
KidRec 2020 Position Paper:

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CSS Concepts

• **Human-centered computing~Human computer interaction (HCI);**

Introduction

I have been a researcher with an interest in Child-Computer Interaction since the early 2000s. During that time, I have been involved in several projects investigating children's search behaviour and the design and use of technology with and for children e.g. WEBKIT on tangible search technology for children (2004) and Wi Gleesome Touch on museum interactive games (2010). I have published at IDC and elsewhere on these themes e.g. (Nicol and Landoni, 2005)(Nicol and Hornecker, 2012)(Nicol, 2014)(Nicol and Landoni, 2014)(Landoni et al., 2016)(Landoni et al., 2018) My recently completed PhD thesis (2019) describes a school-based study that investigated the information-seeking behaviour of primary school children in Scotland.

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Information Seeking in the Primary Classroom

My thesis focused on five key areas of investigation: how children define success in information seeking and how this contrasts with adult perspectives; support required when seeking information at different ages; influence of age on information channel preferences; influence of situation on child information-seeking behaviour; effect of gender on each of these dimensions. Two groups (8-9 years and 11-12 years) were studied. Here, existing classroom tasks derived from the Scottish national curriculum were the basis of the investigation. An ethnographic approach was taken involving data collection via non-participatory observation, making extensive use of teacher-created data collection tools such as post-task evaluation forms. Information artefacts created by children during tasks were analysed and used in focus groups. Teachers' perspectives were gathered by collecting and analysing their assessment feedback and also via interviews. A parallel investigation of children's leisure information seeking behaviour was undertaken using a survey and focus group approach with a particular focus on leisure search in the home.

Findings

My experience of undertaking the research for my thesis in particular persuades me that there are many challenges remaining for the design of Information Retrieval Systems (IRS) if we are to address the information seeking needs of children in a satisfactory way. I give some examples below.

- I found that the literature on children's search in school contained very few studies where authentic, teacher-imposed information activities had

been studied. The vast majority were based on tasks created and imposed by researchers. A bigger richer, perhaps *messier* picture of child information seeking was often being missed or avoided by the research community.

- My findings showed that children conceive of success in information seeking in very different ways from adults: for example, the aesthetic qualities of information are much more important to children as they make relevance judgments.
- Despite societal assumptions about technological expertise, experience, skill and ability, children continue to struggle with the basics of text-based interactions with search engine technology. Spelling and typing continue to pose huge barriers to effective searching for even the most able under 12s.
- This group of children carried out the majority of their online searching outside of school in collaboration with and on behalf of others in the home. Often parents did not have time to search for information themselves, did not have appropriate digital skills for doing so, or faced language or literacy issues that made seeking information on their own, challenging. Children

were acting as information intermediaries, even on the most demanding adult topics.

Open Challenges

The above describes only a few of my findings. These alone have serious implications for how we think about children's information seeking, IRS development and evaluation design. I propose below a few ideas about what I think remain open challenges for our research community to consider.

- Can we develop an evaluation framework for Information Retrieval Systems for children without first understanding more about children's notions of relevance and success in their information seeking?
- Is what we "know" about child information seeking too heavily informed by data gathered in studies in controlled research environments where the tasks undertaken are not particularly authentic examples of child information seeking behaviour? Might more ethnographic naturalistic style research be desirable?
- Children are performing searches on behalf of others, often for very serious purposes e.g. financial matters, immigration. How do we build IRS to help them to do that? Can we build systems that identify when it is happening? Should we? Would it be ethical to do so?

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