

# Situating Skills

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*The discourse surrounding skills in education and learning has often been dismissed as mere 'skill-talk'. This article seeks to reject this criticism by arguing that much of the criticism of skill-talk rests on an unsatisfactory behaviourist view of skills. Another approach towards considering skills is also considered, an approach deriving from the Aristotelian concept of technē, but this is also rejected. It is suggested that the concept of 'situational understanding' provides the best way of thinking about skills. This approach firmly situates the learning of skills within context: the possibility of all-purpose generic skills is rejected. At the same time, this approach helps to articulate what is needed from the standpoint of agency if skills are to be 'transferred'.*

## **INTRODUCTION**

In recent years, there has been some reconsideration of the aims of higher education. Thus Ronald Barnett (1994, pp. 22–28) acknowledges that the erosion of the institutional independence of universities has also put into question the academic discipline as the sole source of criteria as to what counts as knowledge: other criteria jostle for attention—societal need, the personal development of the learner. Or again, John Elliott has drawn attention to the decline of the view whereby teacher education aims at producing the rational-autonomous professional in favour of a model that emphasises critical practice and situational understanding (Elliott, 1993, pp. 16). In somewhat similar vein, Paul Hirst has written of a shift away from the view of education as the acquisition of detached propositional knowledge to one where 'social practices and practical reason are the fundamental concerns of education' (Hirst, 1998, p. 19). None of these writers are in favour of jettisoning the role of critical understanding and replacing it with something else: it is rather a question (both theoretical and practical) of extending the view of what it is to be 'educated'. We might summarise this shift by saying that the aims of education incorporate both critical understanding and the idea of an incipient practitioner.

Leaving on one side the practical and financial implications of this kind of shift (they are, of course, huge) there is a range of theoretical implications to be explored. Thus Barnett, in examining the notion of

critique, tells us that ‘higher education cannot be seen as purely cognitive, but has to be seen as experiential: the development of critical reason calls for the development of whole persons’ (Barnett, 1997). Donald Schön’s enquiry (1983) into how professionals address problems through ‘reflection-in-action’ is well known and shows how higher education might approach producing incipient practitioners. And of course, Joe Dunne (1993) has examined many of the underlying themes through an examination of *technē* and *phronēsis* (for example his argument that Aristotelian *technē* needs bolstering by a concept of experience—see Dunne, pp. 283–285 and ch. 10).

But despite these examples amongst many, there is one area that still seems to be under-theorised and that has not quite had the theoretical and philosophical treatment afforded to other areas. Perhaps this is because this particular concern just does not stand up to the same kind of scrutiny as others; or perhaps—as I will try to argue—it has been misrepresented (primarily because its enthusiasts misrepresent it) and so has never attained the kind of respectability accorded to other concerns. I refer to the treatment of skills and the related issues of transferability, the relation of skills to ends and the relation of skills to domains.

Skills are typically interpreted from the standpoint of instrumental reason. The approach taken by Blake *et al.* may be regarded as representative of those who see skills as having a strictly limited role in a discipline-orientated curriculum. They put forward two objections (1998, pp. 56–58). The first is that skills are divorced from the ends of action and that the learning of a set of techniques does nothing to settle the crucial question of what purposes the techniques are to serve in the first place (see also Johnson, 1998, pp. 204–205). The second objection is that skills divorced from context amount to nothing more than a set of shadow techniques that are congenitally incapable of engaging with any content, be this theoretical or practical (see also Barrow, 1987, p. 192). From this, the conclusion is drawn that transferability rests on theoretically shaky grounds and that (unsurprisingly) the evidence for transfer is slight.

I will try to argue that the model of instrumental reason fails to engage with the complex nature of skills and performance. Most activities that involve skills involve something more than the exercise of mere technique, and consequently a suitable theoretical framework is needed in which the conditions for the exercise of a skill can be interpreted. First of all, I will examine two interpretations of instrumental reason—the behaviourist approach and the *technē* approach respectively and show how they are inadequate. Hopefully, this will also show why any critique of ‘skill-talk’ that assumes the context of either of these approaches is bound to be unsatisfactory. I will then argue for a third approach, based loosely on the idea of situational understanding, propounded by Elliott (1993, pp. 17–18). I will then go on to say something about the relation between skills and domain theory, and related to this will make some remarks on how a version of critical thinking, suitably interpreted, amounts to something more than a set of generalised techniques. Finally, I will address the question of

transferability and suggest ways in which the issues of transfer can be considered. I consider that the issue of transferability is an interesting philosophical question in its own right, but because many philosophers have been bedevilled by the approach of instrumental reason to skills and transferability they have been unable to utilise a wide and diverse spread of philosophical ideas on this matter.

### THREE PERSPECTIVES ON SKILLS

#### *The behaviourist approach*

One way of defining a skill is in terms of a series of operations, capable of repetition, with an outcome that is measurable. The operations may be simple or highly complex: exercising a skill may call for care and intelligence. But on this view it is essentially a performance that is based upon a body of knowledge of which the performer need not be aware. It may even be conceded that those in possession of the knowledge underlying a skill are not necessarily the best people to exercise it. A skill, moreover, is an operation in which the personal characteristics of the doer are in little evidence: it may be that at the craft end of skills something of the worker's personality is permitted to feature in the final product, but in general the value attached to a skill is precisely that individual differences are effaced. And finally the outcome or result of the skill is entirely independent of the operations that produced it. Assessment of the quality of the outcome need not require too much acquaintance with process. In particular, though knowledge and understanding may be necessary conditions of the exercise of a skill they are none the less to be regarded as mere inputs as far as measuring the outcome is concerned.

This view of skills is reflected in a government sponsored report by the National Skills Task Force. There, we are told that 'skill is the idea of competency or proficiency . . . skill is the ability to perform a task to a pre-defined standard of competence' (Department for Education and Skills, p. 21). The difficulty with this perspective on skill is the same as that which besets competence assessment insofar as it focuses on outcomes rather than process, assumes a disjunction between performance and person, and tends to neglect personal qualities of both mind and character (see Hyland, 1997, p. 496). If skills are interpreted in this manner it is scarcely surprising that their educational worth is questioned. Thus Robin Barrow takes 'dribbling a ball, conjuring and planing a piece of wood' as his exemplars of the idea of a skill (Barrow, 1987, pp. 190–191). He does so because he believes that a skill is essentially a technique learnt through training or practice. He goes on to say that this kind of skill is a 'true skill' (p. 192) because it is appropriate that such skills can be learnt outside of context. Having established this as the starting point in his argument, it is then relatively easy to show that cognitive-based activities (the activity of the historian is the example given) do not involve 'the practice of specific operations'.

Barrow thus trades on a behaviourist, operationalist definition of skill in order to rule it out as pretty well unworthy of any teacher unless they happen to be teachers of dribbling. But is dribbling a ball the 'isolatable, discrete ability' that Barrow says it is? The ability to dribble a ball is only of real use if taken together with other footballing abilities — passing ability, the ability to read a game, to anticipate, to adjust one's style of play to the physical conditions or to one's opponents. What makes football — and other sports — both a pleasure to watch and play is the combination of technique and intelligence. Or again, take planing wood. Would there be much use for someone who was an 'excellent planer of wood' if they did not have knowledge of different types of soft and hard woods, someone who was not able to plane intelligently, mindful of the role their planing had in the context of a job?

It may be the case that certain low-level skills can be learnt in a context that is very thin (cycling and swimming come to mind, but not if one is a Tour de France cyclist or an Olympic swimmer). But the successful learning and exercise of all but low-level skills seem to call for *a*) an awareness of the environment in which the activity is being performed and its likely impact; *b*) some knowledge of what has gone on before; *c*) an awareness of the overall purpose of the activity; *d*) an ability to revise and adjust the activity in the process of doing, and finally; *e*) sufficient awareness to select from a variety of techniques (selection of the right technique being one of the constituents of being skilled). If we think of these five features as attributes of knowing-how, and if we construe the epistemology of a skill in terms of knowing-how, then it would seem to follow that inasmuch as knowing-how logically implies a context, so must a skill. This is why the behaviourist approach is so misconceived: it assumes that the successful performance of a skill can be assessed in a context-independent way.

This argument implies more than the point often emphasised that skills involve thought and reflection and so are 'mindful' (for example, see Griffiths' reply to Barrow, 1987, p. 212). It is that skills are learnt in a context and are deployed in a context. The context or background gives the skill its purpose or point. Thus whether a skill is performed more or less well depends not only on whether particular techniques have been mastered, but also on whether the particular context has been appropriately understood. It follows, therefore, that there are not necessarily straightforward, simple objective criteria for what counts as successful performance, since interpretations of context may vary and what counts as a successful performance in one context may not do so in another. Thus another support of the behaviourist approach (the possibility of value-free assessment) is removed.

### *The approach from technē*

The second perspective on skills utilises the concept of *technē*. It seems to me that this concept, in the hands of Aristotle and his interpreters, constitutes a rich and powerful interpretation of instrumental reason.

Nevertheless, it does not capture the complexity either of a skill, nor indeed the complexity of the activity of those practitioners engaged in exercising a *technē*.

One way of interpreting *technē* is in terms of craft-skill: thus in the *Nicomachean Ethics* it is stated that an 'art is a reasoned capacity to make' (1980, 1140a8). The contrast between making and doing, between activities that produce an end external to those activities as opposed to activities that are themselves their own end would seem to downgrade activities of the *technē* type to ones that are merely instrumental in producing an end. It may well be that it is this distinction that motivates the disdain felt by some for skills in general. However, in the hands of Martha Nussbaum, *technē* is transformed into something much more interesting.

For Nussbaum, *technē* is to be contrasted with *tuchē*, meaning luck, chance, contingency. She argues that the ancient Greeks were much concerned with the management and control of their lives such that the role of *tuchē* was to be reduced as much as possible, and, where this was not always possible (especially in the ethical domain), with the acceptance of *tuchē* as an ineliminable feature of human life. Contrasting the role of *technē* with *tuchē* she tells us:

Techne, then, is a deliberate application of human intelligence to some part of the world, yielding some control over *tuche*; it is concerned with the management of need and with prediction and control concerning future contingencies. The person who lives by *techne* does not come to each new experience without foresight or resource. He possesses some sort of systematic grasp, some way of ordering the subject matter, that will take him to the new situation well prepared, removed from blind dependence on what happens (Nussbaum, 1986, p. 95).

Thus, on the one hand, *technē* has a practical dimension since it is concerned with the felt and experienced needs and wants of humankind; on the other hand, it has a theoretical dimension, which is directed towards the underlying processes that make prediction and control possible. There is, furthermore, no implication that *technē* belongs to the domains of science or technology exclusively: rather we could see the domain of *technē* as extending right across a range of disciplines including, for example (to give *technē* a contemporary application), environmental sciences and mental health. Nussbaum further suggests that there are four features that characterise *technē* (ibid., pp. 95–96):

*Universality*—wherein a systematic unity of method arises from a universal judgement about a group of similar processes. This means that a *technē* is inherently transferable: the whole point about *technē* is that the methods can be used in a variety of situations with results that can be reasonably expected. A *technē* enables a practitioner to pick out features of a situation that are pertinent and to employ methods and procedures that can be

expected to have similar outcomes across a range of situations. But note that these situations are related on a type–token model, so that a *single* method or procedure (type) is effective for a range of tokens (events, situations). The success of *technē* over *tuchē* is dependent on its ability to discern a wide range of type/token relations. Indeed, one might go further and say that the success of *technē* depends on its ability to *impose* such a relationship on what might seem at first sight unpromising raw material. The success of a practitioner therefore depends, first, on her having in her possession a range of methods and, second, on her ability to pick out from any situation those features that correspond to the appropriate method, taking account of all relevant features.

*Teachability*—Techne is not the preserve of some particular individual, nor does it arise out of the unique talents or gifts of some particular person. The methods of *technē* can be transmitted from person to person; *technē* becomes a common resource.

*Precision*—This is a particular feature of universality, because measurement and precision assume a common standard so that apparently dissimilar phenomena can be compared and results can be evaluated in accordance with commonly accepted standards.

*Explanation*—Methods and outcomes are underpinned by forms of explanation that utilise a relevant body of knowledge. The doctor has an explanation of why the medicine works and the engineer has an explanation as to why the railway line is cracked. We can think of this knowledge as knowledge-in-use: the doctor utilises certain principles of bio-medicine, the engineer utilises knowledge underlying metal fatigue. It is the explanatory force of a *technē* that underpins particular methods and procedures. Methods are chosen not simply through experience but because there are theories that have explanatory force as to why some situation takes the form it does.<sup>1</sup>

The advantages of the *technē* approach are initially striking. For if we think of a skill as the practical employment and implementation of methods and procedures, then a skill becomes an activity at the point of practice that has behind it a weight of theory, which validates the skill and through which its outcome can be assessed. The difficulties of context that we encountered with the behaviourist approach are overcome. Moreover, this approach seems to afford the possibility of the objective assessment of outcomes in the sense that the explanatory force of the *technē* has universal application. And even if this ‘universality’ is restricted so that it is equivalent to something like ‘what practitioners of a particular *technē* are prepared to agree to at time *t*’ this is still universal enough for practical purposes.

The difficulties, however, with this approach are well known. Thus Schön has cast doubt on the method that lies at the very heart of the *techne* approach, namely the ability of a practitioner to identify, for any token situation, the exemplary type under which it falls. He holds that

uncertainty, uniqueness and instability are defining features of many of the situations confronted by practitioners, which means there is no single method/procedure that can standardly apply to a particular situation (Schön, 1983, pp. 42–43). What the practitioner has to do, therefore is to create and improvise a solution. This also has the consequence that the exercise of a skill often cannot follow a path laid out in advance.

Furthermore, Schön points out that the *technē* approach assumes that ends are agreed and are unproblematic (ibid., p. 41). Yet in a situation of uncertainty or one that has certain unique features, the ends to be attained may themselves start to become unclear. The practitioner therefore finds herself having to work out just what the purpose of her activity is in respect of a particular problem, and general prescriptions ('maintain life of patients' or 'safety is the first prerequisite of bridge-building') are of little use since it is the meaning of these prescriptions in particular situations that is precisely the problem. Indeed, we can see that the absence of ends from the list of features of *technē* is not accidental. In order for the type/token model to work there just *has* to be an implicit agreement on ends since it is the intrusion of values (especially where there are any personal or social sensibilities to be taken into account) that immediately starts to make the model unstable. The temptation is then to shoehorn one's conception of a situation into a particular type/token model and to ignore or screen out features that do not fit.

It might be thought that the *technē* approach falls foul of the criticism made by Gilbert Ryle of splitting off knowing-that from knowing-how. Ryle's main purpose in formulating the distinction is to show that the exercise of intelligence involves these two modes of knowing. In particular, Ryle attacks the two-step process in which first of all one learns certain propositions and then one learns how to apply them: 'To do something thinking what one is doing is, according to this legend, always to do two things; namely, to consider certain appropriate propositions, or prescriptions, and to put into practice what these propositions or prescriptions enjoin. It is to do a bit of theory and then do a bit of practice' (Ryle, 1949, p. 30). His major objection to this way of thinking is that it presupposes that for any 'bit of practice' there must first of all have been some inward, cognitive grasping, whereas Ryle insists that all intelligent performances are activities that involve *both* considering and executing. For example, if I learn a set of rules, I cannot be said to have learnt them unless I can use those rules in appropriate contexts. It does not matter if they are 'practical' rules like the Highway Code or 'theoretical' ones like the rules for solving simultaneous equations. Thus any display of knowledge is a fusion of knowing-how and knowing-that. It is also characterised by a degree of self-reflection in which the agent goes through a kind of self-monitoring process in which he or she checks and corrects their performance whilst it is happening. Ryle further distinguishes between habitual practice — which is merely a replica of past performances — and intelligent practice in which a performance is modified by its predecessors (ibid., p. 42). And rather

than consign training to habitual practice, Ryle insists that training actually develops the intelligence; it is only drill that dispenses with intelligence altogether.

Bearing in mind this account, it seems to me that there is nothing in the the approach from *technē* that is incompatible with Ryle's conception of knowing-how. It need not necessarily imply the two stage process of theory and practice that Ryle criticises. His point, I take it, is to emphasise that practice is an intelligent performance and is not simply the mindless application of procedures implied by the two-stage process. Yet powerful though his account is, it is not clear if it goes far enough. Furthermore, to the extent that Schön rallies Ryle to his defence (Schön, 1983, p. 51), it may be that Schön does not fully understand the import of some of his ideas. The key to Schön's ideas is the need for a practitioner to be able to create and improvise, and this depends on a contextual understanding allied with a willingness to experiment using a repertoire of understandings and techniques in order to find the best 'fit' for the problem to hand. This requires something more than intelligent performance if it simply means something like 'the successful execution of complex mental routines'. It implies a willingness to create and re-create performance in the light of one's understanding and to test that understanding itself in the light of response to a performance. It may well be that Ryle's model of knowing-that/knowing-how is perfectly adequate for many exercises of *technē*. My point, however, is that it does not adequately form an interpretative background to Schön's own examples of the reflective practitioner in action.

### *Situational understanding*

The third approach in the consideration of skills is drawn from John Elliot's model of situational understanding, which he terms a hermeneutic perspective. He adopts this approach in order to explore a particular model of teacher training, but I propose to employ the approach more freely to cover any situation that requires an interpretative understanding allied to a series of actions — a performance — orientated to producing a publicly defined outcome or process. He defines situational understanding as having the following characteristics:

- a) Practice is grounded in interpretations of situations and cannot be improved without improving those interpretations.
- b) There is no 'objective' interpretation but one can nevertheless recognise and modify bias (without ever being able to eliminate bias).
- c) A situational understanding cannot be reduced to a theoretical understanding — theoretical analyses are 'episodes' in reaching an interpretation.
- d) Practice involves being able to respond appropriately to a situation as it unfolds.
- e) In order to facilitate practice what is needed for an agent are the appropriate *capacities* for generating situational understandings (Elliot, 1993, pp. 17–19).

Taking these points in turn, we may interpret the concept of skill in the following ways.

- i) The exercise of a skill is dependent on the interpretation of context by the practitioner. Success in executing well-practised techniques is of no avail without the appropriate interpretation and it is not possible to separate off skilful performance from the interpretation.
- ii) In any complex situation it is likely that a range of possible skilled performances will meet criteria of adequacy: there can be no simple checklist approach to assessment.
- iii) In the course of exercising a skilled activity, I may have recourse to theory. I may do this, for example, in order to assess my own interpretation of a situation. But I do not first work out the theory and then apply it (cf. Ryle's 'do a bit of theory and then do a bit of practice'). Rather the theory emerges as interpretation, which is then exhibited—even, one might say, expressed—through the practice.
- iv) A skilful performance is not (necessarily) a seamless execution of technique. It involves knowing-in-action, a 'reflective conversation with a unique and uncertain situation' (Schön, 1983, p. 130). We can now clearly delineate the difference between situational understanding and the *technē* approach. The crucial difference is between the response to change and uncertainty. *Technē* strives for the elimination of chance and contingency by imposing on recalcitrant material a set of methods and procedures from which are derived performative techniques. Situational understanding, on the other hand, modifies its approach in the light of a repertoire of specific problem-cases.
- v) Whilst a novice may need to learn a set of techniques, a practitioner will have certain capacities whereby those techniques can be deployed. It is these capacities which ultimately need developing.

David Bridges (1993) has given a brief account as to what such meta-competencies involve that bears some resemblance to Elliot's account of situational understanding: they include an ability to sense similarities and differences between settings and an ability to extend or modify one's repertoire of competencies. Bridges goes on to remark (p. 51) that this kind of account takes us some way beyond what many have understood as skills. But it may well be that the idea of a skill just *does* contain many different patterns of activity. They range from IT skills (many of which are by definition transferable across contexts) to those skills that are more context-dependent. Perhaps, then, it would be more acceptable to think in terms of arts (*viz.* the art of communication, the art of problem solving and negotiation, even the art of team-building) as far as some skills are concerned. They could be seen in this way to the extent that the deployment of skill is a contrivance, a performance that is constructed, albeit a contrivance that may be temporary and fleeting. A skill may also be seen as 'artful' insofar as the accomplishment is a purposive

endeavour that reflects something of the personality and character of the practitioner. And finally, a skill may be seen as an art in the sense that it is the harnessing of a series of techniques and knowledge in order to achieve some demonstrable accomplishment.

I am suggesting that many skills can be thought of in terms of arts, not because a change in vocabulary will make them more acceptable to those sceptical of skill-talk but because of what they are. It may be more fruitful, then, to think of the term 'skill' in an inclusive way, ranging from techniques that can only be learnt through repeated and sustained practice to performances that are improvised and combine a range of techniques. The supposition that 'skill' needs to have a clear-cut definition and referent was something that seems to have guided Barrow's thinking in his 1987 paper. But that a term's meaning may be inclusive of a variety of nuances depending on context is nothing new to philosophers: why, then, should there be a problem about 'skill'?

In speaking of skills in terms of arts, it might be as well to foreclose one possible interpretation of where this paper is heading. Having considered, and rejected, the idea that skills can be understood in terms of *technē*, is it being proposed that they be thought of in terms of *phronēsis*? It is true that some of what Aristotle says about deliberation—that we deliberate about things that happen through our own efforts, that we deliberate about what is variable, not what is invariable—fits into the idea of situational understanding. But as is well known, Aristotle also said that we deliberate about the means, not the ends (EN1112b12), and that the man of practical wisdom deliberates about the kinds of things likely to 'conduce to the good life in general' (EN 1140a28). The uncertainty to which Aristotle refers does not extend to the ends of life, which, for him, can be demonstrated by argumentation through consideration of man's function (*ergon*). Whereas what underpins the idea of situational understanding is the rank uncertainty of both means and ends: situational understanding points to conditions where knowledge is provisional and the ends of life are subject to continuing questioning and revision.<sup>2</sup> Thus although the idea of situational understanding bears some relation to *phronēsis*—and could, not, perhaps have even been conceived outside the phronetic perspective—it nonetheless (for better or ill) surpasses Aristotle's original formulation just because the notion of an *ergon* for man is disjointed with respect to our experience here, now, in the twenty-first century.

## DOMAIN THEORY AND SKILLS

Since I have argued throughout that skills are context-related, there is no need for me to respond to claims that the concept of a generic skill is incoherent because it conflicts with the domains concept of forms of knowledge (see for example, Johnson and Gardner, 1999, p. 439). One of the central themes of this argument is a scepticism regarding the possibility of all-purpose generic skills that can be learnt and taught

independently of context and that have general application across domains. There is an exception to this general rule, of course, since there is a subset of skills that consists of a set of specific techniques and practices, and that, once mastered, can be used in most domains—IT skills and possibly numeracy skills come to mind (though, importantly, the deployment of these kinds of skills still requires situational understanding). But in general, skills are learnt in a context or domain and are not automatically transferable out of it. Skills in themselves are not transferable; what really counts is the person who has the skills. For there to be transfer a number of conditions need to be met, as I shall explain in the next section. Before that, however, I should like to make some remarks on the relation between skills and domains.

One of the reasons that Hirst's account of domains is attractive is because he sees a knowledge-domain as a form of experience (Hirst, 1974, pp. 44–46). I interpret this experience dynamically, that is, not simply as an inert set of propositions but as constituting a perspective of the world that transforms the experience of the learner. Now, it is usually conceded that skills that are domain-related (subject specific skills and techniques) form an aspect of the forms of knowledge. What, I think, is less stressed in discussions of skills is how the development of a range of abilities may help to deepen the learner's experience. The 'experience' I am referring to is that of the engagement and understanding of a discipline. My suggestion then is that through the engagement of different abilities this understanding may be extended and deployed in different situations. If the learning of a discipline involves problem-based approaches, uses group working and requires that assignments involve a variety of communication skills, then it could be that the *understanding* of a discipline is enhanced just because learning takes place across a range of activities that engage different kinds of cognitive abilities on the part of the learner. The point is that a skills-based approach to learning may be entirely consistent with both the spirit and the letter of domains theory. If skills help to enhance domain-related understanding, then a case has been made for them before any need to consider any claims about the transferability of skills.

The idea of an extended understanding, therefore, involves the idea of an understanding that can be developed, explored and demonstrated in different kinds of abilities, whilst still remaining firmly within the domain of a particular discipline. But this idea of an extended understanding starts to have a wider applicability when we think of the complexity and sheer number of disciplines, on the one hand, and the requirements of a democratic culture, on the other. This idea has been explored by David Alexander and Ian Martin (1995). Drawing on work by Alasdair MacIntyre (1987) and George Davie (1991), they argue for the idea of an 'educated public' in order combat the trend towards specialisation. Now what all these writers are concerned with, of course, is the possibility of developing a common stock of ideas and information that is part of the public domain and that enables persons from different disciplines and professions to communicate across their specialised

concerns. Their particular concern lies in developing a curriculum that can meet these 'generalist' requirements as well as the specialist activities on which a modern society depends. Alexander and Martin use these ideas to criticise the competency movement, because of its tendency to divorce, along behaviourist lines, competency from knowledge and understanding.

The idea of an educated public, necessary for a democratic culture to flourish, can also be explored along another, though related dimension. I am thinking of the need for disciplines and specialisms to explain themselves and their concerns both to a public and to persons from other specialisms. No doubt for this to happen there needs to be a common stock of concepts in the public domain that can be drawn on—concepts relating to scientificity, for example. But there is also a need for those from a specialism to have the ability to communicate and explain, perhaps in a variety of situations (for example, collaborating with others in a close relationship, communicating to a more general public, needing to explain ideas to another group of professionals). They will be more able to do this, I suggest, if their understanding of their own discipline has arisen through a variety of activities, covering problem-based approaches, oral presentations and the like. To put it another way: someone may have difficulty acting in and experiencing a democratic culture if she has spent the bulk of her studies writing essays and not much else.

### CRITICAL THINKING SKILLS

The assumption that the justification of teaching critical thinking skills rests on their alleged inherent transferability is shared by both supporters of these skills (for example, Higgins and Baumfield, 1998; Thomson, 1996, p. 4) and their opponents (Johnson and Gardner, 1999). It is also assumed by both Higgins and Baumfield and these opponents that this transferability, if it exists, rests on the *general* nature of these skills—general thinking skills (GTSs). The assumption then seems to be that if it can be shown that there are no such skills of a general nature, the case for transferability falls and so does the case for teaching them. One way of arguing that GTSs are nothing more than 'sage generalisations' (the phrase mentioned by Johnson and Gardner) is to point out that unless knowledge and understanding of the subject matter is present then the ability to follow arguments, assess the importance of assumptions and the like is considerably reduced, and no amount of training in GTSs can make up for this. Thinking skills, if they are to be of real use, must be accompanied by an understanding of content (see Johnson and Gardner, 1999, pp. 436, 439). The other, in many ways more interesting approach, is to argue that even if there are general faculties of the mind (observing, judging) these are not in themselves particularly significant: historically, growth in knowledge has arisen through specific capabilities directed towards problems that are framed in certain ways and have distinctive scope (see Hirschfeld and Gelman,

1994, pp. 3–4). Taken together, these two arguments seem to tell against the possibility of there being GTSs that are ever really worth learning.

But what these arguments show is not that there are no critical thinking skills but that there are no GTSs, that is, thinking skills that exist as free-floating processes that can be taught in a domain-free environment detached from context. In learning complex subject matter certain processes of thinking are involved—for example, the ability to distinguish such pairs as necessary and sufficient reasons, premise and conclusion, cause and correlation, explanation and justification, or bias and commitment (an extended list is given by Fisher and Scriven, 1997, pp. 104–106). Typically these kinds of distinctions will be couched in the vocabulary of a particular discipline. But it is *also* possible to describe the processes of thinking and reasoning through a vocabulary explicitly designed to highlight their character as processes. In this way one might induce a degree of reflection on the part of the learner: this would be twofold, *viz.* a reflection on the subject matter and a reflection on the thinking processes involved in ordering and structuring this subject matter. It is not a question here of learning new skills: it is a question, rather, of making explicit the processes involved in the knowing-how of the subject matter.

One critic of thinking skills argues that if thinking processes are to be made explicit to learners then this must involve some direct, private introspection of mental processes (Johnson, 2001, pp. 22–23). No doubt some of the literature of thinking-skills enthusiasts lends some support to such a view, especially when it is said that there is a need to reflect on these processes. But the difficulties attendant upon introspection can be avoided if it is emphasised that there is a certain vocabulary that can be learnt (in addition to the vocabulary associated with a specific subject), the use of which itself enables a learner to reflect on thinking processes. No additional reflection is needed other than an ability to describe what one is doing in terms of identifying assumptions, arguments, conclusions. No ‘meta-reflection’ is needed in addition to, say, the ability to detect when a justification is masquerading as an explanation and to explain the difference between them with reference to some particular claim.

What would be the point in learning a vocabulary describing thinking processes? It is certain that chemists or sociologists can get on most of the time, in their specific disciplines, without having to resort to such a vocabulary—so why should it ever be taught?

I would identify two reasons why this could be both useful and desirable, though I make no claims to originality for advancing either. First, thinking skills can be used as a tool in the forensic examination of claims and arguments made in the public arena concerning matters of public concern, where no specialist subject knowledge is needed. It seems odd that if someone has learnt to think deeply in some particular discipline they should not be able to use some of the thinking processes involved in that discipline in arenas of general interest. The possession of a common vocabulary applicable to thinking processes brought from the

disciplines should help to identify the very components normally associated with critical enquiry. The second reason follows from the first and also refers back to the requirements of a democratic culture referred to in the last section. Put quite simply, a democratic culture does not want its citizens to be imprisoned in their own domains of knowledge and vocation. A democratic culture needs the spirit of critical enquiry writ large. The language of thinking skills helps to provide a vocabulary that is common to all, that can be used by all and that helps to ensure that claims made from one knowledge domain can be subjected to scrutiny by others. No doubt it will be protested by opponents of thinking skills that outsiders to a knowledge domain can never have anything like the deep knowledge necessary to make informed criticism. But that is not the point. The point is that outsiders (in a democratic culture) need to know the implications and significance of knowledge claims; and it is incumbent on those inside a domain to explain what they are about in as non-technical a language as possible. And this involves utilising that common stock of concepts in the public domain, including concepts used to describe the thinking processes involved.

At this point, a sceptic may well applaud these democratic sentiments but feel obliged to point out that the prescriptions assume that thinking skills can be transferred, for which available evidence is patchy and unconvincing. It is to the issue of transfer, then, that I finally turn.

### **SITUATIONAL TRANSFER**

It is a long-standing criticism by those sceptical about including provision for skills in curricula that there is scant evidence of transfer. It seems that our knowledge and skills are divided into more or less self-contained units and that, even if these units are apparently close in character, transfer between them is sadly lacking.<sup>3</sup> Sometimes it seems that advocates of transfer could never win in any case. For consider: if a procedure has been transferred successfully from one context to another, but the procedure itself has not been altered, then nothing has changed and no transfer has taken place. On the other hand, if a procedure has been altered in some way then it must be a different procedure in each case, so again, no transfer has occurred. The problem is that in order to test for transfer the skills/procedures involved, as well as the contexts, have to be closely aligned. Conversely, if transfer is to have the power ascribed to it, then we need the contexts to be different to the extent that the deployment of the skill is modified — yet it is in just such cases as these that we are at a loss as to what it is that has been transferred. We then either fall back into a general scepticism about transfer, or, more optimistically, say that transfer depends on some special ability to transfer. This does not take us far at all.

It is important to distinguish two kinds of transfer. The first is direct transfer, where a technique is used in different contexts in the same way — the exemplar would be word-processing skills. Here, the transfer

is identifiable and explicit, since the same techniques can be carried across contexts. The difficulty is making out a case for transfer applying to those more opaque 'generic' skills. Could a case be made, for example, for the application of this type of transference to problem-solving skills? The idea would be to construe these in terms of a set of methodologies that could then be used across different contexts. The methodologies would need to consist of step-by-step instructions that could be 'applied'. But the suspicion is that a methodology like this could only work either in contexts that were sufficiently general not to warrant deep understanding (in which case the need for a methodology would be superfluous), or in contexts that had the same structure (in which case transferability would become limited in scope).<sup>4</sup>

I conclude that the model of direct transfer has only limited application in the field of skills. Those who complain about lack of evidence for transfer have, I suggest, this model of transfer in mind. In particular I would suggest that thinking skills, as discussed in the previous section, cannot be directly transferred, since a context has to be conceptualised in an appropriate way before any specific techniques can be brought into play.

The second type of transfer is where the agent herself does the transferring through the use of situational understanding—I shall refer to this as 'situational transfer'. This presupposes an agent undertaking some intentional activity against a background that is understood in a certain way. In particular, the background is understood in terms of its similarity or dissimilarity to situations already encountered. One may think of skills (or art-skills) as the deployment of a set of techniques from a repertoire that can be combined in different ways. What counts is not so much the actual techniques—for in themselves they may be fairly simple, especially if broken down into procedures and practices with a limited number of steps—but how they are deployed through action. Thus we are obliged to investigate the dynamics of agency in situations of change, as opposed to the mere mechanical transfer of procedures and practices.

If transfer is not interpreted from the standpoint of the agent then failures of transfer become mysterious, especially if transfer does not seem to happen between activities that are apparently similar. But, of course, these judgements of similarity have to be made by the agent herself and these are dependent on perspective and local history. Aspects of the new situation have to be viewed as sufficiently close in character to what is already known in order that the new situation be framed as such and such a kind, and understood in terms of its particular scope. This seems to depend on the extent to which an agent *tries* to fashion links of similarity and this in turn depends on whether the motivation is present as well. But the difficulties go deeper than this. Andrew Davis has drawn attention to the way in which comparisons between learning contexts are almost bound to show up differences, in contrast to the way in which the properties or dispositions of physical substances can vary very little, if at all, across a range of conditions (Davis, 1998, p. 86). The

same kinds of considerations seem to apply to contexts where some kind of performance or practice is needed: an intelligent appraisal will not simply apply a standard routine but will take account of apparent similarities/dissimilarities. Moreover, finding a range of similarities may not be sufficient unless these can be interpreted in terms of a workable framework. Unless the range of similarities is sufficiently extensive, the judgement may be that the situations are simply too dissimilar. And even if an extensive range of similarities has been detected then they still need to be organised into a coherent framework.

As we have seen earlier, Schön's insights are important here in that he calls to our attention the way in which the practitioner has a repertoire of models or pictures, which need to be tested against a situation in order to find a 'best fit'. Somehow, the situation has to be conceptualised in a certain way before any effective action can take place. But in a sense, Schön just gives us a surface description of what happens when a practitioner tries to 'frame' a problem, as he puts it. Something more is needed: we need to understand how this framing takes place, and we have already seen that noting similarities and dissimilarities does not take us far enough.

Something along the lines of Wittgenstein's account of 'seeing-as' is the beginning of what is needed. It will be recalled that Wittgenstein distinguished two kinds of perception: one is a matter of straight observation, the other akin to interpretation. One of his points is that we do not simply observe something (for example, an ambiguous drawing of a duck-rabbit) and then proceed to interpret this something 'as' a this or a that, in the manner of a two-stage process. Rather our seeing and our interpretation seemed to constitute one and the same action or mental grasping (Wittgenstein, 1958, p. 196). It is this seeing-as that constitutes the organisation of a range of features of a situation into a 'picture', but the puzzle is that the features are not necessarily enumerated one by one and then 'organised'. It seems, rather, that the enumeration and the organisation go hand in hand so that a situation is interpreted through a process of seeing-as, analogous to Wittgenstein's description of what takes place.

Wittgenstein's account, influenced by a visual *Gestalt*, seems to give us an account of where a situation—a picture—is grasped as a whole through a switch of perspective. But in the situation we are considering, something of a more discursive process seems to be occurring in that the interpretation takes place along two dimensions. First, each feature is 'tested' for similarity/dissimilarity to previous experiences. This particular process is one of *recognition* in that we see some feature in the guise of familiarity. In this way, the agent can orient herself so that the familiar can become a comfortable starting-off point. Later on, it may be that this initial familiarity has to be revised or even abandoned. It is worth observing, in passing, that a skilled practitioner perhaps only needs two or three scraps of familiarity to get her going: that is enough to build up a picture. The second dimension is the way in which features may be picked out and then *related* to each other. Again, these relations

may be provisional; but initially this is one way in which unusual features can be taken account of—namely, by relating them to features that seem to be familiar.

In this way, a picture of a situation is constructed. But we need to make an important distinction at this point. For what is being constructed is *not* an organisation of the world in which I am an independent observer. Rather, what is being constructed is a picture in which I am *engaged*: a situation in which I am unable to erase my own agency because the situation is defined precisely through the fact that the role of my agency is an inescapable feature of it, a fact that gives a situation its particular character and urgency.

Thus a key difference emerges between this account of ‘seeing-as’ and that of Wittgenstein over the role of agency and the way in which this role itself becomes part of the intentional object that is being constructed. There is another difference, which follows on from the first one: this intentional object is one that is itself subject to change, which means that the processes of recognition and relation are always provisional. This uncertainty and fragility may be mitigated through the agency of the practitioner, but of course, this agency may itself be a cause of uncertainty. If it is objected that the dynamics of agency take us a long way away from skills, then it needs to be shown that in exercising a skill I cease to be an agent and only start being one again when I have stopped being skilful. If this cannot be shown, then the conclusion is inescapable: skilful activity is one way through which my agency is realised, assuming it is undertaken with situational understanding.

It may be objected that talk of agency in a skills context must of necessity be limited because typically the exercise of skill is bounded by some set of objectives that are to be achieved. The objection may concede that exercising skills can call for considerable thought and sophistication, but it will insist that skills still fall squarely in the realm of an instrumental practice. But this is precisely the point. Engagement in an instrumental practice need not entail the expunction of agency. Part of the philosophical distrust of skill-talk arises from an unwillingness to explore, or even to recognise, the role of agency within practices that may be termed broadly instrumental, confining the exploration of agency in the context of those non-instrumental, open practices where the practice itself is its own end (Oakeshott, 1975, p. 60). The danger of this strategy, in the context of educational debate, is manifest. It is to leave the skills field clear to those with a technician or behaviourist agenda. This paper resists this tendency. Through the model of situational understanding we may arrive at a concept of skills such that they can be incorporated into curricula in such a way that the values of agency and understanding are deepened and extended.

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## NOTES

1. Joseph Dunne suggests that the above constitutes the 'official' account of Aristotelian *technē*. What I have interpreted as the type/token model would have as its counterpart in the 'official' version the pre-eminence given to *epistēmē*, on the one hand, and the relatively 'mindless' execution of procedures and/or manipulation of raw material, on the other (see Dunne, 1993, p. 285). Dunne suggests that there is another version of *technē* which emphasises the role of experience and self-investment in technique (ibid., p. 326) whereby *technē* is invested with a 'discriminating resourcefulness' on the part of the practitioner (ibid., pp. 333–334). This brings *technē* much closer to the third approach. Whether Dunne is right about the interpretation of Aristotle's *technē* lies outside the scope of this paper.
2. This need not imply an acceptance of *tuchē* in human affairs if this means thinking it useless to oppose the hand of chance. The notion of provisionality is, rather, a strategy of dealing with *tuchē*, not of giving in to it.
3. Singley and Anderson's well known review (1989, ch. 1) of attempts to test for transfer seem to bear this out. Moreover, the more successful test for transfer which they provide ('Lateral Transfer, ch. 4) seems to be an example of transfer where the contexts are similar in as much as there is a methodology comprising systematised routines in a specific sequential order. Thus their tests bear out my own anecdotal experience (see note 4 below).
4. But not so limited as to be useless. Some years ago, whilst working in a commercial computer environment I encountered 'trouble-shooting' methodologies. They gave a method for problem solving where the problem was of the 'it's no longer working as it should be' kind. The method encouraged problem solvers to collect sufficient information for them to identify what it was that had actually *changed*, and then to construct a causal story leading back from the symptoms of the problem to the actual change agent. The nice thing about the method was that it required one to identify inputs and outputs of a system without the need to know much about what went on inside it. Thus you could be a good trouble-shooter if you paid attention to the methodology, but you did not need to be an expert in the software of the system causing the trouble. The claim was made by the vendors that the methodology could be applied across all problems which had systemic features (that is, inputs/outputs), not just computer-software applications.

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