Negotiating the Ethical Decision-making Process when designing and developing new digital technologies

Denise Oram, Prof. Richard Picking

Applied Sciences, Computing and Engineering
Glyndwr University
Wrexham, North East Wales
d.oram@glyndwr.ac.uk
r.picking@glyndwr.ac.uk

Abstract

There is a requirement to establish and maintain standards of professional competence, conduct and ethical practice with regard to the development of future digital technologies. This paper proposes

1.0 Introduction and Background to the study

Moving down to the bottom layer of the triangle ("should"), our practical approach means that we now take into account not only the subjects of our actions, but also the immediate circumstances and environment in which the information system is to be developed and operated – what we may term *situated ethics* – see Figure 3.
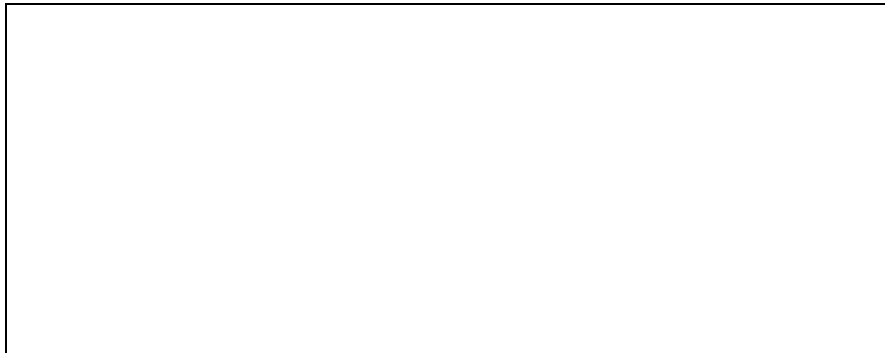

Figure 3: Ethical Impact situated ethics

Example (sustainability)

Item X is found to be harmful or fatal to individuals in a very small number of cases and so is to be replaced by item Y within the federation of A, B, C...F. Item X has a long shelf-life. Item X is harder to dispose of in an environmental way than item Y (or, item Y than item X). Country A is rich, and has a long tradition of throw-away consumerism and a low death/sickness rate. Country F is poor, and has a long tradition of reusing items for as long as possible (often adapting them to novel uses). It has a high overall death/sickness rate, though the sickness caused by item X is relatively low within this. How should the replacement of item X by item Y be ethically managed within the federation, and is the replacement ethically justified in the first place? The ethical issues raised are similar whether item X is a light bulb or a nuclear submarine, though the decisions taken may differ depending on the nature of the object

resolution of these types of cross-cultural ethical questions that the ethical triangle is designed to facilitate [4].

At the top of the triangle are laws and then regulations. These have to be considered first – hence they appear at the top of the diagram. These constrained ethics are usually generic, and may be set in law, in codes of practice, organisational regulations or professional and statutory requirements. Further down the triangle, those ethical factors regarded to be of high importance ("must") are considered – where those participating in the ethical audit agree that a duty is imposed, followed by those of middle importance ("ought") where an obligation is imposed. Finally, the factors deemed to be of some importance ("should"), where it is felt that it is right to proceed in a certain way, are considered. Generally, the number of considerations is expected to expand as we move down the list, hence the triangular shape. Also, although all factors of the triangle can be considered throughout the development process, it is likely that those nearer the bottom will become more prevalent over time. Realisation and documentation of these factors in particular provide developers with an ethical audit of the development process, as well as a benchmark to monitor ethical issues during its lifetime. 8372 awh23TJ (d506)-10](e i)31(h)82(u)8

or models upon which to build methodological processes and methods, practices, whereas EDUCATID provides specific ethically-centred analysis, design and development techniques that are distinctly integrated into the process.
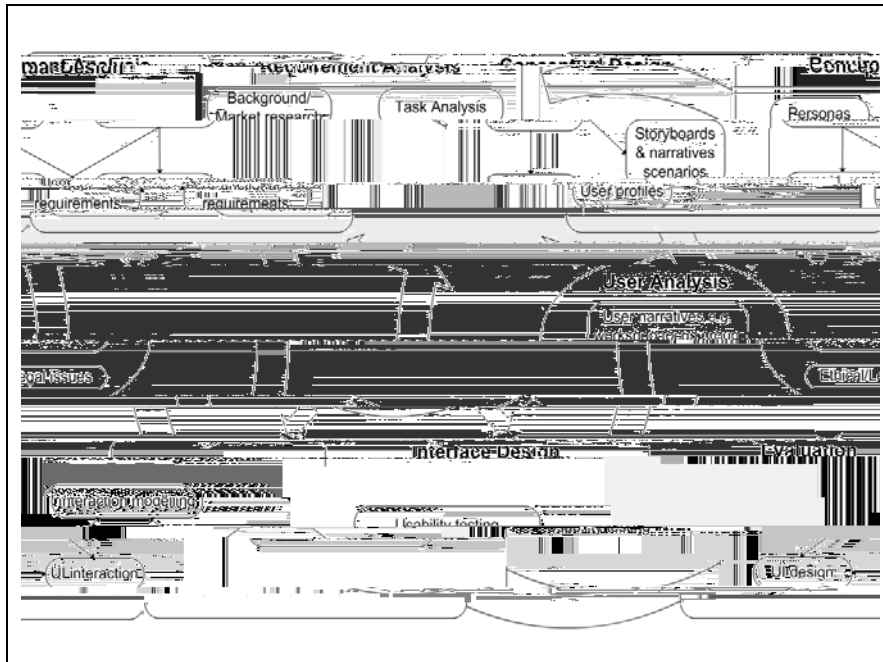

Figure 4 EDUCATID Methodology

3.0 Conclusion and Future Work

This paper has highlighted that there is a requirement to establish and maintain standards of professional competence, conduct and ethical practice with regard to the development of future digital technologies. Issues of control, division of responsibilities, rights or ability of individuals to exercise personal control, accountability, ownership, monopoly and power, privacy, dealing with diversity and governance should all be taken into consideration with the development of new technologies such as the IoT and others. Ethics is currently often seen to be merely a side issue or an afterthought and there is an urgent need to consider ethical issues in order to understand current and emerging technologies and identify any potential threats to society. This is an issue that affects us all both now, and will be, of

designing and developing new digital technologies has been highlighted as part of a possible solution. It is the early recognition of ethical and related issues that can save time and money, support user acceptance and promote beneficial aspects of the technology for stakeholders and society in general.Current and future work in the study is continuing with the development of mobile technologies to be used in the workplace, providing mechanisms for practitioners to identify, and be aware of, any ethical considerations at the outset of new developments. These technologies are being designed specifically so as not to impede upon the professionals time. These are already in the design stage.

Technologies such as the IoT will have a major revolutionary effect and will change our lives; eve

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