

ARC Centre for the Digital Child Healthy Program PhD Scholarship project: Supporting children's digital agency with a self-administered health literacy tool

Background

From a young age, most children are accessing a range of digital technologies in their homes and early learning settings. Supporting children's 'digital citizenship' and agency in using and engaging with digital technologies requires embedding digital technologies in their everyday learning and in early childhood educational settings. This is highlighted by Goal 3 of the Alice Springs (Mparntwe) Education Declaration (Education Council, 2020, p.7) that describes successful lifelong learners as those who are "productive and informed users of technology as a vehicle for information gathering and sharing and are able to adapt to emerging technologies into the future."

Children's health literacy plays a vital role in their continued wellbeing, development and learning. Several systematic reviews (Bröder et al., 2017; Guo et al., 2018; Okan et al., 2018) have investigated health literacy tools for children, and have noted the paucity of information available addressing children's health literacy with almost no research on health literacy tools for children aged 6 years and under.

Health literacy has historically been viewed through the eyes of the parent, but children have agency and should be viewed as active participants in their health, rather than passive or powerless recipients (Fairbrother, Curtis & Goyder, 2016; Kostenius & Bergmark, 2016). Velardo and Drummond (2017) recognise the importance of viewing children through an asset-based lens, rather than one which might construct them as vulnerable and dependent. Our research will view children as research partners and consider children's interactions with technology and their own agency in how they construct its use. The ECEC setting provides an ideal place to conduct this research given it is considered a safe and supportive environment for very young children.

Aims and approaches

The aims of this project are two-fold:

1. describe the digital knowledge, skills, hardware, software and tools that children and families use in their everyday lives, and that educators use in their workplaces
2. describe the components of health literacy to co-design with educators and children, and develop a child administered digital tool to measure and enhance health literacy.

A co-design approach will be used to answer the research questions in this research. This means that our primary participants (children aged 3-5) will be involved in helping us to understand and clearly define needs around health literacy and to develop potential solutions for testing. Gathering information and insight from educators, software designers, parents/carers as well as children, provides a pragmatic foundation for researchers and practitioners to use methods and techniques for designing technologies with and for children.

Research Questions:

1. What digital knowledge, skills hardware, software and tools do children and families use in their everyday lives and educators use in their workplaces?
2. What do these stakeholders know about health literacy, and what digital tools are used in this area?
3. What are the strengths and weaknesses of co-design with children and educators in developing a digital tool to evaluate children's health literacy?

This study utilises a Design Based Research model developed by McKenney and Reeves (2019) which consists of three core phases implemented in a flexible, iterative process. In the context of this proposal, these phases are outlined below:

Phase 1 (Investigate the problem): conduct a systematic literature review to identify and refine the design requirement and propositions; conduct a mixed method study (*survey/interviews*) of participants to describe digital knowledge, skills, hardware, software and tools that children and families use in their everyday lives and those that educators use in their workplaces. In addition, collect information about educator health literacy knowledge and pedagogical practices (including evaluation) in this area.

Phase 2: Develop and refine the prototype (in partnership with Singular Health Ltd Tech Company)

- *Educator video diaries* weekly over four weeks (Cycle 1 –test prototype and Cycle 2 – revision of prototype) for children and staff reactions to prototype. Educators will *document their observations and video footage* collected using Swivl cameras of children using the digital tool.
- Selected *children's voices and opinions* of the tool will be collected through *dialogic drawing and reflective questioning* as they draw in both cycles.
- Regular meetings will be conducted with Singular Health to refine the tool.

Phase 3: Reflect and evaluate on the prototype

- conduct a final *survey/focus groups* with educators to gather their views on the effectiveness and useability of the digital tool.

Expected outcomes include:

- development of a digital tool children can use to evaluate health literacy in the early years
- supporting knowledge acquisition for children aged 3-5 years as an underpinning skill for future development of health literacy
- educator increased awareness of the digital tools that children use
- educator and child digital knowledge and skills will be strengthened
- the development of a digital tool that encourages agency in young children