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Citation: KEIRL, S., 1998. The practise of ethics and the ethics of practice in technology education. IDATER 1998 Conference, Loughborough: Loughborough University

Additional Information:

- This is a conference paper.

Metadata Record: https://dspace.lboro.ac.uk/2134/1425

Publisher: © Loughborough University

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The practise of ethics and the ethics of practice in technology education

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Abstract
While technology education is commonly thought of as a practical field, ethics is not commonly thought of as such. This paper draws upon Singer's (1993) contention that 'Ethics is practical, or it is not really ethical'.

It will be argued that there is, potentially, a central ethical dimension to technology education which becomes explicit when examining wants-needs issues; race and gender; humanism and ontology; and, product design. Context is provided from the broad literature which documents the breadth of societal and global concerns relating to technology, culture, and economics.

One focus of the paper is on design and technology curriculum as a part of a general education within a democracy. Thus the impact of the ethical dimension of technology curriculum design, pedagogy and assessment on concepts such as technological literacy and the resolution of competing stakeholder claims is addressed.

As well as showing that ethics can be both philosophical and practical in its manifestation as a part of technology education curriculum, it is an aim of the paper to demonstrate the professional significance of ethics-in-practice within this highly contested curriculum field.

Inasmuch as the compulsory years of schooling are concerned with the education of all students in their preparation for life as citizens in a democracy, it is towards general education rather than specialist education that this paper leans. This is not to say that the post-compulsory years, and the pathways available therein, are not considered - indeed they are highly significant. It should also be noted that the constraints on the paper's length prevent elaboration of many points. I will gladly provide fuller argument on request.

Ethics
Interests in ethics have fuelled philosophical discourse for millennia and although ‘ethics’ may have dropped somewhat from public discourse during the 1970’s and 80’s, it has regained some of its currency of late. This is hardly surprising given the technological, economic and environmental developments which have occurred over those decades. A currently acknowledged phenomenon is that technological innovations happen faster than it is possible for the necessary associated ethical discourse to develop.

Any study of ethics inevitably embraces associated terms such as morality, goodness, right and wrong, obligation, ideals and values and each warrants analysis of its meaning and its role in ethical discourse. While this paper cannot entertain more than the briefest of looks at this philosophical area, some acknowledgement of the field is necessary.

Slote, 1995:591-595 contends that perhaps the ‘...major problem...of moral philosophy...is coming up with a rationally defensible theory of right and wrong action’, and he identifies four current dominant basic views or theories: Utilitarianism; Kantianism; Intuitionism; and, Virtue ethics. Humanist, existentialist and post-modern theory all contribute to the debate, and alternative perspectives to the philosophical emerge through religious, race, gender and class agendas. Inasmuch as anyone may be interested in the quality of our existence and, indeed, of our co-existence,
then we are faced with ethical questions and, thus, some degree of engagement with ethical discourse.

To the assertion that philosophers may be out of touch with the ‘real world’ comes a significant refutation from Singer, 1993, who is clearly concerned about quality of life (QOL) issues which abound. He argues that by living in an ethically reflective way it is possible to overcome the individually and collectively self-defeating goals of self-interest. He contends that:

Ethics is practical, or it is not really ethical. If it is no good in practice, it is no good in theory either. Getting rid of the idea that an ethical life must consist of absolute obedience to some short and simple set of moral rules makes it easier to avoid the trap of an unworkable ethic. An understanding of ethics that allows us to take into account the special circumstances in which we find ourselves is already a major step towards attaining an ethics that we really can use to guide our lives. (Singer, 1993:204)

This ‘practical’ view is well supported by Warnock (1978) and Parfit (1984, also cited in Singer). Thus philosophers themselves show confidence in the capacity of ethics to play a central role in human enterprise in the coming years - through a blend of reflection and action.

Ethics, values and practice

The values which we hold influence our judgements and actions. In making value judgements, whether personally or professionally, we may make claims to the worth of some action or phenomenon. As an example of the discourse surrounding terms associated with ethics, it is illustrative to draw on at least one discussion from the ethics literature. The example is drawn from Frankena's account of the uses of ‘good’ (1973:82) in which he distinguishes between moral values, that is, things which he contends are good on moral grounds, and nonmoral values. He distinguishes amongst six sub-categories of the use of ‘good’ on nonmoral grounds. Five of these are highly applicable to technology education practice: utility values; extrinsic values; inherent values; intrinsic values; and, contributory values.

While these sub-categories do not, themselves, fall into the discussion of ethics per se (being nonmoral values), my argument is that when the question of technology curriculum design is faced, then the design-decision making - that marvellous weighing up of competing variables - about what should be taught, and how, does require ethical reflection and action. It remains incontestable that there is still room for debate about what is meant by ‘good design and technology education’. These are matters both philosophical and political with which we, as a professional group, are faced.

Indeed, ‘ethics’, ‘design’ and ‘technology’ all have in common that they are: contestable; non-neutral; values-rich; and, are capable of practical action-upon-reflection.

In examining the interweaving of ethics-design-technology, it is worth acknowledging something of the global and societal context from which much ethical concern arises. The extent of the available literature is huge and it derives from many fields. Its clarity and richness cannot be ignored when considering the education and QOL of future generations.

Global and societal concerns: our interconnectedness

Several famous names come to mind when one seeks to portray global concerns. These people have in common a capacity to have critiqued our own mass understandings (those we collectively hold from within our ‘Western’ perspective) of the cultural, economic, technological and political world beyond. Schumacher, (1973); Papanek, (1974); Toffler, (1971); Singer, (1993); and Suzuki, (1997) have all offered articulate perspectives bringing global concerns to the attention of increasing numbers of people and alerting audiences to their cultural, economic, technological and political inter-connectedness and inter-dependence.

Schumacher, (1973), Noble (1977) and Henderson, (1980) all demonstrate the symbiosis of capitalism, dehumanising
technology and technological determinism. These authors, who all challenge Western economic-technological systems on ethical grounds, openly declare their values hand. (Less so those whose hand Roy (1977) urges we critique to expose implicit agendas.)

In discussing globalization, Redclift and Benton (1994), who develop their challenge to technological determinism and call for careful examination of consequences of economic systems which remain solely quantitative, look for qualitative aspects in the global environment. They state:

The term ‘globalization’ implies interconnectedness, but it is clear that images and representations flow in different directions. There are different dimensions of global cultural relations, with specific, and interconnected, implications for the environment. Of the four dimensions which come to mind - the spatial, technological, material and representational - each can be considered as a component of globalization. (Redclift and Benton, 1994:14)

Here, technology has been alluded to as a dimension of cultural relations and the technological impact on social relations, indeed, technological imperialism, is also documented by Siraj-Blatchford and Patel (1994). The transportability of technology through the economic, the political, the social and the cultural may seem obvious enough. However, Jonas (1991) argues further:

Thus, form and matter of technology alike enter into the dimension of ethics. The questions raised for ethics by the objects of technology are defined by the major areas of their impact and thus fall into such fields of knowledge as ecology, ...demography, economics, biomedical and behavioural sciences (even the psychology of mind pollution by television), and so forth. (Jonas, 1991:115)

Who needs(?), wants(?)

When Redclift & Benton (1994:3) say: ‘...the preoccupation of economics with wealth-creation, efficiency in production, and the satisfaction of human wants suggests the inescapability of a confrontation with the material conditions and setting of economic activity’ (my emphasis), they were careful not to say needs. The ethics embedded in QOL issues stemming from technology and its products are commonly discussed. As Montgomery (1974:17) comments on Tocqueville’s view that ‘...the American concern with technology meant the equation of “good” with “goods”...’, so Turnbull (1988:280), a merchant banker, argues ethically when he draws together technology, (Australian) society and QOL and comments that ‘...there is a limit to the amount of goods and services individuals can or want to consume.’

Beyond the product

An essential characteristic of technological enterprise is that of ‘purpose’, that is, the design or intention which is behind the technological act (Black & Harrison, 1994; Cardwell, 1994; Mitcham, 1994; Gardner, 1995). It is technology as ‘action’ which adds an ethical dimension to the field. It is no longer acceptable to operate within the solely manufacturing phase of activity. Today, one might explore the ethical issues on a technology continuum of intention-design-manifestation-application with, importantly, consequence being assessed at each stage.

This view is not shared by those who consider technology to be ‘neutral’ and who argue that it is the users of technology to whom the ethics should apply. Holders of this view separate the product from the act of using it. Thus we can question not only the incarnation of the design of any product or system but also the associated issue of the intentions of the designer - and, in turn, our roles as consumers or purchasers of these products and systems (Whiteley 1993; Keirl, 1997a). The incarnation of products with ‘designed obsolescence’ (Papanek, 1974:235-7) and for ‘consumption’ by the ‘throw-away society’ (Toffler, 1971) is only part of the picture, as the ‘after use’ and ‘function creep’ (Nixon, 1996:36) aspects of designed products are now a concern for society too. The ethical aspects of designing are articulated by Mayall (1979) and Whiteley (1993) who both identify the need for
designers’ values to match clients’ values in the design-manifestation process. This may be a straightforward affair with an individual client but matters are somewhat different where the mass market is concerned.

Three ‘democratic-technology’ issues

1. The prevalence of positivist and technicist approaches to technology are a major concern for women. Grant, (1983); Cockburn, (1991); Apple, (1992); Wajcman, (1993), (1994); Whiteley, (1993); and, Weiner (1994) have written about the alienation and disenfranchisement of women by, through, and from, technology. Gendered technology is not merely an issue of epistemology, it is a human rights issue, a matter for any democratic society to address.

2. From authors who critique technological literacy discourses we can also see the linking of ethics, politics and technology. Luke (1992), elaborates on ‘cultural’ and ‘functional’ literacy (for an elite and for the mass, respectively), while Beynon (1992) and Apple (1992), are unequivocal in making the political and ethical transparent.

3. Regardless of the colloquial support for technological determinism, the major question is one of free will and whether we actually do have the power, individually or collectively, to determine what technology influences and does. The whole question of ‘choice’ and whether we actually have such a freedom, in the democratic sense, is interwoven with this issue. Political solutions remain problematic, as any government which intervened to slow or stop the spread of a technology which people wanted (q.v. needed) would be deemed by those people to be authoritarian (Cardwell, 1994). As Beynon and Mackay (1992) say:

Technological determinism diverts attention from such questions as the relationship of technology to human need. Implicit in technological determinism is that there is no choice about the technology we have. (Beynon and Mackay, 1992:12)

Self and technology

As a QOL issue, it is appropriate to mention the ontological dimension of technological practice. The issue of the humanity and dignity of technological process has been around for some time (William Morris in Morton, 1979). More recently Graves (1986), Apple (1992) and Roszak (1996) provide cautions about the deskillling and depersonalising role of computers in the context of current economic policies. Meanwhile Fry (1992) offers an excellent perspective of our very separation from technological process. This ontological dimension is so often absent from the agendas of those who would determine our field.

It would be possible to summarise matters thus far on a clear note of doom and pessimism. However this is not an option I wish to entertain as it would be neither professionally defensible nor very helpful. These matters of QOL for all people cannot be tackled without wisdom and commitment and there can be no doubt that educators have a key role to play. Singer, in weaving the societal and the individual good, critiques ‘narrow self-interest’ and argues the case for ‘enlightened self-interest’. He considers the seeming meaninglessness of life - whether perceived by existentialists or by disillusioned adolescents - and suggests:

Here ethics offer a solution. An ethical life is one in which we identify ourselves with other, larger, goals, thereby giving meaning to our lives...Cynicism is more fashionable than idealism. But such hopes are not groundless, and there are substantial elements of truth in the ancient view that an ethically reflective life is also a good life for the person leading it. Never has it been so urgent that the reasons for accepting this view should be widely understood. (Singer, 1997:30)

Ethics and technology education within a general education for democracy

Three significant contextual factors occur. The first concerns the centrality of education to democracy itself. In her cogent exploration of Education, Democracy and the Public
Interest, White (1973) comes, inter alia, to two conclusions. She comments that:

There is at least one policy which must be in the public interest in a democracy. This (policy) is an appropriate education for a democracy. (White, 1973:237)

Thus education is the keystone for the well-being of the democracy and for the well-being of its participants. However, White also argues that the determination of what might constitute that ‘appropriate education’ cannot be left to ‘experts’ ‘...to be worked out much as the value of the gross national product is calculated’ (White 1973:223-224). As public interest policies are about things which the public ought to have, White argues that they are, therefore, value judgements. Thus moral judgements are central to the determination of the core policy (i.e. education) of a democracy.

The second contextual factor concerns the advent of globalisation, wherein it is possible to witness communications, media and commercial influences which have the capacity to bypass political systems and national and cultural integrity. In this context the recent OECD technology, mathematics and science education initiative (Black & Atkin, 1997) implicitly links narrow economic interests with curriculum determination.

The third contextual factor concerns the competing interests of stakeholder groups. Given that the field of technology is so extensive, and so central to culture, politics and society, it is hardly surprising that there are multiple interests in its delivery in schools. A whole range of agendas and tensions becomes clear when one examines the literature. A useful framework is offered by Layton (1994:13-17) who identified: economic instrumentalists; professional technologists; sustainable developers; girls and women; defenders of participatory democracy; and, liberal educators.

In the context of these three factors alone, determining technology curriculum is, indeed, an ethical business. Using Frankena’s analysis it is possible to determine a technology curriculum on the grounds of the nonmoral values and claim it to be a ‘good’ curriculum. However, I suspect this would imply a rather limited view of curriculum. If one turns to the stakeholders, while each group can argue that theirs is the worthy claim, any claim to worthiness must ultimately draw upon judgements of value and upon moral argument. As some of these claimants have the potential to be exclusive of others, there is the question of whether all six can be addressed within the general education years. It would seem that White’s argument for moral adjudication is sound. Thus we are left with the issue of who the quantitative ‘experts’ (q.v. White) might be, and who might constitute the alternative to them. This, I contend, is a task for a technology education profession of international calibre with an ethically based global vision.

Brief notes on pedagogy and assessment

1 It could be argued that the values-morals-ethics part of technology education is not the core business of present-day technology educators. Olson (1997) rightly rebuts this notion and cites Barnett:

‘...an arrangement by which responsibility for practical capability rested with technology, and for critical awareness with (other) subjects...where values had been driven into exile from...technology, would be undesirable. This would tend to confirm technology as a ghetto for ingenious, specialist tinkerers, and the Humanities as the natural home for anti-technologists.’ (in Olson, 1997:388)

The Design Council, arguing the centrality of design-related activity to general education, cautions that:

...the questioning of existing ideas which form part of many design projects, can sometimes lead to challenging and uncomfortable questions being asked about social and economic values... (Design Council, 1992:9)

2 Implicit in the last quotation and, indeed, in all the curriculum considerations, are
significant pedagogical and assessment implications. The profession may need to be mindful that default teaching styles, knowledge constructions and assessment procedures can quickly become tails which wag the curriculum dog. While the pedagogy of deeply values-centred education can be challenging for teachers, this need not mean that such a pedagogy cannot be adopted. The teaching of controversial issues has been a part of the repertoire of many teachers for some time (see e.g. Stradling et al., 1984).

3 The assessment issues for design and technology education are complex and need well-prepared professionals (Kimbell, 1997). Non-professional interference (in assessment) based either on ignorance or upon agendas of thinly disguised political control is common. This is the preferred political route for ‘measuring’ ‘quality’ and productivity and is not new (Apple & Teitelbaum, 1986). The rhetoric is of standards and helping students. The reality is of control - of teachers and schools - and of students as ‘products’.

Conclusion

Issues, values, ethics and morality and technology are the stuff of every day, everywhere. The practise of ethics and the ethics of practice in technology education constitute a complex issue, central to the concerns of educators and society alike. Authors (Owen and Abbott-Chapman) concur on the centrality of ethics to our field. In order to be ethical Singer suggests we blend reflection and action.

‘Critical’ approaches to technology education are called for (see e.g. Habermas, 1971; Keirl, 1997b). Only through an elaborated critically reflective professional culture will it be possible to articulate an ethical technology education which must:

- embrace a global, seventh generation, vision (Shenandoah in Schaeff, 1995).
- be defensible in its global consequences.
- fulfil the requirements of democracy and democratic education.
- serve the future citizen as a member of a democracy and as a fulfilled individual
- manifest curriculum, pedagogy and assessment strategies which promote the above.

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