

The Transmission of Skill

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ABSTRACT: The ideas (i) that skill is a form of knowledge and (ii) that it can be taught are commonplace in both ancient philosophy and everyday life. I argue that contemporary epistemology lacks the resources to adequately accommodate them. Intellectualist and anti-intellectualist accounts of *knowledge how* struggle to represent the transmission of skill via teaching and learning (§II), in part because each adopts a fundamentally individualistic approach to the acquisition of skill that focuses on individual practice and experience; consequently, learning from an expert's teaching is rendered at best peripheral (§III). An account of the transmission of skill that focuses on *guided practice* is shown to be immanent in an anti-individualist account of skill (§IV) that takes seriously the Aristotelian ideas that skills are rational capacities and second natures by developing the thought that *doing*, *teaching*, and *practising* are three moments of an *a priori* unity: the life-cycle of a skill (§V).

The questions whether virtue is knowledge, whether it can be taught, and in what respects it is analogous to skill are recurrent in ancient philosophy. Ancient discussions of these questions presuppose that skill is a form of knowledge and that skills can be taught—Aristotle remarks that “in general it is a sign of the man who knows, that he can teach, and therefore we think art [*technē*] more truly knowledge than experience [*empeiria*] is; for artists can teach, and men of mere experience cannot” (*Metaphysics* A.1, 981b6–9).¹ And we presuppose it too, in our ordinary thought, talk, and practice—for example, we go to music teachers and pay them for lessons so that they will teach us what they know and we will thereby acquire some practical knowledge, knowledge how to play a musical instrument.

In this essay, I will question whether contemporary philosophical conceptions of skill and of the transmission of knowledge from one subject to another can accommodate these traditional and everyday ideas (§§I–III). I will then sketch an alternative (§§IV–V). My primary goal, however, is to raise, rather than offer definitive resolutions to, questions about how we might achieve a philosophically satisfying understanding of these neglected topics.

I. CONTEMPORARY EPISTEMOLOGY AND THE TRANSMISSION OF SKILL

Recent discussion of skill considered as, or as involving, a form of knowledge has primarily focused on the question of whether *knowledge how* is distinct from *knowledge that*. The contemporary debate can be coarsely represented in terms of a dispute between two camps. *Intellectualists* such as Jason Stanley think that “knowing how to do

something amounts to knowing a fact” and that, consequently, “[s]killed action is action guided by knowledge of facts” (2011a, 175). *Anti-intellectualists* do not merely deny this: they hold, positively, that knowing how to do something consists in having a certain kind of non-rational, non-conceptual practical ability to do it and that skilled action consists in the direct exercise of such abilities—i.e. without mediation or guidance by cognitive, conceptual, or rational states or capacities. Thus whereas anti-intellectualists think that skill *is* knowledge (of a distinctive kind), intellectualists think that skill *involves* knowledge (of a more or less familiar kind), but that it also involves non-cognitive dispositions and abilities that are guided by and realize that knowledge.²

Intellectualists and anti-intellectualists also disagree about the *scope* of their topic. Intellectualists identify their topic through the formula *X knows how to ϕ* , and seek to give a uniform account of it. But there are many instances of this formula that do not fall within the scope of the anti-intellectualist’s interest in (something at least akin to) the ordinary concept of a skill—for instance, *knowing how to get from London to Oxford*, *knowing how to play the Moonlight Sonata*, or *knowing how to put on an aircraft lifejacket*.

There are at least two ways in which the formula *X knows how to ϕ* outruns the concept of skill. The first shows itself when we consider specific *applications* or types of application of skills. The ability to play the piano and the ability to touch-type are both skills, but (perhaps arguably) the ability to play the Moonlight Sonata and (unarguably) the ability to type ‘Afghanistan’ are not skills, even though it is perfectly in order to ascribe to someone knowledge how to play the Moonlight Sonata and how to type ‘Afghanistan’. The second emerges through reflecting on cases in which the agent’s knowledge how to ϕ consists simply in possessing a plan, recipe, or procedure that is such as to put her in a position to ϕ by marshaling various skills that it presupposes—as when one knows that one can ϕ by doing this, that, and then the other. It is obvious that such knowledge how may be rendered propositionally: one’s knowledge how to mix a Gibson may consist in knowing that a Gibson is a dry Martini garnished with a cocktail onion. Such cases do not trouble anti-intellectualists: knowledge that one can ϕ by doing this, that, and then the other can be put into practice only by someone who already has practicable knowledge how to do this, that, and the other—knowledge which itself might similarly be practicable only derivatively. (The Gibson recipe won’t get you very far if you don’t already know how to mix a dry Martini.) The anti-intellectualist’s interest is—or ought to be—in knowledge how to do things that is practicable *non-derivatively*, on which derivatively practicable knowledge ultimately depends for its practicability.³ Our topic is the transmission of *skill*, and so our interest in knowledge how will reside solely in cases of non-derivative knowledge how; going forward uses of the formula *X knows how to ϕ* should be interpreted with this restriction in mind, unless otherwise indicated.⁴

This restriction has a further consequence. In discussing the transmission of knowledge, epistemologists focus overwhelmingly on *testimony*, the central cases of which take something like the following form: X knows that *p* but Y does not, X tells Y that *p*, Y believes X and thereby acquires knowledge that *p*.⁵ As Richard Moran puts it, “This is the primary everyday occurrence, and it is the basic way knowledge gets around” (2005, 2). But though X might transmit to Y knowledge how to ϕ by *telling* Y that one can ϕ by doing this, that, and then the other—such that Y’s thereby-acquired knowledge

would be obviously testimonial—the transmission of skill proper appears to resist being treated as a straightforward case of testimony.

For one thing, testimony is understood as affording *propositional* knowledge. Yet it would be surprising if there were a quick route from the transmissibility of skill to the truth of intellectualism. Moreover, even if intellectualists are right in thinking that the practical knowledge involved in skill consists in propositional knowledge, it is far from obvious that the concept of testimony, at least as it has been elaborated in contemporary epistemology, is fit to characterize the transmission of such knowledge from one subject to another. Testimony is transmitted, in core cases at least, in tellings. But the activity that would appear to be at issue in the transmission of skill is not *telling* but rather *teaching*. (This leaves it open that teaching may involve much telling.)⁶ It would certainly be odd to say that one could transmit a skill via telling, or that one could acquire a skill by being told something. And while one might be told how to dance the tango (with elegance yet energy) or how to play basketball (hard but fair), such knowledge as might thereby be transmitted appears to be knowledge of the manner or spirit in which to exercise the skill; neither the skill itself nor (if they are different, as intellectualists think) the knowledge how involved in skill would thereby be transmitted. Though one can come to know that *p* merely by being told by someone else that *p* (in epistemically propitious circumstances, at least), one cannot acquire knowledge how to ϕ , or acquire the skill of ϕ -ing, merely by being told how to ϕ . (Here it is important to remember that we have set aside knowledge how to ϕ that consists simply in knowing that one can ϕ by doing this, that, and then the other.) As Katherine Hawley notes, “the epistemology of learning how, especially learning how from other people... is often distinctive, regardless of whether knowledge how is fundamentally different from propositional knowledge; the philosophically fruitful questions about knowledge how are not exhausted by the issue of its reducibility to knowledge that” (2010, 400).

It will emerge that getting *learning how from other people* into view involves adopting fresh perspectives both on the nature of knowledge how and on learning from others (§§IV–V). In order to motivate these perspectives, however, I will first argue in §§II–III that neither intellectualism nor anti-intellectualism can do justice to what was plain to the ancients, and is plain to us in ordinary life—namely that skill is a form of knowledge that can be transmitted, and that its transmission takes place through teaching and learning. The thought is that the kind of transmission of knowledge that the transmission of skill is (or contains) is just that: a *transmission* of knowledge. The learner comes to share in what the teacher already knows. And at face value, this would appear to be an *epistemic transaction*, even if it does not share all of the features of a conception of the epistemic that is arrived at by reflection on theoretical knowledge and its dissemination via testimony.

II. KNOWLEDGE HOW, ABILITY TO DO, AND ABILITY TO TEACH

II.i. A SHARED ASSUMPTION

A moment in the dialectic between intellectualism and anti-intellectualism provides a useful starting point. Many intellectualists think that anti-intellectualism stands refuted by the fact that examples can be generated in which it seems intuitive to say that someone knows how to do something, even though she is unable to do it.⁷ Paul Snowdon provides a general recipe: “To construct such examples we need to describe cases in which the subject can show, teach, or tell (or otherwise convey to) us how to do something, and hence *must* be credited with knowing how to do it, but is for some reason or other unable to do it” (2003, 9). To take a couple of examples from the literature: intellectualists think that a master pianist, who loses both her arms in a tragic car accident, still knows how to play the piano, even though she is unable to do so; and that a ski instructor knows how to perform a complex stunt, even though he is himself unable—and indeed has *never* been able—to execute it.⁸

In order to be clear about how these counterexamples are supposed to work, it is worth making a couple of very general points about abilities. An agent can exercise an ability only if she has the opportunity, and only if her ability has not been temporarily impaired. In the absence of the opportunity to exercise an ability, one might say that the agent was “unable” to do the thing in question, and similarly if the opportunity was present but the agent’s ability impaired, perhaps due to inebriation or injury. It should be clear, however, that such “inabilities” as these do not constitute counterexamples to anti-intellectualism.⁹ The relevant examples are not those in which someone can convey to us how to do something despite not having the opportunity to exercise her ability to do it, or having her ability to do it temporarily impaired, but rather those in which she has lost the ability (the pianist) or never had it (the ski instructor).

One obvious strategy an anti-intellectualist might employ to deal with such examples would be to acknowledge that such agents lack the relevant practical abilities, but deny that they have knowledge how. *Pace* Snowdon’s conviction that having the ability to convey to someone how to do something suffices for knowing how to do it, Alva Noë claims that “[t]he fact that [the pianist] remains an expert judge of play, or an expert teacher, or that she retains her knowledge of music, is irrelevant to this assessment of her practical knowledge” (2005, 283). As he goes on to put it, “[t]eachers and critics, although very knowledgeable, do not, by that very fact, have the relevant *practical* knowledge” (284).¹⁰

The dispute between Snowdon and Noë takes place against the background of a shared assumption:

Independence: the knowledge (call it K) possession of which puts X in a position to teach Y how to ϕ is independent of the ability to ϕ .

They disagree about what to make of this point. Snowdon thinks that, insofar as Y ends up knowing how to ϕ on the basis of X’s showing, teaching, or telling, K is what

knowledge how to ϕ consists in. But if X lacks the ability to ϕ , then knowledge how to ϕ cannot consist in, or constitutively involve, that ability. Noë, on the other hand, insists that the ability to ϕ is an instance of a genuine form of knowledge—“skill” or “know-how”—and thus distinguishes between it and K, the knowledge that the teacher *qua* teacher possesses.

II.ii. ANTI-INTELLECTUALISM AND THE TRANSMISSION OF SKILL

Anti-intellectualist adherence to **Independence** seems to derive from a certain fetishism of the inarticulate expert. It is taken as a datum in the contemporary literature that there may be inarticulate yet expert practitioners who indisputably know how to do all sorts of things, even though they cannot give a verbal account of what they know, and are thus hopeless teachers. (This datum squares with the dominant view of the athlete in contemporary popular culture.) If one might reach the pinnacle of practical expertise in the absence of any ability to convey to someone else how to do the thing in question, then it would seem that being able to teach is simply irrelevant to possessing knowledge how.¹¹

However, the thought that the ability to teach a skill is internal to its possession is a deep point; deeper, at any rate, than Noë’s dismissive treatment of it—“if you can’t do, teach, and if you can’t teach, teach gym” (2005, 284)—suggests. We may see the difficulty that **Independence** makes for anti-intellectualism by tracing out the implications that Noë’s response to the intellectualist counterexamples has for our understanding of the transmission of skill.

The response, recall, is that the counterexamples appear compelling only if we fail to distinguish between the properly *practical* knowledge how to ϕ that belongs to the expert practitioner, and which consists in the ability to ϕ , from the merely *pedagogical* knowledge how to ϕ that belongs to the teacher. Thus: the pianist lost her practical knowledge how once she lost her arms, and the ski instructor never had it; they both have pedagogical knowledge how, but that does not require the ability to do the thing one thereby knows how to teach someone else to do.

The teacher’s pedagogical knowledge how to ϕ is independent of the ability to ϕ ; but what does it consist in? Noë says that the ski instructor “can know how one jumps, or how jumping is done, . . . without knowing how to do it” (2005, 284), and that this knowledge is propositional (284 n.4). But there are many things one might know that would fall under the heading “knowing how one jumps, or how jumping is done”. For instance, there is the kind of knowledge of how one jumps or how jumping is done that is possessed by the physiologist, sports scientist, or physiotherapist; such knowledge might concern which muscle groups are used, how and when, what kind of stress the impact of the landing puts on which joints, and so on. There is also the kind of knowledge of how one jumps or how jumping is done that is possessed by the critic, judge, or television commentator; such knowledge might concern the names of different jumps, the level of their technical difficulty, their aesthetic merit, and would involve fairly fine-grained abilities to recognize successes and failures of various sorts in their execution. And there is the kind of knowledge of how one jumps or how jumping is done that is possessed by the ski instructor; such knowledge might well encompass aspects of the first two kinds of

knowledge insofar as they have a practical bearing for the student, but would first and foremost concern methods, styles, and techniques for jumping articulated not through theoretical or aesthetic concepts but through practical concepts (and practically useful analogies, etc.). This last is clearly our quarry.

Having distinguished pedagogical knowledge how to ϕ from other sorts of “impractical” knowledge how to ϕ , we may note that it is itself an instance of practical knowledge how: it is knowledge how to do something that is exercised by doing it. Thus, by anti-intellectualist lights, it requires the ability to do it. But the intentional activity that is the exercise of pedagogical knowledge how to play the piano is *teaching others how to play the piano*, not *playing the piano*. If the pianist didn’t have the ability to *teach*, she wouldn’t have *practical* knowledge how to *teach* the piano, and thus she wouldn’t have *pedagogical* knowledge how to *play* the piano. Before she lost her arms, the pianist knew both how to play the piano and how to teach someone else how to play the piano. After the accident, she retains only the latter knowledge. The inarticulate expert only has knowledge of the former kind—indeed, if our pianist had been an instance of the datum, we might have said that, once she lost her arms, she lost her knowledge how to play the piano.

However, this way of thinking makes it seem as if the ability to play the piano and the ability to teach someone else how to play the piano are unrelated skills, and that it is simply an accident if an agent happens to possess both of them (as our pianist did before tragedy struck). Of course, playing the piano and teaching someone else how to play the piano both pertain to pianos. But piano tuning, piano moving, and piano building are also skills that pertain to pianos. There is no reason to expect a piano teacher to be able to tune a piano, or a piano player to be able to build one. The connection between being able to play the piano and being able to teach the piano is closer, even if they can come apart. But we should conceive of their relation such that it is their coming apart in a particular case, not their coming together, that is accidental and requires a special explanation.

The reason is this: if the ability to teach someone how to ϕ and the ability to ϕ intentionally (which is what pedagogical and practical knowledge how to ϕ would respectively consist in, on the anti-intellectualist strategy under consideration) are conceived of as related merely accidentally, then the transmission of skill becomes unrecognizable as a case of teaching and learning. For the result of the process is not that the teacher and the learner have the same knowledge: the student acquires *practical* knowledge how to ϕ , something that, according to Noë, the teacher *qua* teacher does not have. But then where does the student’s practical knowledge how come from? The picture is one on which the teacher’s exercise of ability A (the ability to teach someone how to ϕ) is the inculcation in the student of ability B (the ability to ϕ intentionally). Reframed in the anti-intellectualist’s epistemic terms: pedagogical knowledge how to ϕ is practical knowledge how to ψ , and yet the process of teaching and learning is one on which the teacher knows how to ψ but not ϕ and nevertheless the student comes to know how to ϕ . A funny sort of teaching, if the teacher can be ignorant of what she is teaching!¹²

Yet if the proper upshot of the teaching and learning process is that the student comes to share in the teacher’s knowledge, then, on this conception of what the teacher knows, the student can acquire only mere pedagogical knowledge. (Or at least, it would be some accident if he acquired something else.)¹³ Students, like teachers and critics, would “not,

by that very fact, have the relevant *practical* knowledge,” and the world would be full of piano teachers, but no pianists—except the self-taught ones.

Setting aside this apparently absurd possibility, it seems that the best that can be said is the following. The teacher’s pedagogical knowledge how to ϕ is an instrument that she can use on the student, shaping the student’s behaviour in such a way that, as a result of that behaviour, he acquires practical knowledge how to ϕ . But this shaping does not amount to rationally conveying knowledge. The teacher deploys knowledge in her teaching activity, and the student, let us suppose, acquires knowledge as a result of the teacher’s activity. Yet it is not one and the same knowledge that is deployed and acquired, and it is difficult to see how the inculcation of the practical ability in the student by the teacher amounts to an *epistemic* transaction if that ability has no rational basis, but merely a causal origin, in the teacher’s pedagogical knowledge how.¹⁴ We should conclude that when the distinction between practical and pedagogical knowledge how that Noë’s remarks suggest is thought through, it ends up making it impossible to conceive of the transmission of skill as a case of the transmission of knowledge through teaching and learning.

II.iii. INTELLECTUALISM AND THE TRANSMISSION OF SKILL

In the previous section, I argued that the connection between possessing a skill and being able to transmit it to another by teaching is of greater significance than Noë’s anti-intellectualism is in a position to recognize. But intellectualism is not in a position to properly recognize it either.

Recall that whereas the anti-intellectualist thinks that knowledge how *is* skill (a kind of practical ability), the intellectualist thinks that knowledge how (a kind of propositional knowledge) is a *component* of skill. According to intellectualism, skilled action is possible because an agent possesses both knowledge how and certain non-cognitive dispositions and abilities; her exercise of those dispositions and abilities is skilled in virtue of being guided by her knowledge how.

Consider first a relatively simple form of intellectualism, of the kind to which Ryle objected in *The Concept of Mind* (1949). According to this *naïve intellectualism* (as I will call it), skill factors fairly neatly into the two components. The propositional knowledge—which may take the form of maxims, imperatives, regulative propositions, prescriptions, canons, recipes, rules, theories (to use some of Ryle’s characterizations)—is independent of the bodily dispositions and abilities that it informs. And those abilities are intrinsically unminded, unintelligent: their exercises and manifestations inherit whatever intelligence they might have from the agent’s prior acts of consulting or manipulating the propositional knowledge. What might the transmission of skill look like, according to naïve intellectualism?

Perhaps the teacher teaches her student what she knows. That is, she conveys to him the maxims, imperatives, canons, regulative propositions, and the rest. By contrast with the anti-intellectualist, who thinks of pedagogical knowledge how as disjoint from skill, the naïve intellectualist conceives of these regulative propositions as a component of skill. So it is not as if in acquiring this knowledge, the student has acquired knowledge irrelevant to doing what he is trying to learn how to do: he needs it, for it is to guide and inform his practice. But it is only a component, so he doesn’t have everything he needs.

From being taught, he acquires knowledge how, not skill. To acquire the “whole” skill, it would seem that he has both to learn and to practise—if it is by practising that he may train his non-cognitive dispositions and abilities, inculcating in them a receptiveness to the guidance that his new knowledge will provide. Alternatively, perhaps the teacher *both* teaches the student what she knows (the regulative propositions) *and* inculcates in him dispositional responsiveness to the knowledge. On this view, just as a skill is a hybrid state, comprising both knowledge and non-cognitive dispositions, so teaching a skill is a hybrid activity, comprising both teaching proper, as it were, and training.

One might be suspicious of the idea—even considered as an idealization—that the transmission of skill could be neatly divided in accordance with either of these proposals, into the teaching proper of regulative propositions and the training of the student’s intrinsically unintelligent dispositions (whether by the teacher or by the student himself). And naïve intellectualism surely has many other problems, as well. Indeed, contemporary intellectualists typically agree with Ryle that naïve intellectualism must be rejected. But they think that Ryle went wrong in moving from a justified rejection of naïve intellectualism to an unjustified rejection of intellectualism *tout court*.¹⁵ It is characteristic of forms of *sophisticated intellectualism* to insist that propositional knowledge how may guide skilled action *without* the agent needing to engage in acts of consulting or manipulating it, and to identify more complicated propositional contents for knowledge how than the naïve intellectualist’s maxims, canons, and rules. For instance, according to Jason Stanley’s sophisticated intellectualism, which augments and refines a view he initially developed with Timothy Williamson and which is perhaps the most sophisticated form yet of sophisticated intellectualism, an agent’s knowledge how to ϕ is *de re* knowledge about some way of ϕ -ing w , which she thinks of under a practical mode of presentation, and what she knows is that w is a way she herself can or could ϕ —a way that will give her counterfactual success in ϕ -ing.¹⁶ The propositional content of knowledge how on Stanley’s view is far more complex than anything Ryle considered in arguing against (naïve) intellectualism: it is knowledge both *de re* (of a way of ϕ -ing) and *de se* (a way of ϕ -ing the agent *herself* can employ), and its content includes a practical mode of presentation. Presumably it cannot be found in books, and nor is it such as to inhere in canons, rules, prescriptions, and so on—though of course rules, theories, criteria, and instruction manuals may nevertheless be of use in acquiring it. What might the transmission of skill look like, according to this kind of sophisticated intellectualism?

Considering the case of the ski instructor, Stanley makes a suggestion about teacher’s knowledge that is quite similar to Noë’s: “Teachers are supposed to know how one *ought* to do things—not how one *could* do things. The teacher may even know how *he* ought to do that maneuver. But clearly, I can know either how I ought to do something, or how one ought to do something, without being able to do it myself” (2011a, 128).¹⁷ An expert skier who has practicable knowledge how to perform the jump is able to think of a way w of performing it under a practical mode of presentation, whereas the ski instructor is not. Stanley (2011a, ch. 4) holds that modes of presentation figure in the content of propositional attitudes, so if the expert and the instructor were to think that the same property holds of the same way of acting, the difference in mode of presentation would make for a difference in what they know and not merely in the way they know it. But even if this aspect of his “neo-Fregean” conception of content is bracketed, the respective knowledge of the expert and instructor would still differ in content: the expert knows that

w is a way in which *she can or could* perform it, whereas the ski instructor knows that w is a way in which *one* (or perhaps he) *ought* to perform it.¹⁸ And thus the same difficulties arise as for the anti-intellectualist proposal discussed in the previous section: either the student learns from the teacher something that the teacher doesn't know (a funny sort of teaching and learning), or the student comes to share in the teacher's knowledge, but it is not from learning from the teacher that he acquires practical knowledge how to perform the jump (that he acquires the ability to think of w under a practical mode of presentation and knowledge that w is a way in which he himself can or could perform it).

III. LEARNING FROM EXPERTS

So far I have argued that the claim that teacher's knowledge *differs in kind* from practitioner's knowledge makes it difficult to see how a student can acquire a skill by being taught by a teacher—something that everyday life shows to be eminently possible. Of course, piano teachers normally have arms, and ski instructors can normally perform the manoeuvres that they teach their students. So let us now consider the possibility that students may acquire skills by interacting with experts—that is, by interacting with those who possess the *same* kind of knowledge that they seek to acquire.

III.i. INTELLECTUALISM AND THE ACQUISITION OF SKILL

Hawley argues that “Stanley and Williamson's bipartite account gives us a nice way of handling central cases in the acquisition of knowledge how. We ask how the learner comes to entertain the relevant proposition under a practical mode of presentation, ask how the learner comes to know that the proposition is true, and ask which if either of these achievements depends on the testimony of others” (2010, 402).¹⁹ Hawley distinguishes two sorts of case. In one, the learner must “rely upon [the expert's] word in order to know what it is” she is teaching him:

Suppose I do not know what a sheepshank knot is supposed to look like, but I ask you to teach me how to tie one. Here, regardless of whether you communicate with words, gestures, or a combination of the two, I must rely upon your explicit or implicit assurance that what you are showing me is indeed a way to tie a sheepshank. If I secretly observe you, I will not know that you are tying a sheepshank knot (unless some third person tells me that this is so), and when you teach me how to tie a sheepshank my resulting knowledge does seem to depend upon your sincerity and reliability. (Hawley 2010, 402)

The learner's knowledge that acting thusly is a way to tie a sheepshank knot depends on taking the expert's word for it and on the epistemic credentials of the expert's belief; it is thus testimonial knowledge. In the other kind of case, the learner observes the expert ϕ -ing. Because the learner is already in a position to recognize ϕ -ing, he does not need to take the expert's word for it that the way of acting that she is demonstrating is a way of ϕ -ing: he can see that for himself. And so it wouldn't matter if the expert was trying not to ϕ but to ψ , and just making a mistake by ϕ -ing instead, or if the “expert” didn't really *know* that the way of acting she was demonstrating is a way of ϕ -ing. That the expert is ϕ -ing by acting in way w provides the learner with *evidence* that w is a way to ϕ .

Hawley thinks that in both cases the expert's demonstration is "crucial to [the learner's] being able to entertain the relevant proposition under a practical mode of presentation" (2010, 402). But the demonstration is merely "causally crucial" (402); it has no *epistemic* significance. Therefore it is only in the first kind of case that there is genuinely testimonial knowledge how: "knowledge how is strictly testimonial only so long as the learner relies upon someone's testimony about what is being taught and acquired, i.e. only so long as the learner is unable to recognise for herself that the method is a successful one" (403).

It is noteworthy that Hawley restricts her discussion of how sophisticated intellectualism might make sense of learning how from others to the question whether there is knowledge how by *testimony*. As a result, she proceeds as if no defence is required for the claim that the acquisition of the ability to think of a way of doing something under a practical mode of presentation is not an "epistemic challenge" (2010, 403). In any case, however, it is unclear just what sort of causal contribution the demonstration *could* make to the learner's acquisition of the ability to think of a way of ϕ -ing under a practical mode of presentation. In a recent discussion, Stanley explicates his conception of a practical mode of presentation by means of Gareth Evans's (1982) thought that a demonstrative mode of presentation involves an "information link" that provides the subject with non-conceptual perceptual information about the perceived object: "if x knows how to ϕ , x must stand in an information link to a way of ϕ -ing that delivers non-conceptual bodily information" (2012, 766). It is thus perhaps no surprise that he holds that "[i]f someone shows me how to do something, before I learn how to do it from their demonstration, I must acquire a practical way of thinking of that method of doing it. This requires more than does acquiring knowledge of facts that can be described purely descriptively by testimony" (2011a, 129).

Stanley's thought seems to be that the expert's demonstration will provide the learner with evidence that the way of ϕ -ing demonstrated is a way for her (the expert) to have counterfactual success in ϕ -ing, which may in turn provide evidence for thinking that it is a way for him (the learner) to have counterfactual success in ϕ -ing. But for it to have counterfactual success in ϕ -ing for him, he must be able to think of it under a practical mode of presentation, and once he is able to, he will be in a position to practise ϕ -ing. Practising plays two roles in Stanley's account. One role is epistemic: "to acquire more and more evidence of an inductive sort that a certain way of doing something is a reliable way of doing it" (2012, 764).²⁰ Thus practising can make the difference between merely *thinking* that w is a way to ϕ and *knowing* that w is a way to ϕ . Another role is practical:²¹

The novice who is just acquiring a skill learns a method by which she can accomplish that skill—this involves the acquisition of propositional knowledge. But in the novice, the automatic mechanisms that apply the propositional knowledge to specific situations are not in place. The novice must repeatedly engage in distinct actions of "consulting" the propositional knowledge she has acquired in performing. ... In the expert agent, by contrast, the automatic mechanisms...are smoothly functioning. The expert does not need to "tell herself" things. She does not need to engage in distinct actions of consulting the propositional knowledge that guides her in acting. She just *implements* that knowledge in her actions. ... Practice has allowed the automatic mechanisms that are responsible for executing epistemic states ... to take over. ... The move from being a novice to being an expert involves bringing these automatic mechanisms

to bear on the propositional knowledge that one has acquired. (Stanley 2011a, 183–4)²²

Experts differ from beginners in three ways, according to Stanley: they have more pieces of propositional knowledge (they know of more ways to ϕ than they are ways to ϕ);²³ they have better evidence for thinking that certain ways of ϕ -ing are indeed ways in which they themselves can or could ϕ ; and the automatic mechanisms responsible for bringing behaviour into conformity with knowledge how are “in place” and “smoothly functioning”. It is only the first of these features of expertise that an expert’s teachings and demonstrations could have a bearing on, and even then only indirectly.

According to Stanley’s sophisticated intellectualism, then, the acquisition of skill is primarily an individual business that depends on individual practising. The idea that a skill may be *transmitted* seems to go missing from the account. And it is not clear that the view has the resources to accommodate the transmission of skill, in anything like the conception of it that figures both in ancient philosophy and in ordinary thought and practice.

III.ii. ANTI-INTELLECTUALISM AND THE ACQUISITION OF SKILL

Stanley holds that the expert’s knowledge and the novice’s knowledge are knowledge of the same kind: propositional knowledge, of ways of doing things, that they are ways of doing them (the expert has more knowledge and can, unlike the novice, apply it directly). By contrast, according to the anti-intellectualist Hubert Dreyfus’s multi-stage model of skill acquisition,²⁴ the agent moves gradually “from rule-guided ‘knowing that’ to experience-based know-how” (Dreyfus and Dreyfus 1986, 19). Like Stanley, however, Dreyfus conceives of the transition from novice to expert as something that takes place primarily through the agent’s practice and experience. For instance, whereas a competent agent must deliberate in order to select a plan of action, a proficient agent unreflectively selects one plan of action rather than another “apparently because [she] has experienced similar situations in the past and memories of them trigger plans similar to those that worked in the past and anticipations of events similar to those that occurred” (Dreyfus and Dreyfus 1986, 28).²⁵

There are a few places in Dreyfus’s multi-stage model at which teaching makes an appearance. At the most basic level, instruction figures in the form of conveying a rule or method knowledge of which distinguishes the novice from someone who has no idea whatsoever how to do the thing in question. But as the students are at this stage “merely consumers of information” (Dreyfus 2006, 200), and the information they consume consists in context-free facts and rules, the instructor might very well be someone who herself has no idea about the topic at hand, but is simply reading from an instruction manual—like an English teacher filling in for a Mathematics teacher, “teaching” the class by telling them to work through chapter 7 of the textbook.

At other stages, the student learns from the teacher through *imitation*. For instance, a competent agent is distinguished from a mere advanced beginner in part because he is emotionally involved in his task, and Dreyfus suggests that if the teacher shows herself to be emotionally involved in the activity that she is teaching, the student will be more likely to develop emotional involvement as a result of imitation (2006, 203–4). Even at

the level of expertise, the teacher's function in the learner's acquisition of skill is primarily as an object of study: "If the learner watches someone good at doing something, that could limit the learner's random trials to the more promising ones. So observation and imitation of the activity of an expert can replace a random search for better ways to act. In general, this is the advantage of being an apprentice" (Dreyfus 2006, 206). This role for the teacher is radicalized as the learner seeks to make the transition from expertise to mastery:

the danger is that the apprentice will become merely a copy of the master, while being [e.g.] a virtuoso performing artist requires developing a style of one's own. ... The apprentice, therefore, needs to leave his first master and work with a master with a different style. In fact, he needs to study with several such masters. ... Working with several masters *destabilizes and confuses* the apprentice so that he can no longer simply copy any one master's style and so is forced to begin to develop a style of his own. In doing so he achieves the highest level of skill. (Dreyfus 2006, 207–8, my emphasis)

According to Dreyfus, it is useful and important for the learner to have experts and masters around. But this seems not to be because they are actually teaching him anything; rather, he draws his own conclusions from their performances, recognizing that certain methods are useful, that certain avenues are never pursued, or that possibilities that had gone unseen or had seemed like blind alleys might be exploited in interesting ways. However, it would seem that the learner could do all this as a spectator, by watching the expert on film or on stage.²⁶ Yet there is surely a difference—and not a merely quantitative difference—between what one can learn from studying with, say, a master violinist at a conservatoire and what can be gleaned from watching and listening to her performances.²⁷

III.iii. SUMMARY

It is a feature of contemporary accounts of knowledge how, in both their intellectualist and anti-intellectualist variants, that they do not pay much attention to its acquisition through teaching. They are instead primarily oriented towards the individual's acquisition of skill through his own practising. Indeed, the knowledge that he thereby acquires may be such that he is incapable of conveying it to another, whether because it has "a kind of non-mental content that is non-conceptual, non-propositional, non-rational and non-linguistic" (Dreyfus 2007, 352) or because it has a propositional content that nevertheless can be thought only by the agent himself. My goal is not to downplay or undermine the significance of individual practising to a proper account of the acquisition of skill. But I am sceptical that a proper account of skill acquisition can locate the transmission of skill through teaching and learning as peripherally as do (and perhaps must) contemporary intellectualist and anti-intellectualist accounts. After all, the world is full of people who purport to teach skills—to teach their students what they know. According to both intellectualists and anti-intellectualists, it would seem, such people are charlatans—like the ancient sophists who purported to teach virtue. (Of course, the reason why such sophists stayed in business is, roughly, that their customers thought that virtue was a skill, and that therefore it could be taught.)

Recall the assumption shared by Snowdon and Noë:

Independence: the knowledge possession of which puts X in a position to teach Y how to ϕ is independent of the ability to ϕ .

In Snowdon, we find a non-accidental connection between knowing how to do something and being able to convey that knowledge to someone else, whereas the connection between knowing how to do something and having the ability to do it appears to be accidental.²⁸ In Noë, things are the other way around: we find a non-accidental connection between knowing how to do something and being able to do it, but a merely accidental connection between knowing how to do something and being able to transmit that knowledge to someone else. The thought that I want to explore in what follows, and which becomes available if we reject the shared assumption **Independence**, is this: that the connections between knowing how to do something, being able to do it intentionally, and being able to teach someone else how to do it are *all* non-accidental.

IV. THE TRANSMISSION OF SKILL

As a consequence of their individualistic orientations and adherence to **Independence**, neither intellectualism nor anti-intellectualism can give more than a peripheral place (at best) to the idea that skills may be transmitted by teaching and learning. We might hope that a genuinely anti-individualistic approach would allow the transmission of skill to appear as a central case or aspect of its acquisition, and would moreover show a conception of the transmission of skill to be immanent in the concept of skill, such that the question of how we learn how from others does not enter the story from the outside, once the main contours of our conception of the nature of skill are already in place. And this is what we will find. Indeed, our reflections take as their starting point the very thought that in intellectualist and anti-intellectualist hands is developed into the foundation for their individualism: that one learns how to do something by doing the thing in question—by practising.

When one has learned how to ϕ , one's ϕ -ing will be an exercise of one's knowledge. But while one was learning, but did not yet know, how to ϕ , one was ϕ -ing. And this appears paradoxical: one must ϕ in order to acquire the power to ϕ , even though ϕ -ing is the exercise of the power to ϕ . As Bengson and Moffett express the worry (and imply an intellectualist resolution of it), "if we did not already know how to perform [these actions], it is not clear how we would go about practicing them" (2011b, 33).

Bengson and Moffett support the idea that one learns how to do something by doing it with a quote from the beginning of *Nicomachean Ethics* book II (1103a32). But Aristotle himself doesn't seem to think that the problem they identify presents much of a difficulty. (He certainly does not seek to resolve it by distinguishing between practical knowledge and practical ability.) He goes on to write:

The question might be asked, what we mean by saying that we must become just by doing just acts, and temperate by temperate acts; for if men do just and temperate acts, they are already just and temperate, exactly as, if they do what is grammatical or musical they are proficient in grammar and music. Or is this not even true of the arts? It is possible to do something grammatical either by chance or under the guidance of another. A man will be proficient in grammar, then,

only when he has both done something grammatical and done it grammatically; and this means doing it in accordance with the grammatical knowledge in himself. (1105a17-26, trans. Ross in Barnes 1984)

And in *Metaphysics* Θ, Aristotle calls the same puzzle “sophistical” (1049b33). It arises only if we adopt an individualistic outlook and focus exclusively on the person who is acquiring the skill. One can do something—hit a bull’s eye, build a house, play the piano, do something grammatical—in three ways: by exercising one’s skill at doing the thing, by chance, or under another’s guidance. We may set aside chance; what we want to understand is how one person can acquire knowledge how to φ by φ-ing under the guidance of another.

Aristotle’s suggestion is that the source of the learner’s action is the teacher’s skill: the learner’s action is an exercise of the teacher’s capacity. A doctor who exercises his knowledge of medicine by guiding his residents in their treatment of patients is an origin of changes in the patients (cf. Makin 2006, 51). Over time, the learner gradually becomes able to stand on his own two feet and perform (and practise) the skill independently, “in accordance with the knowledge in himself.”

Aristotle also suggests that insofar as he is performing the action, “the learner too must perhaps have something of the knowledge” (1050a1). His thought is that insofar as the student is performing the action in order to learn, he is learning.²⁹ According to Aristotle’s conception of change, if X is doing something, then X has already done some part of what it is doing; thus he thinks that if the student is learning, he has already learned something—he has some part of the knowledge. This conception of change is controversial, and its application to the present case is perhaps counterintuitive. But sense can be made of the idea that the novice “has something of the knowledge” by following Ryle, who suggests that “the capacity to appreciate a performance is one in type with the capacity to execute it” (1949, 54): insofar as the learner is capable of appreciating what the teacher is doing in her demonstrations, then, even if the learner cannot do any of it yet, he is an incipient bearer of the skill. Indeed, the capacity to appreciate a performance is essential to the possession of a skill. My exercise of a skill on an occasion will probably not go well unless I am keeping track of how things are going with my unfolding action: keeping track of the matter on which I’m working and the instrument with which I’m working, and keeping track of whether it’s going well or poorly, whether I’m fully in control, and so on.³⁰ Similarly, practising would be pointless if I could not tell the difference, in general, between successes due to skill and those due in some respect to luck. And the same is true if teaching is to be effective.³¹

However, there may be cases in which the student is not in a position to tell whether a performance—his own or his teacher’s—is as it ought to be, and in such cases the learner must rely on the teacher to know that it is. (Recall Hawley’s example of the sheepshank knot.) Even in such cases, however, the learner may be said to have something of knowledge: the learner has a teacher. This is not a pun. The following does not suffice for X to be Y’s teacher: X knows how to do the thing in question, Y starts off not knowing how to do it, but comes to know how to do it in a way that is causally dependent on X’s knowledge how. Rather, teaching is, in the fundamental case, a distinctive kind of bipolar relation, the obtaining of which is not independent of its parties’ knowledge that it obtains.³²

The fundamental scene of the transmission of a skill is *guided practice*. In guided practice, the teacher and learner are doing something *together*. What they are doing cannot be understood merely as the aggregate of their individual exercises of their own capacities. Rather, the transmission of a skill is a *transaction*—the giving and receiving of knowledge how to do something—by being a *joint action*—the joint (not: several) exercise of the teacher’s and learner’s capacities. Individual practising should be understood in relation to the guided practising that is the stuff of music, dance, sport, and craft lessons; it is a kind of self-teaching, though it comes in two kinds: (i) the kind of practising the learner does at the teacher’s instruction, e.g. homework, and (ii) the kind of practising the agent does at his own behest. As Ryle points out, though in some cases it is possible to acquire a skill by teaching oneself, without relying on the knowledge how of others, such cases of *pure* self-training can’t be basic: “it is because [the self-trainer] had previously learned by practice, coaching and imitation the ‘hows’ of lots of other things such as tree-climbing, spelling and skating that he now takes it for granted that [what he is now teaching himself] has its ‘hows’ as well, which similarly can be learned by practice, trial and error, and looking for ways of avoiding the repetition of errors” (1967, 476).³³

It might be objected: “Guided practice is not the fundamental scene of the transmission of some kinds of skills. No one learns a first language as most people learn a second, or in anything like the context of a piano lesson.” Acquiring a first language, however, is acquiring part of one’s “first nature”. We may call it a skill if we like. But the kind of transmission of skill that forms our topic is restricted to the reproduction of “second nature” (see §V below). Nevertheless, it might still be thought that the picture offered here does not fit the transmission of certain mundane or vulgar skills that are nevertheless second natures. The transmission of such skills, it might be thought, takes place not through teaching but through imitation, association, and repetition.³⁴

There is no reason to deny that some skills are learned from others through imitation, association, and repetition. My thought is merely that such processes can be viewed either as incipient or derivative forms of learning through teaching or as dependent on learning through teaching (whether full-blown, incipient, or derivative). If they couldn’t, it would be hard for us to retain our grip on the thought that what is being acquired is *knowledge*, and that what different agents have knowledge of is the *same thing* (even if they have it to different degrees and in different styles); we would lapse into a conception of such skills on which each agent possesses merely something akin to an idiolect, where whatever commonality there is to different agents’ skills is external to them (the skills), being a matter of whether their exercises look the same, have similar results, and can be co-ordinated with each other.³⁵ It may help lessen the sense that the account outlined here depicts an objectionably intellectualized (if not intellectualist) conception of the transmission of skill to point out that the teacher’s role in guided practice is by no means restricted to providing explicit linguistic instruction. Depending on the skill, and on her, she may provide very little of that. The teacher’s role may take many different forms: for instance, stopping the learner at strategic points; making him repeat certain parts of the action in different ways and at different speeds; moving parts of his body into the correct position and/or holding them there; demonstrating different ways of performing the action, different ways of going wrong, the ways in which the learner is going wrong or doing things well; and so on. These and other kinds of intervention manifest the teacher’s

normatively articulated understanding of the skill and its domain, whether or not they do so linguistically or in a context-free way.

Obviously there is much more to be said here. Among other things, a more complete account would properly distinguish *teaching someone how to* (the transmission of a rational practical capacity) from *teaching someone to* (the inculcation of a disposition of the will), while noting that much teaching *how to* takes place through teaching *to* (for instance, teaching someone *how to* hold their hands while playing the piano by teaching them *to* hold them thus-and-so). Nevertheless, the preceding sketch will serve for now. In this section, we unfolded a conception of the fundamental scene of the transmission of skill through teaching and learning (guided practising) by reflecting on the possibility of individual practising. In the next, we will complete the exposition of the guiding thought (identified at the end of §III) of our alternative to both intellectualism and anti-intellectualism: that the connections between knowing how to do something, being able to do it intentionally, and being able to teach someone else how to do it are all non-accidental.

V. THE LIFE-CYCLE OF A SKILL

According to anti-intellectualism, skill is a non-rational practical capacity. According to intellectualism, skill is a complex state, comprising propositional knowledge and non-rational dispositions, capacities, and mechanisms implicated, informed, and harnessed by that propositional knowledge. By contrast, according to the view I favour, and which will be partially articulated here, skill is a rational practical capacity. It is a kind of second nature. From this perspective, our guiding thought arises quite naturally. For the question of how someone acquires the skill of playing the piano is the same as the question of how a pianist *comes to be*. And we may shed light on what it is for a bearer of a second nature to come to be via a comparison with what it is for an exemplar of a first nature to come to be.

An individual organism—an exemplar of a first nature—comes to be from other individual organisms of the same kind; and it is such that if it matures properly and conditions are propitious, further exemplars of its nature will come to be from it. A living thing's activity is for its own sake. Its activity consists in self-maintenance, in two senses: the organism keeps itself (the living individual that it is) going day-by-day (feeding), and it keeps itself (the species that it is) going generation-by-generation (reproduction). This might sound a bit reductive, but it is not: the shape that such self-maintenance takes differs widely in different species. Whereas an arctic poppy might "feed" by turning towards light and drawing up water, a cat might "feed" by locking on perceptually to a particular mouse in response to a feeling of hunger, stalking it, crouching, pouncing, playing with it for fun, and then eating (and digesting) it. And human "feeding" and "reproduction", insofar as they reproduce a *rational animal* day-by-day and generation-by-generation, will involve far more than eating, sexual intercourse, pregnancy, etc.; they will include such things as agriculture, language learning, and moral education.³⁶

Let us turn now to the bearer of a second nature. The following parallel suggests itself for the general case: an individual pianist (say) comes to be from other individual pianists, and she is such that if she matures properly as a pianist—if she becomes an expert—and conditions are propitious, further bearers of her skill will come to be from

her. Like living things, bearers of a skill need to maintain themselves: day-by-day (by practising) and generation-by-generation (by teaching). Obviously there is more to bearing a skill than practising and teaching it. Whereas the fundamental activities of an organism may all be understood as aspects of self-maintenance (allowing for the “extended” forms that self-maintenance takes in higher organisms), a bearer of a skill is as such a productive agent; unlike a living thing, whose activity is for its own sake, a productive agent acts for the sake of what she produces, not for the sake of herself *qua* bearer of the skill (though perhaps for the sake of herself *qua* something else). This is easy to see in the case of something like pottery, where the productive process comes to an end when the pot’s coming to be is completed: the product outlives the production. Playing the piano is at best a limit case of production: it has a product in what is perhaps only an extended sense, for the product—the live performance—is one reality with the productive activity—the act of performing. Nevertheless, even playing the piano is (again, perhaps in an extended sense) useful: the performance provides pleasure, and is not solely for the sake of the pianist *qua* pianist. However, what a pianist needs to do to keep herself going as the individual pianist she is—practising scales and arpeggios and repeating difficult passages over and over again—is poor material for a concert; and, conversely, even regular performance without practice is liable to result in a diminution of skill. (This is why you shouldn’t just perform, you should practise too: practising keeps you on your toes for “variable calls”, as Ryle puts it (1949, 141).) Thus, though from time to time they may coincide, the fundamental activity of a skill—the production of its proper product—is not as such an element of self-maintenance, and the activities that constitute self-maintenance do not as such amount to cases of production of the skill’s proper product. Of course, it may be that some individual bearer of the skill doesn’t go in for teaching or practising, perhaps, or that she focuses on these to the exclusion of “pure” exercise (for example, a piano teacher who makes sure to practise her scales and arpeggios, but rarely finds time to play any pieces). Or it may be that, in the case of some skills, two or all three of the moments overlap, in which case there’s no more to, say, *practising* ϕ -ing than just *ϕ -ing* itself.³⁷ But such overlap would be a peculiarity of the particular skill, a contingent coincidence among the three formally distinct moments that necessarily and *a priori* constitute *the life-cycle of a skill: doing, practising, and teaching*.

This is to say that a skill is a rational power that is acquired and maintained, and its acquisition and maintenance must be rational. It follows that there is a skill only where there is a practice.³⁸ This means more than that no one can have the skill of ϕ -ing unless there are, at least potentially, other ϕ -ers; it means that the practice is self-sustaining, that it is the cause of its bearers. Unlike a living thing, whose activity is its end, the end of the skill is something beyond itself, beyond its own activity: skills are useful. A useless skill will die out, unless a new use is found for it. But though that which keeps a skill useful is a condition of the possibility of its “staying alive”, it does not itself keep the skill alive; the skill must *keep itself alive*, through the rational transmission of itself (the form of its activity)—that is, through teaching.

This enables us to put our objection to the shared assumption from §II.i (**Independence**) on a surer footing. Snowdon and Noë each distinguish the ability to *teach* from the ability to *do*: Snowdon locates knowledge how with the former, Noë with the latter, and each sees an agent’s possession of the one ability as an accident with

respect to the possession of the other. *Each sees as independent what are in fact two moments of an a priori unity.* Once we recognize this, we can see that teaching (like practising, too) is a proper exercise of skill, even though it is not the fundamental exercise, that for the sake of which the skill persists. Not every practitioner needs to be a teacher, but the practice needs some teachers. The completely inarticulate expert, that hero of anti-intellectualists who has become a datum of the literature, thus shows himself to be in a certain respect a *defective* exemplar of the skill, no matter how sublime are his “pure” performances—he would be a more perfect specimen of the practice were he able to teach as well.

Although the distinctiveness of the masterful yet unreflective exercise of skill “in the moment” is the source of much philosophical interest, focusing too heavily on this aspect of skill is liable to lead to a distorted conception of it.³⁹ We can see this only after we stop focusing on the individual skill bearer and his expert activity “in flow”, and consider the wider practice. We find immediately that, though *exercising* a skill may often be unreflective, *bearing* a skill is a reflective enterprise: a pianist may not reflect on how to play the piano while she is in the midst of a performance, but she will do so at other times. Bearing a skill is a matter of possessing a capacity that is apt for being taken up in this kind of reflection—reflection, for instance, on how one could do the thing better, or why one’s performances of late have declined or plateaued. If possessing a skill consisted in possessing non-rational dispositions and abilities, as Dreyfus and Noë think, it would be a mystery as to how skills could be submitted to this kind of reflective analysis.

An expert needs to practise her skill in order to prevent herself from degenerating into mere habit and routine. But practising is a thoughtful activity, as Ryle notes in discussing a golfer practising his approach shots: “he cannot be practising without, in some way, having in mind the non-practice approach-shots of future live matches. . . . These are what it is for” (1967, 488–9). Indeed, there seems not to be a sharp break between exercising a skill by practising it, and exercising it by reflecting on it, where such reflection is apt to yield new ideas about how you might do (or practise, or teach) the thing in question, and perhaps, more radically, about how *one* does the thing in question.⁴⁰

An inability to submit one’s capacity to act to the kind of reflection involved in practice and analysis would, in my view, speak against conceiving of it as a skill: the capacity would seem to be, or to have ossified into, a mere knack. Alternatively, if an agent’s capacities for reflection are weak, impaired, or undeveloped, this might explain why she is unable to reflect on her skills, without suggesting that it is in the nature of those skills to resist rational reflection. And it seems right to say something similar about the ability to pass on skills via teaching. It is undoubtedly true that many experts are not brilliant teachers. But this is often because they are simply inarticulate, or lack other skills and virtues that are useful for teaching. Neither patience nor a flair for metaphor belong as such to the skill of playing the piano, but they may be of great pedagogical utility in teaching, and thus may *enhance* an expert’s ability to pass that skill on. Similarly, various forms of inarticulateness may *impair* experts’ abilities to pass on the skills of which they are experts, abilities that they always already possess in virtue of that expertise.⁴¹ Focusing on skills in contexts of learning, teaching, and practising, and not only in cases of “pure” exercise, is essential to vindicating the thought that what is being exercised is a form of *knowledge*.

VI. CONCLUSION

There are many ways in which a subject can manifest some knowledge of hers. Other subjects who are affected by this manifestation may come to know certain things. Some of what they come to know may be (part of) what was known and manifested by the first subject. It is obvious that many instances of this schema do not deserve to be thought of as distinctively epistemic transactions. And thus it is surely right for epistemologists to seek to identify the conditions that distinguish genuinely epistemic transactions from merely causal transactions that nevertheless result in the parties having knowledge in common. However, though an ordinary telling (in propitious circumstances) is a genuinely epistemic transaction if anything is, we should be careful about generalizing: we risk mistaking features of a species of epistemic transaction for features of the genus. The transmission of skill (or at least of the knowledge how involved in skill) through teaching has a strong *prima facie* claim to be considered a form of genuinely epistemic transaction, even though it does not fit the template produced by work on testimony. There is surely something theoretically unsatisfactory about having to conclude that it is a merely causal transaction that might play a role in replicating knowledge—at least in advance of further investigation into the distinctive characteristics of teaching in general and of teaching a skill in particular. I do not take myself to have provided an account of what a genuinely epistemic transaction is, either generally or for the specific case of the transmission of skill; my hope is that I have succeeded in opening the topic up for exploration.

One might wonder: why bother insisting that the transmission of skill is an *epistemic* transaction, if it looks so unlike those epistemic transactions with which we are already familiar? This is but a specific instance of a characteristic move in modern epistemology, to focus on theoretical knowledge—and in particular the kind of theoretical knowledge that is closely related to justified true belief—and declare that anything that appears not to fit that model must either be made to fit it or rejected as knowledge merely so-called. As Ryle (1949) and Anscombe (1963) argued in their different ways, this move makes practical knowledge unintelligible; my suggestion is that the specific instance of the move makes unintelligible the transmission of one kind of practical knowledge—skill or knowledge how.

Recent work on testimony has mitigated the individualism that had long characterized much contemporary epistemology. It is nevertheless characteristic of much work on the interpersonal dimensions of our epistemic lives to presuppose an antecedently intelligible conception of knowledge, and ask how it is possible (under what conditions, and so forth) to acquire knowledge from others. A more radically interpersonal approach would seek to discover the answers to these questions *within* the concept of knowledge, not as a second step.⁴² The approach to the transmission of skill outlined here aspires to follow this path; unlike contemporary intellectualist and anti-intellectualist accounts of knowledge how, which can at best give a peripheral place in their views about skill-acquisition to teaching and learning, the conception of skill as akin to a life-form (as a second nature) explains why exercising a skill, practising it, and teaching it are not merely accidentally related but instead form a unity.⁴³

REFERENCES

- Anscombe, G. E. M. 1963. *Intention*. Second edition. Oxford: Blackwell.
- Barnes, Jonathan, ed. 1984. *The Complete Works of Aristotle: The Revised Oxford Translation*. 2 Vols. Princeton: Princeton University Press.
- Bengson, John, and Marc A. Moffett. 2011a. “Non-Propositional Intellectualism.” In *Knowing How: Essays on Knowledge, Mind, and Action*, edited by John Bengson and Marc A. Moffett, 161–95. Oxford: Oxford University Press.
- . 2011b. “Two Conceptions of Mind and Action: Knowing How and the Philosophical Theory of Intelligence.” In *Knowing How: Essays on Knowledge, Mind, and Action*, edited by John Bengson and Marc A. Moffett, 3–55. Oxford: Oxford University Press.
- Burnyeat, M. F. 1980. “Socrates and the Jury: Paradoxes in Plato’s Distinction Between Knowledge and True Belief.” *Proceedings of the Aristotelian Society, Supplementary Volume 54*: 173–91.
- Dreyfus, Hubert L. 2006. “How Far Is Distance Learning from Education?” In *The Philosophy of Expertise*, edited by Evan Selinger and Robert P. Crease, 196–212. New York: Columbia University Press.
- . 2007. “The Return of the Myth of the Mental.” *Inquiry* 50 (4): 352–65.
- Dreyfus, Hubert L., and Stuart E. Dreyfus. 1986. *Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer*. New York: The Free Press.
- Evans, Gareth. 1982. *The Varieties of Reference*. Edited by John McDowell. Oxford: Oxford University Press.
- Hawley, Katherine. 2010. “Testimony and Knowing How.” *Studies In History and Philosophy of Science* 41: 397–404.
- Hornsby, Jennifer. 2005. “Semantic Knowledge and Practical Knowledge.” *Proceedings of the Aristotelian Society, Supplementary Volume 79* (1): 107–30.
- Kenny, Anthony. 1975. *Will, Freedom and Power*. Oxford: Basil Blackwell.
- Makin, Stephen. 2006. *Aristotle’s Metaphysics Θ*. Oxford: Oxford University Press.
- McMyler, Benjamin. 2011. *Testimony, Trust, and Authority*. Oxford: Oxford University Press.
- Moran, Richard. 2005. “Getting Told and Being Believed.” *Philosophers’ Imprint* 5 (5).
- Noë, Alva. 2005. “Against Intellectualism.” *Analysis* 65 (288): 278–90.
- Rödl, Sebastian. 2002. “Practice and the Unity of Action.” In *Social Facts and Collective Intentionality*, edited by G. Meggle. Frankfurt: Hänsel-Hohenhausen.
- . **THIS VOLUME** “Testimony and Generality.” *Philosophical Topics*.

- Ryle, Gilbert. 1949. *The Concept of Mind*. London: Hutchinson. Page numbers refer to the 1973 Penguin University Books Edition.
- . 1967. “Teaching and Training.” In *The Concept of Education*, edited by R. S. Peters. Routledge; Kegan Paul. Cited as reprinted in his *Collected Papers Volume 2: Collected Essays 1929-1968*, 464–478. New York: Routledge, 2009.
- Small, Will. 2012. “Practical Knowledge and the Structure of Action.” In *Rethinking Epistemology, Volume 2*, edited by Günter Abel and James Conant, 133–227. Berlin: De Gruyter.
- . 2014. “Teaching and Telling.” *Philosophical Explorations: An International Journal for the Philosophy of Mind and Action*.
- . ms.a. “Basic Action and Practical Knowledge.”
- . ms.b. “Can Intellectualism Account for Mastery?”
- Snowdon, Paul. 2003. “Knowing How and Knowing That: A Distinction Reconsidered.” *Proceedings of the Aristotelian Society* 104 (1): 1–29.
- Stanley, Jason. 2011a. *Know How*. Oxford: Oxford University Press.
- . 2011b. “Knowing (How).” *Noûs* 45 (2): 207–38.
- . 2012. “Replies to Dickie, Schroeder and Stalnaker.” *Philosophy and Phenomenological Research* LXXXV (3): 762–78.
- Stanley, Jason, and Timothy Williamson. 2001. “Knowing How.” *Journal of Philosophy* 98 (8): 411–44.
- Thompson, Michael. 2008. *Life and Action: Elementary Structures of Practice and Practical Thought*. Cambridge, MA: Harvard University Press.

¹Trans. Ross, in Barnes (1984). Indeed, in some ancient discussions skill (*technē*) is knowledge *par excellence*, and perhaps the only kind of knowledge that can be taught: Miles Burnyeat characterizes Plato’s position in the *Meno* (89Dff.) as the view that “at least in morals and mathematics teaching does not produce knowledge, so that if there is an honest job for teaching to do, it is in the transmission of practical skills, not of theoretical knowledge” (1980, 187).

²Some qualifications. Not all self-styled intellectualists think that knowing how to do something consists in propositional knowledge: Bengson and Moffett (2011a) have recently proposed a view they call “non-propositional intellectualism” according to which knowing how to ϕ is not a matter of standing in “a *knowing-that* relation” (163) to a proposition concerning a way of ϕ -ing, but is rather a matter of standing in “a *knowledge-of* relation” (164) or an “objectual *understanding* relation” (189) to a way of ϕ -ing. Their view is intellectualist insofar as they refuse “to identify knowledge how to ϕ with any kind of ability or disposition (power)” (193). Gilbert Ryle is typically taken to be the paradigmatic anti-intellectualist, but his view is considerably more sophisticated than the anti-intellectualist positions that have typically been discussed, and attributed to him, in the contemporary debate by both supporters and detractors. (It is worth noting, for instance, that Ryle explicitly denied that the abilities and dispositions of e.g. circus animals amounted to knowledge how to do things in the sense that interested him (e.g.

1949, 29); for him, knowing how to do something consists in specifically *rational* powers and dispositions. Cf. §V below.) In my view, Hubert Dreyfus's conception of know-how (discussed below) is a much better exemplification of anti-intellectualism.

³See Hornsby (2005) and Small (ms.a).

⁴This is to deny neither that someone who possesses a skill may be able to articulate at least some of what she knows how to do in the form *one can ϕ by doing ABC* nor that in transmitting a skill, instructors may make use of explicit instructions of that form. It is to deny that possessing a skill consists *solely* in such knowledge, and that teaching a skill consists solely in conveying it.

⁵This is meant as an uncontentious description of an everyday phenomenon, and not any kind of analysis of (this kind of case of) testimony. Perhaps an account of testimony can do without the concepts *telling* (as opposed to *sincere assertion*) and *believing someone* (as opposed to *believing that p*); perhaps Y can acquire testimonial knowledge that *p* from X even if X doesn't know that *p*, and thus perhaps knowledge can be acquired on the basis of testimony even though knowledge is not thereby transmitted. One may acquire testimonial knowledge otherwise than through being told, of course (e.g. by reading books, watching television, and, perhaps, overhearing one person tell another something); and presumably one can be told, and thereby come to know, that *p* without the speaker having *said* that *p* (e.g. if Y asks X whether *p* and X replies "Yes").

⁶On the similarities and differences between teaching and telling, see Small (forthcoming).

⁷Such examples provide a possible motivation for intellectualism, but it seems plausible to suppose that most intellectualists are moved by deeper commitments—for instance, by some thought about the necessary uniformity (and thus propositionality) of knowledge, or the combination of a commitment to a certain view about the bearing of the truth conditions of knowledge ascriptions on the nature of knowledge and a particular view about the syntax and semantics of ascriptions of knowledge how—and rely on such examples only in an effort to show why anti-intellectualism is false.

⁸Stanley and Williamson (2001, 416). Stanley and Williamson credit the latter example to Jeff King.

⁹For helpful discussion of abilities, opportunities, and impediments, see Kenny (1975, 132ff.); compare and contrast the discussion of enabling conditions in Noë (2005) (on which see the next footnote). The production of examples supposed to refute anti-intellectualism has not always been sensitive to these points: see e.g. several of the examples offered by Snowdon (2003, 8–9).

¹⁰There is another strategy open to the anti-intellectualist: to acknowledge that the pianist and the ski instructor possess the relevant knowledge how, but weaken the ability condition in order to insist that—appearances notwithstanding—they do have the relevant practical abilities. Heroically, Noë pursues this strategy as well. In order to do so, however, he construes the presence of the pianist's arms as part of the opportunity required for the pianist to exercise her ability (just as one cannot exercise one's ability to play the piano in the absence of a piano, so one cannot exercise it in the absence of arms). This strikes me as implausible; moreover, by interiorizing the ability (and thus the knowledge how, on this view), the strategy stands in tension with Noë's externalism and

undermines (the philosophical significance of) the distinction he draws between abilities' being *embodied* and their being environmentally *situated* (2005, 284–5).

¹¹Though the inarticulate expert is a favourite figure of anti-intellectualist reflection, intellectualists too accept the datum. Thus Stanley (2011b, §2) takes on the burden of showing that his view is consistent with it: though he rejects its antecedent, he endorses the conditional claim that “[i]f it is a consequence of the Intellectualist view of knowing how that knowing how to do something entails being able to explain [how] to do that activity, then knowing how to do something is not propositional knowledge” (213).

¹²One might object to this argument on the grounds that if I see that *p* and then inform you that *p*, we know the same thing (that *p*), even though my knowledge that *p* is perceptual and yours is testimonial. There are two responses to this objection. First, in the absence of a worked-out conception of pedagogical knowledge as *sui generis*, it is natural to suppose that pedagogical knowledge how to ϕ is practical knowledge how to *teach someone else to ϕ* —that is, practical knowledge how to ψ . Secondly, even if such a conception were forthcoming, practical knowledge how and pedagogical knowledge how would be different kinds of knowledge or ways of knowing something (how to ϕ), whereas perception and testimony are not different ways of *knowing*, but different ways of *coming to know*.

¹³That is, any acquisition by the student of practical knowledge would be accidental to the teaching and learning process so conceived, though it might be a causal consequence of that process, one that its participants intend to effect.

¹⁴Indeed, this may weaken the supposition that the practical ability acquired by the student deserves to be thought of as a kind of knowledge at all. At the very least, the fact that it was acquired through being taught provides no grounds for so crediting it: that an ability or disposition is acquired as the causal upshot of the rational deployment of knowledge does not make the ability or disposition thereby acquired either rational or cognitive—dispositions and abilities can be inculcated in non-rational animals through conditioning and training that itself requires much thought and reasoning on the trainer's part. It may be responded that a student deploys rational capacities in taking up what he is “taught”. But, on the present conception at least, this remains insufficient. Compare the following case: I can see you doing a dance through my telescope, in which case each of us are using our rational capacities, but there is no rational *transaction*—you are not *showing me* your dance.

¹⁵See e.g. Stanley (2011a, ch.1 and p. 110).

¹⁶See Stanley and Williamson (2001); Stanley (2011a); Stanley (2011b).

¹⁷Stanley thinks that, after her accident, the pianist may nevertheless remain “acquainted” with a way of piano-playing and know “that it is a way that she could use to play the piano in situations in normal situations [sic] in which she had arms” (2011a, 128). An ascription to her of the ability to play the piano would be false because “explicit ability modals involve a modal parameter that is determined by how things are at the actual world” whereas the modal parameter introduced in the propositional content of knowledge how is less restricted: “Knowing how to [ϕ] requires only... counterfactual success under normal circumstances” (ibid.). Thus the ground for continuing to ascribe knowledge how to the pianist after her accident is *not* that she can teach, tell, or otherwise convey to someone else how to play the piano; Stanley does not think that teacher's

knowledge exemplifies the kind of knowledge how for which he aspires to give an account.

¹⁸Stanley's view makes it seem as if it would be an accident if someone possessed both knowledge how she herself could ϕ and knowledge how one ought to ϕ , or at least that such pieces of knowledge would aggregate as a heap rather than as a unity. I criticize this aspect of his view in Small (ms.b).

¹⁹The view that Hawley is considering is not Stanley's present view, on which not only is a practical mode of presentation a mode of presentation of a way of doing something (not of a *proposition* concerning a way of doing something) but the mode of presentation is an element of the proposition known. Thus it is not clear that there are two achievements to separate here. Or at least, if there are two achievements, it is not clear that they are the two that Hawley has in mind: Stanley does think that the ability to think of a way of ϕ -ing under a practical mode of presentation can come apart from *knowing* that it is a way to ϕ , but the possibilities he envisages are ones in which one knows that w is a way of ψ -ing but does not know that it is a way of ϕ -ing (even though it is) or ones in which one *thinks* that w is a way of ϕ -ing but has not yet acquired sufficient evidence to count as *knowing* that it is.

²⁰Cf. Stanley (2011a, 130): "In order to know how to catch a fly ball, one must amass enough of the right *kind* of evidence to know, of a certain way of moving that one thinks of practically, that it is a way that will yield counterfactual success in fly-ball catching. Once this realization has been made, practice leads to direct action, action without the necessity for reflection."

²¹A critical discussion of Stanley's conception of the nature and significance of practising lies beyond the scope of this essay.

²²A critical discussion of Stanley's conception of the nature and significance of practising lies beyond the scope of this essay.

²³See Stanley (2011a, 183–5).

²⁴In Dreyfus and Dreyfus (1986, ch. 1) and many subsequent papers, there are five stages: (i) *novice*, (ii) *advanced beginner*, (iii) *competent*, (iv) *proficient*, (v) *expert*. In more recent work, Dreyfus has extended the model to include a sixth stage, *mastery*, which he calls "the highest level of skill" (2006, 208). (It is clear that *practical wisdom*, which Dreyfus misleadingly calls a seventh stage, is in fact, and indeed by his own lights, not a stage in the development of a skill but rather a global capacity or excellence for acting well.)

²⁵Cf. Dreyfus and Dreyfus (1986, 32): "With enough experience in a variety of situations, all seen from the same perspective or with the same goal in mind but requiring different tactical decisions, the mind of the proficient performer seems to group together situations sharing not only the same goal or perspective but also the same decision, action, or tactic. At this point not only is a situation, when seen as similar to a prior one, understood, but the associated decision, action, or tactic simultaneously comes to mind. An immense library of distinguishable situations is built up on the basis of experience."

²⁶On the significance for the epistemology of testimony of the differences between believing someone and drawing one's own conclusions from what they say, see McMyler (2011).

²⁷The one role that Dreyfus assigns to an expert in the learner's acquisition of skill that seems both to depend on her expertise (unlike the promulgation of information to novices) and to be a case of teaching (as opposed to merely figuring as an example) is this: at the advanced beginner stage, "[t]he instructor takes on the role of a coach who helps the student pick out and recognize the relevant aspects that organize and make sense of the material. ... Here the teacher needs to be present with the student in the actual situation of thought or action" (2006, 201). Still, Dreyfus does not make very much of it.

²⁸Snowdon seeks to dispel the impression that his position represents the connection between knowing how to ϕ and possessing the ability to ϕ as merely accidental: "In normal circumstances, with normal agents, it will, at least often, be true that S is able to do G if and only if S knows how to G. The reason is that for agents with normal capabilities it is only the ignorance of how to do G that prevents them from being able to do it. So, once they learn how to they will become able to, and if they are able to it will be because they know how to" (2003, 10–11). But this suggestion has plausibility, I think, only if the ignorance of how to do G is ignorance of a piece of knowledge that would be practicable only derivatively (i.e. knowledge that one can ϕ by doing this, that, then the other—recall §I above), and not if the ignorance of how to do G is ignorance of the kind of non-derivatively practicable knowledge how involved in skill.

²⁹This will require that performing the action *is* a way of learning, which is something that the teacher, though not the student, needs to know.

³⁰It is crucial to a proper understanding of the metaphysics and epistemology of intentional action that such "keeping track" is not conceived of as something *external to* the unfolding intentional action itself. For further discussion, see Small (2012).

³¹Compare the discussion of the life-cycle of a skill in §V below.

³²There are complications here. The kind of epistemic relation that obtains between teacher and learner differs from that which obtains between testifier and audience not only in its content, but also in its form. Indeed, insofar as it belongs to the teacher to articulate not merely what *he knows* but what *is known*, she speaks not as a particular epistemic subject, but as a representative of an epistemic community. See Small (forthcoming) for further discussion, and compare §V below.

³³Teaching oneself a skill may be easier in cases where the skill involves the use of well-designed technical equipment, such as bicycles or guitars. Such equipment is objectified knowledge how.

³⁴Thanks to Jennifer Hornsby and Christos Douskos for these objections, and to Anton Ford for discussion.

³⁵No doubt some philosophers would be happy with such a view, which I cannot discuss further here. One thing to say is that skills don't spread by contagion, or by "catching on" like fashions, trends, or crazes (for which a more "idiolectal" approach seems appropriate).

³⁶The conception of a living thing that I exploit in this section is indebted to Thompson (2008, Part I) and as-yet unpublished work by Matthias Haase.

³⁷John Dupré suggests plastering as an example.

³⁸Cf. Rödl (2002).

³⁹I discuss the topics of the remainder of this section in connection with the topic of basic action in my ‘Basic Action and Practical Knowledge’ (Small ms.a).

⁴⁰This suggests that as a skill “keeps itself alive” over time, it will *evolve*. And in fact, skills do evolve. Just as a skill might disappear or be supplanted, due to changes in the conditions of our lives and resultant changes in our ends, so a skill may be analyzed into component parts. In this case we would see at the level of the practice what we see at the level of the individual when a novice is learning. A fundamental way in which one acquires a skill is by breaking it down into things one is already expert, or at least competent, at doing. (That any skill has the potential to be broken down in this way of course does not imply that it ever will be broken down, or that it would be useful to do so.)

⁴¹To forestall a possible objection: I am not denying that there are distinctively pedagogical skills. Rather, I am insisting that internal to the possession of any skill is a minimal ability to teach it. (This ability, however, may be impaired by features of the agent *qua* bearer of the skill, features of the agent *qua* something else, or external conditions.)

⁴²Cf. Rödl (this volume).

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