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Learning How

'[L]earning how resembles learning that: sometimes you can see the truth for yourself, but sometimes you need to phone a friend.' (Hawley, 2010: 397)

Introduction

A perennial debate in education concerns whether the curriculum should be structured around the transmission of educational content or should focus on inculcating skills (the skills/content debate). Due to the importance of this debate, one topic in epistemology that receives particular attention in education is the relationship between knowledge-that and knowledge-how. On the curricular 'macro' level, the question is often asked whether the curriculum should be weighted towards theoretical subjects such as history, mathematics, science and literature (content) or vocational subjects such as cookery, carpentry, engineering or accounting (skills). On the curricular 'micro' level, it is a question *within* many subjects what is more important to teach – disciplinary content (in history, for instance the causes of the First World War or the consequences of the French Revolution) or disciplinary skills (such as analysis of historical documents or historical writing in the subject history). Understanding what sets apart theoretical- and skills-driven approaches to both these questions naturally invites consideration of the knowing-that/knowing-how distinction (and of related concepts, such as expertise or skill).

In his *Concept of Mind* (1949) Gilbert Ryle famously distinguished between knowing-how and knowing-that. For Ryle, the first kind of knowledge is more basic than the second: knowing-how is not merely a form of knowing-that, rather, knowing-that requires an explanation in terms of knowing-how. For many years since Ryle, the distinction between the two forms of knowledge (if not Ryle's anti-intellectualism regarding knowing-how) were widely accepted in analytic epistemology. However, recent epistemology has seen a flurry of new interest in knowledge-how. (Stanley and Williamson, 2001, Stanley, 2011, Bengson and Moffett, 2011) Today, debate in the area commonly divides between intellectualist accounts (such as that offered by Stanley and Williamson) and anti-intellectualist accounts of knowledge-how (such as that of Ryle or Winch, 2009).

In this paper, I explore the intellectualist/anti-intellectualist debate regarding knowledge-how. I hold that, especially in its intellectualist framing, the debate is belief-centric and I explore how understanding of knowledge-how may be advanced by adopting an agent-centred – or *virtue-based* – approach. Specifically, I hold that the concept of learning must play a crucial role in any virtue-based approach to knowledge-how. In this paper, I sketch the contours of such an account and explain the implications for both the epistemology of knowledge-how and the philosophy of education.

Anti-intellectualism about knowledge-how

Ryle famously distinguished between knowing-how and knowing-that in his *The Concept of Mind* (1949) and in an earlier (1945) paper entitled 'Knowing how and

knowing that'. Ryle's purpose in drawing the distinction was to challenge a Cartesian view of the mind that he saw as overly ratiocinative. According to Ryle, an 'intellectualist legend' underpins the Cartesian view; this is that idea that in performing an intelligent action a person must be guided by a set of mental instructions for the performance of that action. If the intellectualist legend is right, Ryle holds, then any action or doing must be preceded by an act of thinking or, at any rate, working out how to perform that action. However, any such act of thinking will *itself* be a doing; thinking or working out how to do something is, after all, a mental act. As *this* act too would have to be preceded by another act of thinking or working out how to perform *it*, a vicious regress would ensue. For Ryle, the solution is to forget the idea that any intelligent action must be preceded by an act of thinking and deciding how that action should be done. Instead, Ryle holds, one should see knowing-how as '...a capacity for or a disposition to a set of behaviors...' (Fantl, 2008: 455). Rather than being able to think about action, knowing-how is being able to and inclined to behave in certain ways.

In his rejection of Cartesian intellectualism, Ryle's behaviourism is obvious and it is somewhat of a puzzle that in the field of *education* (where the stock of behaviourism has sunk so far) Ryle's position and the regress argument that he offers in support remains current. Part of the explanation lies in the importance that many education scholars attach to the phenomenology of knowing how. Dreyfus and Dreyfus (1986), for instance, describe the common experience of what it is to learn how to perform complicated physical activities. According to Dreyfus and Dreyfus's 'novice to expert' model, when it comes to learning any complicated physical activity (such as hitting a golf ball, dancing or turning pottery on a wheel) the novice's performance is characterised by halting and uncertain action and rigid adherence to taught rules or plans and then gradually improves, until their action becomes ever more fluent. By contrast, the expert no longer relies on rules guidelines or maxims, but, instead, exhibits an intuitive grasp of situations based on deep tacit understanding. (Dreyfus and Dreyfus, 1986). Other famous accounts that lean heavily on the phenomenology of being an expert are those of, for instance, Michael Polanyi (1966) and Donald Schon (1983).

Carr (1979; 1981) rejects Ryle's reduction of knowledge-how to ability. He discusses the distinction between knowing how to do something and being able to do it. Carr points out that, in the realm of mental action, there is no difference between being able to and knowing how to. If a person is able to multiply large numbers in his head, then he knows how to do it as well. However, the same is not the case for practical action. It is conceivable that a person knows, say, how to play the Moonlight Sonata, without being physically able to do it. All kinds of exigencies can lead to a situation in which a person knows perfectly well how to do something without being able to do it – the gifted pianist may, say, be injured or grow ill; they may be separated from their piano and so forth. Ability is not necessary to knowledge-how. Neither is it sufficient.

Take this example:

Suppose a famous dancer was to perform before an audience, an item from his repertoire to which he has himself given the following title:

A Performance of Improvisation No. 15

To the astonishment of a member of the audience who just happens to be an expert on communications, the movements of the dancer turn out to resemble an accurate (movement perfect) semaphore version of Gray's 'Elegy', though the dancer is quite unaware of this fact. (Carr, 1979: 407)

While the dancer in Carr's example is clearly *able* to signal Gray's Elegy in semaphore, he does not *know how to* signal Gray's Elegy in semaphore.¹

Intellectualism about knowledge-how

In recent years, the most significant contribution to the know-how debate has been Stanley and Williamson's (2001) suggestion that knowing how is really a form of knowing that. Stanley and Williamson point out the variety of propositional knowledge constructions:

S knows whether p

S knows when p happened

S knows what p is like

S knows who killed p

Etc.

All of these are clearly capable of being treated in terms of knowing that. What is important about all of these is that they contain embedded questions of the sort 'what does s know?' (s knows whether p happened or when p happened and so-on). Stanley and Williamson think that the same move can be made for knowledge-how constructions. What one really knows when one knows how to do something is the answer to the question 'how does one do that thing' and finally, knowing how comes down to the following:

S knows how to ϕ just in case there is a way w, such that S knows that w is a way to ϕ . (2001: 425)

Rumfitt (2003) criticises the very premise of Stanley and Williamson's argument – whether all know how contexts really contain a 'how to question'. Rumfitt points out that the fact that a 'how does one' question always seems implicit in know how contexts may be a peculiarity of English. In French, for instance, it is possible to express knowledge-how in two different ways. Take the difference between

Pierre sait comment traverser le fleuve en nageant

Pierre knows how to swim across the river

And

¹ Snowdon (2004) makes the same set of points about the relation between knowledge-how and ability.

Pierre sait nager

Pierre knows how to swim.

The first construction appears like the one in English in that it uses 'knows how to' - *savoir comment faire* – while the second does not appear like the English – the sentence uses simply 'know to' - *savoir faire* – and not 'know how to', so doesn't contain an implied how to question.

For this reason (Rumfitt also discusses the case of Greek, Russian and Latin) Rumfitt thinks that there are two species of knowledge-how: *savoir comment faire* and *savoir faire*. Rumfitt suggests that knowledge-how of the *savoir comment faire* kind is propositional or intellectual – it comes down to having a belief. On the other hand, the *savoir faire* kind of knowledge-how is directed at action – it comes down to being able to do something.

Rumfitt concedes half of the game to Stanley and Williamson. If one follows him, Stanley and Williamson may be right about the nature of *savoir comment faire* (if not about *savoir faire*). A more decisive line of criticism is this. The fact that someone knows that w is the way to do ϕ does not necessarily translate into them being able to do ϕ in such a way that we would ordinarily say that they know how to ϕ . Take this example. Imagine that David tells Roger, step-by-step, how to play a difficult riff on the guitar and that Roger commits these instructions to memory. Clearly, even if Roger had the instructions down pat, he would not yet know how to play this riff on the guitar himself.² This is common cause even for Stanley and Williamson who admit that there is a difference between knowing that w is the way to ϕ and being able to instantiate ϕ oneself. They hold that way w can be known in two ways – in a 'demonstrative' and in a 'practical' mode of presentation. (Stanley and Williamson, 2001: 429) Koethe (2002) holds that this distinction between knowing the proposition w and being able to instantiate w oneself imports the distinction between know-how and know-that straight back into the debate. It also lays Stanley and Williamson open to Ryle's attack on the intellectualist legend. For if one knows how to ϕ only if one knows how to instantiate w oneself, does this not mean that one needs to know another way (call this way w^*) in order to instantiate w oneself, and so-on? (Koethe: 2002: 328) Without offering an account of what it is to instantiate w oneself, Stanley and Williamson cannot draw the important distinction between impotently knowing how one does something, but not being able to do it oneself, and the practical potency we really want to explain – of both knowing how one does something and being able to do it.

Towards a virtue account of knowledge-how

Let us return to the example of David and Roger's guitar-playing. Carter and Pritchard (2015: 12) use this example to bring something in particular to light. What David knows – that he both knows how to play the riff *and can play it* – is more valuable than Roger's mere ability (after David has told him) to say how the riff is played. Carter and Pritchard connects the discussion of knowledge-how with virtue epistemology. Carter and Pritchard (2014; 2015) hold that, rather than intellectualist

² The example is from Carter and Pritchard (2015: 12). See below.

or anti-intellectualist accounts of knowledge-how, know-how is best explained in virtue terms – as a particular kind of cognitive achievement.

Most accounts of knowledge-that in virtue epistemology are what are called ‘success’, ‘credit’ or ‘achievement’ accounts of knowledge. For Ernest Sosa, for instance, knowledge is apt or competent belief and for John Greco, knowledge is cognitive success that arises from ability. By appealing to notions like competence and success from ability, Sosa and Greco appeal to terms that we would readily associate with the world of doing (competence, success, ability) to explain theoretical knowledge; my suggestion in this paper is that one must – naturally – apply the same thinking to the explanation of knowledge-how.

According to virtue epistemology, traditional epistemology’s focus on knowledge as a particular kind of cognitive content is misplaced. The main cognitive account of knowledge on the table is the Justified True Belief (or JTB) account of knowledge and, since the 1960’s most philosophy about the JTB account have been solutions or elaborations on the ‘Gettier problem’ – Edmund Gettier’s (1963) illustration that justification, truth and belief are not jointly sufficient for knowledge. Virtue epistemology offers by far the most intuitively plausible response to the Gettier problem. At heart, the Gettier problem is a problem of epistemic luck. It is possible to believe some truth and – due to some lucky coincidence – also to possess justification for what one believes without fully knowing that truth. Take the case of the unfortunate tennis fan who switches on their TV briefly on a Sunday afternoon in 1978 and sees Björn Borg taking match point against Jimmy Connors. Quite reasonably, the fan comes to believe that Borg won Wimbledon in 1978; however it turns out that while what they thought was actually so (Borg did win Wimbledon in 1978) what they were watching just then was not the live match, but a replay from the 1977 final in which Borg also beat Connors. The tennis fan would have a true belief and would have justification for it (that they saw the point), but they would not *know that* Borg beat Connors in 1978. They would have a true belief due to an *accident* and not due to cognitive achievement.³ Virtue accounts of knowledge solve the Gettier problem by stipulating, quite reasonably, that a person only knows something when they believe the truth due to good thinking on their part and not due to luck. Knowledge results when a person’s cognitive make-up (either their cognitive faculties or their acquired epistemic character – see below) leads to their believing the truth.⁴

Do Gettier problems also affect knowledge-how and can virtue accounts provide the solution? Stanley and Williamson themselves sketch the following Gettier type case for knowledge-how.

Bob wants to learn how to fly in a flight simulator. He is instructed by Henry. Unknown to Bob, Henry is a malicious imposter who has inserted a randomizing device in the simulator’s controls and intends to give all kinds of incorrect advice. Fortunately, by sheer chance the randomizing device causes exactly the same results in the simulator as would have occurred without it,

³ The example is adapted from Dancy (1985: 25). In Dancy’s example John McEnroe beat Connors two years in a row, but McEnroe only beat Connors once in the Wimbledon final. Borg, of course, beat him twice (in 1977 and 1978).

⁴ See Pritchard (2005) for discussion. For the original statement of the position, see Sosa (1980). For an application to education, see MacAllister (2012).

and by incompetence Henry gives exactly the same advice as a proper instructor would have done. Bob passes the course with flying colors... But there is a good sense in which he does not *know* how to fly.

Just as a virtue approach has available the resources to counter the Gettier problem for knowledge-that, so it also has available the resources to counter the Gettier problem for knowledge-how. In the example above, Bob's justified true belief regarding how to fly (or even any flying skill he demonstrates in the simulator) is not due to his cognitive achievement – it is due to luck. Bob would only genuinely know how to fly if he *achieved* flying success due to either his own inherent ability (unlikely for a skill like flying) or if he learned it by practice (most likely under instruction from a competent instructor). Achievement rules out epistemic luck.

In order to rule out the Gettier problem as it affects knowledge-how and in order to provide a virtue-theoretic account of knowledge-how, Carter and Pritchard provides the following definition of knowledge-how:

If one successfully F's because of one's ability (*vis-à-vis* F), then one knows how to F. (2014: 182)

Carter and Pritchard hold that this virtue-account is an alternative to both intellectualist and anti-intellectualist accounts of knowledge. Their account sees knowledge-how not in terms of the properties of the action performed, but sees it in terms of the cognitive achievement of an agent.

While I believe Carter and Pritchard are on the right track, the problem for their account lies in tying success at the action F to the *ability* of the agent. In this, their account is not all that different from Ryle's account that also ties success to ability. In fact, in virtue epistemology, one may see the debate between intellectualism and anti-intellectualism play itself out in another question – how we should conceive of the cognitive character of the successful or creditable knower. Early virtue accounts of knowledge (like, for instance, that of Sosa, 1991 and Greco, 2000) identified knowledge with the true beliefs produced by the reliable working of our cognitive faculties (such as vision, hearing, memory, etc.) On this view, when one assesses whether a person's believing the truth constitutes a cognitive achievement, one essentially evaluates whether their cognitive faculties are operating well. If a person believes the truth because their cognitive faculties are functioning reliably, they have achieved knowledge of that truth. However, according to responsibilist virtue epistemologists like, for instance, Montmarquet (1993) and Zagzebski (1996), this conception of achievement is too meagre. Responsibilists hold that we would do not ordinarily see it as a particularly noteworthy achievement if someone trusts their eyes or believes what they hear; these do not involve a cognitive effort that someone deserves particularly great credit for. For responsibilists, what a person does deserve epistemic credit for is a cognitive achievement that results from an intellectual virtue, like, for instance, being inquisitive or being rigorous in investigation or being critically minded. These intellectual virtues are not natural faculties, but are learned character traits, the having of which one is truly evaluated positively for. Sharp vision is not something that one can be responsible for, but being intellectually acute is. The

central debate in virtue epistemology concerns whether cognitive achievements should be identified with reliabilist or responsibilist epistemic virtues.⁵

Carter and Pritchard's virtue account of knowledge-how is of the reliabilist variety. For them, knowledge-how is successful action that is produced through ability. Recall, however, Carr's point regarding the distinction between knowledge-how and ability. Ability is neither sufficient nor necessary for knowledge-how. For this reason, Carter and Pritchard's virtue-theoretic ability account of knowledge-how will no more pass muster than Ryle's account. As David Carr puts the point, part of the reason why our language has a term like 'knowing-how to do something' is to distinguish knowing how to do something from being able to do it by brute strength (or some other kind of brute ability, like speed). Compare the following example. There is a way to turn a screw into wood (depending on the construction of the screw and the density of the wood, one either drills a pilot hole or not and then twists the screw in with the right kind of screw driver). Given enough strength, one *can* knock a screw into wood with a hammer; however, that is not *the way* to turn in a screw. Being able to force something in by brute strength is not the same as knowing how to do it. The same holds for many other things. One could (say) pack a parachute by forcing it into its bag, but, clearly, this is not knowing how to pack a parachute (crucially, the parachute won't come out right). A reliabilist virtue account of knowledge-how such as Carter and Pritchard's is unable to draw this distinction, since it sees any success that is achieved by ability (such as being able to squeeze a parachute into its pack) as knowing how. Being able to distinguish knowing-how from ability in virtue terms requires, instead, a *responsibilist account*. I turn, next, to providing such an account.

Knowing how and learning how

In her book *Intelligent Virtue* (2011), Julia Annas offers an account of the moral virtues in terms of skilled or expert moral action. She points out that in Ancient Philosophy there is a rich seam of thought connecting what it is to be moral to skilled practical action. Thus Aristotle draws many analogies between virtuous action in the moral sphere and practical expertise or *techné*: the competent moral actor and especially the good citizen or politician is like an expert craftsman in the moral domain. That person has learned from good role-models or masters (just like the craftsman has), has practiced his skill (just like the craftsman) and must exhibit it in context (just like the craftsman). The only difference is that the craftsman (say the doctor or the shoemaker) practices in a craft context and the politician in a political context. (Annas's main aim is to understand virtue in terms of knowledge how. My purpose in this paper is of course exactly the opposite: to understand know how in terms of virtue! However, if virtue is like knowledge-how then knowledge-how is also like virtue... making Annas's account of virtue in terms of knowledge-how highly germane to this project.)

Annas begins by making a number of important distinctions. Firstly, knowing how to do something is different from a natural ability like, say, being able to lift a certain weight. This is by now a familiar point. Secondly, knowing how must be distinguished from mere knack - this is the distinction that we already find in Plato between *techné* and *empeira*. In the *Gorgias* Socrates contrasts 'knack' (or 'habitude') to 'art'. The

⁵ For more on the debate between reliabilist and responsibilist accounts of epistemic virtue, see MacAllister (2012). My own defence of virtue responsibilism is contained in Kotzee (2011).

distinction between the two is that the one who has mastered an art as knowledge of the first principles of the art, while the one who has a mere 'knack' can only do, but does not have any understanding of how what they do works. Of cooking, Socrates says:

I say it is not an art, but a habitude, since it has not account to give of the real nature of the things it applies, and so cannot tell the cause of any of them. (*Gorgias*, 465a)⁶

What are the important features of know how as distinguished from mere strength and from unintelligent knack? Annas stresses two things: (1) knowledge-how is *learned* and (2) to know how, the doer must aspire to do what they do well *and to improve*. Together, these two conditions contribute to a number of distinct points about the nature of knowing how.

Firstly, what is it to learn how to? On the virtue conception of knowledge-how, know-how is learned by paying attention to the example set by a master. However, learning is more than just doing what the master does - learning how to is not just copying the master. For a person to learn how to ϕ successfully - for a person to come to know how to ϕ - it is important that they learn how to do ϕ independently or for themselves. The point of learning how is to move beyond mere repetition or copying (to move beyond knack). We see this through Annas's example of the impersonator. Imagine a pianist whose greatest accomplishment is impersonating another pianist. Imagine that the impersonator can play exactly like the great pianist, with all the same mannerisms and niceties of style. (Annas, 2011: 17). In one sense, of course, the person can play the piano pretty well, but if they can only play like the great pianist can we regard them as anything like an artist in their own right? Or take the painters who worked in the studios of the great masters. If they could only paint in the style of their master were they really painters in their own right as we would see it? Annas's point is that to know how to do something is to know how to do it for oneself or independently. Mere copying or routine action - even if successful - is not knowing how.

Why is this so? There are two reasons. I call these the newness and the wholeness of situations. The first reason (the newness of situations) is that the master can only show the learner so many cases of the skill in action. The great pianist, presumably, has made only so many performances that the impersonator can copy. What if one placed the impersonator, or the one who merely copied his master, in a situation that he has never been before: say one demanded of the impressionist to play a piece that the great pianist never performed. They would, presumably, be stuck for knowing what to do. If the imitator could do nothing but copy - if they did not learn general modes of doing and gained independence at doing, they would not be able to act in unfamiliar situations. The second reason has to do with the wholeness of situations. In any situation there is a whole number of important facets that a person could respond to. If a person could only copy and only do exactly what a master did in a similar situation, how would they know which are the relevant features of the situation to respond to or how would they even know in what senses and what not the situation is the same?

⁶ Compare Stanley and Krakauer, 2013.

What Annas thinks the one who learns a skill learns is general principles of performing the activity in question. They need to learn not just what to do but why they need to do that kind of thing in that kind of situation. Being able to give principles and reasons for why one does something in a certain way is what moves the one who is merely copying to the plane of knowing how to do something. For Annas the one who knows how to ϕ not only can do ϕ successfully but can articulate reasons why one should ϕ in such and such a way. Knowledge-how is knack plus articulation.

There is a well-known counter-example against this way of thinking. Dreyfus cites the case of the once very successful baseball player Chuck Knoblauch:

As second baseman for the New York Yankees, Knoblauch was... voted best infielder of the year, but one day, rather than simply fielding a hit and throwing the ball to first base, it seems he stepped back and took up a 'free, distanced orientation' towards the ball and how he was throwing it – the the mechanics of it, as he put it. After that, he couldn't recover his former absorption and often – though not always – threw the ball to first base erratically – once into the face of a spectator. (Dreyfus, 2007: 354)

There is also a host of other examples like this. What about the brilliant scientist or mathematician who can't explain his own subject (perhaps to students or to the public). Or what about the converse - the person who is not such a great mathematician or scientist, but is a great teacher or populariser of the subject. What is, then, the link between knowing how and articulation?

The examples are completely misleading. No-one demands that the expert be able to articulate what they are doing as they are doing it. This, in essence, is McDowell's reply to Dreyfus. The point that overthinking baseball hits is bad does not reflect anything deep about the inarticulability of knowing how – rather, it simply reflects that, when one plays baseball, one should keep one's mind on the ball and not think of other things. Moreover, no one demands that the relevant articulation always be in words; the only thing Annas demands is that one be able to give reasons why one acts like such and such. This form of giving reasons need not be entirely verbal, it can also work by demonstration. In practical contexts, a demonstration that is partly verbal and partly physical demonstration or action does the trick equally well: for instance 'look, if I hit like this and not this, this will happen'.⁷

The value of knowledge-how

A last question remains and this is what is *good* about knowing how to do something as opposed to simply being able to do it. This is the question of the value of knowledge-how: why do we want a virtuous doer who really knows how to do something rather than just a successful one? Is understanding of principles of action not besides the point as long as one is assured of successful action?

⁷ Catherine Elgin has mentioned the following objection: that one can know how to speak English without being able to articulate all of the rules of English grammar. The same line of thinking, about demonstration, covers this case too. Anyone who knows how to speak English can demonstrate (for the most part) what it is to speak correct English and can point out incorrect English.

A useful answer takes us back to Plato. In a well-known passage from the *Meno*, Socrates asks what the difference is between knowing the truth and merely believing the truth. Socrates asks us to imagine that we want to travel to Larissa, but do not know the way. A blind man, who has never travelled the road to Larissa himself and must, we suppose, be repeating hearsay offers to tell us the way. Should we take it? The example is set up to illustrate the point that it is the truth (or not) of what the blind man says that matters to whether we reach Larissa or not; if the blind man tells us the right way to reach Larissa, we will get there, whether the blind man truly *knew* the route to Larissa or not. If we accept Socrates's account, knowledge – that is true belief that is also justified or rational – is no more valuable to practical success than true belief by itself. This gives rise to the 'problem of the value of knowledge': if true belief is as good in securing practical success as knowledge, what, then, is the value of knowledge over and above true belief? This problem is equally applicable to knowledge-that and to knowledge-how. Following this example, we can easily ask what is more valuable, that we understand (and can follow) the correct way *w* to get to Larissa... or that we truly know how to get to Larissa? The task for the virtue responsibilist is to explain what is more valuable about *knowing how to get to Larissa*.

Let us look more closely at the *Meno* problem. As I hold elsewhere, the *Meno* problem is based on a misleading way of framing the basic kinds of epistemic problems we face in ordinary life. If I ask a person the way in real life, the problem is not to work out what is more useful – knowing the correct way or being able to tell the correct way. The problem is *whether to trust someone to tell us the way or not*. (Kotzee, 2013: 5 – 7)

As Craig puts it:

'It is not just that we are looking for an informant that will tell us the truth about P; we also have to be able to pick him out, distinguish him from others to whom we would be less well-advised to listen.' (Craig, 1990: 18)

For Craig, the fundamental epistemic problem we encounter in real life is whether we should trust people to tell us things – whether we should believe what they say. Craig holds that our epistemic language and concepts – like 'knowing', 'evidence', 'justified', 'rational' are all markers of how we deal with this fundamental epistemic problem of trust. They are concepts that help us designate people as good informants or not; in other words, describing so-and-so as 'knowing' something is not describing her as a person to be trusted.

Craig writes mostly about what others say to one or tell one – he is interested in whether informants are trustworthy in communicating propositional knowledge. Notice, however, that the same as is the case for good informants must be the case for practical experts. The practical expert is the analogue, in the field of knowing how, to Craig's informant in the field of knowledge-that. One basic problem we face in the practical realm is whether to do something in a particular way. The most basic question in practical action is this: if I want to achieve ϕ , should I do ϕ in way *w* or in some other way? Another important question is: should I attempt ϕ in way *w myself*... or should I perhaps let another person do ϕ on my behalf? In order to answer these two questions, we turn, in ordinary life, to practical experts. Experts

may do two things for us: Firstly experts can do things on our behalf that we cannot do ourselves. Take the case of the accountant who fills in our tax return for us or the lawyer who defends us in a court of law – they act on our behalf or for us – they do ϕ for us. Secondly, experts can tell us how to do something – they can tell us the way w to do ϕ if we either want to or need to do ϕ for ourselves. Perhaps, one cannot always afford what it costs to entice someone to ϕ on one's behalf or perhaps one may be in a situation where there *is* no-one else to ϕ for one. In the latter case, it may require practice to become able to ϕ in way w for oneself, but, at least if one knows what way w *is*, one knows what to practice or how to practice it in order that one can begin to ϕ for oneself.

The value of the practical expertise of another person, then, lies in the fact that they can do for one or can tell one how it is done; as Hawley writes, when one needs something doing, it is often helpful to be able to phone a friend. (2010: 397) The trouble comes in the shape of having to identify which friend to phone. As we saw above, the realistic situation we find ourselves in is that we *cannot directly tell* whether someone is expert or not – we have to find some other way of gauging the goodness of the information one's informant offers. Furthermore, knowing that informants are fallible, we take a certain amount of risk in acting on what an expert tells us or letting them act for us. This is where procedures for telling whether someone is likely to be successful come in – it is the source of the demand that we make of experts that they are not only typically successful at what they do, but that they are *responsible* – that they have some form of justification for what they believe. Put simply, we demand that practical experts are not only able to act successfully or teach us successfully, but that they be able to articulate reasons why they or oneself should act like this or that in trying to achieve this or that. Annas explains that the difference between know how and mere lack lies in the ability of the one who knows how to articulate reasons for acting as they do. Elaborating on Craig's approach, I have now also shown *why* being able to articulate these reasons is valuable and, consequently, why knowing how to do something is more valuable than simply being able to do it. Being able to give reasons why one should act in a certain way enables us to know when to trust someone to do something on our behalf or to trust their instructions regarding how to do something (in order that we may follow these instructions ourselves).

Carter and Pritchard (2014) rightly see what David knows (in being able to say how to play the guitar and in being able to play it) is more valuable than what Roger knows (only being able to say, but not to do). Seeing this in the light of the problem of identifying practical experts yields a straightforward answer as to why what David knows is so valuable. If we want to hear a tune on a guitar, someone who can tell us how to play it is valuable and someone who can play it for us right now is valuable in a different way. However, someone who can both tell us how to play it and play it for us is most valuable of all.

Learning from experts and for oneself

Demonstrating practical expertise to another is the analogue, when it comes to knowledge-how, of ordinary testimony in the field of knowledge-that. As Hawley (2010) notes, testifying does not only mean telling. Telling is not the only form of testimony in the field of knowledge that. Neither is telling the only form of

demonstrating expertise in the field of knowledge how. Hawley describes a number of ways that someone can learn how to do something from one another.

- A describes to B how to X
- A gives B imperative instructions how to X ('do this, do that')
- A describes to B how A does X
- B overhears A talking to someone else about how to X
- A intentionally shows B how to X, and B imitates A
- A observes A X-ing and imitates A
- B observes A trying and failing to X, and thereby works out how to X
- Intentionally, or not, A forces or encourages B to come to know how to X (2010: 400)

What is striking about learning how, is that it can happen through instruction or demonstration. Often it requires both. As Hawley holds:

'It's very unlikely that there is a sharp line to be drawn between skills which can be transmitted through purely verbal methods, and those which require some practical demonstration: the vocabulary, resourcefulness and background knowledge of both speaker and listener will be relevant to determining what's feasible in specific cases, as will the amount of time available.' (Hawley, 2010: 401)

This observation itself should already lay to rest many of the demons that plague educational thinking about knowledge how – whether it is theoretical or tacit. It is both and the trustworthy practical expert needs to be able to convince by word and deed that they are expert.

Be that as it may, I can learn how to do something from you (and can do so in many ways next to being actively taught by you). Or I learn it for myself. There is no other way. An important point to notice is that it does not make sense to speak of things one just *knows* how to do without having learned it. Even our most taken-for-granted tacit practical knowledge is learned – how to walk, swim, speak our mother language, etc. We do not say that we learned how to breathe, swallow, or let our heart beat, but, then, neither do we say that we know how to breathe, swallow or let our heart beat – these are just things that happen or that our bodies do. Admittedly, there are cases in which we say, for instance, that 'someone had to learn to swallow all over again' (say, after having had an accident or having been ill), but then, in cases like these, a person deserves a whole different kind of credit for learning how to swallow again compared to the rest of us who swallow naturally (and may, even, be said to *know how to swallow again*, after this effortful learning process). As David Carr has shown, the most fundamental distinction in this area is between being *able* to do something and *knowing how to do it* and if there were innate knowledge how, there would be no difference between knowledge-how and ability. Following Craig, I have held that the very point of the concept of 'know-how' is to pick out those who have more than just ability so that we can learn from them. These will also be people who have learned those same things – either from others yet, or for themselves. For these reasons, the concept learning, is central to the concept 'know-how'.

Conclusion

In this paper, I considered intellectualist and anti-intellectualists accounts of knowledge-how and defended a third possibility in thinking about knowing how – a virtue-based account of knowing how. A virtue-based account of knowing how demonstrates the advantage over other accounts of focussing on what really matters about knowledge-how – the fact that knowledge-how is more valuable than mere ability. However, in order to make sure that our virtue-account of knowledge-how truly does the trick, it is not enough to stress that there is a necessary causal connection between the ability of a person and their being able to do something successfully. It is also needed that that person has acquired a responsible or demonstratively trustworthy way of doing that kind of thing that they can either show or explain to others. This, I have held, can only come about if someone learned it. Based on work by Annas, I outlined such a responsibilist virtue-account of knowledge-how: knowing how to do something is a learned ability to act successfully, accompanied by the ability to give reasons for one's actions. Because of the role that *learning* plays in this account of knowing how, it connects the concerns of philosophy of education and virtue epistemology once again.

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