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RELATING WORKPLACE VALUES TO TECHNOLOGY EDUCATION

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This paper explores the potential for productive relationships among values set for technology education and the kinds of values that are immanent in the objects of workplace activities. Values, such as those listed in the Australian National Framework for Values Education in Schools, are considered in terms of cultural historical activity theory. In this theory, values can be considered in terms of the object-orientation of the activity, e.g. the motives and purposes reflected in the collective problems that are actually worked on, and the ways in which subject engagement with the object is mediated by such elements as the rules of the activity system and the division of labour. It is argued, from previous research on how workplace values are highly situated and take their meaning from concrete experiences and the culture of the workplaces, that it is problematic to abstract values into generalised taxonomies and use such abstractions to guide the teaching of values in technology education. Suggestions are made on instructional design strategies for overcoming these problems through building relationships among contextualised concrete particularisations of values and understanding abstractions that encompass these values-in-action.

Background

In recent years there has been a renewed call for the teaching of values in education (e.g. the National Framework for Values Education in Schools (Department of Education, Science and Training, 2005)). For instance, this Australian framework (p. 4) lists 9 values:

1. Care and compassion (Care for self and others)
2. Doing your best (Seek to accomplish something worthy and admirable, try hard, pursue excellence)
3. Fair go (Pursue and protect the common good where all people are treated fairly for a just society)
4. Freedom (Enjoy all the rights and privileges of Australian citizenship free from unnecessary interference and control, and stand up for the rights of others)
5. Honesty and trustworthiness (Be honest, sincere and seek the truth)
6. Integrity (Act in accordance with the principles of moral and ethical conduct, ensure consistency between words and deeds)
7. Respect (Treat others with consideration and regard, respect another person's point of view)
8. Responsibility (Be accountable for one's own actions, resolve differences in constructive, non violent and peaceful ways, contribute to society and civic life, take care of the environment)
9. Understanding, Tolerance and Inclusion (Be aware of others and their cultures, accept diversity within a democratic society, being included and including others)

The Framework (p. 8) also reproduces two views on what values are:

- *"the principles and fundamental convictions which act as general guides to behaviour, the standards by which particulars actions are judged as good or desirable."* (Halstead & Taylor, 2000, pp 169-202) (cited on page 8 of the National Framework);
- *"the ideas that give significance to our lives, that are reflected through the priorities that we choose, and that we act on consistently and repeatedly"* (Brian Hill (cited on page 8 of the National Framework)

Hill (2004, p. 4) also defines values as *"the priorities individuals and societies attach to certain beliefs, experiences, and objects, in deciding how they shall live and what they shall treasure."*

Contextualising the Australian Framework

Such definitions of values encompass a wide range of normative dispositions including attitudes and beliefs. For instance, Rokeach (1976, pp. 159-160) regards values as those beliefs that "guide actions and judgments across specific objects and situations, and beyond immediate goals to more ultimate end-states of existence"; while attitudes are regarded as beliefs that certain things are desirable and preferable, predisposing one to action. However, because values are difficult to separate from attitudes and are usually measured in similar ways (Gaus, 1990; Oser, 1996), in this paper, the focus is on the kinds of values, attitudes and/or beliefs (here called norms) that guide activity irrespective of the level of generality. This is consistent with Hill's (2004) focus on consistent and repeated significant actions.

There have been studies of values across different countries. For instance, Parker, Ninomiya and Cogan (1999, p. 125) undertook a nine-nation study of the value-laden characteristics that individuals will need to handle the complex global crises that humans will face over the next 25 years, as follows:

- Ability to look at and approach problems as a member of a global society
- Ability to work with others in a cooperative way and to take responsibility for one's roles/duties within society
- Ability to understand, accept, appreciate, and tolerate cultural differences
- Capacity to think in a critical and systemic way
- Willingness to resolve conflict in a non-violent way
- Willingness to change one's lifestyle and consumption habits to protect the environment
- Ability to be sensitive toward and to defend human rights (e.g. rights of women, ethnic minorities)

The Australian Framework needs to be considered in the context of such theoretical and empirical work. However, it also needs to be recognised that such taxonomies are generalised abstractions. That is, they are meant to capture at a high conceptual level, a variety of values (including attitudes and beliefs) that are found in different kinds of life activities. As such, the question arises about whether such abstracted values are teachable and how such teaching can be effective. These questions are addressed below in terms of the problem of transfer of learning from one situation to another.

The Transfer Problem

In the Australian Framework, some minimal guiding principles for teaching are given, largely at a school level, including understanding and applying the values; through a 'whole-school approach'; 'presented in a safe and supportive learning environment', 'which meets the individual needs of students' (p. 5).

It is generally accepted that changes in normative behaviour involves at least three aspects: cognitive changes (knowing what needs to be changed and how to change), behavioural changes (being able to and actually engaging in changed behaviour), and affective changes (knowing and accepting the reasons why behaviour needs to change) (e.g. for summaries of theories of attitude change, and instructional principles for securing attitude change, see Oser, 1996; Smith & Ragan, 2005). The challenge for educators, then, is to choose an appropriate instructional design framework and to develop values in such a way that they are meaningful to the learners and they change learner behaviour. It is also important that such changes in values are transferred to contexts outside of school.

Yet, it is well known in studies of situated cognition that the acquisition of knowledge is context-dependent and there is a problem in transferring such knowledge to new contexts. (See, for example, Beach, 1999; Bransford & Schwartz, 1999; Brown, Collins & Duguid, 1989; Collins, Brown & Newman, 1989; Perkins & Salomon, 1989). This transfer problem poses an important challenge to the approach adopted for the development of values.

This paper argues that the transfer problem is especially important because taxonomies and other lists of values-to-be-taught are abstracted generalisations, which has implications for their being learned. This paper adopts van Oers' (1998) view that generalisations of meaning and particularisations of meanings are inter-related through the re-construction of meanings in different contexts. As van Oers (1998, p. 475) argues, context provides for 'two essential processes: it supports *the particularisation of meanings* by constraining the cognitive process of meaning construction, and by eliminating ambiguities or concurrent meanings that do not seem to be adequate at a given moment; on the other hand, context also prevents this particularised meaning from being isolated as it brings *about coherence* with a larger whole.

Advantages in Cultural Historical Activity Theory in Examining Values

The particularisation of (normative) meanings can be examined in terms of cultural historical activity theory (CHAT) (Engeström, 1987, 1999, Leont'ev, 1981). CHAT proposes that all action is directed towards collective purposes in collective activity, and that this activity is mediated. Engeström proposes that, while mediation by collective artefacts and other tools is visible, there is also mediation by less visible formal and informal rules and expectations, divisions of responsibility and the wider community. Hence the particularisation of values in activity can be examined in terms of actions directed at the normative object of activity

The other advantage of using cultural historical activity theory to think about the normative nature of activity is that it allows the various elements of the activity system to come under scrutiny. Thus the tools

and other instruments that are available to be used to mediate activity can be examined to see how they facilitate or work against 'doing your best' or 'taking responsibility'. So too can the formal and informal rules and other expectations in the learning setting be examined, as well as the ways in which the Division of Labour is structured. For instance it would be difficult to develop 'doing your best' and 'taking responsibility' in education settings where the teacher takes all of the responsibility; or to learn integrity in situations where the implicit rules are antagonistic to justice.

In the following section, an example is given of a study of workplace values, which conceptualised values in terms of their role in activity using cultural historical activity theory. This research examined the particularisation of values in the concrete situations of workplaces and attempted to categorise these values.

Examining Workplace Values in Terms of Cultural Historical Activity Theory

The normative activity in motel front office workplaces has been examined (Stevenson, 2002), using cultural historical activity theory, and related to what appeared to be the collective purposes or motives of the workplaces as depicted in Figure 1 (Stevenson, 2002, p. 96). In this depiction, the abstracted labels for the various values include such terms as Profit (including efficiency and ensuring receipt of funds), Return Trade (including achieving customer satisfaction and maintaining professional appearances), Accountability and Job Satisfaction (including loving the job, liking people contact, liking variety and wanting to keep the job).

This clustering or abstraction was derived from the actions in which people actually engaged and their own descriptions of such actions e.g. the need to keep co-workers informed or to be persistent, courteous and helpful in their work. In cultural historical activity theory, it is the object gives meaning to these actions. That is, for example, being efficient and accurate was meaningful in terms of how each contributed to the collective motive of making a profit so that the business was successful. If all the people working in the motel have the same value-laden motive, then all of their various actions would be meaningful to them in the same terms.

However, such clustering and abstraction of normative aspects of activity is somewhat arbitrary, in that it would depend on individual perceptions of the object with which they were engaging. Moreover, individuals would engage in other value-laden activity in other aspects of their lives; and might experience some cognitive dissonance (Duit, 1996) between the values of the workplace and other values, such as those at home, in social roles and in other meaningful pursuits.

Further, other researchers have identified and clustered workplace values somewhat differently. For instance Stasz and her co-workers (1995) have clustered workplace attitudes in terms of their sources (the task, quality standards and the community of practice), and have identified values in the following kinds of clusters:

Task / Organisation: love a challenge, cooperate, anticipate problems, plan ahead, deal with confrontation, independent, tolerant of oversight, willingness do repetitive work, flexible, self-motivated

Community of Practice: mutual respect, reliance, confidence, prepared to work, know and do your job, ask for help, friendliness, "bedside manners", patience, don't pass problems off, don't slack off

Quality Standards: professional standards, assume liability, conscientious, vigilant, integrity, accurate and thorough.

Nevertheless, despite differences in abstraction and clustering, Figure 1 importantly illustrates the relationships among concrete actions, collective activity and any particular abstracted version of the values that are involved. That is, it illustrates how such abstractions are meaningful to the people involved if they give rise to actions that are consistent with them; similarly, the actions are meaningful if they help in the aim of engaging with the overall object of the activity. Value-laden activity at home and in other social roles would also be meaningful in term of how it contributed to the overall objects of various home and social activities. Hence, the depiction allows one to consider the relationships between the general and particular as advocated by van Oers. The abstraction helps to give coherence, and the concrete particulars give meaning to the abstractions; in addition, the concrete particulars of one kind of activity can be reconciled with those of other kinds of activity through reflection.

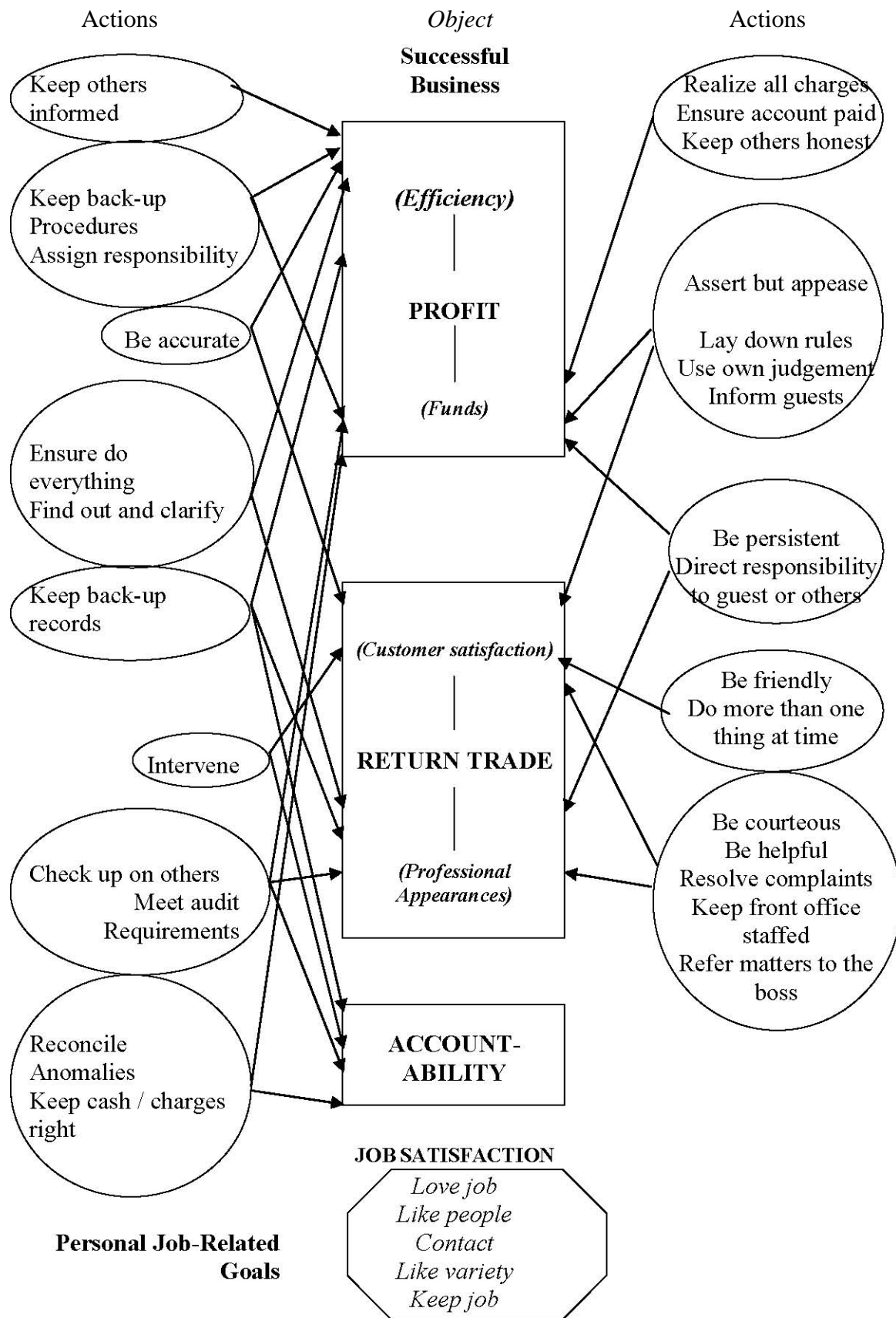


Figure 1: Normative motives and actions in motel front office activity systems (from Stevenson, 2002, p. 96)

Teaching Values in Technology Education

Hence, for technology educators to rise to the challenge of developing the values set for schooling, they need to be able to relate the abstracted labels of the Australian Framework to contextualised concrete actions in meaningful activity. That is, it will be necessary to go well beyond the exhortations to 'adopt a whole school approach' and 'ensure a safe and supportive learning environment' and 'meet the individual needs of students'.

Following van Oers, what is needed is way to engage learners in significant concrete activities that involve the adoption and utilisation of such values, and reflective activities that connect concrete particularisations with the generalised abstraction. It is suggested here that technology teachers might look to workplaces and other life settings in order to find particularisations of the values advanced in the National Framework, and, while mindful of their limitations, use these as the basis for instructional design. It is suggested that such concretisations are the key to developing an understanding of what is meant by various values stances in different kinds of value-laden activity. Then, these particularised meanings can be related to various abstractions of values such as the nine in the Australian Framework and to other kinds of value-laden activity.

It is suggested that transfer would be facilitated if instruction involved the mindful abstraction of principles from diverse experiences (Perkins & Salomon, 1989). This would involve learners reflecting on the similarities and differences among the particularised values in concrete situations, in how these values are mediated in that activity and in how they relate to the object of the activity. One possible teaching strategy might be the grouping of students to explore and generate connections amongst the values that appear to be immanent in different kinds of activity, and comparing the views of different groups, along the lines of a cognitive apprenticeship (Collins, Brown & Newman, 1989). It would be from the similarities and difference that learners would abstract labels for values and relate them to various frameworks for values.

Conclusions

The National Framework for Values Education in Australian Schools lists 9 values to be developed across key learning areas, through a whole school approach. Little guidance has been given as to how teachers might develop these values. Moreover, these abstracted labels are not meaningful on their own. As Dewey (1938) argued, meaning comes from the significance of experience.

In this paper, experience is conceptualised in terms of cultural historical activity theory in order to illustrate the relationships among the normative objects (purpose/significance) of activities and the ways in which mediated actions are concrete value-laden instantiations of how individuals engage in activity. Values derived from studies of the workplace are used to illustrate the various ways in which normative actions and activities can be give rise to abstracted generalisations and taxonomies of values, which capture the values that can be identified in activity, but which are not meaningful on their own. It is illustrated how these abstracted sets of values are arbitrary.

It is argued that learners will find constructions of values meaningful only if they can relate them to meaningful concrete activity. It is further argued that the particularisations of values in meaningful concrete activities need to be compared and contrasted and related to abstractions of values into taxonomies. Following van Oers (1998), this process of mindful abstraction (Perkins & Salomon, 1989) can be used to relate particulars to coherent wholes. This occurs through the particularisations of values in different kinds of significant concrete activities in work and other social settings, which allow a re-contextualisation of the values in situations where the meaning is constrained; and a reconciliation of these differences with various abstractions. The mindful abstraction of values from experiences in different social settings would constitute engaging learners in consequential transitions (Beach, 1999).

The challenges for the technology educator, then, are considerable. They include finding appropriate experiences, analysing these experiences for the instantiation of the 9 sets of values in the Framework and designing tasks that would press the learners into finding similarities and differences among value-laden actions and activities and their relationships with those in the abstracted set. It is suggested that, for many technology education students, workplaces might provide a rich source of values-instantiations. However care would be needed in ensuring that values outside of activity systems with profit-related motives were contrasted with those of workplaces.

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