Children and Technology

Dr Andrew Manches *(Course Organiser)*

Credit Rating 20 credits, SCQF 11

Course Description

This course provides an introduction to understanding, analyzing, and critically evaluating the role of technology for children in the Early Years and up until the end of Primary school age (0-12 years) in both home and school contexts. The course will cover the role of technology in children's everyday lives; and the more explicit use of technology to enhance learning, including children learning to be creators, as well as critical consumers, of technology.

Learning Outcomes

On completion of this course, students will be able to:

- demonstrate knowledge and critical understanding of theories, principles and concepts concerning the role of technology in the early years and demonstrate critical awareness of current debates surrounding technology for this young age group

- collaboratively plan, execute and present a professional evaluation of an early years learning technology context

- critically identify, define, conceptualise and analyse the complex range of factors influencing young children's interaction with technology

- use a wider range of ICT applications to enhance and support collaborative work both in co-located sessions and online

- take responsibility for own work and some responsibility for the work of others whilst working in peer relationships

Teaching

10 × 2.5 hour lectures, group discussion and student presentations. Each week, students will be provided opportunities to discuss and share different perspectives on course material and related issues. Students will be required to work in groups on a case study, followed with a group presentation as an outcome at the class.

Course Assessment

1. Online Blog Participation
   A question will be posed at the end of each lecture to encourage online discussion between lectures. This mode of discussion is intended to compliment the co-located seminar, in particular, encouraging written comments from those less confident in verbal. A mark will be awarded for commenting each week (participation), regardless of quality of comment.

2. Collaborative Presentation
   Students will be asked to provide a presentation critically reviewing a particular context of children and technology (following a feed forward similar task). Marks will be awarded to the group and then allocated by the group between individuals. This form of assessment has precedent and is intentionally assessing collaborative skills, as well as presentation/content.

3. 2,000 Word Essay
   Students will be given a selection of academic papers focusing on children and technology and asked to critique, drawing upon learning throughout the course.

Course Content

The course is intended as an introduction to the role of technology in children's lives at home and school. The course can be considered in terms of three main areas.

Technology in children's lives

The first four sessions will focus on the role of technology in children's everyday lives from the society they live in to their own homes. The course will provide students with an understanding of the prevalence of technology, particularly for younger children, and the need to consider how different factors (e.g. parents) influence children's interaction with technology.

Technology Enhanced Learning

The second four sessions will focus on the use of technology to specifically support learning. This will mainly focus on technology in educational contexts e.g. school, and address the importance of critically reflecting upon definitions of learning in this context. The course will provide students will an overview of the impact of technology in education, and the challenges of considering all the factors influencing such impact (e.g. teacher skills, infrastructure).

Children as creators of technology

Two sessions and a workshop will look at the increasing emphasis on children learning the skills to understand and generate new technologies – from programming outside of school to the introduction of computing as a curriculum subject in different national curricula. Students will be given the opportunity to explore types of technology to support a critical perspective of how such experiences may support children's wider development.

In all three areas above, there will be an emphasis on examining the research methods used to investigate the role of technology, and the challenges involved in this particular field of research (e.g. the evolving nature of technology, difference in how technology is integrated). This will develop students' critical reflection of various claims made for, and against, children's use of technology at home and school.

There will also be a final session in this course looking at the ethical and safety issues surrounding research and the use of technology by children (e.g. online safety, data collection).

The course will benefit from illustrations from recent world-leading research conducted at Moray House, where students will be encouraged to become familiar with the research activities, such as through the current website
http://www.children-and-technology.ed.ac.uk

Week 1

Title: Introduction: The debate about children and technology

Content Outline: This session will introduce students to the course and each other, benefiting from students' summaries of their digital life. The session will look at the status quo of technology use for children and focus on how we identify the right questions to ask in this field.

Specific Reading: National Association for the Education of Young Children (NAEYC). (2012). Technology and Interactive Media as Tools in Early Childhood Programs from Birth through Age 8.
http://www.naeyc.org/files/naeyc/file/positions/PS_technology_WEB2.pdf

Week 2

Title: Researching children and technologies in the home

Content Outline: This session will focus on the methodological challenges arising from researching children and technology in the home, using case study examples to help illustrate issues.

Specific Reading: Plowman L. (2015) Studying children's everyday uses of technology in the family home. Interacting with Computers. 27 (1) 36-46.

Week 3

Title: Evaluating children's interaction with technology

Content Outline: This session examines the different ways to evaluate technologies for young children, focusing on the different factors, in particular the role of adults, which can influence children's interaction with a particular digital tool.

Specific Reading: Fred Rogers Center (2012). A framework for quality in digital media for young children: considerations for parents, educators and media creators.
http://www.fredrogerscenter.org/media/resources/Framework_Statement_2-April_2012-Full_Doc+Exec_Summary.pdf ??

Week 4

Title: Predicting children's interaction with new technologies

Content Outline: In this session, students will share and receive feedback on collaborative presentations about designing methods to evaluate specific technologies in the home. The session will then look to the future, examine how we can predict the impact of new technologies for children, and raise important questions about the way new technologies capture and utilize children's data.

Specific Reading: Manches, A., Duncan, P., Plowman, L., & Sabeti, S. (2015). Three questions about the Internet of things and children. TechTrends, 59(1), 76-83.

Week 5

Title: Technology Enhanced Learning

Content Outline: In this session, the course will begin to focus on the use of technology to specifically support learning, typically in schools. The session will consider national (and international) policy approaches, how technologies are designed around different learning theories and the challenges of integrating and evaluating, the effect of these technologies in schools

Specific Reading: Luckin, R., Bligh, B., Manches, A., Ainsworth, S., Crook, C., & Noss, R. (2012). Decoding learning: The proof, promise and potential of digital education.

Week 6

Title: Researching children and technology in school

Content Outline: This session will focus on research approaches to evaluating how technologies influence children's learning in schools. The session will draw upon recent case studies to illustrate some of the methodological challenges involved.

Specific Reading: Manches, A. (2013). Evaluating the Learning Benefits of New Forms of Interaction. Handbook of Design in Educational Technology, 425.

Week 7

Title: Predicting the role of new technologies in schools

Content Outline: In this session, students will give collaborative presentations on the design of methods for evaluating the influence of a specific technology on children's learning. The session will then look to the future, reflecting on how new technologies may influence pedagogy and education.

Specific Reading: Cliff, D., O'Malley, C., & Taylor, J. (2008). Future issues in socio-technical change for UK education. Beyond Current Horizons, 1-25.

Week 8

Title: Children as creators of technology: Computing Education

Content Outline: In this session, the course will begin to focus on children as creators rather than consumers of technology. The session will look at the history of computing education, from the work of Seymour Papert to the recent informal maker movements and drive for computing in the curriculum. The session will raise critical questions such as what age children might be introduced into this area and critically reflect upon the range of programming tools for younger age groups.

Specific Reading: Robertson, J., & Howells, C. (2008). Computer game design: Opportunities for successful learning. Computers & Education, 50, 559-578.

Week 9

Title: Children as creators of technology: Digital Makers

Content Outline: This session will continue to look at the role of computing for children, with a greater focus outside of formal education. The session will consider the significance of the maker movement, and critical reflect upon the resources for supporting children, including the role of adults and organisations. The session reflects on potential to empower children by allowing them to learn through making about the way technologies are used in their everyday environment.

Specific Reading: Quinlan, O. (2015). Young Digital Makers. http://www.nesta.org.uk/sites/default/files/young-digital-makers-march-2015.pdf

Week 10 (Sue Fletcher Watson Guest)

Title: Design, diversity and difference

Content Outline: This last session steps back to reflect on the role of technology in different areas of children's lives and whether their design respects the wide range of children's abilities and needs. The session raises questions about whether technologies address or extend existing gaps in children's opportunities or achievement, and the potential, if any, for research to positive influence the design of technology to benefit all children.

Specific Reading: Fletcher-Watson, S., & Durkin, K. (2014). Uses of new technologies by young people with neuro-developmental disorders. Neurodevelopmental Disorders: Research Challenges and Solutions, 243.