

Chapter 2

Practices and Learning

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Abstract This essay considers the contribution that practice theory makes to understand learning. It argues that practice theory does not foster a new conception of learning but instead holds insights into learning traditionally conceptualized as the acquisition of knowledge. Part one considers Lave and Wenger's idea that learning is coming to participate in practices. I argue that coming to participate in a practice amounts to acquiring the knowledges of different sorts needed to participate in it. As a result, learning qua coming to participate in practices is a version of the traditional conception that highlights practical knowledge and ties contents and processes of knowledge to the organization of social life as practices. Part two explores implications of the ontological centrality of practices for learning and illustrates how practice theory ties the contents and processes of knowledge to practices. After an interlude on the nature of knowledge, the conclusion argues that training à la Wittgenstein underlies the acquisition of knowledge, thus participation in practices, and is itself a form of learning.

Ideas on the nature of learning and education often reflect conceptions of human mind, life, or nature. The current essay explores learning less on the basis of such a conception than through a particular contemporary social ontology. It does so on the assumption that the basic features of social existence have implications for the nature of learning. The particular ontology concerned, moreover, is the general one identified with so-called practice theory. This ontology avers that human lives proceed through practices and that practices form fields, complexes, textures, or a plenum where social affairs transpire. The thought behind this essay, consequently, is that thinking of human life and social phenomena as taking place in practice fields or textures holds implications for understanding learning. And the particular question that I will consider is, What contribution does or can practice theory make to this topic? My view is that practice theory does not foster a new con-

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ception of learning but instead holds insights regarding learning as standardly conceived.

This essay focuses on knowledge. I do not believe that the acquisition of knowledge alone constitutes learning. Learning also embraces the acquisition of such items as normative convictions, aesthetic judgment, feelings, and the power of reflection, as well as self-understandings, ways things matter, and character traits such as judiciousness, politeness, and obedience. Indeed, Lave and Packer (2008, p. 43) have something right when they tie learning to the “ontological transformation” of people—though not all transformations qualify as instances of learning (see Section “[Knowledge and Learning](#)”). Focusing on knowledge, however, does not deform my account. For the bearing of practice ontology on theorizing learning when learning is treated as embracing the acquisition of this fuller set of features parallels its bearing on theorizing learning qua the acquisition of knowledge. In addition, knowledge—in its full breadth—is central to these other acquisitions.

On Learning

Learning has been frequently conceptualized as the acquisition of knowledge, and the type of knowledge involved as propositional knowledge. Propositional knowledge is the knowledge that the sky is blue, that Helena loves Lilly, that my elbow hurts, that $e = mc^2$, and so on. This traditional view is sometimes called “cognitivism.” A further feature of cognitivism is the idea that individual people are what learn: learning is the acquisition by individual people of propositional knowledge. It does not matter, moreover, whether propositional knowledge is discovered through personal investigation, transmitted via books or Internet, or handed along through interaction. All three processes instantiate the acquisition of knowledge and, thus, learning. This focus on the individual person has also historically been accompanied by the idea that mind—or, more recently, brain—is the locus of learning, the place where knowledge is accumulated. On this narrower view, learning can be seen as the internalization of propositions (or their encoding in the brain).

The long middle stretch of the twentieth-century witnessed a steep rise in interest in the practical side of human life; a development associated with such thinkers as Dewey, Heidegger, Wittgenstein, and Ryle. These thinkers believed that practice and practical understanding have priority over theory and propositional knowledge. In the eyes of they and their followers, learning is the acquisition, not just of propositional knowledge, but of skills, capacities, competences, and abilities, too. Someone who thinks that knowledge is (only) propositional knowledge will treat this development as expanding the scope of learning beyond knowledge. Others will view it as an internal development of the traditional conception since skills, capacities, competences, and abilities can be identified as a type of knowledge,

namely, practical knowledge or know-how.¹ Both interpretations presume that it is individual people who learn.

Before continuing, I should explain that in writing of the “acquisition” of knowledge I do not mean—regardless of what some conceptions and theories of learning as acquisition might have implied—that acquiring knowledge is a discrete, one-off event that does not admit of degrees, in which some “unit” of knowledge is fully acquired. This characterization might be true of the acquisition of some propositional knowledge, but it is decidedly not true of the acquisition of much know-how. Much know-how (e.g., knowing how to drive a car or knowing how to size up an interpersonal situation) is acquired over time and to different degrees by different individuals: some people are better than others at carrying off the accomplishment in question. In writing of acquisition, I also do not imply that learning is a thing, has a location (see Section “[Knowledge and Learning](#)”), or is independent of context.² Nor, as I also explain in this Section, is what is learned a thing or object (cf. Sfard 1998). What the concept of acquisition implies partly depends on the disciplinary background of the person using or encountering it. Anyone for whom the concept has unwanted implications is invited to substitute the notion of coming to know for it: In my view, to acquire knowledge is to come to know. A virtue of the expression “coming to know” is that it overtly allows for temporal passage, different degrees, and the bearing of context on what is learned. It also accommodates the role of learners’ agency in learning (cf. Billet 2006).

With the advent of practice theory, a challenge arose to the traditional view that learning is the acquisition of knowledge. In their book, *Situated Learning: Legitimate Peripheral Participation*, Lave and Wenger (1991), on the basis of observations of apprenticeships the world over, reject both cognitivism and some forms of situated learning theory as adequate accounts of learning. These rejected outlooks concur that learning is a distinct and intermittent process, viz., the acquisition of knowledge by individuals. They differ in that situated learning theory alone emphasizes that this process occurs in situations, amid social arrangements, which affect it. According to Lave and Wenger (1991), by contrast, “...learning is not merely situated in practice—as if it were some independently reifiable process that just happened to be located somewhere; learning is an integral part of generative practice in the lived-in world.” (Lave and Wenger 1991, p. 35) What they partly mean is that learning is a diffuse event (embracing the whole person) that

¹The idea that know-how is abilities has been regularly challenged ever since Ryle distinguished know-that from know-how. An influential recent large-scale assault is that of Stanley and Williamson (2001; see Stanley 2011), who claim that knowing how to X is a type of knowing-that, namely and roughly, knowing that a particular way to X is a way for the knower herself to X. Although addressing their analysis would lead my discussion away from its main focus, I should indicate that I affirm a counterargument that many philosophers have offered, viz., that, although Stanley and Williamson have grammatically identified a perfectly sensible (though in my opinion formulaically unusual) type of know-how, this type differs from another, pervasive type that equates know-how with ability and the like (see, e.g., Nöe 2005, Winch 2009).

²All these (alleged) features of acquisition have been put to me by Paul Hager, either in personal communication or in his written work (e.g., 2010).

continuously occurs in all practices: it is the transformation of people that accompanies their participation in practices. What one becomes by participating in practices, however, is, most generally stated, a participant in them (a member of a community of practice). So, learning is integral to practice ultimately because (1) learning is the process of coming to participate in practices (together with the subsequent evolution of participation) and (2) practices do not exist unless people participate in them. Stated in overt social theoretical terms, their claim is that the reproduction or perpetuation of (communities of) practice takes place through learning (cf. Lave and Wenger 1991, p. 55): for it is by virtue of people learning to participate that (communities of) practice acquire the participants—recruit the members (cf. Shove and Mika 2005)—through whose activities they remain in existence. Learning, as a result, does not just happen to take place in social practices: it is integral to them. It follows that the progression of any person's learning over time is the history of his or her participation in different practices (cf. Gherardi 2006, p. xxi; on the notion of personal/learning trajectories, see Lave 1997; Dreier 2003). In the apprenticeship practices studied by Lave and Wenger, the progression of learning takes the form of an advancement from peripheral to increasingly central participation. Finally, since for Lave and Wenger (and even more for Wenger 1998) a practice is the practice of a community, in participating in practices one becomes a member of communities. It follows that a key feature of the learning process is the acquisition of identities.³ This idea makes clear that Lave and Wenger concur that it is individuals who learn: not only do individuals alone join communities, but learning implicates becoming a different person (e.g., 1991, p. 53).

Ideas parallel to those of Lave and Wenger abound in subsequent work. Wenger (1998), Gherardi (2006), and Kemmis et al. (2014) offer prominent examples. Kemmis et al. write that “learning is a process of initiation into practices” (p. 59; cf. Smeyers and Burbules 2006), or more colorfully, a process of being stirred into them. Learning is the process by which people become (and evolve as) practitioners of practices. Drawing on Wittgenstein, moreover, the authors analyze (pp. 62–63) having been initiated or stirred into practices as knowing how to go on in them (cf. Bourdieu's 1990 notion of practical sense). Appropriating Wittgenstein's notion of knowing how to go on makes something explicit that is present but not highlighted in Lave and Wenger's account, namely, that learning, understood as coming to participate in practices, bears a close connection to the acquisition of know-how.

According to Kemmis et al. (2014) moreover, a practice embraces activities (doings), language-games (sayings), and relations to people and entities in the world (relatings), all within the scope of a distinctive project. As a result, what a person learns in coming to know-how to go on in a practice is “participation in a language game, an activity, a way of relating, or a practice” (2014, p. 58). Although

³The authors occasionally suggest that the acquisition and evolution of identities is the central feature of learning. Lave and Packer, for instance, write that “[k]nowledgeability, the narrow focus of epistemologically based theories of learning, is subsumed within the production and reproduction of identities...” (2008, p. 44, footnote 4). In my opinion, claims such as this conflate who one is (identity) with what one is (one's properties or features).

Kemmis et al. do not explicitly put the matter in the following way, what she learns is (1) how to perform or take up activities, language-games, and relatings, (2) when to do so, and (3) how these hang together within the ken of the organizing project. The authors claim that learning of this sort differs from the acquisition of knowledge, skills, and values. This claim is acceptable when knowledge, skills, and values are construed, respectively, as cognitive content (or concepts), psychomotor content, and affective content (2014, p. 93). The claim is not acceptable, however, if know-how either qualifies as a type of knowledge or implies possessing skills regarding what one is able to do. For knowing how to go on is itself know-how and, as suggested, umbrellas know-hows (and know-thats) regarding activity, language games, relatings, and their connections. These know-hows, moreover, can be described as skills—coming to know how to go on in a practice is becoming skilled at these things (cf. Dreyfus 1991).

Kemmis et al. (2014) acknowledge a connection between practical knowledge and learning qua coming to participate in practices. Both Gherardi and Wenger embrace the connection even more overtly (see also Elkjaer 2003). According to Gherardi (2008, p. 517), knowledge is the capacity to competently participate in practices. Knowledge and practice, moreover, are mutually constitutive: the capacity to competently participate is indispensable for practice and itself exists only within practice (2006, p. 230). Wenger (1998), meanwhile, analyzes communities of practice as collections of people who, through mutual engagement and the development of a shared repertoire of routines, tools, stories, gestures, actions, concepts, and the like, pursue a joint enterprise. His example is a group of insurance claims adjusters working in a San Francisco office who, through interaction and the development and perpetuation of shared routines, concepts, and ways of doing things, etc., pursue the enterprise of adjusting claims and do so in such a way as to make this enterprise “inhabitable.” According to Wenger, communities such as this embrace regimes of competence: abilities to perform actions, to engage with others, to establish relationships, to use a shared repertoire, and to understand and take responsibility for the community’s enterprise. Such regimes also include the possession of certain information and the mastery of certain skills in the abstract (Wenger 1998, pp. 136–137). Someone who has appropriated such a regime has higher order abilities to participate, to belong, and to negotiate meaning (1998, p. 226). Because, for Wenger, learning is mastering practices, learning requires taking on such regimes, becoming part of the communities involved, and, among other things, thenceforth reconciling these regimes of competence with experiences of ambiguity, challenge, novelty, discord, surprise, conflict, and the like (see also Wenger 2010). Learning thus involves both the acquisition and subsequent development of a regime of competence. Incidentally, because Wenger conceptualizes the social world as constellations of practice communities, his account is meant to be a general account of learning: *all* learning involves entering a community of practice, assuming its evolving regime of competence, and thereafter carrying on its practice while maintaining identities and negotiating meaning within it. Scientists, elementary school students and teachers, salespersons, hotel staff, sports team members, and lawyers—to mention just a few examples—all do this as much as insurance claims adjusters do.

Gherardi, Wenger, and Kemmis et al. overtly embrace something that is not fully fleshed out in Lave and Wenger, to wit, that the acquisition of know-how is integral to learning construed as coming to participate in practices. This latter realization, however, in turn suggests that it is mistaken to distinguish coming to participate from the gradual acquisition of abilities. It is true that through learning people come both to carry on additional practices and to carry on already mastered ones better or in new ways. But this fact does not imply that learning is coming to participate in practices *as opposed to* gradually acquiring the wherewithal that underwrites this. Indeed, the former *consists in* the latter: coming to participate in a practice amounts to acquiring the know-hows and other knowledges (the evolving regime of competence) required for participation. As Elkjaer (2003, p. 49) writes about the contribution pragmatism makes to understanding organizational learning, “social learning theory...inspired by pragmatism does not make a separation between coming to know about practice and coming to be a practitioner.”

It is important to emphasize in this context that the range of know-hows required to participate in practices is usually quite broad. It includes abilities to perform simple actions, but also abilities to accomplish more sophisticated things such as size up a situation or maneuver in complex interpersonal situations. These abilities also encompass innovative responses and transformations, small and large, in practices. What’s more, most know-hows of the sort I have in mind are not abilities to X simpliciter. Formulaically expanded, knowing how to X is knowing, within one or more particular practices, (1) how to X in a manner appropriate to current situations and, as the know-how becomes more developed, (2) when it is situationally appropriate to do so. Note that the ability to X in particular practices does not imply the ability to X in others. The know-hows that must be acquired also include those pertinent to whatever ways of being, or ways of practicing (Dall’Alba and Sandberg 2010), someone takes over in learning a practice; these modalities help individuate participants. Of course, taking over a way of being—like learning a practice—involves the acquisition of more than knowledge alone. It also encompasses the acquisition of habits, feelings, normative convictions, and self-understandings. All this complexity, however, does not imply that learning to participate in the practice is something beyond gradually acquiring those know-hows (and other items). Learning is the acquisition of the know-how and other knowledges and items that underwrite participation in practices. Learning to participate is a simultaneous higher order achievement. These claims also yield an alternative explanation of Lave and Wenger’s thesis that learning is integral to practices: the acquisition of these know-hows by individuals is necessary for the practice to exist and continue existing (as well as internally evolve).

All the above theorists hold that learning is coming to participate in practices. It turns out, however, that this conception of learning is a version of the traditional conception that (1) highlights practical knowledge and (2) thinks of the knowledge, the acquisition of which is learning, as knowledge that is either needed for participation in practices or relevant to or available in particular practices. (As will be discussed in Section “[Knowledge and Learning](#)”, the knowledge involved embraces know-how, propositional knowledge, and familiarity.) A key difference with the

traditional conception thus lies in the idea that the composition of the social world as practices delimits and also defines types of knowledge people acquire. Bourdieu offers a clear version of this idea. He claims that the social world is organized into fields of practice with whose objective structures the habitus of those acting in the fields is homologous. Learning, as a result, takes the form of acquiring this habitus, which is needed to operate in particular fields (cf. Hodkinson et al. 2008, p. 39). The more the habitus is acquired, the better someone can proceed in these fields, and in a greater range of situations.

Before proceeding, we need to take a step back and sideways. What does the notion of learning get at? A clue is found in the application of the concept to human evolution. Ever since Darwin, thinkers have debated the relative contributions that heredity and environment make to human behavior. In these debates, the notion of learning has been appropriated to characterize those behaviors and dimensions thereof whose existence can be attributed to environment (the concept of “learned behaviors”). In this context, the learning process over time involves the continual acquisition of new behaviors, which in turn implicates a continual enlargement of an organism’s capacities, a multiplication of options and possibilities. Even though the idea of distinct gene and environment responsibility has been recently challenged,⁴ it indicates something important about learning, namely, that learning is intimately tied to the augmentation of operability. Indeed, the acquisition of knowledge would not qualify as learning if it did not augment a person’s range of maneuver.

Learning so characterized resembles Dewey’s description of it as the “development and change of human beings” (Elkjaer 2000). Reference to change in this context can be misleading since not all change enlarges capacity (injury, for instance, can diminish it). Nonetheless, new capacities are continually acquired even as others atrophy or are lost. “Learning” designates the accumulation side of the change of capacities over time. Practice theories affirm this understanding of learning. Lave (1993, p. 17), for example, writes that for learning to be situated is for knowledgeability—meaning the flexible process of engagement with the world (1993, p. 13)—to be “routinely in a state of change rather than stasis, in the medium of socially, culturally, and historically ongoing systems of activity, involving people who are related in multiple and heterogeneous ways...” She thereby equates learning with the development of flexible engagement. More directly, Hager (2012, p. 30) writes that “...learning should be regarded as a growing capacity to act in flexible, constructive, and innovative ways suited to the demands of ever-changing circumstances.” Augmentation of this capacity, or of Lave’s knowledgeability, is learning.

⁴This hoary debate has evolved with the emergence of a systems perspective that, challenging the idea that specific behaviors can be assigned this much to genes and that much to environment, argues that behavior is the holistic output of an initially largely genetically determined living system that develops throughout its lifetime according to system principles under the continuing input of DNA codes and, especially, environmental events. It is possible to advocate this systems perspective and still uphold the association of learned behavior and environment, labeling as “learned” all behaviors that the system produces once the initial large genetic contribution is supplanted by massive environmental input.

Learning Within Practices

Practice theory does not promulgate an alternative conception of learning. What difference, then, does recognizing the ontological significance of practices make to the theory of learning?

One clear difference is that all learning is understood to occur within practices and in the fields, textures, complexes, or constellations of practices in which human lives and social affairs transpire (cf. Dreier 2009; Hodkinson et al. 2008, pp. 34, 37). The significance of this embeddedness is that the character of practices (and the nature of textures or complexes etc.) bears on the content and processes of learning. I just observed, for instance, that practice theories uphold a version of the traditional conception of learning according to which the knowledge people acquire is knowledge required for, relevant to, or available in particular practices. More generally, the idea that learning is beholden to practices implies that practice theory advocates some version of situated learning theory: the accumulation of capacities occurs *somewhere*, subject to features of where it takes place. What is learned and how it is learned are not independent of where and amid what the learning takes place.

Due to its situatedness, moreover, the learning that anyone undergoes takes a path (assuming that learning is a temporal event or process). The idea of a path or course of learning has both metaphorical and literal meanings. Learning takes a course in the metaphorical sense of forming a progression, different acquisition episodes overlapping or occurring successively and building on prior ones. (The sense in which learning builds on prior learning is a vexed one and cannot be considered here.) Learning also takes a course in the literal sense that its occurrences form a broken space-time path through bundles of practices and arrangements (cf. Dreier's notion of personal trajectories). The shape taken by any such path typically reflects opportunities to learn that are afforded at particular space-time locations in bundles: at or in particular workstations, stoves, classrooms, training fields, meeting rooms, and the like. Which learning opportunities are afforded at these locations depends on the practices that are carried on at them, for example, leather good production practices (apprenticeship), cooking practices, teaching practices, training practices, review practices, and the like. It also depends on the material arrangements involved—the laid out production facilities, kitchens, classrooms, training fields, etc.—as well as what, at any moment, happens to be going on at these locations. In principle, an opportunity to learn can be afforded anywhere depending on the bundles there and what is going on at a given moment.

The ideas that situations and bundles afford opportunities to learn and that a person's learning follows a course whose content and space-time shape are tied to these opportunities give rise to the propitious notion of a learning curriculum. In Lave and Wenger's words:

...[t]he practice of the community creates the potential "curriculum" in the broadest sense—that which may be learned by newcomers with legitimate peripheral access. ...A learning curriculum unfolds in opportunities for engagement...[and]...consists of situated opportunities...for the improvisational development of new practice. (1991, 92-3, 97)

Gherardi (2006) nicely focuses the idea in writing:

the learning curriculum includes all the learning opportunities offered to individuals pursuing the same occupational work careers. These opportunities include the teaching curriculum during the schooling phase, the situated curriculum of the community...to which they belong during their occupational careers, and all the other formal and informal occasions of learning offered in the day-to-day lives of organizations. (p. 112)

I add only that this curriculum devolves from the bundles in which people proceed and depends on what the individuals involved have already learned: learning courses of the two sorts are mutually dependent.

The temporal character of learning exhibits a certain indefiniteness. Suppose that over the summer John learned to hit a mean forehand even though no particular moment can be identified as the moment when he acquired this know-how. Even though, moreover, the learning took place “over the summer,” the process is composed of episodes that presumably coincide with all or some of the occasions when he played tennis. Precisely dating these episodes presents similar problems: was it throughout all or some of the sessions or only at some or all of the times he specifically hit forehands that he acquired the ability to hit a mean one? This example shows that although learning is always an achievement, the existence of which might be apparent *ex post facto*, the temporal coordinates of learning as a process or event are less well-defined. This indefiniteness extends to the learning curricula that are embedded in nexuses of practices and arrangements: they cannot be assigned definite spatial-temporal coordinates.

I suggested that practice theory ties the general contents and processes of learning to its conceptions of practice and of how practices link in wider textures, complexes, etc. Permit me to illustrate this claim in more detail through my own conception of practices. A practice is an open manifold of doings and sayings organized by rules, practical and general understandings, and prescribed or acceptable ends, projects, tasks, and emotions. This is as true of the practices in a leather workshop where a master and apprentices work, and those in a classroom where teachers and students interact, as of the practices carried out at a sports training facility where coaches and athletes toil and the cooking practices that are underway when learning occurs in the kitchen. Learning, and thus augmented operability, consists, first, in attaining greater facility and possible excellence in the performance of the sayings, doings, tasks, and projects that compose a practice. In the leather workshop, for example, the master has learned when he more adroitly articulates tips for the apprentices, when he voices encouragement to which his charges more energetically respond, when he divides labor among the apprentices more efficiently, and when the new apprentices he chooses pick up things more quickly. Correlatively, the apprentices have learned when they more effectively and quickly produce leather goods, when they ask fewer questions and fewer obvious ones, when they take initiative and become inventive, and when they begin to take pleasure in their work. In all the above mentioned sites of learning, moreover, greater operability in the form of more excellent performance can also encompass the more flexible and adroit use of the material entities and arrangements thereof with which the practices involved are bundled.

The apprentices and even the master have learned, second, when they become able to perform more of the actions that make up their practices. Although this is especially true of the apprentices, likewise of students, team members, and children, it also holds true of teachers, coaches, or parents as when, for example, they utilize a wider variety of teaching techniques. Similarly, learning can take the form of coming to be able to use and relate to more of the artifacts, organisms, and things in the settings where practices are carried out, and with arrangements of which practices are bundled.

Learning has occurred, third, when people better choose what to do in a practice. This can involve reasoning better or making choices that are better informed by the state of the world. Here, learning embraces enhanced clairvoyance and carries greater likelihood of success or satisfaction. The master's comments evince learning, for instance, when they rest on greater awareness of her apprentices' experiences and weaknesses. Similar comments hold when the coach organizes the summer training camp regimen out of an understanding of his player's vacation habits, when a teacher chooses or changes class exercises in concert with the mood and preparation of the students, and when a parent holds back from stating the moral in a teaching moment and allows the child to draw conclusions for itself.

Yet again, learning, and thus augmented operability, has occurred when a person becomes capable of performing a greater range of bodily doings and sayings in carrying out intentional actions (the actions that make sense to her to do; see Schatzki 2010, Chap. 3). Sometimes this development is a matter of mastering additional techniques, for instance, additional ways of dyeing leather or stitching soles or the use of new presentation media. At other times, it is simply a matter of realizing that there are further, usually already mastered bodily doings through which particular actions can be carried out, for instance, laying out fabric patterns, lifting heavy objects, turning screwdrivers, or rolling out pie crusts. Learning has likewise occurred when a person is capable of flexibly coping with rules—obeying them, interpreting them, ignoring them, and taking them into account. And yet another form of learning is a person becoming better able to articulate general understandings that imbue practices she carries on, thereby enabling these practices to proceed more clairvoyantly, focusedly, and confidently (cf. Taylor 1985). Examples of such understandings are of the teaching profession as calling; of a sports team as unified and pulling together; of the role of coach as mentor, teacher, and parent; of a parents' duty to help make their children better able to cope with the world; and of the authority of masters and coordinated deference of apprentices.

A final prominent form of learning concerns normativity. The normative structure of a practice is never set in stone. Not only must rules (formulated prescriptions and admonishments) be interpreted, but which ends, projects, and tasks are acceptable or prescribed is subject to disputation and to evolution in the face of disputation and changing circumstances. Disputation of this sort inhabits almost all practices, including those carried out in schools, in apprentice workshops, at sports facilities, and at home when teaching moments occur. The better a person becomes at stating and defending what rules call for and what is acceptable or prescribed, the larger becomes the contribution she can make to the determination of the

normativity that governs the practices she carries on. Since humans are so constructed as to be sensitive and responsive to normativity (which is not to say they always or even regularly act in accordance with it), the better she can do this the more she can contribute to the evolution of these practices.

All the above forms of learning are defined by reference to the composition of bundles. Their enumeration illustrates the point that practice theory offers accounts of how the structure of the social world as practices delimits and defines the knowledges (and other items), the acquisition of which constitute learning. Of course, knowledge that is pertinent to a given practice need not be acquired in that practice. A teacher, for example, might learn of a useful teaching technique at a workshop. The acquisition of propositional knowledge is also involved in learning of the above sorts, and propositional knowledge is often picked up in bundles different from those in which it subserves action. Beyond this, many learned ways of being or acting are both picked up through and pertinent to participation in multiple practices. For example, one can learn, among a thousand other things, to lead, to love, to calm down, and to listen, as well as to organize, to govern, and to design. These ways of being and acting are picked up in and play out across multiple practices and bundles: one acquires them in living through different situations and bundles, and carrying them out requires performing different actions in different situations. Learning to love, for instance, requires doing what it takes to come to perform certain actions in particular ways at the right times in the various practices in which one interacts with the other or through which one bears on his or her life. Picking up this ability requires considerable experience of different situations in different bundles. Incidentally, I do not mean to imply that learning to love, lead, calm down, or organize is nothing more than acquiring an ability to perform certain actions appropriately. Powers of reasoning and particular thoughts and feelings are also involved.

Sophisticated abilities such as these can be called “higher order.” For their exercise rests on the exercise of other abilities, which can be dubbed “lower order.” The ability to love, for instance, rests on abilities to appreciate, empathize, listen, and please, etc. What’s more, most lower level abilities (a few mental abilities are the exception) rely on baseline bodily abilities to perform the doings and sayings through which—in this example—acts of empathy, listening, pleasing, and compromise are carried out (see Schatzki 2010, Chap. 3 on this hierarchy). Incidentally, this terminology reflects Christopher Winch’s (2013) distinction between first and second order know-how. For Winch, first order abilities are “skills”: abilities to perform “relatively restricted types of task typically, but not exclusively, requiring hand-eye co-ordination and/or manual dexterity. Examples would be: planing a piece of wood, drawing a bow, baking a cake, writing a letter.” (2013, p. 283) Note that the first two of these abilities are of the baseline bodily sort. This is not true of baking a cake or writing a letter, which rest on such baseline abilities. By contrast, a second order ability for Winch is any ability, the exercise of which consists in performing different actions in different situations. Because Winch draws his distinction in the context of a discussion of professional and vocational education, the examples he gives of second order abilities mostly involve linking and connecting

nexus of bundles (e.g., the abilities to plan, control, coordinate, and communicate). In his hands, as a result, first order abilities concern particular manual actions, whereas second-order ones concern organization, governance, and design and require the performance of different actions in different situations.

As discussed, Lave and Wenger argue that because (1) learning is coming to participate in practices and (2) practices exist only if learned, learning is integral to practices.⁵ I affirm that learning is integral to practices in the sense that practices must be learned by participants, though what they learn is not the practices as such but how to go on in them. I also affirm that learning occurs in all practices. Coming to more excellently carry out a practice's actions, to perform a greater variety of such actions, to more adroitly and flexibly use the material entities and arrangements thereof bundled with the practice, to more skillfully articulate and contribute to the determination of normativity and to have more ways of carrying out particular actions or coping with rules—these processes and results can transpire in all practices and bundles and also over the course of people participating in multiple ones. Learning can also arise unplanned and undesigned in any practice or bundle, as what Dreier (2009, p. 89), following Holzkamp, calls “concomitant” learning: learning that is not aimed at in what people do but that happens along the way.

At the same time, there exist repeated activities, which can be called “learning activities,” that more directly—intuitively and intentionally—contribute to people being able to perform other activities or to carry out particular practices. Learning arithmetic, for example, involves performing specific exercises and following particular techniques. What students learn in carrying out these exercises and techniques subsequently helps them participate in the many practices that employ arithmetic (practices of accounting, grant-getting, illegal commerce, playground sports etc.). Learning arithmetic is also an early stage in a trajectory leading to participation in the practices of higher mathematics.

Some learning activities, furthermore, are such that in performing them one carries on the practice one is learning. When someone apprentices or learns sports, for example, learning activities such as cutting and dyeing leather, trying your hand making the sauce, taking lessons, and playing in a youth match can be components of the practices learned. This is not true of other learning activities. Kemmis et al. (2014, p. 62) define learning practices as practices whose “project or purpose is *to come to know* how to go on in” substantive practices. Learning practices are designed to bring substantive practices into being (2014, p. 100). Examples include attentively listening, dividing into groups, working collaboratively, reporting back to a class, reflecting on learning, using a whiteboard, reading books, and referring to wall charts with vocabulary written on them. All these practices are learning activities in the above sense. (Some of them might also be what I (1996, pp. 91–96)

⁵The practice theories that Lave and Wenger affirm (those of Bourdieu and Giddens) treat practices as a, or the, central component of the social. As a result—paraphrasing Wenger (1998, p. 15)—the thesis that learning is integral to practices makes a practice-based theory of learning close to a “learning-based theory of the social order.” I believe that practice theories generally can endorse this idea.

call “dispersed practices.”) They are not, however, part of the substantive practices that are learned by carrying them out. The flip side of this independence is that a learning practice of Kemmis et al.’s (2014) sort, unlike a learning activity that is part of the practice learned, hardly ever subserves participation in a particular substantive practice. Rather, it underwrites participation in diverse practices and only in particular situations underwrite the learning of a particular one. Attentive listening, for instance, occurs in varied organized, concomitant, and impromptu learning situations in diverse bundles and contributes to people participating in many practices. This is equally true of such learning activities as reading books, reporting back, working collaboratively, and learning arithmetic: the contributions they make to the forms of learning mentioned in this section depend on circumstances and are indefinitely varied.

In short, learning is at once integral to practices, a feature of practices generally, and by design the business of particular activities or practices.

Knowledge and Learning

Learning is closely tied to augmented operability. Things of very different sorts, however, augment operability. For instance, changes in the world, including in the material arrangements with which practices are bundled, can have this effect. The acquisition of a new tool augments the operability of those who have access to and know how to use it. But neither the acquisition of the tool nor the resulting augmentation of operability implies that learning has occurred. The weather, moreover, can augment operability. A sunny day, for instance, facilitates a trip to the beach. More generally, changes in the weather, like changes in material arrangements and the physical world at large, augment operability in some ways and diminish it in others. None of these changes, however, qualify as learning.

Operability is likewise augmented through the invention, innovation, or design of new tools, new material setups, new techniques, new ways of achieving ends, even new actions and practices. People, moreover, certainly learn through the invention, innovation, and design of such things. Learning and invention/creation, however, are analytically distinct processes or results. When, for example, someone invents a new food dish, he or she might learn something about combining spices or preparing sauces in the process. He or she will also presumably learn how to make the dish. In this case learning occurs through invention/creation, but the learning and the invention/creation are different things. After all, if the chef subsequently forgets how to make the dish, this does not negate the creation. Learning involves *acquiring* or *appropriating* something; even if the acquisition transpires via creation, the learning and creating are distinct.

Learning has occurred when augmented operability arises from changes in people as opposed to changes in the world or innovation and invention as such. Again, not just any change in people counts. The physical development of a human being during childhood and adolescence augments that individual’s operability. But

physical development is not learning. The traditional conception of learning had something right in holding that the relevant changes are acquisitions of knowledge (or of normative conviction, aesthetic judgment, habits, etc.). As we will see in the next section, however, this is not the whole story.

What I just wrote implies that changes in knowledge are changes in people. Changes in knowledge are not in people as changes in their brains and nervous or skeletal-muscular systems are. Knowledge is not a “collection of real entities, located in heads.” (Lave 1993, p. 12) Nor does knowledge or changes therein reside in a peculiar sort of nonphysical internal space or stage (the space of mind or consciousness), a kind of inner depository for propositional contents (or for acts of entertaining them). Indeed, knowledge is not a state of mind in the way states of consciousness are (see Schatzki 1996, Chap. 2). Rather, changes in knowledge are changes in people in the sense that knowledge and changes therein are *attributed* to people, for example, “After watching the news he knew that the weather would be bad,” “Over time she accumulated great knowledge.” Knowledge is a property or possession of *people*, not of minds or brains (cf. Strawson 1959). Of course, knowledge is also attributed to entities other than people, including higher mammals, pets, groups, and organizations (as well as computers and functionally defined elements or units of the brain). Attributions to mammals and pets are probably best viewed on analogy with attributions to people. Attributions to groups and organizations, by contrast, derive from attributions to persons, though the exact nature of this relationship is disputed and will not be examined presently. The current topic is human, not group or organizational, learning.

A number of authors of a practice persuasion deny that knowledge is a property of people. They do this partly in the belief that the denial undercuts the acquisition conception of knowledge (cf. Sfard 1998). In place of the idea that knowledge is a property of people, Lave and Wenger write (1991, p. 122) that knowledge is “located in relations among practitioners, their practice, the artifacts of their practice, and the social organization and political economy of communities of practice.” Lave later (1993, p. 9) writes that knowing (and learning) is “distributed throughout the complex structure of persons-acting-in settings...in the relations among...” individuals, tasks, tools, and environment. Similarly, Gherardi (2009, p. 354) writes that knowledge is an activity “distributed between humans and nonhumans. Objects, tools, and artifacts embody knowledge.” Statements such as these conflate two things: a misguided attempt to identify an alternative location for knowledge and the correct observation that knowledge is mediated. These authors essay to avoid a Cartesian conception of knowledge as something residing in an interior space. As a result, they seek an *alternative* location for it, and in this search their post Cartesian intuitions direct them to the situatedness of human activity in the world (and a preference for the word “knowing” over “knowledge”). However, the better lesson to learn from the illusions of Cartesian interiority is that knowledge does not have a location at all, at least none in any usual sense of location. Hence, skirting the Cartesian conception of interior space does not require abandoning the idea that knowledge is a feature or possession of people. Meanwhile, it is true, as Gherardi especially has emphasized that knowledge is mediated—by the body, by

social interactions, by language, by physical context, and by relations between people and things (2006, pp. 228–229; 2008, p. 521). Mediatedness, however, does not imply that knowledge is located in, a property of, the nexus formed by bodies, interactions, language, and physical world. Rather, it indicates that both the acquisition and attribution of knowledge depend on facts about bodies, interactions, language, and the physical world.

There are three sorts of knowledge, the acquisition or change of which qualifies as learning.⁶ The first two of these have already featured in my discussion. Practices and practice-arrangement bundles differ in the mixes of knowledges of these three types that typically characterize learning in them.

The first sort of knowledge is know-how. When one acquires know-how one learns to X. As discussed, know-how can pertain to the actions, tasks, and projects that compose a practice, to using the artifacts, things, and arrangements thereof with which the practice is bundled, to circumscribing and effectively determining the normativity that delimits the practice, to interacting with people and organisms, to switching among practices and bundles, to carrying out actions in multiple bundles, to organizing, linking, or governing bundles, and so on. Notice that the identity of know-hows tracks concepts of action, since know-how is knowing how to X, the range of distinguishable know-hows is delimited by the available range of action concepts. For reasons I will not explore presently, the relevant range is those available to participants in the practices and bundles involved (cf. Winch 2013, p. 284).

The second type of knowledge is knowing that (propositional knowledge). When one acquires knowledge that X one learns that X. The acquisition of propositional knowledge bears on action because what makes sense to people to do partly rests on what they know (or believe) about the world, that is, on the states of affairs given which now doing X (in this situation) makes sense (see Schatzki 2010, Chap. 3). Grasping others' knowledge and beliefs is thus an important ingredient in understanding their actions. Indeed, all understanding of others, as well as all participation in and interaction within particular bundles, rests on shared propositional knowledge. Although I do not want to pursue the topic presently, it is worth opining that, far from know-how reducing to know-that, the reduction, or more cautiously stated, the priority, if anything, favors know-how. For just as what it is to know how to X is to have the ability—the skills and competences—to X, what it is to know that Y is to be able to say or to think that Y and to be able to act on the basis of that Y. As Lave (1993, p. 8) writes, “Acquisition of knowledge is not a simple matter of taking in knowledge.” Knowing that Y instead requires being able to do things. Kemmis et al. (2014, p. 58) say something similar in writing that “all of what is conventionally called knowledge arises from, recalls, anticipates, and returns to its

⁶Wittgenstein strongly suggests (1958, §78) the existence of three kinds of knowledge when he writes: “Compare knowing and saying: how many metres high Mont Blanc is—how the word “game” is used—how a clarinet sounds. Someone who is surprised that one can know something and not be able to say it is perhaps thinking of a case like the first. Certainly not of one like the third.

use in practices.” I acknowledge, however, that defending this thesis requires addressing prominent arguments to the contrary.

The third sort of knowledge, acquisition of which constitutes learning, is acquaintance. John Dewey writes (1964):

Again we cannot overlook the importance for educational purposes of the close and intimate acquaintance got with nature at first hand, with real things and materials, with the actual processes of their manipulation, and the knowledge of their social necessities and uses....The educative forces of the domestic spinning and weaving, of the sawmill, the gristmill, the cooper shop, and blacksmith forge, were continuously operative.No number of object-lessons, got up as object-lessons for the sake of giving information, can afford even the shadow of a substitute for acquaintance with the plants and animals of the farm and garden acquired through actual living among them and caring for them. (p. 298)

Acquaintance is familiarity with things perceived or dealt with in experience. Examples of its objects are the sound of an instrument, the smell of frying garlic, the feel of an icy ski slope, the recalcitrance of material, and animal behavior. Further examples are—following Wittgenstein’s analysis of the topic—other people’s actions, emotions, and even states of consciousness (such as being in pain). This type of knowledge can be dubbed “knowing X.” When one acquires acquaintance with X one learns X.

Familiarity can be compared with the idea of direct experiential knowledge that was a favorite of empiricists from Hume to Russell. For acquaintance with something presumes access to it and consists of gaining knowledge of it through encounters with it. The empiricists, however, ignored that such encounters rest on considerable stage setting. The encounters that a person can and does have depend on multifarious facts—about the experiencer, about the practices he or she carries on, and about the world. It is only on the background of cooking practices, olfactory physiology, and the chemical properties of garlic, for instance, that the smell of frying garlic can be accessed and apprehended. In this way, people, nexuses/constellations of practice, and the physical world form the background on which people enjoy access to and commerce with things of the world.

The empiricists also overlooked that encountering entities does not take place in perception alone. Acquaintance also results from intervention in the world and interaction with the things in it. Indeed, a person acquires acquaintance through the entirety of her being-in-the-world. It is through perception, feeling, and interaction in tandem that a person becomes acquainted with such things as emotions, the materiality of things, skiing technique, and animal behavior. Thus, acquaintance is not like the direct perceptual knowledge favored by empiricists, though it does result from perceiving and dealing with entities themselves. Anyone worried about the cogency of the idea of perceiving and dealing with things themselves should keep in mind the straightforward contrast between things encountered in action and perception and matters figured out, inferred, investigated, and so on, on the basis, among other things, of things encountered.

Knowledge of differs from knowledge that because knowledge that cannot be reliably substituted for it. (This claim presumes that all propositional knowledge can be formulated.) It is true that a person who has knowledge of something usually

knows that he has knowledge of it. A person, for instance, who knows the sound of a bassoon, the demeanor of depression, the recalcitrance of marble, or how animals act usually knows that he has knowledge of the sound, the demeanor, the recalcitrance, or the behavior. He might also know that that is a bassoon, that Hilda is depressed, that the direction of his chisel needs to be changed, and that the animals are worried. In this way, acquaintance always implicates propositional knowledge. Even when someone can not identify the sound, the mood, the resistance, or what's up with the animals, he knows that he is experiencing a sound, a mood, some material, or unusual behavior. These sorts of things, however, might be most or even all he can put into words about the matter. He might not be able to say much or anything about how a bassoon sounds, how depressed people carry themselves, the recalcitrance of the material, or the worried behavior. So whatever he can say, whatever propositional knowledge he does possess, likely fails to be equivalent to his acquaintance. German and French mark the difference between knowing that X and knowing Y with the words *Wissen* and *Kenntnis* and *savoir* and *connaissance*, respectively. Note that among the entities with which a person can be familiar are the sayings, doings, actions, people, material entities, and arrangements thereof that help compose bundles.

I suspect, just like propositional knowledge, knowledge of boils down to know-how. Familiarity with, say, the behavior of farm animals consists partly in knowing that X and Y about them, that is, in being able to say and think that X and Y and being able to act toward them on this basis. It also consists in being able to anticipate their behavior, to placate them, to deal with emergencies, and so on. Familiarity, in other words, cashes out as a battery of abilities.

Learning is coming to know how to X, that Y, and Z. It is obvious but bears repeating that knowledges of these sorts that are acquired in one bundle can be pertinent to acting in other bundles. An example I gave in the previous section is knowing how to do arithmetic, which finds application in many bundles. Similarly, a wide variety of knowledge that and of is transferable. The knowledge that credit cards can be used like money is pertinent to many practices, just as acquaintance with fear, joy, depression, and other emotions and moods can bear on proceeding in diverse bundles.

Training

Learning always happens under some condition or other. It sometimes happens under conditions of no notable general sort but simply as a concomitant of activity and perception. Among the significant sorts of conditions under which it occurs is teaching. Teaching is significant because the organized or informal activities that compose it aim specifically to effect learning. Indeed, learning is often paired conceptually and rhetorically with teaching on the presumption that especially important learning takes place under the aegis of teaching. The learning that supposedly results from teaching is so valued that teachers and teaching organizations endlessly revise teaching bundles.

Another condition under which people are intended to learn is training. Training is usually distinguished from teaching and education, but there is no unanimity about what it is. Some thinkers see training as something done to animals and to humans by way of analogy to this. The juxtaposition of circus animal training and human toilet training reveals both similarities and differences in training so conceived. Other thinkers treat training as little as possible as a matter of conditioning. The present section does not analyze training comprehensively. It simply describes a type of training that underlies learning and that jibes well with a practice theory approach to the latter.

This notion is found in Wittgenstein's use of the German word *Abrichten*, which is standardly translated as "training" and finds particular application to animals. Wittgenstein (1958, §6) writes, regarding children who are just learning to talk, that "[h]ere the teaching of language is not explaining, but training." "Here" refers to a situation in which the child (1) learns simple referential connections between language and the world such as the word "slab" referring to slabs and the word "five" referring to five items of some countable sort such as slabs or pillars and (2) learns to respond to such commands as "Five slabs" by gathering and handing over five slabs (to a builder). Grasping that "slab" refers to slabs and "five" to five objects of whatever sort is at issue is a matter of training: there is no explanation of, no reasons that can be given for, these referential connections. The child must simply fall in line with using the words these ways. Once, moreover, the child has achieved this, it simply goes on using the words thus, without justificatory explanations or reasons.

In other contexts, Wittgenstein uses the word "reaction" to denote going on in a certain way without reasons ("spontaneously"). Reactions appertain to more than the use of particular words. They also occur, for example, when solving simple mathematical formula such as $y = x^2$ (Wittgenstein 1958, §189), following simple rules (§198), and obeying orders. "Following a rule is analogous to obeying an order. One is trained to do so, and one reacts to an order in a particular way." (§206) That people can be trained to react to certain things in the same ways is a fact about human beings, part of their natural history. "[I]f we teach a human being such-and-such a technique by means of examples, – that he then proceeds like *this* and not like *that* in a particular case...and thus that this and not that is the "natural" continuation for him: that of itself is an extremely important fact of nature. (Wittgenstein 1967, §355; emphasis in original). Wittgenstein was particularly interested in how reactions—inborn or acquired—enable language use. Reactions, however, secure nonlinguistic behavior as well. For example, two of Wittgenstein's more memorable examples of reaction are (1) using a chart that associates items of one sort, listed in a column, with items of another sort, listed in a parallel column, by looking horizontally to see what is associated in the right column with a given item in the left column (1958, §86) and (2) going in the direction in which a signpost points (§85). Reactions such as these pervade human life and form anchors around which motivated and complex behaviors can develop, including practices and the bundles practices form with arrangements. Notice that training of this sort yields a spontaneity that can be pertinent to indefinitely many practices or bundles;

this contrasts with much that is called “training” (e.g., vocational training, sports training, musical training) which prepares people for participating in specific practices or bundles. I should add that reactions are not just an inborn or trained spontaneity that enables children to learn more complex activities and is subsequently shed or disappears into the more complex activities. Reactions, once acquired, continue to occur. Adults, for instance, still go in the direction of signposts, add two in response to “+2,” and cry “Ouch” when in pain.

Reactions and, thus, training are central to learning. They make possible the acquisition of knowledge (of all three sorts) as well as participation in practices. A human being who was unable to acquire reactions could not gain knowledge or participate in practices. The acquisition of reactions through training is also itself a form of learning (Wittgenstein even describes training as a form of education; 1958, §441). This is clear when learning is closely tied to augmented operability.

A person who undergoes training comes to carry out particular bodily doings and sayings as reactions to particular events. Training thus involves a regimentation of the body. In some sense, moreover, the bodily regimentation achieved in training is the very aim of the training. In this, it compares to the types of training that Foucault (1979) made prominent under the label “discipline,” which seek to shape the form, appearance, and movement of human bodies. Another profound form of bodily regimentation is what William McNeill (1995) calls muscular bonding. McNeill argues that what underlies human society and the development of language is shared rhythmic movement of the sorts found in community dance and military drill among other activities. For, training in these movements so alters human emotion and feeling as to found—both historically and contemporaneously—social solidarity. Muscular bonding is a bodily resultant of particular practice-arrangement bundles. I mention it to complement Wittgenstein’s equally profound notion of training as the calibration of reactivity. Together, shared rhythmical bodily movement and calibrated bodily reactivity underlie social life as we know it.

Conclusion

Upholding practice theory does not require jettisoning the traditional conception of learning and adopting a new conception that defines learning as coming to participate in practices. Practices are composed of actions, for which the traditional conception—duly expanded to include, indeed, highlight practical knowledge—is well suited. Learning, as a result, can be understood as the acquisition of the epistemic (and other) wherewithal that makes participation in practices possible. What the ontology of practice theory provides to students of learning is what it provides to students of any aspect of social life, namely, a conception of the site where their topics of concern play out: learning, like life itself, transpires in the plenum of practices. The import of this conception for theorizing learning is that the composition of the social world as practices organizes the analysis of the knowledge whose acquisition is learning. In addition, I suggested that, because reactions

underwrite the acquisition of knowledge, the traditional conception of learning must expand to include their acquisition. I also indulged myself a little at the end of the essay, turning away from practice theory and speculating that, combined, Wittgenstein and McNeill provide a profound picture of the bodily understory of practices and social organization. As Bourdieu's views about the role of educating the body in support of and as a means of executing the homologous organization of habitus and field suggest, this picture jibes smoothly with practice approaches.⁷

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