suggests that how and when to use technology is still not clearly understood by the participants. However, most practitioners and parents recognise that benefits are to be found. It is therefore suggested that with some extra support from the Government, such as promoting the benefits of using technology this could have a positive impact on children's holistic development. This further research should be supported with direct observation on children to document the exact time spend, behavior towards the use of technology to compare the changes the new framework may have. Even though this process requires more time, it validates the results in more depth (O'Connor and Fotakopoulou, 2016, p.246).

Reference List

Atherton, P. (2018) *50 ways to use technology enhanced learning in the classroom. Practical strategies for teaching*. London: Sage.

Aubrey, C and Dahl, S. (2014) *The confidence and competence in information and communication technologies of practitioners, parents and young children in the Early Years* Foundation Stage. Early Years 34(1):94-108.

Bandura, A. (1977) *Self-efficacy: Toward a unifying theory of behavioural change. Psychological Review*, 84(2), 191-215.

Bassey, M. (1999) *Case Study Research in Educational Settings. Buckingham*: Open University Press.

Bergen, D. (2008) New Technologies in Early Childhood: partners in play, In O.N. Saracho and B. Spodek (eds), *Contemporary Perspectives on science and technology in Early childhood Education*. Charlotte, NC: IAP – Information Age. Pp.87-104.

Billington, C. (2016) *How digital technology can support early language and literacy outcomes in early years settings: A review of the literature*. London: National literacy trust.

Bird, J. and Edwards, S. (2014) *Children learning to use technologies through play: a digital play framework*. British Journal of Educational Technology [online]. Available from: doi:10.1111/bjet.12191

Bolshaw, P. and Josephidou, J. (2019) *Introducing research in Early Childhood*. London: Sage Publications.

Bond, E (2014) Childhood, mobile technologies and everyday experiences: changing technologies =changing childhood. Basingstoke: Palgrave. Bouygues, L., H. (2019) *How to help kids think critically in the age of the internet* [online]. Available from: https://www.forbes.com/sites/helenleebouygues/2019/09/12/how-to-help-kids-think-critically-in-the-age-of-the-internet/?sh=230d77235969 [accessed on 17.02.2021].

British Educational Research Association [BERA] (2018) *Ethical Guidelines for Educational Research. 4th ed*. [online]. Available from: https://www.bera.ac.uk/researchers-resources/publications/ethicalguidelines-for-educational-research-2018 [accessed on 03.01.2021].

Bronfenbrenner, U. (1986) *Ecology of the family as a context for human development: research perspectives*. Developmental psychology. 22, pp.723-42.

Child Poverty Action Group [CPAG] (2021) *Digital exclusion during the pandemic* [online]. Available from: https://cpag.org.uk/policy-and-campaigns/briefing/digital-exclusion-during-pandemic [accessed on 17.02.2021].

Clark, M., R (2016) *Childhood in Society for Early Years*, 3rd ed. London: Sage.

Cottrell, S. (2014). *Dissertations and project report a step-by-step guide*. Basingstoke: Palgrave Macmillan.

Corsaro, A. (2017*) Early childhood education, children's peer cultures, and the future of childhood*, *European Early Childhood Education Research Journal 8*(2):89-102[online]. Available from: DOI:10.1080/13502930085208591

Craft, A. (2012) *Childhood in a digital age: creative challenges for educational future*, London Review of Education, 10(2): 173-90.

Department for Education [DfE] (2017) *Statutory framework for the early year's foundation stage Setting the standards for learning, development and care for children from birth to five* [online]. Available from: https://www.foundationyears.org.uk/files/2017/03/EYFS_STATUTORY_FRAMEWORK_2017.pdf [accessed 01.03.2020].

Department for Education [DfE] (2019) *Realising the potential of technology in education: A strategy for education providers and the technology industry* [online]. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/791931/DfE-Education_Technology_Strategy.pdf [accessed on 8.02.2021].

Department for Education [DfE] (2020) *Development Matters, Non-statutory curriculum guidance for the early year's foundation stage* [online]. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/944603/Development_Matters_-_non-statuatory_cirriculum_guidance_for_EYFS.pdf [accessed on 10.01.2021].

Department for Education [DfE] (2020) *Early years foundation stage profile 2021 handbook* [online]. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/942421/EYFSP_Handbook_2021.pdf [Accessed on 7.01.2021].

DfE (2020) *Statutory framework for the early year's foundation stage. Setting the standards for learning, development and care for children from birth to five*. [online]. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/896810/EYFS_Early_Adopter_Framework.pdf [accessed on 20.12.2020].

Department for Education [DfE] (2020) *Early Years Foundation Stage Reforms: Government Consultation Response*. [online]. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/896872/EYFS_reforms_consultation_-_government_response.pdf [Accessed 5.01. 2020].

Donohue, C. (2015) *Technology and Digital media as tools for teaching and learning in the digital age.* New York: Routledge and Washington, DC.

Ethical Code for Early Childhood Researchers [EECERA] (2015) [online]. Available from: http://www.eecera.org/custom/uploads/2016/07/EECERA-Ethical-Code.pdf [accessed on 11.01.2021].

Edwards, S. (2013) *Digital play in the early years: a contextual response to the problem of integrating technologies and play-based pedagogies in the early childhood curriculum* [online]. Available from: https://doi.org/10.1080/1350293X.2013.789190 [accessed on 4.02.2021].

Edwards, S. and Bird, J. (2017) *Children learning to use technologies through play: A Digital Play Framework. British Journal of Educational Technology* 46(6) [online]. Available from: DOI:10.1111/bjet.12191 [accessed on 4.02.2021].

Formby, S (2014) *Children's early literacy practices at home and in early years settings: Second annual survey of parents and practitioners*. National Literacy Trust: Pearson.

Formby, S (2014). *Parents' perspectives: Children's use of technology in the Early Years.* London: National Literacy Trust.

Formby, S (2014). Practitioner perspectives: Children's use of technology in the Early Years. London: National Literacy Trust [online]. Available from: https://cdn.literacytrust.org.uk/media/documents/2014_01_03_free_research__practitioners_an d_childrens_use_of_tech_in_the_early_o6dTZyH.pdf [accessed on 27.11.2020].

Goto, E. (2019) The Association for information Technology in Teacher Education, influencing policy and practice. *Should children in the Early Years Foundation Stage (EYFS) learn about technology?* [online]. Available from: Should children in the Early Years Foundation Stage (EYFS) learn about technology? (itte.org.uk) [accessed on 29.12.2020].

Gov. UK (2018) *Data Protection Act* [online]. Available from: http://www.legislation.gov.uk/ukpga/2018/12/contents/enacted [Accessed: 7.01. 2021].

Hutt, C. (1966). *Exploration and Play in Children*. Paper presented at the Symposia of the Zoological Society of London, London, England.

Ihmeideh, F. and Alkhawaldeh, M. (2017), Children and Youth Services Review, Teacher and parents' perceptions of the role of technology and digital media in developing child culture in the early years, Vol.77, pp. 139- 146, ISSN 0190-7409 [online]. Available at: doi.org/10.1016/j.childyouth.2017.04.013, sciencedirect.com/science/article/pii/S0190740917301330.

Ihmeideh, F. and Alkhawaldeh, M. (2017) *Teachers' and parents' perceptions of the role of technology and digital media in developing child culture in the early years, Children and Youth Services Review*, (77) 139-146, ISSN 0190-7409 [online]. Available from: doi.org/10.1016/j.childyouth.2017.04.013.

Kidron, B. (2019), House of Lords, Children and Young people: digital technology, (795) [online]. Available from: https://hansard.parliament.uk/lords/2019-01-17/debates/3D73C90D-4375-4494-9B17-D6A5A0ED9389/ChildrenAndYoungPeopleDigitalTechnology

Livingstone, S. (2019) *Implementing children's right in a digital world* [online]. Available from: https://blogs.lse.ac.uk/medialse/2019/11/20/implementing-childrens-rights-in-a-digital-world/ [accessed on 28.12.2020].

Livingstone, S., Marsh, J., Plowman, L. Ottovordemgentschenfelde, S. and Fletcher- Watson, B. (2015) *Young children (0-8) and Digital Technology – UK Report*. Luxenbourg: Publications Office of the European Union.

Mac Naughton, G., Rolfe, S. and Siraj-Blatchford, I. (2001) *Doing early childhood research; international perspectives on theory and practice.* Buckingham: Open University Press.

Marsh, J, Brooks, G, Hughes, J. (2005) Digital *Beginnings: Young Children's Use of Media, Technologies and Popular Culture.* Sheffield: The University of Sheffield.

Marsh, J. (2014) *Childhood in the digital age. An introduction to Early Childhood studies*. 3rd ed. London: Sage.

Marsh, J., Plowman, L., Yamada-Rice, D., Bishop, J.C., Lahmar, J., Scott, F., Davenport, A., Davis, S., French, K., Piras, M., Thornhill, S., Robinson, P. and Winter, P. (2015) '*Exploring play and creativity in pre-schoolers use of Apps: Report for early years practitioners* [online]. Available from: http://www.techandplay.org/reports/TAP_Early_Years_Report.pdf [accessed on 01.03.2020].

Mertens, D. (2015) *Research and evaluation in education and psychology.* 4th ed. London: Sage.

NHSGGC (2020) *Screen time Guidelines* [online]. Available from: https://www.nhsggc.org.uk/about-us/professional-support-sites/screen-time/screen-time-guidelines/# [accessed on 17.02.2021].

Nursery World (2019) *Digital Technology- find a way, Digital technology in early years settings divides commentators, but the strength of opinion backs children using it in creative ways, finds Annette Rawstrone* [online]. Available from: Digital Technology - Find the way | Nursery World [accessed on 10.03.2021].

Office of Communication [OfCom] (2018) *Children and parents: Media use and attitudes report* [online]. Available from: https://www.ofcom.org.uk/__data/assets/pdf_file/0024/134907/children-and-parents-media-use-and-attitudes-2018.pdf [accessed on 2.02.2020].

O'Connor, J. and Fotakopoulou, O., (2016) *A threat to childhood innocence or the future of learning? Parents perspectives on use of touch screen technology by 0-3 years old in the UK*, *Contemporary Issues in Early Years Childhood*, Vol.17(2)235-247. DOI:10.1177/1463949116647290.

Palaiologou, I. (2016) *The Early Years Foundation Stage, Theory and practice*, 3rd ed., London: Sage.

Parette, H., Quesenberry, P. and Blum, A. (2010) *"Missing the Boat with Technology Usage in Early Childhood Settings: A 21st Century View of Developmentally Appropriate Practice."* Early Childhood Education Journal 37(5): pp. 335-43.

Perky, M. (2001) *Digital Natives, Digital Immigrants* [online]. Available from: https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf [accessed on 17.02.2021].

Postman, N. (1987) *Amusing ourselves to death*. London: Methuen.

Postman, N. (1994) *The disappearance of childhood*. London: WH Allen.

Prensky, M. (2001) *Digital Natives, digital immigrants. On the Horizon,*9 (5):1-6.

Royal College of Pediatricians and Child Health [RCPHC] 2018) *The health impacts of screen time: a guide for clinicians and parents* [online]. Available from: https://www.rcpch.ac.uk/sites/default/files/2018-12/rcpch_screen_time_guide_-_final.pdf [accessed on 18.02.202].

Reeves, B., Ram, N., Robinson, T.N., Cumming, J.J., Giles. C.L., … Yeykelis, L. (2019) *Screen omics: A Framework to capture and analyse personal life experiences and the ways that technologies shape them. Human -Computer Interaction, 1-52* [online]. Available from: https://doi.org/ 10.1080/07370024.2019.1578652.

Robson, C. (1993) *Real world research: a resource for social scientists and practitioners – researchers,* Oxford: Blackwell publisher Ltd.

Robson, C. (2016) Real world research: a resource for users of social research methods in applied settings. 6th ed. Chichester: John Wiley &Sons Ltd.

Rosetti, D. (2020) *Exploring the Impact of media, Children and society part two (Diversity) EYS2016.* University of Northampton. 3rd of March.

Skrbina, D. (2015) *The Metaphysics of Technology*, New York: Routledge.

Sykes, G. and Teszenyi, E. (2018) *Young Children and Their Communities Understanding Collective Social Responsibility* [online]. Available from: https://ebookcentral.proquest.com/lib/northampton/reader.action?docID=5425415&ppg=134 [accessed on 02.01.2021].

Shuttleworth, M. (2017) *Studying Scientific Metaphor in Translation: An Inquiry into Cross-lingual Translation Practices*. London: Routledge.

Taylor, P. and Keeter, S. (2010) *Millennials: Portraits of generation next- confident, connected, open to change. Child culture play and child development. Early child development and Care,* 173(6), 589-612.

Twining, P. (2020) *Making sense of young people's digital practices in informal context: The digital Practice Framework. British Journal of Education Technology* [online]. Available from: Doi:10.1111/bjet.130032.

UNICEF (2017) *The State of the world's children 2017, Children in a Digital World* [online]. Available from: https://www.unicef.org/media/48581/file/SOWC_2017_ENG.pdf [accessed on 02.02.2021].

UNICEF, (2017) *Technology diffusion and its impact on children* [online]. Available from: https://sowc2015.unicef.org/stories/technology-diffusion-and-its-impact-on-children/ [accessed on 2.03.2020].

Volti, R. (2009) *Society and Technological Change, 7th ed*. New York: Worth Publishers.

Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

World Health Organization [WHO] (2019) *To grow up healthy, children need to sit less and play more* [online]. Available from: https://www.who.int/news/item/24-04-2019-to-grow-up-healthy-children-need-to-sit-less-and-play-more [accessed on 29.12.2020].

Wyness, M. (2019*) Childhood and Society, 3RD*, Springer nature limited: London.