

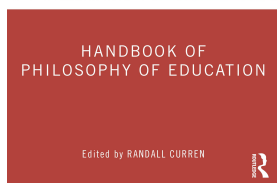
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THE FORMATION OF EXPERTISE

*Ben Kotzee***Introduction**

In the philosophy of education, the topic of expertise is usually associated with thinking about vocational or professional education. However, the concept of expertise is important far beyond thinking about educating students for a career. One natural way to describe what the educator does in providing a subject-based education is to inculcate expertise in that subject; this makes the concept influential not only in vocational, but in general education. Moreover, the concept has a bearing on a range of educational debates: Is exceptional performance predicted by an inherited cognitive capacity like “intelligence” or is it mostly learned (the “nature/nurture debate”)? Are there limits to the skills that some children can learn and how should this influence educational opportunities (the debate regarding “ability and disability”)? Is ability general or specific (the “generality/specificity” debate)? Should schools principally aim to transmit knowledge or practical competencies (the “content or skills” debate)? As Ellen Fridland and Carlotta Pavese put it:

... questions of skill and expertise are important not only for our particular, theoretical understanding of these specific notions but, more broadly, for our understanding of intelligence, cognition, and practical knowledge, full stop.

(Fridland & Pavese 2021: 1–2)

In 20th century philosophy, it was Gilbert Ryle who most influenced the debate on skill and expertise. Ryle was responsible for drawing the distinction between knowing that something is the case and knowing how to do something, and he held that knowing that something is the case is best understood not as representing something to oneself, but as being able to *do* something – that is *think* (Ryle 1945). According to the Cartesian picture of thinking, which Ryle calls “intellectualism,” skilled action is based on a prior representation in one’s mind of (a) how the world is and (b) how one seeks to change it through action. Ryle thought that this cannot be right. Representing is itself an action and if one always needed to represent the world before one could act, then any representation would have to be preceded by another representation. This is Ryle’s famous “regress” argument against intellectualism (Ryle 1949: 19).

Stanley and Williamson (2001) provide the most prominent counter-blast against Ryle. They hold that knowing how should really be understood as a form of knowing that. Stanley and Williamson note that constructions containing the word “know” often come in “wh” form, for instance “know whether,” “know who,” “know why,” etc. Stanley and Williamson emphasise that

all the other wh-constructions can be parsed in terms of knowing that something is the case, and they suggest that know how constructions can be parsed like that too: someone who knows how to do x , knows the way w that is the way to do x . This is Stanley and Williamson's "intellectualist" alternative to Ryle. According to Stanley and Williamson, knowing how to do something is simply knowing the way to do that thing. In contemporary epistemology, the debate regarding the nature of know how has become all but synonymous with the question of whether we should understand know how in intellectualist or anti-intellectualist terms.¹

While theories of "expertise" and of "know how" overlap, there are also distinct differences: theorists of know how seek to analyse the nature of know how, while theorists of expertise also work to understand the social role that expertise plays in our knowledge economy. Moreover, theorists of expertise are often as interested in the question of how to foster expertise as in the question of what exactly it is. While there is great cross-fertilisation between study of the two concepts, study of "know how" is largely a technical matter within epistemology, while larger questions of "expertise" are studied across a wide range of fields including philosophy of science, psychology, sociology, politics and education.

In what follows I discuss two broad views that have taken shape regarding the nature of expertise in philosophy. I dub them the "cognitive" and "skills-based" accounts of expertise.²

Cognitive Accounts of Expertise

Cognitive accounts view expertise as consisting in cognitive contact with the world (in a sense to be unpacked below). Cognitive accounts see accurate intellectual insight as valuable in itself: for instance, it is valuable in itself to understand that saltpetre can be an oxidant. However, cognitivists also see intellectual insight as the key ingredient that enables successful practical action: for instance, the insight that adding saltpetre to sulfur and carbon creates an explosive mixture was the intellectual key to the invention, manufacture, and use of gunpowder, with all its various civil and military applications. On the cognitive view, the expert is the person who – more than the novice – has intellectual insight into how the world works and how objects can be manipulated for practical benefit. This intellectual insight enables the expert to undertake practical tasks on behalf of the novice, or enables them to inform the novice on how to undertake those tasks themselves.

In social epistemology, John Hardwig (1985) first stresses that most people stand in a relation of epistemic dependence to experts for much of their ordinary knowledge. While printing, universal education, and (today) the world-wide web have provided people with impressive stores of knowledge regarding science, history, geography, etc, most people did not discover that knowledge independently; their knowledge relies on expert testimony. Hardwig holds that deferring to expert testimony is justified and that the expert/novice relationship is foundational to science. As a system for dividing intellectual labor, science relies on the idea that experts should *specialise* in order to advance their own fields, but it also relies on the idea that lay people will *trust* experts' findings in those fields. Otherwise expert knowledge will not spread to benefit the whole community. Like Hardwig, Alvin Goldman (1999) views expertise in light of the knowledge or information that the expert is able to share with the lay person. He defines being an expert as follows:

S is an expert in domain D if and only if S has the capacity to help others (especially laypersons) solve a variety of problems in D or execute an assortment of tasks in D which the latter would not be able to solve or execute on their own.

(Goldman 2018: 4)

Goldman has a truth-based account of what it means to be an expert – the expert is the one who believes more truths about an area or question. For Goldman, only the believing the *truth* matters. He

holds that, no matter how one came by the truth or how shaky one's ground for believing that truth is, ultimately it is the grasp of a truth about how the world works that enables successful practical action in it. This position is called "veritism" (Goldman 1999: 3). Others who advance broadly truth-based accounts of expertise are David Coady (2012: 28) and James Hikins and Richard Chermitz (2011).

Other authors propose not a truth-based account, but a knowledge-based account of expertise. On the knowledge-based account, the expert is not the one who holds more true beliefs than the non-expert, but the one with more knowledge. Like truth-based accounts, knowledge-based accounts are also informational; however, the advantage of the knowledge-based account of expertise over the truth-based account is that it rules out a form of epistemic luck. A novice may stumble on a true belief by accident, but, on the knowledge account, the novice is not yet an expert (with regard to the subject matter of that belief). A person needs to have good evidence or justification for beliefs in the domain if they are to be an expert. Authors who propose a knowledge account of expertise include Elizabeth Fricker (2006) Sanford Goldberg (2009) and Stephen Turner (2001).

A third possible cognitive account is the understanding account. Catherine Elgin (2004, 2006) suggests that the highest epistemic good is not knowledge, but understanding; moreover, she holds that understanding involves a form of knowledge-how (2017: ch. 3). Oliver Scholz applies this kind of thinking to expertise and pushes the matter further. He holds that the expert is not the one who believes more truths or has more knowledge in an area, but the one who *understands* that area better (Scholz 2009: 193). Scholz holds that what distinguishes the expert is understanding their field in depth. Whereas any lay person can come to know some isolated facts about a domain, the expert will have thousands of closely connected opinions about the domain. Importantly, not all of the experts' detailed beliefs will be true. Because the expert is one who *investigates* their domain, they will inevitably ask complicated questions and (sometimes) come to the wrong answer about them; this means that the expert may even have *more* false beliefs (amongst plentiful correct beliefs) in their belief set than a well-read novice (who may only have a few beliefs about the domain, but those mostly correct). For Scholz, what makes an expert is not the ratio of true to false beliefs, but the effort to go deeper in their domain and to connect new discoveries with one another in an overall explanatory picture (even at the risk of believing some falsehoods).

Jamie Watson (2021: 57–59) outlines a number of advantages of the cognitive account of expertise:

- i The cognitive account is simple, because it explains expertise in terms of epistemic authority. Epistemic authority (meaning simply: having more true belief/knowledge/understanding about a certain matter than another person) is a ubiquitous and easily understandable epistemic phenomenon and the 'expert' is simply the person with epistemic authority.
- ii The cognitive account provides a simple explanation for why we defer to experts: the expert can be relied on to know and/or understand the truth and is a source of epistemic help and advice.
- iii The cognitive account is objective. Because it is an objective matter whether a belief is true, or whether someone has knowledge or understanding, it is clear who is the expert regarding some matter and who not.
- iv The cognitive account is realistic, because it explains expertise as a feature of the real world. According to the cognitive account, the world works in a certain way and the expert discovers how. The expert can then use this knowledge of how the world works to achieve practical goals in the world for themselves or for others.

However, a number of criticisms of the cognitive account are also regularly made:

- i The cognitive account overestimates the importance of true belief/knowledge/understanding about *how* a practical task can be achieved theoretically speaking and underestimates the bodily practice, or dexterity or (even) physical strength that might be required to achieve that task.

- ii The cognitive account is overoptimistic in its trust in experts. Often, accurate cognitive contact with the world does not automatically translate into good expert advice; for instance, we can think of cases in which those with epistemic standing do not have the communicative skill or the patience to convey their knowledge sympathetically to novices. Moreover, one can also think of cases in which those with epistemic authority systematically withhold information from novices or might even cheat novices from a position of epistemic advantage. Critics hold that, next to epistemic advantage, an element of trustworthiness is also needed if the expert's advice is to be worth following.
- iii Purely cognitive accounts cannot account for the relativity that inevitably accompanies judgements of who is expert. Who should be regarded as expert is relative to the time of judgement; for instance, Galileo was clearly an expert astronomer during his lifetime, but today we would count him as, at best, a self-taught eccentric. Expertise is also relative to the place of judgement; for instance, someone who speaks and writes fluent Japanese and lives in England would be classed as an expert on Japanese, but in Japan, those skills are mundane.
- iv Above, we saw that the objectivity and realism that are features of the cognitive account are regarded as a strength. However, by the same token, the cognitive account makes it hard to settle the question of who is an expert. As we saw, the cognitive account equates expertise with more true beliefs, or more knowledge or understanding. This means that the question of who is the expert regarding a certain matter cannot be solved separately from the question of what is true. However, often the truth of the matter is exactly what is in dispute; for instance, in science, it is not uncommon for two different scientific camps to hold opposite views and both to insist that their view is true. For this reason, the account gives laypeople (who are, by hypothesis, not able to say what is true or not) no help or advice on how to identify the experts that they are to trust.³

Skills-Based Accounts

The best-known objection to the cognitive account of expertise is the first objection discussed above: that theoretical or “book” knowledge regarding how something is to be done does not translate into the practical ability to do that thing. Michael Polanyi is a famous proponent of the idea that knowledge is not explicit but is tacit. A chemist by training, Polanyi held that even within that most intellectual of settings, the laboratory, science advances through intuition, feeling, and hands-on experience of solving problems rather than by formulating encompassing hypotheses and testing them, once and for all, in perfectly conceptualised experiments. Much scientific knowledge is “tacit,” (Polanyi 1958, 1966). Michael Oakeshott held similarly that political principles cannot be formulated rationally, and one must learn about politics through experience. According to Oakeshott:

Theoretical knowledge can be learned from a book; it can be learned from a correspondence course It can be learned by heart, repeated by rote and applied mechanically . . .
(Oakeshott 1962: 8)

However,

... practical knowledge can neither be taught nor learned, but only imparted and acquired. It exists only in practice and is acquired only by apprenticeship to a master ...
(Oakeshott 1962: 9–10)

Polanyi and Oakeshott both advance the idea that there exists a kind of knowledge that one cannot grasp and communicate linguistically; rather than being captured intellectually and expressed in language, this kind of knowledge can only be shown in masterful practical action. According to the

skills-based account, the cognitive or “head” side of expertise (true belief/knowledge/understanding) is either not essential to expertise or is, at worst, actively damaging to expertise. Instead, expertise consists in masterful practical action “with the hand” (that need not be accompanied by thinking). Christopher Winch (2010a) calls this the “fluency” account of expertise and Montero (2016) has dubbed it the “just do it” account of expertise.

The skills-based account has strong roots in Eastern philosophy (Garfield & Priest 2020: 29–39). In recent years, however, one set of literatures has proven particularly influential in crystalizing its claims: Hubert Dreyfus and Stuart Dreyfus’s book *Mind Over Machine* (1986) and reactions to it. Dreyfus and Dreyfus consider the possibility of artificial intelligence and argue that computers will never be able to think. They base their argument on the uniqueness of human expertise. Human expertise, such as the fine physical skill involved in doing karate, playing the violin, or painting a masterwork, is the result of long practice and is embodied in the arms, legs, and fingers of human experts as much as in their thoughts or brains. Through their studies of novices and experts in fields like flying, chess, driving, and second language learning, Dreyfus and Dreyfus concluded that while novices cling tightly to rules for guiding their actions, as they become more expert people begin to pay less conscious attention to rules. They begin to act more intuitively and automatically and (even) become free to improvise. Dreyfus and Dreyfus suggest that this process happens in five stages: the performance of the novice is characterised by rigid adherence to taught rules or plans, but the novice gradually sheds this reliance on explicit rules when she progresses through the stages of “advanced beginner,” “competent,” and “proficient” until she reaches the stage of being expert. At that point she no longer relies on rules, guidelines, or maxims for how she performs, but acts from an intuitive grasp of situations based on deep tacit understanding (Dreyfus & Dreyfus 1986: 19–36).

According to Evan Selinger and Robert Crease, Dreyfus and Dreyfus’s account of expertise consists of three claims: (1) the expert perceives the most important features of the context intuitively, (2) the expert can act in the context fluently, without having to pause for thought, and (3) the expert’s subjective experience of their action has been transformed – the expert experiences their actions as being smooth, fluid, and essentially thought-less (Selinger & Crease 2006: 213–245).

As Selinger and Crease explain, the Dreyfus account has the following advantages:

- i It does capture, in a phenomenological sense, what it feels like to be an expert. Expert action often appears effortless; in particular, novices who struggle to perform an action often admire the seeming effortlessness with which experts perform difficult actions.
- ii Furthermore, the account explains a phenomenon that is familiar to all of us: that “over-thinking” or general overattentiveness to our performance can ruin a performance that we are well capable of making. (In sport, this is called “choking” or “the yips.”)

However, the following criticisms are also often made against the Dreyfus and Dreyfus account.

- i The Dreyfus account contains no helpful educational advice for fostering expertise. While it is possible, on the Dreyfus account, to instruct a novice how to become competent – by following the rules for the action – it is not possible to *teach* the proficient performer to become expert. The expert, on the Dreyfus account becomes expert themselves, through repeated doing; after all, there is no “rule” for “how to leave the rules behind.” While the Dreyfus account encourages the aspiring expert to “let thought go” and “just do,” it can offer no concrete advice on how *exactly* to improve, and, as we know, it is unfortunately common for people to “just do” things over and over, without ever getting better.
- ii The Dreyfus account renders expertise subjective and makes it impossible for non-experts to measure or evaluate the degree of the expert’s expertise. Recall that, on the Dreyfus view, expertise is embodied and is not capable of being codified in language. This emphasis on

embodiment means that the expert, who contains their expertise in their body, cannot communicate it to another. As Steven Fuller puts it, phenomenology that stresses the “craft-like” character of expertise makes one think “... an act of professional judgement [is] tantamount to a magic trick ...” (Fuller 2006: 148)

- iii The subjectivity of expertise (point ii) also makes the authority of the expert hard to justify. Because the expert’s level of expertise is only clear to *them* and not to non-experts, the expert cannot explain to the lay person why they should be trusted. Naturally, this raises the question of whether the expert really is expert – or whether they merely pretend to be expert.
- iv The Dreyfus account has no place for expertise in rule-bounded activities. Much professional and skilled work is rule-bound. A prime example is the law: lawyers work with laws (rules) and their expertise consists in helping clients follow those rules. Likewise, we could say that the work of, for instance, police officers, air traffic controllers, and (even) sports umpires consists in ensuring that rules are followed. When it comes to forms of expertise like these, it would clearly be wrong to suggest that expertise amounts to “overcoming” rules or acting above and beyond the rules.
- v Automaticity is not sufficient for expertise. From our own experiences, we know that there are many things that we can do automatically and without thinking about it, for instance, driving to work or making a cup of tea. However, it would be odd to say that, because we do these things automatically, we are “experts” at them (Selinger & Crease 2006: 213–245).

The Concept of Expertise in the Philosophy of Education

In the field of education broadly, those who write about expertise often approach the topic based on a prior research interest in practical vocational preparation rather than discipline-based or theoretical education. Many of those who write about expertise in education are already committed, either by their research focus, or by a prior theoretical position, to the skills or practice-based conception of expertise. In the philosophy of education, major contributions to thinking about expertise include books by Winch (2010a), Simpson and Beckett (2018), and Mark Addis and Christopher Winch (2019). On the whole, the discussion in the philosophy of education is more balanced, even though proponents of the skills-based view are still dominant voices in the field.

For instance, the papers collected together in Simpson and Beckett (2018) are avowedly “anti-cognitivist.” Simpson and Beckett hold that the cognitivist program dominates in philosophy, cognitive science, and psychology.⁴ They draw attention, however, to the countervailing line of thought that was influential in the 20th century, especially in phenomenology and in the (later) Wittgenstein (Simpson & Beckett 2014: 564). In his remarks on tool-use, for instance, Heidegger explains how we perceive objects in the world as instruments for achieving tasks (or raw materials to work on); objects become salient to us in their practical guise. Moreover, as Dreyfus and Dreyfus do fifty years later, Heidegger points out that working with these tools is largely automatic and that we perceive our tools as extensions of our own bodies (Heidegger 1962: 98). These ideas on tools and technology were later re-absorbed into analytic philosophy as the idea that the mind is “extended” and includes not only our brains, but also our bodies and, even, tools (Clark 2004, 2010).

Not only does the extended mind thesis put pressure on cognitivism about expertise, a number of authors also hold that the idea of the social or *distributed* mind challenges the idea that expertise is a cognitive grasp of techniques for performing actions. Paul Hager, for instance, stresses that occupational work is usually done in groups and that we quite naturally speak not of an individual person who can achieve some task, but of teams, companies, or economic systems as having developed or being able to provide a service or product (Hager 2014). This means, among other things, (1) that much practical knowledge is not held in the head of individuals, but is distributed around the group, (2) that much of this group knowledge is encoded in interaction between experienced members of

teams and is therefore tacit, and (3) that expert knowledge is not known once and for all, but consists in constant team-based adaptation and change over time (Hager 2014).

Richard Menary and Michael Kirchoff take ideas from both the extended mind tradition and the distributed cognition tradition to show that expertise is not “all in the head” but depends on immersion in cultural practices with technology (2014: 611–14). In earlier work, Menary (2007, 2010) notes the familiar point that pen and paper are cognitive tools, while in later work he stresses that these tools depend on cultures for their effectiveness (Menary 2013). For instance (my own example), when an engineer draws a complicated design (probably rubbing out and re-drawing multiple times) their thought is not in their head, but on the page. Moreover, the engineer’s paper workings contain standard symbols, for instance the American Society for Mechanical Engineers’ standard symbols for engineering drawing. The existence of the standardised engineering symbology saves the engineer the trouble of inventing symbols himself and makes his workings readable by other engineers using the same system; it therefore makes *available* a mode of thinking to him that was not available (a) without paper and (b) to him alone. Using the example of mathematics, Menary and Kirchoff stress that even seemingly very intellectual expert knowledge and skill is not in the head, but can only be actualised through using culturally agreed modes of expression in physical form, such as on paper (Menary and Kerchoff 2014: 614–619).

Contra Simpson and Beckett, Michael Luntley warns against some of the excesses of the skills-based view in the philosophy of education. Luntley holds that the skills-based view dominates in the field of professional education. He notes how many writers in the education literature start with the relatively modest claim that there is *some* difference between knowledge that and knowledge how, but immediately take this to the strong conclusion that knowledge how must be understood in Dreyfusian terms (Luntley 2009: 356–359). First, Luntley deflates some of the phenomenological claims themselves: expertise does not in most cases consist in completely intuitive sensing and action that is devoid of thought. Compare (my own example) how the expert carpenter does not *intuit* how big a room is, *intuit* what size and shape furniture to install and then *automatically act* to create that furniture. The expert carpenter measures obsessively, draws multiple plans, costs them precisely, makes components to fit in the workshop, and often also needs to make new plans to fit together pre-made furniture components *in situ* during installation. It may appear an intuitive matter, but anyone who has done carpentry or seen a carpenter at work knows how much *thought* goes into successful furniture installation.

More than correcting Dreyfus and Dreyfus’s phenomenology, however, Luntley also questions whether we should change our picture of the nature of practical knowledge or rationality based on the phenomenology of expert action. Luntley surveys the dispute between Dreyfus (2005, 2007) and McDowell (2007) on whether expert perception is qualitatively different from novice perception.⁵ The dispute turns on whether expert perception is conceptual or not: for McDowell, perception is always conceptual in the sense that, in perception, we can notice particular objects or features, classify them, and then reason about them (either theoretically or practically). Dreyfus, on the other hand, argues that expert thinking about the practical world is *non*-conceptual: the expert does not think in terms of pre-existing categories but acts intuitively in the moment using actions that are wholly suited to that moment. Concepts are judgements of similarity (“this one is like these other ones”) and for Dreyfus the height of acting expertly in a particular situation is that both the situation and the expert action are like no other (hence, non-conceptual).

Luntley takes McDowell’s side in this dispute. He concedes that, phenomenologically speaking, expert perception appears different from novice perception. However, he holds that this is not because expert perception is non-conceptual, but because it is “activity-dependent” (2009: 359–364). Luntley stresses that activity itself (what activity one engages in and how) opens up new ways for the novice to perceive situations. For instance, the baker may demonstrate to her apprentice, while engaged in a round of baking, how to tell (through sight, smell, and touch) whether

a loaf of bread is cooked. The fact that we have no word for how cooked bread looks, sounds, or smells, does not mean that we cannot bring to mind *that* look, sound, or smell. Luntley holds that, in the end, the perception that the expert engages is not mysteriously different from ordinary perception; the expert just knows what to look or listen out for.

Whereas Luntley offers an intellectualist and Simpson and Beckett an anti-intellectualist perspective on expertise, Winch offers an integrative picture. Winch's interest is more in practical expertise, and, indeed, the thrust of his work is to vindicate Ryle's conception of expertise in the educational context. Despite his overall anti-intellectualism, however, Winch retains considerable intellectualist sympathies. He holds that subject knowledge or expertise is often inextricably linked to practical expertise. Indeed, in his picture of vocational education, Winch gives an essential role to subject-based theoretical education ("underpinning knowledge") as part of an overall programme of vocational preparation (Winch 2010a: 98–116).

Winch reviews the intellectualist/anti-intellectualism debate that has sprung up in the wake of Stanley and Williamson's criticism of Ryle and he holds that the implications of Ryle's work for education have not adequately been spelled out. First, and most obviously, the nature of knowledge how will have implications for pedagogy and curriculum in vocational education. If it is true (as the intellectualists say) that knowledge how can adequately be captured in the form of propositional sentences describing ways or procedures to perform successful practical action, then vocational education can be conducted in a largely communicative or informative mode. However, if knowledge how cannot be captured adequately or completely in propositions, the "remainder" of knowledge how will have to be codified in curricula and taught in a different format. Drawing on Ryle's remarks regarding the "gradability" of knowledge how (Kremer 2021), Winch holds that the main thing that is *not* captured in propositional form is the fact that knowledge how admits of degrees. One either knows *that* something is the case or not, but knowledge *how* can be manifested in actions of varying levels of proficiency, from inexpert to fully expert. The *degree* to which one knows how to do something is described by what Winch calls "intelligence epithets." When we describe how someone does something, we use words like "hesitatingly" or "smoothly," "amateurishly" or "artfully." However, when we say that someone knows that something is the case, we do not qualify this with a description of *how well* they know it ... they just know it. Winch holds that intelligence epithets are a crucial part of the vocational educator's toolbox, but that an intellectualist conceptual scheme does not leave adequate space for them (Winch 2010a: ch. 2; Winch 2010b).

In order to furnish the right conceptual scheme for vocational education, Winch distinguishes between the "subject"⁶ and the "occupational" sense of the word "expertise" (Winch 2010a: 2). Winch holds that Stanley and Williamson's intellectualist view of expertise is tied up with the subject view of expertise and may well make sense for that view; however, he argues that another conceptual scheme is needed to make sense of the occupational sense of expertise. For Winch, an occupation is a: "... practice of a traditionally established mode of economic activity, with its own internal identity and standards of excellence" (Winch 2010a: 15). He holds that the performance of many occupations (although not all) requires mastery of a specific body of occupational knowledge; however, above and beyond that, there is more that goes into having the knowledge to work in an occupation. Most real skilled work involves not only the application of one technique over and over again, but involves applying a wide range of skills in a number of different situations. Moreover, most real work involves working independently and in teams not only to perform actions, but to plan, coordinate, and evaluate what actions are to be performed in the first instance.⁷ Winch holds that, in the occupational sense, expertise is not the execution of tasks in the most efficient way (in Stanley and Williamson's sense of "knowing the way to do something"), but more like the management of projects. He writes that what is important about working in an occupation

... is not the practice of a bundle of skills but the way in which they are integrated into a form of agency ... In Germany such occupational action capacity or *berufliche Handlungsfähigkeit* of, for instance, a carpenter, is not merely the set of skills that he possesses but the ability to practice in real-life conditions in such a way as to earn his living as a carpenter, to gain the respect of colleagues, apprentices and customers and to satisfy the criteria of excellence that are internal to carpentry.

(Winch 2010b: 560)

Winch draws our attention to the fact that the expert is not just someone who has mastered the relevant techniques, but is an *agent* who plays a role or performs a function in the real world economy. What our conceptual scheme needs to capture is not just the techniques that the expert has mastered to perform specific actions, but the overall capacity of the agent to play an economic role.

Educating For Expertise

Authors like Winch, Simpson and Beckett, and Luntley have noted that the standard accounts of expertise do not provide much advice on how to *foster* the kind of expertise that is useful, occupationally speaking. This is the case not only for a cognitive account like that offered by Goldman, or by Stanley and Williamson, that equates expertise with knowing a technique. Oddly, it is also true of the Dreyfus account that is so influential in education. Simplifying considerably, one may hold that Goldman's account is an externalist one and Dreyfus and Dreyfus's account internalist. Goldman, after all, holds that expertise amounts to believing truths (and believing more truths than falsehoods). This makes his account objective or externalist. Whether one is an expert or not is settled by whether what one believes is largely true; and whether one's beliefs about empirical matters *are* true is not visible from the first-person point of view, but is only visible from the position of God (or from the position of the end of inquiry). Equally, one may say that Dreyfus and Dreyfus, have a rather subjective or internalist view of expertise. Like all phenomenologists, Dreyfus and Dreyfus are interested in the experience of becoming and being expert. In their account, they stress that expert knowledge is bodily knowledge, rather than mental knowledge – in itself, this point is neither objective nor subjective. However, Dreyfus and Dreyfus also hold that, to the expert him/herself, that bodily knowledge is experientially available and that the feeling of fluency in action and direct contact, through tools, with raw materials, is an essential aspect of expertise (see above). For Dreyfus and Dreyfus, it is the experts themselves who can best tell whether they are expert or not.

In itself, this observation (that Goldman's stance is external and Dreyfus and Dreyfus's internal) does not settle anything about what is the best philosophy of expertise; that question must be settled in its own terms. However, to the educator who is attempting to develop expertise amongst her students, each of these two accounts bequeaths a different problem. When we know what is the truth about some scientific matter and when we know how grasp of that truth translates to a practical technique to solve a practical problem, then it is obvious that the teacher should teach both that truth and that technique to foster expertise amongst her students. However, when the truth itself is in question, it is not helpful to say "teach the truth." Goldman's objective or truth-based account of expertise seems too externalist to be helpful in that case – what the educator needs instead is some immediately accessible guidance regarding what is most likely true or is most likely the best technique. On the other hand, whatever guidance the educator offers cannot be *too* subjective. When a student struggles to pick up some kind of skill, it is not helpful for the teacher to say, "just keep practicing until it feels to you as if you have become expert." What both student and teacher need in that case is a more objective standard for when performance counts as expert. What the practical educator (and their student) needs is an indication of whether expertise is developing in the right

direction that is objective enough to be worthwhile, but subjective enough to provide educative guidance.

Winch counsels us, when studying expertise, to pay attention not only to individual skills, but to the productive work that experts do and to the occupations that they practise. Hardwig (1985) and Goldman also make clear that the reason *why* we have experts is to make possible the division of labor. So let us turn our eye away from devising a philosophical account of “expertise” to the question of how educators can promote the formation of experts as agents in a socio-economic system.

The reason for dividing labor between agents is that we are all cognitively and physically limited: one person usually cannot perform all the economic tasks needed for survival and, even if they could (*à la* Robinson Crusoe) survive in the wild all on their own, they could do still better by dividing work through sharing and specialising. Quast (2018a) notes, however, that the division of economic labor does not just depend on two or more people specialising in different techniques of production, it also depends on interpersonal trust. In the division of labor, the client must trust the expert enough to allow her to perform the relevant task for him; if the client does not allow the expert to “get on with the job,” there is no division of labor. Moreover, the expert has to be worthy of the client’s trust; if the client can perform a task for himself more easily (all things considered) than the “expert” could, then there would be no point in contracting the expert to do it.⁸ As a result, systems to make salient how trustworthy an expert is and also how much the client in turn trusts the expert have developed. The trustworthiness of the expert is shown in something like a history of excellent expert work that has been acknowledged by other clients (which is why experts often exhibit their best work and collect accolades from past clients) and trustiness is shown in the discretion a client allows the expert (which is why the most expert experts are allowed to work independent of oversight). As Quast holds, our society has developed “reputational systems” that

keep various forms of cooperation ongoing by identifying and assessing relevant authorities. The better the given rating, the more trustworthy the recognized authority, the more unrestrained the trust which is placed in it which, in turn, is accompanied by greater responsibility.

(Quast 2018a: 18)

On this picture, the expert has to be able to do a better job than the client (this is an objective matter and may be a matter of better knowledge of technique than the client), but the client also has to know when to contract an expert and which expert to ask to do the job (this is a reputational matter). Goldman, one might say, focuses only on the objective or “supply side” of expertise and does not give much attention to the fact that the client will not contract the expert if they do not have some reputational reason to trust the expert (thereby overlooking the more subjective “demand side” in the division of labor). As Quast puts it, the expert needs, in addition to primary competence, also a ...

secondary explanatory competence, the function of which is to establish and retain mutual trust between experts and clients ... [and] in order to establish and sustain mutual trust, experts also need to be appropriately virtuous, that is, must be disposed to properly estimate and communicate the scope and limitations of their competences and be willing to give an account of their performances when appropriate ...

(Quast 2018b: 407)

These secondary competences are explored far less often in the literature on expertise and provide fertile terrain for the philosophy of education to investigate.

While pointing out the importance of secondary competences, Quast does not explain how they can be fostered through education. Luckily, authorities ancient and contemporary have advice in this regard. Plato, for instance, stresses that, next to being the master of a technique, the expert must also be able to “provide an account” (a *logos*) of their expertise, that is, be able to explain it. In a famous passage in the *Laws*, Plato contrasts a doctor of slaves with the free doctor who treats freemen. The doctor of slaves has learned his trade by experience (*empeiria*) and can give no *logos* for the treatments he administers; by contrast, the free doctor has a *logos* and communicates it to his patients. Gregory Vlastos holds that the free doctor acts like a teacher to their patients and does not give “... autocratic orders, but educates his patients into health” (Vlastos 1941: 289). In a voluntary division of labor, the expert who can “educate” rather than “order” will clearly be the expert who most wins a client’s trust, so a *logos*, in Plato’s sense, does seem to be an important expert competence. Aristotle expresses many of the same sentiments. It is well known that Aristotle regards a *logos* or right account to be a crucial part of moral virtue (Moss 2014). Aristotle holds that the same is true of technical virtue or *techné*; indeed, according to the definition he offers *techné* is “a state of capacity to make, involving a true course of reasoning (*logos*)” (Barnes 1984: 1800 [NE VI.4 1140a10]). Just as with the example of the more and less expert doctor, Aristotle also holds that a master craftsman (*technites*) is more expert than an artisan (*cheirotechnes*); being able to provide a *logos* of their craft they are able to teach their *techné* to apprentices or other learners.

In Ryle’s work, we also saw a connection between being expert and either having undergone a certain course of education or training oneself and being able to educate others (in turn). Ryle does not hold that one must be *taught* something in order to have a certain skill; he holds it to be very admirable that we can sometimes teach ourselves to do something (and, indeed, technical progress is only possible on the basis that people can teach themselves to do entirely new things). However, Ryle holds that there is a logical connection between expertise and learning. Recall how Ryle stresses that “intelligence epithets” make sense to describe the performance of know how; judgements about how well a person does something, graded from inexpertly to expertly, are an integral part of know how (but not of knowledge that). For Ryle, it is the learnability of know how that underlies our uses of intelligence epithets when we speak about know how. As Michael Kremer puts it:

... the difference between learning-how and learning-that *explains* the facts about gradability. Knowledge-how must come in degrees, because learning-how brings *improvement* in knowledge-how.

(Kremer 2021)

Moreover, as Winch explains, the improvement in question is “normative” (2010a); it is clearly *better* to act *more expertly* (and less amateurishly), making it part of the very concept of expertise that the expert strives to learn and to perform better.⁹ This does not mean that it is not possible for the expert to do bad work on occasion; but it means that, conceptually, the expert is not only the one who performs well, but is aware that it is possible to perform even better and strives to perform better. This ever-present “room for improvement” is visible in the gradable language we use regarding expert performance, but it also makes sense in the context of the division of expert labor. If an expert is not always *trying* to do better work, they are not genuinely trying to make the division of labor work more efficiently – it is part and parcel of the idea of dividing labor that all role players must strive (at least in principle) to work ever more efficiently. Interestingly, the fact that striving to improve one’s performance is part of being an expert leads Ryle to sounding a distinctly intellectualist note in his account of expertise: if the expert is going to be capable of evaluating their own performance and making improvements to it, the expert must “know what they are doing, in what circumstances, how well or poorly it is going, and so on ...” (Johansen 2021: 99–112). Because the expert monitors their own performance and tries to improve it, the expert’s expertise is

definitely not “mindless” as some have formulated the accusation against Ryle. This is also why Ryle, just like Plato and Aristotle, makes room for explanation of expertise to be part and parcel of expertise. As Ryle puts it:

It is always possible in principle, if not in practice, to explain why he [a knower-how] tends to succeed, that is, to state the reasons for his actions. It is tautology to say that there is a method in his cleverness.

(Ryle 1945: 228)

The relevance of education to expertise is not only that the education enables experts to acquire the primary and secondary competences necessary to be an expert, expertise is essentially an ability that is amenable to conscious improvement. Being an expert is, conceptually, the end result of a process of learning – a process that never truly ends. What expertise is, and how it is acquired and improved, must therefore always be considered in tandem.

(Related Chapters: 4, 5, 10, 11, 14, 28, 29.)

Notes

- 1 For overviews, see Bengson and Moffett (2011), Stanley (2011), and Montero (2016).
- 2 An excellent overview is Watson, (2021). Detailed discussions are collected in Fridland and Pavese (2021).
- 3 For a detailed discussion, see Watson (2021: 59–82).
- 4 They add to this list the philosophy of education – a conclusion that I doubt. See Winch (2010a).
- 5 See Schear (2013) for extensive discussion.
- 6 In the sense of “school subject”: history, geography, mathematics, science, etc.
- 7 Sometimes, *not doing anything* can be work: compare the doctor who decides not to treat a complaint, the journalist who decides not to publish a story, or the police officer who decides not to make an arrest.
- 8 This is but one element of what is called the ‘principal/agent’ problem. For discussion, see Goodwin (2010).
- 9 Luntley (2009) makes the same point.

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