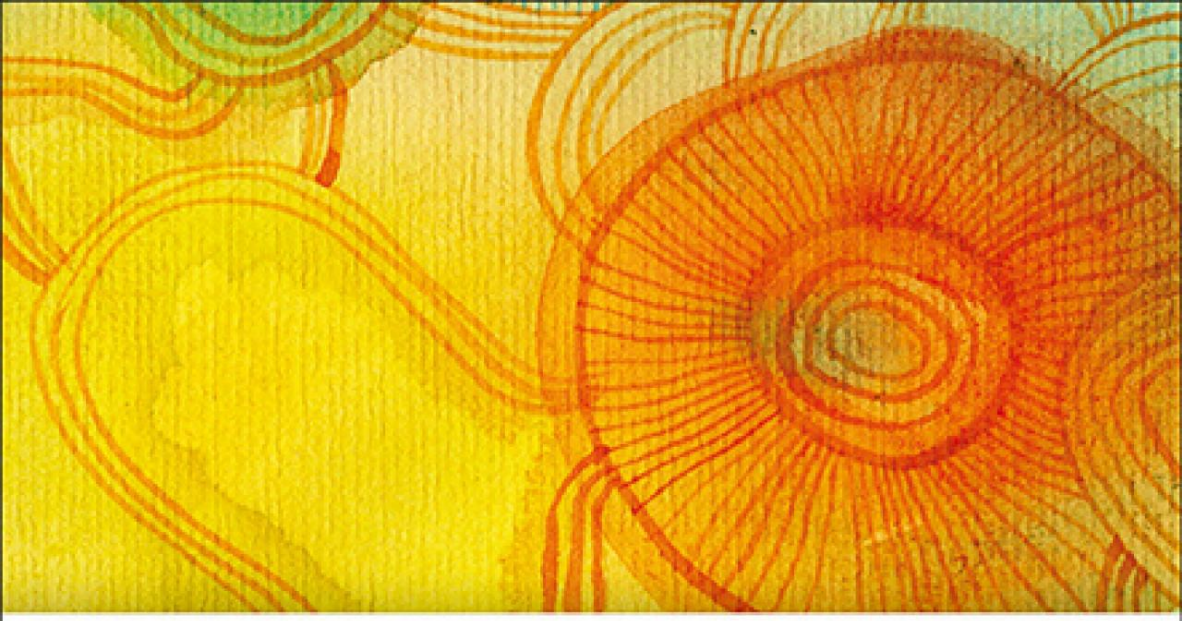
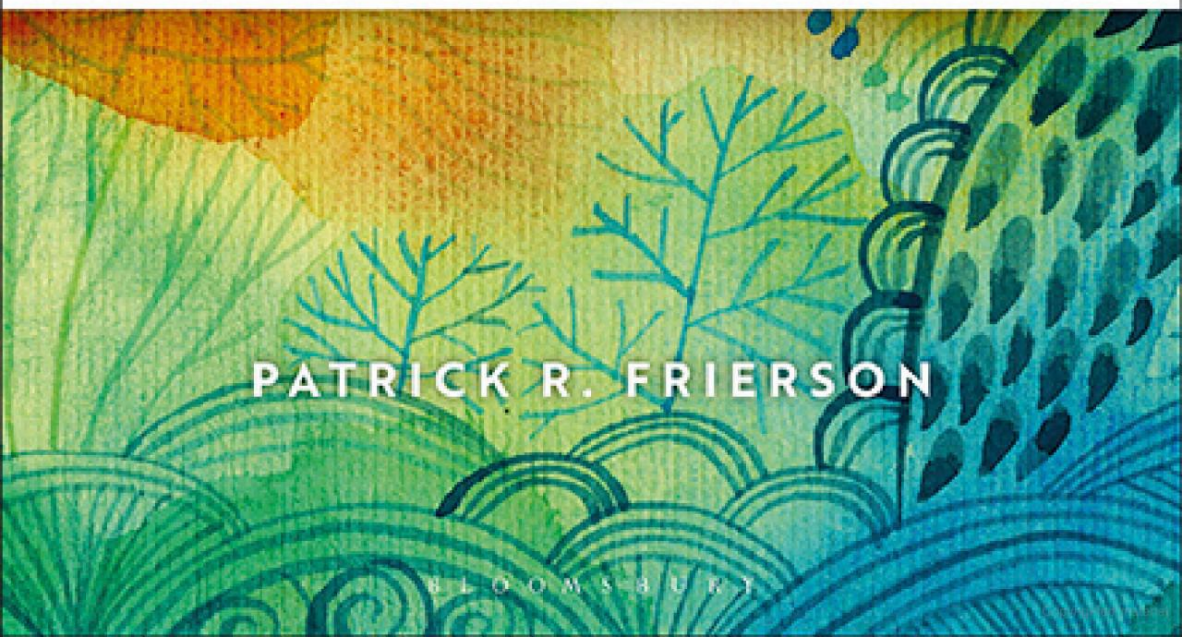


Intellectual Agency and Virtue Epistemology

A MONTESSORI PERSPECTIVE



PATRICK R. FRIERSON

BLOOMSBURY

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1

Introduction

In 1901, at the age of thirty-one, Maria Montessori enrolled as a doctoral student in philosophy at the University of Rome. By this time, she had already completed her medical degree, had a private medical practice, had served as a lecturer and research assistant, and had been appointed co-director of a major new initiative: an orthophrenic school for children with disabilities. She represented Italian women at a major feminist conference in Berlin and was widely seen as a rising star in the medical establishment. In her psychiatric work with children, this woman who had once sworn that she would be "anything but a teacher" (Standing 1984:23) had come to think "that mental deficiency was more of an educational than a medical problem" (2:21). She traveled to Paris and London to study the works of Jean Marc Gaspard Itard and Édouard Séguin, pioneers in pedagogy for disabled children. She conducted research, wrote articles, and gave speeches on treatments—mostly pedagogical—for those with various intellectual deficiencies. Her work with intellectually disabled children suggested to her that "the methods I was employing … contained educational principles more rational than those then in use" (2:22). Despite her strong empiricist background and even a resistance to "abstract philosophical ideas" that have no relation to "the human individual[']s] … actual life" (Montessori 1913:14), she nonetheless felt a need to "enroll as a student of philosophy" in order to conduct a "thorough study" as part of "preparing myself for an unknown mission" (2:23).[1] Montessori never completed her degree in philosophy, taking on a teaching position in anthropology in 1904 and eventually moving full time into the development of her own educational method. Her early recognition of the centrality of a solid philosophical understanding for her pedagogy manifested itself, however, in a set of pedagogical writings that are exemplary for their range of philosophical—not merely pedagogical—insights.

Among the most important philosophical principles Montessori emphasized was the centrality of *agency* for human life. After early empiricist and even positivist emphases, she came to resist passive notions of the intellect as mere receptacle for knowledge or information. Instead, she describes "intelligence" as literally "the sum of … *activities* which enable the mind to *construct itself*, putting it into relation with the environment" (9:147). To be an intelligent person is to actively take in and process the world around one and to use the results of that cognitive self-construction in order to enhance activity in the world. With her emphasis on agency came the centrality

of various intellectual *virtues*: "The … virtues are the *necessary means*, the *methods of existence* by which we attain to truth" (9:103). Much of Montessori's epistemology involves the clear articulation, elucidation, and defense of intellectual virtues that excellent epistemic agents have, and that children develop when given freedom in the right environment. She provides an impressive agency-oriented epistemology that can make significant contributions to contemporary philosophical discourse.

Despite her philosophical efforts, philosophers have generally ignored possible contributions Montessori might make to their discipline.[2] There are several possible reasons for this marginalization. Unlike most late-nineteenth- and twentieth-century philosophers, Montessori did not spend her life within a department of philosophy or even predominantly within a university department. Like Freud and Marx, she focused on bringing her philosophy into the world to transform it, and her primary audiences were those willing to be sympathetic to her cause. Moreover, while she engaged with philosophers ranging from Nietzsche and William James in her early years to Bergson and Tagore in later works, she primarily focused on developing her own philosophical vision. In that sense, her marginalization was at least partly self-wrought. As the case of Freud illustrates, however, one can focus on developing a movement in the light of one's own ideas and still be taken seriously by the intellectual establishment. Much of her further marginalization is likely due to Montessori's triple-stigmatization of being a woman, an Italian, and an advocate for children.

It is time to revisit possible contributions of a Montessori perspective for contemporary philosophy, and this book makes a first foray into that investigation by showing how Montessori's philosophy of human cognition can enrich contemporary epistemology. The time is ripe for at least three reasons. First, within the discipline of philosophy, there is increased appreciation of the ways that philosophical voices have been unjustly marginalized and kept out of the "canon" of Western philosophy. Second, within the community of educators in general and particularly Montessori educators, there is an increased awareness of the value of philosophical underpinnings for pedagogy. Third, and most important in the context of the present volume, the philosophical subfield of epistemology has opened its inquiries beyond relatively narrow preoccupations with the necessary and sufficient conditions of "knowledge" or the development of new and better responses to epistemic skepticism. Montessori fits particularly well among those virtue epistemologists who seek to "serve intellectual communities far beyond the borders of contemporary epistemology" and "humaniz[e] and deepen … epistemology" (Roberts and Wood 2007:112, 7).

The primary purpose of this book is to lay out a theory of intellectual agency and virtue worth taking seriously today. As we will see, Montessori's approach bridges current divides between so-called reliabilist and responsibilist approaches to intellectual virtue, and it represents a broadly naturalistic approach in epistemology. Her recognition of cognition as embodied gives rise to a virtue epistemology that contributes to intersecting debates in the philosophy of mind. Her conception of character provides excellent responses to current concerns about how virtue epistemology can respond to psychological studies showing the situation-dependence of epistemic success. Her theories of both intellectual love and intellectual humility de-emphasize narrowly doxastic interpretations of these virtues that see them taking epistemic states as their

objects. Her discussion of sensory acuity shows how this paradigmatic "faculty" virtue is something for which agents can legitimately be held responsible. Her introduction of dexterity and patience as central virtues adds to current catalogs of virtues. These are only a few samples of what she has to offer.

Because the proposals in this book are drawn from and inspired by the works of Maria Montessori, I appeal to her works to introduce and elucidate them, but the ideas stand or fall on their merits, not on any status—positive or negative—of Montessori herself. Because Maria Montessori is familiar to many Montessori educators but unfamiliar to most philosophers, while current conversations and debates among contemporary virtue epistemologists are a recognizable subfield for philosophers but unfamiliar for most Montessorians, a rapprochement between these communities requires some introduction. I thus start with a short history of virtue epistemology to set the stage for the contributions that Montessori can make to this growing field and to show how developments in philosophy make it more useful than ever for educators seeking to clarify the goals of their pedagogy. I then briefly introduce Montessori. Much more will be said about both virtue epistemology and Montessori's philosophy over the course of the rest of the book, as I lay out in a brief chapter outline in §3. I close with some remarks about intellectual agency that set the stage for my detailed discussion of Montessori's epistemology in Chapter 2.

1. Virtue epistemology: A short history

"Epistemology," from the Greek terms "episteme" (knowledge) and "logos" (reason, study), refers to the study of knowledge. While the notion of "epistemology" has been used to refer quite broadly to the study of anything that can be known,[3] it typically refers in contemporary philosophy to the subdiscipline that asks about the nature of knowledge (what is knowledge?) or about the conditions of justification (how can one know something?), or, more narrowly, about what distinguishes genuine knowledge from mere belief. Philosophical skepticism—the notion that we cannot know anything at all—is a perennial boogeyman of philosophical epistemology, and defusing the threat of skepticism has been a concern of epistemologists from Descartes to the present.[4]

"Virtue Epistemology," typically seen as a subset of epistemology (though sometimes also as a subset of ethics), shifts focus from questions about particular beliefs—how can I justify this belief, or what distinguishes a belief from a piece of knowledge—to questions about persons and their traits. For virtue epistemologists, central questions include such things as "what are the traits one needs in order to think well about the world?" or "what makes courage, open-mindedness, etc. a valuable intellectual trait?" or "what traits characterize epistemic exemplars?" or "for what can we hold intellectual agents responsible, and on what basis?" Virtue epistemology in European philosophy goes back as far as Plato's "enumeration of virtues," which "includes wisdom alongside temperance, courage, and justice" (see Zagzebski 1996:139) and Aristotle's *Nicomachean Ethics*, wherein "episteme" literally just *is* a kind of "intellectual virtue" (ἀρετῆς … διανοητικῆς, Aristotle 1103a, 1139a). The contemporary field of virtue

epistemology, however, as a subfield of Anglo-American analytical philosophy, has a more recent history. One can trace two independent strands of late-twentieth-century philosophy that gave rise to contemporary virtue epistemology, one emerging from epistemological struggles over the nature of knowledge and the other from increasing interest in virtue theory among moral philosophers.

The first source for virtue epistemology arose from epistemology itself. For much of the twentieth century, the question of "the necessary and sufficient conditions of knowledge" was central for epistemology. Plato's claim that mere true belief is insufficient for knowledge (see his *Meno*) had led epistemologists to define knowledge as "*justified* true belief," which allowed them to focus on what precisely constituted sufficient justification for beliefs. In 1963, however, in a short article entitled "Is Justified True Belief Knowledge?," philosopher Edmund Gettier argued that one could have justified true beliefs that do not amount to knowledge, describing two hypothetical cases to illustrate his point. Here is one such case, quoted in full from the article:

> Suppose that Smith and Jones have applied for a certain job. And suppose that Smith has strong evidence for the following conjunctive proposition:
>
> d. Jones is the man who will get the job, and Jones has ten coins in his pocket.
>
> Smith's evidence for (d) might be that the president of the company assured him that Jones would in the end be selected, and that he, Smith, had counted the coins in Jones's pocket ten minutes ago. Proposition (d) entails:
>
> e. The man who will get the job has ten coins in his pocket.
>
> Let us suppose that Smith sees the entailment from (d) to (e), and accepts (e) on the grounds of (d), for which he has strong evidence. In this case, Smith is clearly justified in believing that (e) is true.
>
> But imagine, further, that unknown to Smith, he himself, not Jones, will get the job. And, also, unknown to Smith, he himself has ten coins in his pocket. Proposition (e) is then true, though proposition (d), from which Smith inferred (e), is false. In our example, then, all of the following are true: (*i*) (e) is true, (*ii*) Smith believes that (e) is true, and (*iii*) Smith is justified in believing that (e) is true. But it is equally clear that Smith does not *know* that (e) is true; for (e) is true in virtue of the number of coins in Smith's pocket, while Smith does not know how many coins are in Smith's pocket, and bases his belief in (e) on a count of the coins in Jones's pocket, whom he falsely believes to be the man who will get the job. (Gettier 1963:122)

This article has provoked more than sixty-five years of philosophical discussion, as epistemologists sought (and still seek) to develop conditions for knowledge that could avoid so-called Gettier problems, while other philosophers use Gettier's cases as inspiration to develop ever more complex counter-examples to ever more complex formulae of the necessary and sufficient conditions of knowledge.

At this point, there was a need for something other than mere justification to distinguish true knowledge from mere belief, something that would be present in

genuine cases of knowledge but not in the Gettier cases that caused so much trouble. At least some epistemologists—most notably Ernest Sosa and Linda Zagzebski—would turn to a new sort of epistemology, *virtue* epistemology, to address the problem. To see why, however, we need to take a short detour through the *other* key twentieth-century antecedent of virtue epistemology: moral philosophy.

Where epistemology studies the nature of knowledge, moral philosophy studies the good life. In the early twentieth century, moral philosophy was like epistemology in emphasizing clear necessary and sufficient conditions for the application of various ethical concepts, such as "good" or "right." One debate, for instance, involved whether or not sentences like "It is wrong to eat meat" have a truth value (i.e., can be true or false). One theory argued that such sentences are best understood as emotional ejaculations, expressions of one's strong feelings and perhaps exhortations to others to feel similarly, so "It is wrong to eat meat" just *means* "Ew, meat, yuck, right?" (see van Roojen 2018). Many of these debates (like those about knowledge in epistemology) were far removed both from psychology and from ethical issues that arise in ordinary life, while the default for policy making and arguably even individual decision making was a blend of utilitarianism and disjointed moral intuitions.

In the mid-to-late twentieth century, ethical inquiry got two significant jolts. One can be represented by John Rawls's *A Theory of Justice* (1971), in which Rawls developed an approach to moral, social, and political issues based loosely on the philosophy of Immanuel Kant.[5] The details of Rawls's theory are less important than the fact that he helped reinvigorate philosophical reflection about what is actually the best way to construct a society and to live one's life. Moral philosophy immediately following Rawls was dominated by debates between Kantians and utilitarians about which principles one should use in order to determine what one ought to do in particular situations. Rather than "what sort of grammatical structure do moral statements have?," philosophers were asking "how do I determine what is the right thing to do?"

A second jolt can be seen in an essay entitled "Modern Moral Philosophy," by the philosopher Elizabeth Anscombe. This essay had a less significant immediate reaction than Rawls's work, but it served as a precursor—or, as Rosalind Hursthouse put it, as a "herald" (Hursthouse and Pettigrove 2016)—of what would become an emphasis on virtue. Anscombe made three important arguments that set the stage for "virtue ethics." First, she argued that "moral philosophy … should be laid aside … until we have an adequate philosophy of psychology" (Anscombe 1958:1). In order to do good moral philosophy, she suggested, we need to pay more attention to what human beings are actually like. Second, she argued that many of the problems of "modern moral philosophy" arise from the conjunction of sets of ethical concepts—particularly the notions of "obligation," "right," and "moral"—that had meaning only in a Christian context that philosophers had largely rejected. And third, she points to Aristotle (and other ancient philosophers) as proponents of philosophical ways of thinking about ethics that use thick virtue-concepts rooted in human nature rather than (now) groundless moral principles or laws to which we are obligated by nothing in particular.

As debates between utilitarians and Kantians reached a series of stalemates, increasing numbers of moral philosophers turned to "virtue" as a new way of doing ethics. Philosophers such as Alasdair MacIntyre (1981), Rosalind Hursthouse

(1999), and Philippa Foot (2001) argued that we should stop focusing on what moral principles make an action right or wrong and instead turn to what kinds of human beings are virtuous. The details of these theories differ from one moral philosopher to another, but the shift to virtue theories in ethics typically involved emphasizing character traits rather than isolated actions, so rather than asking, "What ought I to do in this case?," one should ask "What kind of person should I be?" or "What character traits is it good to have?" Virtue ethicists also drew more from Plato and Aristotle (and to some extent Hume) than from philosophers typically associated with the so-called "Enlightenment." And virtue ethicists were oriented toward moral cultivation, education, and development, rather than nailing down precise formulae for one-off moral dilemmas.

Meanwhile, epistemologists got increasingly stuck in a morass of Gettier cases, responses, counter-examples, and counter-responses, and the possibility of something like a virtue *epistemology* started to look appealing. Just as pre-virtue moral philosophers were looking for *principles* that could lay down necessary and sufficient conditions for deciding about *particular actions* whether they were morally right or not, epistemologists were looking for *exact definitions or methods of justification* that could lay down necessary and sufficient conditions for deciding about *particular mental states* whether or not they constituted knowledge. And just as virtue ethics shifted the debate from principles for individual actions to virtues of moral agents, so too virtue epistemology might shift debate from criteria for assessing individual mental states to *epistemic* virtues of *intellectual* agents.

We can highlight at least three critical figures in the emergence of recent virtue epistemology, each of whom approached the synthesis of virtue theory and epistemology in a different way. First, Ernest Sosa, in his now famous essay "The Raft and the Pyramid" (1980), argued that epistemological accounts of justification (and thereby of the nature of knowledge) fell into two main categories: foundationalists, who argued that a belief counts as knowledge if built on solid foundations (like a pyramid), and coherentists, who argued that a belief is knowledge if it coheres with our other beliefs (i.e., if everything holds together enough to keep one epistemically afloat, like a raft). Instead of these options, Sosa suggested a form of epistemological "reliabilism," explicitly modeling his theory on that of virtue ethics:

> The [virtue ethicists'] important move for our purpose is the stratification of justification. Primary justification attaches to virtues and other dispositions, to stable dispositions to act, through their greater contribution of value when compared with alternatives. Secondary justification attaches to particular acts in virtue of their source in virtues or other such justified dispositions.
>
> The same strategy may also prove fruitful in epistemology. Here primary justification would apply to *intellectual* virtues, to stable dispositions for belief acquisition, through their greater contribution toward getting us to the truth. Secondary justification would then attach to particular beliefs in virtue of their source in intellectual virtues or other such justified dispositions. That raises parallel questions for ethics and epistemology. We need to consider more carefully the concept of a virtue and the distinction between moral and intellectual virtues.

> In epistemology, there is reason to think that the most useful and illuminating notion of intellectual virtue will prove broader than our tradition would suggest. (Sosa 1980:21)

This early essay suggested moving away from diagnosis of individual mental states as "knowledge" or "mere belief" and toward a more fundamental question of what traits in intellectual agents should count as intellectual virtues. For Sosa, these traits should be understood along "reliabilist" lines; a virtue is any disposition or trait that "contribut[es] toward getting us to the truth" (Sosa 1980). These virtues will be "broader" by including traits such as acute senses or good memory, but they are virtues because they are features of a person by which she gains the (epistemic) good of true belief. Over the years, this approach would provide a provocative new way to address Gettier problems. The missing ingredient that one has to add to "justified true belief" in order for such belief to count as knowledge is that such beliefs also need to be formed *virtuously*, where the relevant virtues are intellectual.

While Sosa initiated a "virtue reliabilist" form of epistemology, his contemporary Lorraine Code also pushed epistemologists toward virtue theory, but she argued for what she called virtue "responsibilism" (Code 1987:50). As the title of her book—*Epistemic Responsibility*—suggests, Code aims to "shift the emphasis of investigation and evaluation" in epistemology toward "the knower or would be knower" such that "questions about … epistemic responsibility" become "focal points of explication and analysis" (Code 1987:x, 3). Rather than looking at abstract qualities of beliefs according to which they are "justified" or emphasizing necessary and sufficient conditions for "knowledge," Code seeks to outline qualities of "intellectually virtuous persons" (Code 1987:59). She largely set the stage for a new way of thinking about intellectual virtue, one that emphasized intellectual virtues as kinds of, or at least very closely akin to, moral virtues. On this account, mere reliability or truth-conduciveness is insufficient for something to count as intellectual virtue; such virtues, to be *virtues*, must be character traits for which one can be held responsible.

Arguably the most important book for the dramatic upsurge of interest in virtue epistemology was Linda Zagzebski's *Virtues of the Mind*, which combined a responsibilist conception of virtue with the traditional goal of delineating the necessary and sufficient conditions for knowledge. For Zagzebski, to count as knowledge, a belief must not only be justified and true, but one must "reach the truth through an act of intellectual virtue," that is, through "virtuous processes or motives" (Zagzebski 1996:297).

The examples of Sosa, Code, and Zagzebski illustrate some of the commonalities, but also dividing lines, among contemporary virtue epistemologists. Virtue epistemologists in general share the commitment to thinking about virtues of epistemic agents rather than the status of beliefs in isolation from those who hold them. But contemporary virtue epistemologists also differ in at least two important ways.[6] First, as noted by Code, we can distinguish between "reliabilists" and "responsibilists." Reliabilists such as Sosa (and John Greco and Alvin Goldman, two other major contemporary virtue reliabilists) see as virtues any personal traits that reliably give rise to true beliefs. Responsibilists such as Code and Zagzebski (and

Jason Baehr, another major virtue responsibilist) insist that intellectual *virtues* require "a motivational element," they should be "acquired character traits, for which we are to some degree responsible," and they must "plausibly bear on their possessor's 'personal worth'" (Zagzebski 1996:137; Battaly 2008:645; Baehr 2011:23). Paradigm reliabilist virtues include good memory and sensory acuity, while responsibilists emphasize such virtues as intellectual humility, open-mindedness, or courage. In Chapter 4, I show how Montessori helps reconcile key aspects of reliabilism and responsibilism. Her conception of intellectual agency—and particularly the *pervasiveness* of that agency—makes her more of a responsibilist while eliding easy distinctions between traits like the senses and virtues like humility.

Second, we can distinguish between those interested in *using* intellectual virtues to solve traditional problems and those interested in virtues *rather than* such problems. Jason Baehr, a leading virtue epistemologist, contrasts "'conservative' approaches that treat the concept of intellectual virtue as a way of addressing traditional epistemological problems and questions; and 'autonomous' approaches that focus on matters of intellectual virtue in ways that are largely independent of traditional questions, but that are still broadly epistemological in nature" (Baehr 2011:11). John Turri, Mark Alfano, and John Greco put the same distinction in terms of the difference between "conventional" and "alternative" virtue epistemology:

> Many practitioners deploy VE's resources to address standard questions in standard ways. (Here "standard" means "standard for contemporary Anglo-American epistemology.") They offer analyses or definitions of knowledge and justification. They try to solve puzzles and problems, such as the Gettier problem … They construct counterexamples. They confront the skeptic. This is conventional VE.
>
> Other practitioners address alternative questions or use alternative methods …[7] They focus on topics other than knowledge and justification, such as deliberation, inquiry, understanding, wisdom, profiles of individual virtues and vices, examinations of the relations among distinct virtues and vices, and the social, ethical, and political dimensions of cognition. They ignore the radical skeptic. They mine literature and drama for inspiration and examples. This is alternative VE. (Turri, Alfano, and Greco 2017)

Even though one was reliabilist and the other responsibilist, both Sosa and Zagzebski (and others like Greco) developed conventional or conservative virtue epistemologies. Both, that is, saw their approach to virtue epistemology as a way of answering questions like the nature of "knowledge." Code, and an increasing number of contemporary virtue epistemologists, develop "autonomous" or "alternative" virtue epistemologies.[8] As Roberts and Wood describe their own work, "The virtues epistemology of this book is a return to … a regulative epistemology which … describes the personal dispositions of the agent … [and] focuses on forming the practitioner's character and is strongly education-oriented" (2007:22). For these epistemologists, the goal is to catalog and clarify what's involved in various different excellent traits, and why they are excellent, with an aim to contribute what philosophers can to "the formation of excellent intellectual agents" (Roberts and Wood 2007:23).

The growth of virtue epistemology in general, and particularly the responsibilist and autonomous forms of that epistemology, makes today an excellent time to introduce a new voice into contemporary epistemology. Linda Zagzebski has recently suggested, "We should admit that questions of most significance to epistemology in the askeptical periods have been neglected" in recent Anglo-American epistemology, and "it is time we cease the obsession with justification and recover the investigation" of topics that have been important for epistemologists in other historical periods (Zagzebski 2001a:236). As epistemologists increasingly move away from preoccupation with skepticism, we can and should "look at the questions that dominated epistemology during askeptical periods" (Zagzebski 2001a:236). As I discuss in more detail in Chapter 4, Montessori represents an important historical episode in epistemology that is overlooked even by Zagzebski. She raises questions about intellectual virtues from the standpoint of thinking about the role that education and culture can play in children's development into intelligent, curious, engaged, and attentive agents. In that sense, she is an excellent example of a historical approach to epistemology that can enrich autonomous virtue epistemology. Because of that focus, this book will not deal with all of the issues that still preoccupy many contemporary epistemologists. I have little to say about internalism versus externalism or even about testimony and socially situated knowledge. Instead, I introduce new themes and connections that the relatively narrow focus of epistemology has largely sidelined, such as the embodied nature of knowledge and the centrality of concentrated attention. Given its broadening focus, epistemology today is ready for a new voice and Maria Montessori—with her emphasis on intellectual virtues, how to cultivate them, and how they bear on the exercise of intellectual agency—is a voice worth listening to.

2. Maria Montessori: A short biography

In this introduction, I offer just enough overview of Montessori's life and philosophy to introduce her to those wholly or largely unfamiliar with her.[9] The details of her philosophy will be presented over the course of this book, especially in Chapters 2 and 3. Montessori was born in 1870 in Chiaravalle in Italy to an established middle-class Italian household. Against the protestations of those (including her father) who insisted that she pursue an education more appropriate for young women, Montessori attended the Regio Istituto Tecnico Leonardo da Vinci with the goal of becoming an engineer. After graduation, she enrolled in the University of Rome, first to pursue a course of study in math and physics and then as a medical student. On graduation, as she became one of the first women doctors in Italy, she began work at a hospital connected with the university, started a surgical residency, and also began to be more prominent in public life, representing Italy at the Internazionaler Kongres für Frauenwerke und Frauenbestrebungen, a major women's rights conference in Berlin. In 1897, she started research in psychiatry alongside Giusseppe Montesano (who would become her lover and the father of her child) and under the supervision of Giuseppe Sergi (who was an important early mentor). A year later, she and Montesano were appointed

to direct a new "orthophrenic school" for children with various disabilities, ranging from deafness to rickets to "idiocy" (2:21). In this context, she began investigating the techniques of Itard and Séguin and came to the realization that many of the problems facing such children (and adults) with disabilities and mental illnesses of various kinds were "more … educational than medical" (2:21). Three years later, she left her position at the Orthophrenic School and returned to the university to pursue graduate study in philosophy.

During the early years of the twentieth century, philosophy at the University of Rome was dominated by three main influences: evolutionary positivism (exemplified by Sergi), neoHegelianism (particularly prominent in Antonio Labriola), and pragmatism.[10] James, whose *Principles of Psychology* was published in Italian the year that Montessori started her graduate work in philosophy (Cimino and Foschi 2012:323), was particularly popular among university students. His pragmatist, philosophically nuanced psychology provided a model to which Montessori returned throughout her philosophical–psychological–pedagogical career (see, for example, Montessori 1912:373–4; 9:116–20, 158; 22:48–9). During this time, Montessori published technical scientific papers and gave important public lectures, typically focusing on social justice, feminism, and especially the rights of children. In 1904, at the recommendation of Sergi, she assumed a position as a lecturer in the University of Rome, teaching a course on Pedagogical Anthropology that became a book of the same name.

In 1907, Montessori's life took a dramatic turn. The preceding year, she had been contacted by philanthropic land developers in Rome who were purchasing dilapidated tenement houses and converting them into livable housing for the very poor. Among other amenities, these developers sought to have full-time education (childcare) provided for families living in their apartments, families that either lacked two parents or in which both parents worked more than full time. Rather than abandoning children in the apartment complex, they were to have a "Casa dei Bambini," a Children's House with a dedicated teacher. Montessori was offered a position to oversee this Casa, and she accepted. She had long thought that techniques used with disabled children could be modified and applied to other children in a way that would provide maximal independence while promoting self-discipline and learning. The Children's House in San Lorenzo would provide a model classroom in which to develop her new approach to pedagogy (see 2:41–64).

Over the next several years, Montessori developed principles of pedagogy as well as concrete pedagogical materials and specific techniques, and by 1909 she published *Il Metodo della Pedagogia Scientifica applicato all'educazione infantile nelle Case dei Bambini* [*The Method of Scientific Pedagogy Applied to the Education of Children in the Children's House*, translated into English in 1912 with the unfortunate title *The Montessori Method*]. At this time, she also began offering courses for teachers who wanted to learn her increasingly famous method. In 1910, she retired from private medical practice, and by 1916, she had retired from her position at the University of Rome, in order to devote herself entirely to developing and teaching her pedagogical philosophy. After her first International Training Course in 1913, which was attended by teachers from every continent except Antarctica, she began offering such courses

in many countries. By the time of her death in 1952, she had offered scores of lecture tours and International Training Courses and had lived for extended periods of time in Spain, the Netherlands, and India.

Throughout her life, Montessori emphasized several key principles of her pedagogy. Her central epistemological principles will become clearer over the course of this book, but the core principle of her pedagogy is that teachers and those seeking to understand human nature must "Follow the child," that is, accord the child complete liberty while providing the resources he[11] needs to use that liberty well (22:166). This liberty is not reckless license; for Montessori, the indication that a child has an environment conducive to liberty is that he find opportunities for sustained attention to self-chosen work. Thus the educator must provide a carefully prepared environment with sufficient resources for the child to freely choose work that sustains attention and fosters development, and she must then allow the child to develop himself. In the context of her observations of children, Montessori noted distinct "sensitive periods" of the development of fine-grained psychological traits and skills. She paid careful attention to the emergence of cognitive and social skills and to the essentially embodied nature of these skills, and she developed activities and material conditions to support progress through sensitive periods. She articulated a unique approach to "character" and to the socialization of human beings from infancy through adulthood. She applied her ideas to understanding human progress in general and advocated for political change through education.

Montessori's "scientific pedagogy" is implied by her notion of following the child. As influenced as it was by Hegel, Labriola, and James, her philosophy fundamentally emerged from careful observation of children. In the right "conditions of observation"—which require "an environment … conducive to the most perfect conditions of life, and the freedom which allows that life to develop" (18:54)—children "reveal to us the phases through which social [and intellectual] life must pass in the course of its natural unfolding" (1:212; cf. 17:81–2). In an oblique reference to the English title of *The Montessori Method*—a title she did not approve and that she changed in later editions to *The Discovery of the Child*—Montessori says of her "method" that "the method is not seen [il metodo non si vede], *one sees the child*. One sees the child's soul, freed from obstacles, acting in accordance with its true nature" (22:123; 1966:136, emphasis original). Montessori did not see herself as promoting a "Montessori method" or "Montessori philosophy." She did not first develop materials or methods in the abstract and then try to get children to use them. Instead, she experimented with this or that material or method and observed which actually attracted the attention of children. Even when it came to the goals, values, and ideals for education, Montessori carefully observed children's behavior to see how and what *they* valued and used those observations as a guide to discerning what "natural" human values were supposed to be. The philosophical and moral "intuitions" to which Montessori accords the greatest authority are those of children in a healthy environment (see Frierson 2015a). In that sense, she would rightly object to the subtitle of this book, insisting that this "perspective" on intellectual agency and epistemic virtues is really the *child's* perspective. With some trepidation, I nonetheless term this a "Montessori" approach to intellectual virtue, with the recognition that *her* perspective is always only the perspective that she gleans from *them* (the children).

These pedagogical themes, and many of the themes of her virtue epistemology, can be encapsulated in a short story that Montessori tells about "the fundamental fact which led me to define my method," a fact that "gradually became common among the children … in connection with certain determinable external conditions" (9:51–2). As she reports it:

> I was making my first essays in applying the principles and part of the material I had used for many years previously in the education of deficient children, to the normal children of the San Lorenzo quarter in Rome, when I happened to notice a little girl of about three years old deeply absorbed in a set of solid insets, removing the wooden cylinders from their respective holes and replacing them. The expression on the child's face was one of such concentrated attention that it seemed to me an extraordinary manifestation; up to this time none of the children had ever shown such fixity of interest in an object; and my belief in the characteristic instability of attention in young children, who flit incessantly from one thing to another, made me peculiarly alive to the phenomenon.
>
> I watched the child intently without disturbing her at first, and began to count how many times she repeated the exercise; then, seeing that she was continuing for a long time, I picked up the little armchair in which she was seated, and placed chair and child upon the table; the little creature hastily caught up her case of insets, laid it across the arms of her chair, and gathering the cylinders into her lap, set to work again. Then I called upon all the children to sing; they sang, but the little girl continued undisturbed, repeating her exercise even after the short song had come to an end. I counted forty-four repetitions; when at last she ceased, it was quite independently of any surrounding stimuli which might have distracted her, and she looked round with a satisfied air, almost as if awaking from a refreshing nap. (9:51)

Figure 1 Girl with Cylinder Blocks.[12]

This three-year-old child became a paradigm of intellectual agency within Montessori's pedagogy. She developed teaching materials to allow for and sustain this sort of "concentrated attention" (9:52). All of the virtues I will discuss in this book—character, love, sensory acuity, dexterity, patience, humility, and courage—are exemplified by this three-year-old girl. And Montessori exhibits her overall method—of carefully attending to the virtues displayed by children in their most alive moments of intellectual activity—through the way that she let her own attention be arrested by a provocative experience and then sustained her own intellectual activity carefully reflecting on the facts—psychological but also normative—revealed in that experience.

3. Chapter overview

This book develops a Montessorian approach to epistemology predicated on the notion that epistemology should focus on the virtues of intellectual agents. The first two chapters lay out Montessori's overall epistemology, four features of which supply important background to her discussions of the intellectual virtues.

First, Montessori is an *empiricist* who sees the senses as the "foundation of the entire intellectual organism," such that "there can be neither ideas nor imagination, nor any intellectual construction, if we do not presuppose an activity of the senses" (18:260; see also 17:193–4). As with empiricists like Hume, the primary work of "reasoning" based on the senses is conducted by the "imagination" governed by "the Association of Ideas;" processes of abstraction and reasoning are fundamentally rooted in expansive imagination rather than some separate faculty of Reason (6:12). The centrality of experience implies that intellectual agency depends on how human beings direct and process sensory information, so epistemic "virtue" begins with excellent sensory appropriation of the world.

Second, however, Montessori's empiricism is an *interested* or *agential* empiricism, such that the operations of both senses and imagination are active operations of knowers, dependent upon and governed by one's *interests* in the objects of study: "In the world around us, we do not see everything … but only some things that suit us" (18:185). Our interests determine both our basic sense perceptions, such that "stimuli will appeal in vain to the senses, if the internal cooperation of attention be lacking" and the subsequent associations and reasonings we conduct on the basis of those sensations (9:172). Unlike Locke, experience for Montessori is an *activity*, not a passive receptivity. Chapter 2 lays out and defends these two aspects of Montessori's epistemology, and also introduces one theme of my book, that Montessori resists easy classification as a virtue responsibilist (e.g., Zagzebski) or virtue reliabilist (e.g., Greco). Because *all* cognitive capacity depends upon interest, she might be seen as a responsibilist, but Montessori takes even paradigm reliabilist virtues (such as the senses) as virtues.

Third, Montessori insists that much of our epistemic activity is *unconscious*, and these unconscious cognitive processes are "most intelligent," essential to epistemic excellence, and improvable (6:13). "Agency" has often been understood in terms of self-conscious reflection, and intellectual virtues—particularly those for which one

can be held responsible—are often highly self-conscious. But Montessori sees both agency and intellectual virtue as largely unconscious.

Fourth, Montessori sees human epistemic activity as essentially embodied and enacted in complex sensorimotor activities, and she gives an important role to what has come to be called "extended cognition" in her pedagogy. Chapter 3 elucidates and explains the role of unconscious and embodied epistemic agency in Montessori's philosophy.

With this groundwork laid, Chapter 4 explains the implications of her epistemology for Montessorian epistemic virtue. While Chapters 2 and 3 explain Montessori's views largely in her own terms, Chapter 4 is more reconstructive. Starting with her own focus on agency and virtue in intellectual life, I argue that the best way to understand Montessorian intellectual virtues is as (innately) developmentally possible capacities developed, honed, and expressed through interested intellectual activity, whereby a person comes to intellectually engage with (e.g., to know) reality excellently.

These three chapters make up Part One of the book and present an overall account of the nature of human mental life and how to understand intellectual agency and epistemic virtues in the light of that account. They develop a virtue epistemology that intersects with contemporary trends toward enacted and embodied philosophy of mind, that takes seriously the unconscious, and that straddles the divide between reliabilists and responsibilists. Part Two turns to several specific intellectual virtues that play important roles in Montessori's philosophy. These chapters will offer new proposals on familiar virtues—such as the claim that intellectual love should not have knowledge or truth as its object—and describe virtues that have been discussed scarcely or not at all (such as patience or physical dexterity).

I start in Chapter 5 with Montessori's distinctive approach to character, the primary expression of which is "the power … to concentrate" (1:187) and which is essentially "a tendency … to raise oneself up" or "gravitate toward … perfection" (1:188, 217). Character is itself a virtue and underlies all other virtues. I relate this conception of character to other contemporary (Aristotelian) approaches and to other features of Montessori's epistemology, and I show how Montessori's approach to character avoids pitfalls associated with "situationist" criticisms of character (Doris, Harman, and Alfano).

Chapter 6 uses Montessori's discussion of "intellectual love" to question virtue epistemologists' tendency to think of intellectual love as love *of knowledge*. I show advantages of Montessori's description of intellectual love as love of the world (or objects in it) in a particularly intellectual *way*, rather than love of an intellectual object. Together, character and love set out the most basic motivational elements of all Montessorian intellectual virtues.

Chapter 7 turns to virtues that are typically considered paradigm "reliabilist" intellectual virtues: sensory acuity and sensory attentiveness. I show how specific forms of sensory acuity (color-discrimination, tactile sensitivity, etc.), as well as the general virtue of being observant of or attentive to one's surroundings, are virtues in Montessori's sense. This involves showing why one can be held responsible for them, how they relate to each other, in what sense one can consider bare sensory awareness to be driven by "agency," and in what sense they can be cultivated through exercises of that agency.

Chapter 8 turns to an oft-overlooked virtue, one that might seem prima facie not to be intellectual at all: physical dexterity. Drawing from the overall role of embodiment in human cognition discussed in Chapter 3, I show that physical dexterity is often an *intellectual* virtue rather than merely a non-intellectual excellence. I also use this chapter as an occasion to discuss implications of Montessori's virtue epistemology for those with disabilities. While I focus on physical disabilities, much of my treatment may be applicable to more general reflection about how virtue epistemology can deal with disabilities of various kinds.

Chapters 9 and 10 discuss further intellectual virtues, starting in Chapter 9 with several different but related forms of intellectual patience, from the patience to follow through on intellectual inquiry (akin to perseverance and tenacity) through patient willingness to wait for unconscious processes to bring insights to light. I also discuss there the relationship between patience and "quickness" of thought (9:148). Chapter 10 turns to the virtues of intellectual humility and courage. Montessori's account of intellectual humility as first and foremost a form of humility before *nature* incorporates and unifies more widely held contemporary accounts of humility as an interpersonal virtue and various forms of intellectual "open-mindedness." I use the concept of intellectual courage to draw attention to the willingness to stand up for one's *own* insights that, for Montessori, provides an important broadly Nietzschean counter-weight to intellectual humility. Her attention to courage acknowledges the essentially perspectival nature of all knowledge and finds room for celebrating intellectual virtues in creative insights as active remakings rather than mere tendencies toward Truth accessible to all virtuous agents.

4. Conclusion: The importance of intellectual agency

One of Montessori's central preoccupations was the facilitation of children's agency. She carefully studied ideal conditions for the emergence, development, and expression of agency; and she built environments within which children's agency could flourish. Within her epistemology, as we will see, intellectual agency is a—and arguably *the*—central concept. The purpose of doing epistemology is to discern the ideal forms that such agency should take and the conditions under which it thrives.

Intellectual agency is a long-standing concern within epistemology, from Aristotle's notion that contemplation is the highest form of human *activity* to Descartes's insistence that the proper use of one's free will constitutes the central task of human knowers to Kant's emphasis on "spontaneity" as the essence of human reason. Throughout this history, intellectual agency is closely connected with norms of good reasoning. To be an intellectual agent is, in part, to think in accordance with standards for thinking *well*. In some cases, these standards can be articulated as rules (such as the law of non-contradiction), but Montessori—like many philosophers before her—sees excellence in intellectual agency as primarily a matter of having certain virtues of character that constitute and enable overall intellectual excellence.

The rest of this book offers an investigation of Montessori's epistemology, with specific focus on her account of intellectual agency and the virtues that constitute the

excellent use of that agency. In some cases, she emphasizes concerns of contemporary epistemology, such as the exhortation to "master knowledge" (22:138). Often, she discusses virtues that are familiar within contemporary virtue epistemology, such as sensory acuity (a favorite of reliabilists) or intellectual love and courage (favorites of responsibilists). But she also often takes her epistemology in general, and her virtue epistemology in particular, in directions that are new and different. She is much more interested in *intelligence* or *genius* than "knowledge" or even "understanding." Among her virtues, she includes such things as physical dexterity. And even where she discusses familiar virtues—love, courage, and humility, for instance—her way of understanding those virtues is inflected by her distinctive notion of intellectual agency, which takes her in different directions than many contemporary epistemologists.

Overall, this book should be read as an example of "alternative" or "autonomous" virtue epistemology, in that Montessori investigates intellectual virtues for reasons quite different than those of many contemporary epistemologists. Central to her whole approach, however, is the role of intellectual agency, a concern that has been growing in importance within mainstream epistemology. The book thus offers a historical perspective that should be of direct contemporary relevance to epistemologists. The history of philosophy in general, and especially that of marginalized figures, helps us discover new problems worthy of attention, look at old problems in new ways, and free us from reigning orthodoxies about "intuitions." My hope is that this book will initiate ongoing inquiry into Montessori, intellectual agency, and epistemic virtues.

This book takes its primary audience to be professional philosophers, particularly epistemologists, seeking a new philosophical perspective, but it should also be of interest to educators, caregivers, and others who seek a well-informed perspective about the proper goals of education. The broadening of epistemology also involves an increased relevance of epistemology for education. Virtue epistemology in particular focuses on what constitutes excellence in the life of the mind. As schools, caregivers, and individuals seek to cultivate excellent habits of mind, and particularly as organizations aim to craft ideals toward which education aims, philosophy provides an essential service. Many educators already look to social scientists to help them figure out the best methodologies to foster their goals for their children, and Montessori's scientific pedagogy largely involved an appeal to empirical and experimental work on best achieving children's full potential. But Montessori also rightly recognized that philosophy is necessary for reflecting on what those goals should be. Philosophers specialize in carefully thinking through what constitutes proper aspirations and ideals. This book thus not only uses Montessori to enliven and enrich perspectives in contemporary epistemology; it also uses philosophical tools to clearly lay out Montessorian ideals for what education can and should achieve.

2

Montessori's Interested Empiricism

Let us suppose the mind to be, as we say, white paper, void of all characters, without any ideas. How does it come to be furnished? … To this I answer, in one word, from experience.

(John Locke, *An Essay Concerning Human Understanding* II.i.1)

The moment one thinks of the matter, one sees how false a notion of experience that is which would make it tantamount to the mere presence to the senses of an outward order. Millions of items of the outward order are present to my senses which never properly enter into my experience. Why? Because they have no interest for me.

(William James, *The Principles of Psychology*, v. 1, p. 402)

1. Montessori's Empiricism: Senses, Interest, and Agency

Montessori fits into a long line of "empiricist" epistemologists, for whom the senses ground knowledge: "Education of the senses is the foundation of the entire intellectual organism and might be called the intellectual raw material. There can be neither ideas nor imagination, nor any intellectual construction, if we do not presuppose an activity of the senses" (18:260; see also 17:193–4; 9:148, 184). Just as classical empiricist philosophers like John Locke and David Hume insist that "experience … supplies our understandings with all the materials of thinking,"[1] so too Montessori sees all ideas as originating in sensory experience.[2] While Locke's empiricism emphasizes particular simple ideas of sensation from which other ideas are built through innate capacities for combination and comparison,[3] however, Montessori argues that the ordering and structuring capacities of the mind are themselves built from experience of order and structure in the world.[4]

> Sense training will prepare the ordered foundation upon which [one] may build up a clear and strong mentality … This education … prepares directly for intellectual education, perfecting the organs of sense and the nerve-paths of projection and association. (Montessori 1912:216–7)

Because sensory experience grounds future cognition, orderly and structured early experience orients future cognition: "The [experientially] known establishes itself in the child as a *complex system* of ideas … To bring about such a progress we offer the child a systematic, complex material, corresponding to his natural instincts … and the child … acquires a clear and orderly knowledge of things" (9:122; see also 9:151). Because different environments facilitate cognitive ordering better or worse, "empirical knowledge … acquired casually and without order … is of little value in the formation of … a logically cultivated mind" (16:3).[5]

Empiricism might seem an odd place to begin an epistemology that emphasizes intellectual agency and epistemic virtues, particularly given my suggestion in Chapter 1 that Montessori's approach to the virtues is responsibilist in seeing all intellectual virtues as traits for which one can be held accountable and praised or blamed. Most contemporary virtue epistemologists share Heather Battaly's conception of sensory experience (and even perceptual knowledge) as "acquired passively," something to which agency and responsibility do not apply (Battaly 2008:651). Traditional empiricists largely share this conception of sensory experience. For Locke, the mind begins as something akin to "white paper, devoid of all characters, without any ideas" and it "comes to be furnished" when "our senses … *convey into the mind* several distinct *perceptions* of things, according to the various ways in which those objects do affect them" (Locke 1690:II.i.2–3). For him, even mental operations of comparison by which one "perceives each idea to agree with itself … and all distinct ideas to disagree" are "always perceive[d] at first sight," "without … labor, at first view, by its natural power of distinction" (Locke 1690:IV.i.4). Similarly, Hume refers to the mind as a "faithful mirror" that merely copies what is immediately give to it (Hume 1748). For British empiricists, in the acquisition of ideas through sensation, "the mind is passive" (Uzgalis 2018).

Montessori sharply contrasts her empiricism from these traditional approaches by insisting that even raw sensory experiences require *active* capacities for engagement with the world:

> The child actively takes from the environment. The old psychologists used to say that the child responded to sensory stimuli—to light, birds, noise, and so on—that they have an experience of light, and after this first experience they go on to the greater recognition of light, for example. This is a passive interpretation of psychic life … It is very different from the fact that the child actively takes for himself what he needs from the environment in order to construct his own psychic life. (17:172–3)

Senses are *active* powers rather than passive capacities for receiving ideas. Sensory *stimuli* become *sensations* (and then "experience") only when an intellectual agent makes them the object of attention based on some *interest* (though, as we will see in Chapter 3, these interests can be unconscious). Moreover, senses do not take in indiscriminately everything presented to sense organs. To "sense" something is always already to organize, "distinguish[,] and classify" what one experiences (9:151, see also 17:193–4).

In defending that sensations depend upon interest-governed agency, Montessori highlights the central role of *attention*:

> Stimuli will appeal in vain to the senses, if the internal cooperation of attention be lacking … It is not enough that an object should be before our eyes to make us see it; it is necessary that we should fix our attention upon it; an internal process, preparing us to receive the impression of the stimulus, is essential. (9:172; cf. James 1890:402)

At the most mundane level, to perceive something, I must literally focus my eyes on it, or bring it near my nose, or touch it. And what I first perceive in objects are, as James Gibson has pointed out, "their affordances," what about them is relevant to my interests: even "the infant does not begin by first discriminating the qualities of objects … The affordance of the object is what the infant begins by noticing. The meaning is observed before the substance and surface, color and form, are seen as such" (Gibson 1979:134).

One might question even this minimal level of attention for the most basic sensory perceptions. In his overview of contemporary virtue epistemology, Jason Baehr argues for the claim that "knowledge and justification often are acquired in a more or less *passive* way" based on the following example:

> Suppose … that I am working in my study late at night and the electricity suddenly shuts off, causing all the lights in the room to go out. I will immediately know that the lighting in the room has changed. Yet in acquiring this knowledge, it is extremely unlikely that I exercise any virtuous intellectual character traits; rather, my belief is likely to be produced primarily, if not entirely, by the routine operation of my faculty of vision. (Baehr 2004)

Even in the case described, however, the recognition of the darkened room depends upon at least *some* interest; someone sufficiently engrossed in reading a backlit ebook might well fail to notice the change in external lighting. Moreover, what Baehr calls the "routine operation of my faculty of vision" is a "routine" that, for Montessori, requires interest-driven cultivation (in this case, in infancy). Put another way, every perceptible change is, in Gibson's terms, a change in affordances, a shift in what one can do in an environment relative to the interests one has.

Beyond the most simple perceptions (such as light and dark), the role of interest is even more acute. I pay attention to human (or human-like) voices in languages that I understand, but disregard—or better, fail even to hear—many other background noises in my environment. Montessori describes how

> there may be two people who take a walk in the country. One person may be struck by the silence and the sound of a cricket; another may be struck by the darkness and a ray of light which comes from the moon. Both of them have the same possibility of receiving identical vibrations, but their attention makes a choice amongst all these things … Between these two people, it is not an external difference but, nevertheless, there is a real difference between them. (15:229)

In a similar vein, contemporary epistemologist Ernest Sosa offers the example of a visual pattern:

> Take a pattern that to me has religious significance, so that I can recognize it, and store beliefs with concepts that correspond to that visual pattern. To you that pattern might be just a squiggle. In this case my beliefs can feature that pattern itself in their content in a way that is not available to you. As you look away from the squiggle your prior belief is accessible through "the squiggle I just ostended" or the like. By contrast, I can forget how I acquired my belief with no detriment to its full content that I can now retain in storage. (Sosa 2015:205n10)

Sosa's example is excellent, but he understates the significance of significance. He assumes that we literally *see* the same squiggle, but that I can better remember and use the (religious) content of that squiggle. But considerable recent empirical research validates Montessori's point that you and I would literally see different things when we look at the same object. In the Bruner-Postman experiments made famous by Thomas Kuhn, subjects were shown non-standard playing cards (a black four of hearts, for instance) and identified them as standard cards, calling it a "four of either spades or hearts" (Kuhn 1962:63[6]; Bruner and Postman 1949). Relatedly, analyses of "inattentional blindness" have shown people's failure to see what is right in front of their faces; people will fail to see a person in a gorilla costume directly in their field of view when they are attentionally focused on something else (Simons and Chabris 1999[7]; see also O'Regan et al. 1999; Noë 2004). Similarly, because you see Sosa's squiggle only as a squiggle, you literally fail to *see* features of the squiggle that I see. I attend to what is given in perception in a different way than you, and as a result, what I *sense* is different. To return to Gibson's language, because I experience a different "meaning," I come to observe a more refined "color and form" (Gibson 1979:134). Experience depends upon attention.

Beyond mere examples of the importance of attention, Montessori argues for the *necessity* of attentive selection based on the infinite complexity and variety present in the world. Citing William James, she says:

> It is possible to suppose … that a God could, without impairing his ability, simultaneously behold all the minutest portions of the world. But if our human attention should be thus dissipated, we should merely contemplate all things vacuously. (9:158)

Like "every created thing," we "have limitations," and so "our own psycho-sensory organization is founded upon a selection" (9:157). The basic architecture of our sense organs is designed "to respond to a determined series of vibrations and to no others," but sensory selection goes beyond physical structures: "the mind imposes still further limits on the selection possible to the senses … Attention is fixed upon determined objects and not upon all objects" (9:157). As Gibson points out, "It is never necessary to distinguish *all* the features of an object and, in fact, it would be impossible to do so. Perception is economical" (Gibson 1979:135). The Heraclitean complexity of the world requires that human perceivers discriminate and select.

Montessori's next key claim is that this selective attention is active, based on "the activity of internal choice" (9:157). As examples of backlit ebooks, country walks, and Sosa's squiggle make clear, selection is an *activity* governed by interests one takes in various features of the world.

> It is not an external difference but, nevertheless, … a real difference[,] … a difference of choice … The attention which one pays to things is not passive, but corresponds to an activity. (15:229)

> The ego is the real agent, the single arbiter, and the recipient of the sense impressions. If there were no ego to see and enjoy, what would be the use of the mechanisms of the sensory organs? (22:83).

> In the world around us, we do not see everything … but only some things that suit us … We do not concentrate our attention haphazardly, … but according to an inner drive. (18:185)

We sense the world through "actively tak[ing]" it in; even the youngest infant "sees only a part, determined by his [often unconscious] feelings and interests" (22:48). Because experience *depends upon* interests, a newborn without interests would "ha[ve] no experience"; the child who experiences is "an active being going forward by its own powers" (22:49), powers that are not a priori *cognitive* structures but innate *volitional* tendencies manifesting in "sensitive periods" of interest and attunement (18:188). Gibson puts this in terms of the fact that infants' first perceptions are of the affordances or meanings of things, rather than their supposed qualities. Montessori more often highlights the fact that "the attention of the little child was not artificially maintained by a teacher; it was an object which fixed that attention, as if it corresponded to some internal impulse; an impulse which evidently was directed solely to the things 'necessary' for its development" (9:120–1). The key point here is that the mind perceives and *arbitrates* what is given by the mechanism of the senses. Contemporary psychologists' recognition that "environmental features to which a system is cognitively open will be … a function of … activities and interests" further echoes Montessori's observation that one can only really "see" when one "begins to *feel interest*" (Ward and Stapleton 2012:91; 9:99, emphasis added).

The role of interest in selection highlights the extent to which, for Montessori, experience of the world expresses epistemic *agency*. Where Locke sees the child as a "blank slate," a passive medium on which experiences are inscribed by a world passively taken in, Montessori insists that "intelligence" is precisely "the sum of … *activities* which enable the mind to *construct itself*, putting it into relation with the environment" (153; cf. 15:228–31). She explains, "We are not like a mirror upon which things are reflected, but an active living being which must take [in the world], but in taking each has limits which correspond to its inner individuality" (15:228). Experiences—sensory and otherwise—result not merely from organs that passively take in the world, but from *actively* taking interest in that world in ways that select out relevant features for

attention, paying particular attention to "things we need or … which correspond to the disposition of our inner life" (15:228; cf. Gibson 1979:127–37).

Montessori departs from passive, Lockean-Humean conceptions of the senses in another crucial respect as well. Not only is sensory perception an interested activity, it can be *trained* and *cultivated* through activity (15:230). As with Locke and Hume (see Locke 1960 IV.iv.4; Hume 1748), contemporary epistemologists claim that certain "faculties are innate … We are born with the ability to see" (Baehr 2011:22) or that sensory perception is an "intellectual competence [that] comes with our brains" (Sosa 1991:278; cf. Sosa 2015:145). In support of seeing "vision [a]s a natural virtue," Heather Battaly argues, "After all, children possess the virtues of vision, memory, and the like" (Battaly 2008:11). But for Montessori, "senses" are not innate and fixed; children require "sensory [and mnemonic, etc.] gymnastics" or "sensory exercises" to *cultivate* sensory engagement with the world. Through such exercises, not only do sensory "reactions become ever more and more rapid" and "errors … [become more] quickly detected, judged, and corrected," but "sensory stimulus which might before have passed unobserved or might have roused a languid interest is vividly perceived" (9:148–9). As we will see in more detail in Chapter 7, we *learn* to see by learning to select certain perceptual details as relevant and to discriminate among salient details of our environments. Perceptual awareness itself is an intellectual virtue, acquired and developed through exercises of one's selective agency.

According to Montessori's empiricism, all knowledge begins from sensory experience, but sensory experience itself is the result of *active attention* to the world, attention that can be cultivated. All knowledge, that is, begins with exercises of *epistemic agency*. In striking contrast to some proponents of epistemic agency who limit such agency to "cognitive affirmations" of given propositions (Sosa 2015:93) or to deliverances that have survived "reflective endorsement" (Elgin 2017:141),[8] Montessori sees agency already at the level of mere perception. What we perceive are those aspects of the world that we deliberately select for attention based on our interests.

2. The "ascent to abstraction"

Mere experience does not exhaust humans' intellectual life. Locke insists that experience "supplies our understandings with all the materials of thinking," but those understandings are then capable of comparing, compounding, and abstracting to generate new ideas, and of reflecting in order to cognize agreement or disagreement among our various ideas (see especially *Essay* II.i.2, II.xi, and IV.i.2). Ernest Sosa distinguishes "animal beliefs acquired through unfree 'automatic' proper functioning of cognitive mechanisms" from "freely adopted evidential polic[ies]" (Sosa 2015:210). Many other contemporary virtue epistemologists distinguish "low-grade" knowledge that arises immediately from experience with "high-grade" knowledge that depends upon self-guided inquiry and higher-order intellectual activity (Battaly 2008:653–9). Often, distinctions between mere experience (or animal cognition, or low-grade knowledge) and higher-order cognitive processes are designed to contrast what is purely (or largely) *passive* or automatic from what are considered genuine expressions

of intellectual agency, spontaneity, freedom, or virtue. Because Montessori sees even bare perception as an interest-governed activity of an intellectual agent, she rejects this account of the difference between experience and other cognitive processes, but she does not reject the distinction as such. Partly, she distinguishes between *unconscious* and *conscious* agency; I discuss that aspect of her epistemology in the next chapter. But Montessori also describes an important developmental shift in our intellectual agency, an "ascent to abstraction" (9:83).[9]

Even while discussing higher cognition, Montessori remains consistently empiricist, not only emphasizing that senses provide essential material from which future cognition is built, but also sharing Hume's emphasis on *association of ideas* and the *imagination* as primary loci of human belief-formation. For Montessori, higher cognitive functions are built from abstraction, which is a form of imaginative variation rooted in the selective nature of our sensory perceptions. Because our sensory perceptions are selective, they are already—as contemporary philosophers like Alva Noë emphasize—"proto-conceptual" (Noë 2004:199). What is needed for them to become full-blown concepts is a threefold effort of imagination: a narrowing of emphasis to a specific feature selected in perception, an expansion of the *scope* of what is selected in a given perception to other possible objects with that feature, and an orientation of what is given into a well-ordered whole. All three further processes are grounded in experience and actively carried out by interested intellectual agents. In the rest of this section, I show the importance of imagination for Montessori, briefly sketch each of these three key processes, and lay out the centrality of intellectual agency for higher-order epistemic excellence.

One of the most important claims in Hume's *Enquiry Concerning Human Understanding* is that knowledge of matters of fact is based on "imagination" rather than "reason." For Montessori (and arguably for Hume as well), the very contrast between imagination and reason is contrived. She rails against "vivisectionists of human personality" who "would have imagination cultivated as [if it were] separated from intelligence," insisting, in contrast, that "the intelligence of man … is essentially imagination" (6:9; 17:183). Her point is not simply that imagination is important for developing new insights or having creative thoughts. Rather, the point is that "abstraction," and with it everything that we think of as reasoning, is essentially an act of imaginative (re)construction and ordering of parts within a well-ordered whole. Montessori ascribes the development of knowledge beyond experience to "what used to be called the Association of Ideas," including all "sequential formation of thoughts" (6:12).[10] Even the practice of the scientist is first and foremost a matter of making "associations" (9:157, cf. 17:191), and it is the *imagination* that distinguishes humans from other animals:

> Real intelligence is something immense which nature has bestowed upon man. If we study the difference in the intelligence of men and animals, we shall see clearly that man's intelligence is imaginative. The intelligence of animals consists of being able to recognize things—names, voices, and so on. What is imagination? Imagination is the true form of the intelligence of man … He can imagine things that are not present and create these things. This form of intelligence has no limits.[11]

> We must think of intelligence as an activity, an inner work, an inner intellectual activity. (17:172)

Aristotle sees human beings as essentially *rational* animals, *Homo sapiens*; Montessori insists that we are, essentially, *Homo imaginarius*.

While imagination allows cognition of things not directly present to the senses, it is continuous with and derives from more basic sensory capacities: "the material of our imagination is fundamentally sensorial and he who is born blind … cannot imagine the world of light" (18:193, see also 9:184). Materially, imagination merely manipulates what has been given to the senses. Even the creative work of abstracting, rearranging, and ordering the material of the senses arises through an internal order established by "absorption" of order we experience in the world. Imagination takes cognition beyond experience, but imaginative intellectual agency always only extends the agency already involved in perception.

Imagination extends cognition beyond direct experience in three key ways: abstraction, association, and ordering. In perception, "the first step is … a selection" (9:157), and abstraction starts with a higher-order version of that selection.

> The lofty work of the intelligence is accomplished [when] by an analogous action of attention and internal will, it abstracts the dominant characteristics of things … It ceases to consider an immense amount of ballast which would render its context formless and confused. Every superior mind distinguishes the essential form from the superfluous, rejecting the latter … The capacity for forming a conception of a thing, for judging and reasoning, always has this foundation: When, after having noted the usual qualities of a column, we abstract the general truth …, this synthetic idea is based upon a selected quantity. Thus in the judgment we may pronounce: columns are cylindrical; we have abstracted one quality from among the many others we could have adduced, as, columns are cold, they are hard, they are a composition of carbonate of lime, etc. It is only the capacity for such a selection that makes reasoning possible. (9:157–8)

In the context of explaining this process of abstraction, Montessori cites William James's discussion from his *Principles of Psychology*, an account that resembles and helps illuminate Montessori's own. Like her, James emphasizes, "Every reality has an infinite of aspects or properties," so "when we conceive of S merely as M …, we neglect all the other attributes which it may have, and attend exclusively to this one. We mutilate the fullness of S's reality" (James 1890 v.2:332). James excuses this mutilation, this "always unjust, always partial, always exclusive" selection of criteria, as "the necessity which my finite and practical nature lays on me" (James 1890 v.2:233). Through selective attention to specific features of the "primitive chaos" given to our senses, "our internal characteristic form is gradually shaped and chiseled" (9:158). Sensation itself already involved isolating certain objects and features, but imaginative abstraction selects even further, consciously focusing on one characteristic among others we perceive. This more deliberate selection allows for development of abstract concepts. In that sense, concept-possession is the fruit of concept-*formation*, an expression of epistemic agency.[12]

This selection, by which we abstract one characteristic of an object from others based on our interests, makes possible a second crucial act of imagination, the grouping of similar things *as* similar in some respect(s). After one "abstracts the dominant characteristics of things" one can thereby "succeed in *associating* their images" (9:157).[13]

> When we associate the images of different objects by similarity, we should extract from the whole the qualities which the objects themselves have in common. If, for instance, we say that two rectangular tablets are alike, we have first extracted from the numerous qualities of these tablets … the quality relating to their *shape* … This may suggest a long series of objects: the top of the table, the window, etc.; but before such a result as this can be achieved, it is necessary that the mind should first be capable of abstracting from the numerous attributes of these objects the quality of *rectangular shape*. (9:155)

Once we use the imagination to see the rectangle of the table and the rectangle of the window, we can "not only … observe objects according to all the attributes they have analyzed, but also … distinguish identities, differences, and resemblances" (9:156). Over time, we come to see that "the world always repeats more or less the same elements" (12:17). Initially, we recognize "certain objects [as] alike in form, or alike in color" (9:156), but eventually we move beyond grouping of things perceived to imaginative conjecture about things not yet experienced:

> If we study, for example, the life of plants or insects in nature, we more or less get the idea of the life of all plants or insects in the world … [I]t is enough to see one pine to be able to imagine how other pines live. When … familiarized with … the life of the insects we see in the fields, we are able to form an idea of the life of all other insects … The world is acquired psychologically by means of the imagination. Reality is studied in detail, then the whole is imagined. (12:17)

From focusing on one feature in a given perception, we can associate different experiences in terms of abstract characteristics, and this association makes it possible to conceive of unexperienced things in terms of the characteristics that are regularly connected among what we have experienced.

For Montessori, the starting points for reflection and the associations by which we extend our conceptions are drawn from experience, but neither abstraction nor association would be sufficient without *order*. Human beings orient particular cognitions within a mental structure where each concept and each object have a place. Order is the key to scientific genius and artistic genius: "It is not the accumulation of a direct knowledge of things which forms the man of letters, the scientist, and the connoisseur; it is the prepared order established in the mind which is to receive such knowledge" (9:153). This order is equally necessary for basic forms of imagination and abstraction: "In a chaotic mind, the recognition of a sensation is no less difficult than the elaboration of a reasoned discourse" (9:150). Even among elementary children, Montessori emphasizes that study begins with "classification …, not only … of a few

details …, but … of the Whole" (12:17–8). We move beyond direct experience not by branching out to this and that association. Such wanderings of imagination lack the structure requisite for cognition, and they fail to sustain the *interest* needed to continue imagining. To sustain the attention required to focus on details, abstract characteristics, find similarities, and imagine beyond what is immediately present, one requires an inner mental framework that organizes perceptions.

One central function of prepared Montessori environments is thus to provide a set of carefully organized experiences: "The Sensorial Materials are *material abstractions*. We give them to the children, not to give them knowledge of things for the first time, but as a help to create order in their minds" (17:195). For example, while any child will selectively attend to specific ranges of color in their perception, a Montessori classroom has a series of different sets of color tablets, where children are given tablets of precise colors and shades to work with. As they literally "order" the tablets by color, they also build a mental "order," an ability, when seeing a particular color of a particular shade, to sort it into the classification they have absorbed from their environment. Similarly, they work extensively with a determinate set of geometrical shapes, putting them in order in ways that build internal classificatory frameworks for future experiences. When children work with blocks identical in color but different only in shape, or identical in shape but different only in color, they absorb classifications that allow them, when faced with a colored shape, to identify its color, shape, or both—that is, to abstract. They can then easily group different objects as similar in different respects.

We can think of this framework in terms of Hume's missing shade of blue[14] or like a ratio where one is given three numbers and must find a fourth, or a Kuhnian paradigm that makes normal science possible (see Kuhn 1962). When one has an orderly intellectual framework, one not only places given experiences within that framework, but can actively extend thoughts beyond experience. Knowing that human beings require food, shelter, clothing, defense, and transportation, one can actively interpret one's social world, identifying elements that satisfy these needs. One can compare how one society meets these needs with how another society does so. One can imagine what a form of life would be like that did not involve killing animals, or what would be needed in order to set up a colony on Mars. The determinacy of the framework provides sufficient interest to apply and extend one's imagination. Without some framework, the aimlessness of thought would go nowhere.

The value of the internal order established by a well-ordered set of experiences goes further than mere classification. These imaginative functions of abstraction and organization develop into what we typically think of as "reason":

> When, for example, in the demonstration of the theorem of Pythagoras, children handle the various pieces of the metal insets, they should start from the point at which they become aware that a rectangle is equal to the rhomb[us], and a square is equal to the same rhomb[us]. It is the perception of this truth which makes it possible to go on to the following reasoning: therefore the square and the rectangle are equal to each other … The mind has succeeded in discovering an attribute common to two dissimilar figures; and it is this discovery which may

children who choose to research pandas or the Civil War to artists exploring new digital media or physicists trying to conceptualize the world as multidimensional strings or philosophers refining abstract metaphysics, intellectual agents use imagination in the service of both their general interest in expanding cognition beyond direct experience and their particular interests in certain subjects.

A second way in which intellectual agency relates to imagination arises as a correlate of the first, given a principle fundamental to Montessori's pedagogy, the principle that we must provide an environment for the exercise of our capacities. In observing the development of living systems, Montessori notes that when natural capacities are not provided means for expression, interest in developing those capacities diminishes. Children deprived of opportunities to cultivate sensory acuity in early life gradually lose interest in cultivating their senses. Children who learn to read too late will not have quite the love of reading they would have had had they learned earlier. And children who have not cultivated more basic skills when interested in those skills will be frustrated if or when they attempt to master more complex ones. As Montessori explains with respect to preparation for writing:

> Holding the [pencil-diameter] knob of the cylinders … is a preparation of the coordination of the hand for writing. At a later age, the intelligence of the child will urge him to write. He will be impeded if the organs are not prepared. The lack of preparation will be an obstruction to the intelligence; it will repulse him, and kill his interest for intellectual expression as well. (17:77)

On the flip side, "to confer the gift of drawing we must create an eye that sees, a hand that obeys, [and] a soul that feels" (13:294).

Not only does imagination depend upon intellectual agency; it also sustains and enhances it. "Curiosity," a natural impulse to learn more about the world, requires imagination in order to thrive. As children come to seek greater expanse for their curiosity, "our aim is … so to teach his imagination as to enthuse him to his innermost core" (6:8). We become *interested* in the world as we use our imaginative capacities (including reason) to think more abstractly about it, to connect our immediate experiences with a whole of which those are a part.

A third important role for agency in the expansion of knowledge arises from the fact that understanding must be active in order to be truly one's own.

> There is … a fundamental difference between understanding and learning the reasoning of others, and being able "to reason," between learning how an artist may see the external world according to his prevailing interest in color, harmony, and form, and actually seeing the external world about a fulcrum which sustains one's own æsthetical creation …, [b]etween "understanding" because another person seeks to impress upon us the explanation of a thing by speech, and "understanding" the thing of ourselves. (9:159)

Genuine knowledge or understanding is *one's own*. Her point here is not that one cannot trust others' testimony or cannot draw from others' insights. Rather, the point is that

even in those cases, one must personally appropriate that knowledge. One can parrot back spoken explanations, but this repetition is no more "knowledge" than comparable recitations by an actual parrot. In some cases, understanding for oneself involves personal acquaintance with objects of knowledge, and in that sense, it is contrasted with testimony. But even when learning from testimony, it is one thing to passively take what another says for granted or even sympathetically try to see the world from their perspective, and quite another to actively think about what they are saying, critically but open-mindedly assessing it as a possible understanding of the world one should adopt *for oneself*. The former is mere "understanding the reasoning of others." To really understand something, to understand it *for oneself*, one must be *active*.

Thus, after laying out the various functions of imagination, Montessori insists that in order for the associations of imagination to count as intellectual, "The work of the mind … must necessarily be *active*."

> This is intellectual work in reality, because the essential quality of the intelligence is not to "photograph" objects, and "keep them one upon the other" like the pages of an album, or juxtaposed like the stones in a pavement. Such a labor of mere "deposit" is an outrage on the intellectual nature. (9:155)

Selection, classification, and discrimination of one's environment are intellectual *activities* and thus require motive force. Hence "the role of education is to interest the child profoundly in an … activity to which he will give all his potential …, interesting him in an activity through which he will subsequently discover reality" (12:11). Any other intake of "knowledge" is not true knowing, but a mere collection of trivia, an intellectual outrage.

To truly know *is* to know for oneself in part because the *value* of knowledge arises from intellectual interest, and this takes us to a fourth point. Knowledge has *value* in relation to human beings as agents, where agency is never *purely* intellectual. Within recent epistemology, there is a vibrant debate about the value of knowledge. Much of this debate is rooted in the twentieth-century fascination with knowledge as justified true belief and the Gettier problem; this debate surrounds what makes "knowledge" more valuable than mere "true belief."[16]

In the context of intellectual agency, however, the value of knowledge problem asks what sorts of epistemic agency count as excellent. Here the problem is not whether, for instance, it is better to *know* that platypuses lay eggs or merely to believe it; here the problem is whether one is more epistemically excellent, more virtuous, if one engages in inquiry that gives rise to knowledge that platypuses lay eggs. And the main threat to the value of knowledge for virtue epistemologists is not the conceptual issue of the difference between knowledge and true belief, but the fact that pursuing knowledge of some topics actually seems deeply *un*virtuous. Roberts and Wood put the problem well:

> Imagine a lover of truth who with equal indifference wanted to adjudicate the truth-values of (1) a charge of capital crime against his mother and (2) the proposition that the third letter in the 41,365th listing in the 1927 Wichita telephone directory is a "d". The world is rife with truths of the latter sort, and a

> person who aspired to know them with indifference of enthusiasm would not be a model epistemic agent. Instead, the healthy, well-functioning agent … is interested in [some propositions] … far more than others. (Roberts and Wood 2007:156; cf. Alston 2005:31–2; Goldman 2002:61; Grimm 2012)

Given her account of the necessary role of interest-driven selection in cognition, Montessori could go further. The experience of a determinate world, and the pursuit of ordered knowledge about that world, depends upon distinguishing between what is worthy of attention and what is not. The world is not even rife with "truths" until one selects among a given chaos. Those selections can be made well or poorly, and they are always made in the light of the interests of particular agents. The "*selection*" that "is the fundamental necessity which enables us to realize things" specifically enables us "to emerge from the vague into the practical, from aimless contemplation into the sphere of action" (9:157, italics original). Even primitive experience is always already grounded in assessments of what is relevant, so excellence in knowledge already requires "discriminations of significance, relevance, and worthiness" (Roberts and Wood 2007:155); only insofar as one makes these discriminations well does resultant knowledge have value.

Montessori's overall approach to value can best be summarized by contrast with Jonathan Kvanvig's recent approach: "In the epistemic domain, there are two fundamental sources of value: practical significance and curiosity" (Kvanvig 2013:153). For Montessori, "practical significance" and "curiosity" are not separable sources of value. For one thing, "practical significance" is much broader than the "contributions to survival" on which Kvanvig focuses (Kvanvig 2013:153). When she explains that the ultimate purpose of the selective attention that makes knowledge possible is to help us emerge "from aimless contemplation into the sphere of action," she specifically rejects the "purely practical … utilitarian … point of view" (9:157). Even when she points out that an excellent epistemic agent "uses all these things [such as 'Euclid …, history and geography, and rules of style'] for his own life," the "life" she has in mind is the creative and expansive life of achievement, not mere survival (9:159). Truly "understanding," for Montessori, requires "seeing the external world about as a fulcrum which sustains one's own … creation" (9:159). She rejects "mere speculations" that leave one's "environment … unchanged," insisting that "when imagination starts from contact with reality, thought begins to construct works by means of which the external world becomes transformed" (9:179; see also Montessori 1913:31). The claim here is not a mere ethical prescription, not merely that there is no *point* to pursuing knowledge that does not accomplish anything or satisfy some interest. She is also making a conceptual point about the nature of knowledge, that for human beings (and even God, see 9:179), to know is to act. Any knowledge that should be considered "intelligence" is not mere justified true belief but that appropriation of sensory material that "enable[s] the mind to put … it[self] into relation with the environment" (9:147). Because knowing the world intellectually is essentially a "mode of coupling with environment" (Thompson 2005:407; see also Ward and Stapleton 2012:96), epistemic excellence is always already infused with creative excellence, with the excellence of an agent in general.

Montessori's conception of "curiosity" is inseparable from "practical significance." Among the "actions" that selection makes possible, she includes "finding a characteristic which will serve as a basis for [scientific] classification" and the "intellectual emotion" of one who "makes a discovery rich in results" (9:157, 160). William James, from whom Montessori draws much of her pragmatic emphasis, notes:

> Reasoning is always for a subjective interest, to attain some particular conclusion, or to gratify some special curiosity. It not only breaks up the datum placed before it and conceives it abstractly; it must conceive it *rightly* too; and conceiving it rightly means conceiving it by that one particular abstract character which leads to the one sort of conclusion which it is the reasoner's temporary interest to attain. (James 1890 v2:338–9)

At one level, this seems to imply that "curiosity" is an independent motive for pursuing truth, a source of interest independent of other subjective interests. However, James's reference to a *special* curiosity highlights a key point that Montessori emphasizes in even more detail, that we do not have a generic curiosity in facts as such, but always a special curiosity that allows us to pursue *actions* directed toward gaining specific new knowledge. Ultimately, for Montessori, all pursuit of knowledge is part of a broader project of pursuing increased excellence, pursuing what Ernest Sosa aptly calls "achievement," and what Montessori calls "character" (see Chapter 5). Curiosity, too, has value only insofar as it fosters inquiries involving attention, diligent work, and other intellectual excellences. As Ernest Sosa rightly points out, "The importance of knowledge derives in good measure from how it relates to human achievement generally" (Sosa 2015:142). Knowledge can aid in non-epistemic achievement, and knowledge can be the fruit of epistemic achievements that are valuable because they demonstrate new human potentials.

In the end, interests of intellectual agents are tied up with the pursuit of knowledge in four ways. First, human beings can perceive the world and pursue further knowledge about it only through acts of selective attention motivated by diverse interests of human intellectual agents. Second and relatedly, the ability for human beings to continue taking intellectual interest in the world depends upon intellectual achievements. Third, in order to truly *know* or *understand* something, as opposed to merely parroting back the knowledge of others, one must know it for oneself, and knowing something for oneself requires that one be motivated to direct attention to it by one's own interests. Finally, because knowledge essentially is part of one's overall engagement with the world, it has value only insofar it contributes to a more excellent overall engagement with that world; the value of knowledge is due to its connection with agential interests.

4. Conclusion: Intellectual agency and epistemic virtue

This chapter's broad outline of Montessori's epistemology emphasized two main points. First, Montessori is an empiricist. All ideas are acquired by and have their content determined by experience. Insofar as we reason with our ideas, the structure

of our reasoning itself consists in forms of imaginative association that arise from our experiences. Second, we do not passively take in the world; knowledge, intelligence, and even perception are *activities* of intellectual agents. We have particular interests at particular times, and these determine the features in our environment to which we attend, which in turn determine the particular ideas and even mental organization we come to have. Moreover, interest-driven attention to particular features of our environment forms the first basis for our division and organization of the world in terms of abstract concepts. And our general interest in order combined with specific interests in ordered structures that can serve our purposes gives rise to a conception of the world as ordered in various logical and conceptual ways.

Given the centrality of intellectual agency, Montessori's epistemology focuses on outlining the intellectual virtues that constitute the excellent use of that agency, and her pedagogy aims to cultivate those virtues. Her adamant rejection of the "vivisection of the human personality" (6:9) implies that *intellectual* virtues will be continuous with virtues more generally. Insofar as knowledge has value, it has value in the overall life of an active human being. But one can, albeit only partially, abstract the intellectual dimensions of various virtues from other roles they play in our lives. As an effort to contribute to contemporary virtue epistemology, the rest of this book develops implications of her epistemology for *intellectual* virtue.

Before turning specifically to virtue, however, two further crucial dimensions of Montessori's approach intellectual agency must be unpacked in more detail. First, the account of agency described in this chapter—an active process of selecting and ordering what is given in perception—might seem quite distant from what occurs when we perceive, imagine, and reason about our world. For much of that activity, we do seem to just "take it in." Part of the reason it seems this way is that much of this activity is subconscious. In order to vindicate and enrich her approach to intellectual agency, Montessori develops an account of unconscious epistemic agency. In the course of developing this account, she also explains how intelligence itself is often unconscious. Relatedly, Montessori emphasizes *bodily* aspects of intelligence, thereby anticipating contemporary work in "embodied" or "enacted" cognition; Chapter 3 explains the often unconscious and always embodied nature of intellectual agency.

Both features of epistemic agency inform Montessori's virtue epistemology. Unconscious intelligence plays a central role in intellectual patience, and an important role in various other virtues. Embodied cognition informs all epistemic virtues in that all of them are, ultimately, matters of brain *and body, in action*, and it plays a particularly prominent role in explaining how physical dexterity is an *intellectual* virtue. This chapter lays out these two features of Montessori's epistemology.

1. Unconscious intelligence

Montessori's attention to unconscious cognitive structures leads her to emphasize intellectual virtues that directly involve non-conscious aspects of cognition, to propose methods of reasoning that allow unconscious cognition to flourish, and to show how responsibilist virtues such as intellectual love or courage can play important roles in the lives even of young children. Three key features of her view are central to her conception of epistemic agency and to various intellectual virtues.

First and most basically, given the importance of agency for her epistemology as a whole, Montessori develops a notion of unconscious *agency*, what she calls "horme," functioning as a broad category of agency of which the "will" is the conscious form.

Second, Montessori emphasizes how experience itself is largely unconscious, in that what we experience shapes the structure of our cognition without our being immediately aware of the way in which it is structured. We have phenomenal consciousness of a world with certain color hues, pitches, aromas, degrees, and types of spatial organization; with a certain conceptual organization (e.g., of things into living and nonliving, artificial and natural, causes and effects); and so on. But in general, that this or that object has specifically this or that hue or aroma or fits into this or that category is "experienced" in that it shapes cognition and can function to ground inferences, but we do not *consciously* attend to each of these features. Montessori makes use of the term "Mneme," which is a sort of unconscious *memory*, to refer to this notion of experience, which may or may not be conscious.

Finally, not only can interests and experiences be unconscious, but a great deal of cognitive processing—what we can and should call *reasoning*—is unconscious:

> every human being does his most intelligent work in the subconscious, where psychic complexes … organize themselves to carry out work which we are unable to do consciously. Psychic complexes help a writer to create beautiful ideas, new to his conscious mind and vaguely attributed to inspiration. (6:13)

Montessori, like some contemporary neuropsychologists, sees "brain mechanisms of unconscious processing" and "those dedicated to conscious processing … as two sides of a same coin" (Carrara-Augustenborg and Pereira 2012:34). She defends the validity of this sort of cognitive processing through her empiricist–associationist conception of reasoning and her concept of *engrams*, unconscious mental elements susceptible of the sorts of manipulation that constitute reasoning.

1.1 Unconscious agency: Horme

The first and most basic concept within Montessori's theory of unconscious cognition is "horme," which refers to "a vital force … active within" someone that "guides his efforts towards their goal" (1:75). She compares horme, albeit merely by "resembl[ance]," to Bergson's élan vitale or Freud's libido, but the concept as she uses it was first proposed by Percy Nunn (1:75n), who described it as an "element of drive or urge, whether it occurs in the conscious life of men and the higher animals, or in the unconscious activities of their bodies," such that "all the purposive processes of the organism are hormic processes, conative processes being the sub-class whose members have the special mark of being conscious" (Nunn 1930:23). A full discussion of the nature of unconscious drives would require delving deeply into the nuances of Montessori's metaphysics of life (see Frierson 2010), but briefly, living individuals are teleologically ordered, naturally tending toward their individual perfection. Horme designates the subjective principle of teleology in each organism by which it is "led … to a perfection of being" (6:17). Like what Montessori calls the "will," horme is directed toward an end, but it is not limited to what is "a part of the individual's awareness" (1:75). Thus horme is the broadest category of agency, under which the will falls as a more specific form.

Alongside horme, Montessori uses the category of "nebulae" to refer to specific interests, those "nebulous urges without form" (1:62). Just as a will has specific conscious goals and desires, horme in general has specific nebulae:

> Man is born with a vital force (horme) … with its specializations and differentiations which we have described under the heading of "nebulae" … Growth and psychic development are therefore guided by … the nebulae … But the promise they hold can only be fulfilled through the experience of free activity conducted in the environment. (1:86)

Just as stellar nebulae begin as almost nothing and then gradually come together to form stars, the unconscious interests of human beings start, in infancy, as mere orientations of attention, but give rise, over time, to all the cognition of which we are capable (see 1:70). Unconscious horme, with its specific nebulae, provides the initial impetus of intellectual agency.

Horme thus includes *epistemic* agency, evident even in the life of the newborn. Observing unconstrained behavior of infants and children shows the natural tendencies of children's horme toward epistemic needs and interests:

> Look at their eyes, and you will see that they stare at the same thing for a long time. The child takes images from the environment with great energy and power. The unconscious studies the environment … The child is a worker and a diligent observer. He looks straight at things; … he is interested in learning all he can about his environment … This work gives him happiness and peace because, in doing so, he is following his natural urges. (17:39)

The actions of infants and young children show unconscious needs for epistemic *activity*. Moreover, this activity is driven by specific nebulae that emerge at different "sensitive periods" in development and "guide meticulously by transitory instincts which bring and urge to determined activities" (22:28; see 1:86). For example, infants "focus their attention [on] the orofacial cavity of their interlocutors because this is where they can gain direct access to redundant and highly salient audiovisual speech information" (Lewkowicz and Hansen-Tift 2012:1434). Infants are not *conscious* of the forms they are trying to master, and hence cannot consciously aim for that acquisition. But they have unconscious epistemic drives akin to their instincts for suckling. Their horme directs attention to features of the world most salient for them.[3] Attention—and thereby experience and cognition—depend upon valuing, and the earliest forms of attention depend upon *unconscious* valuing.[4]

Though unconscious, these tendencies involve *agency*. In a genuinely engaged child, one can see, in ways that "psychologists" and their "tests" often miss (17:49), natural urges of children toward "hard work," even if only "work" of observing and distinguishing features of the environment (17:49). Precisely because of her resistance to "blank slate" models of children's development (e.g., 15:230), Montessori is particularly attuned to the unconscious horme in infants that helps them *actively attend* to selected features of their environments. Children are responsible for their own development, so they must have a self that directs itself; they have interests and something much like volitions. As countless recent studies in developmental psychology emphasize, children—even infants—preferentially attend to certain features of their environment (e.g., Lewkowicz and Hansen-Tift 2012; Stevens and Bavelier 2011; Plude et al. 1994). These forms of preferential attention are essentially *active* expressions of unconscious interests. Children's perception is not merely a matter of being acted-*on*, but of "pay[ing] attention … to what corresponds to his nature … in relation to his activities" (15:230). As contemporary philosopher of agency Agnieszka Jaworska explained in another context, one can have "carings" not grounded in reflection that are "inherently internal" and "cannot be legitimately construed as an alien force, or as a mere occurrence within the agent's psychological makeup that does not belong to him" (Jaworska 2007:532, 531; cf. Frankfurt 1988:58–68; 2004; 2006). Such processes are distinct from merely passive susceptibilities with which we do not identify, they are fundamental to adult agency, and they are present in young children.

The need for unconscious agency follows from Montessori's interested empiricism, and in particular, that "everyone sees only a part [of the world], determined by his feelings and interests" (22:48). Coming to conscious understanding of an action within one's world involves classifying and sorting what one takes in from one's environment. Thus, "the question arises, what are the interests of the small baby that will lead it to make a choice from among the infinite medley of images in its environment" (22:49). Given that interests are prerequisites for experience, "it is self-evident that the baby will not be affected [initially] by interests of an external [empirical] origin" (22:49). Before any externally derived—and, we might add, conscious—interests, one must experience an external world. To do this, there must be antecedent interests that direct one's attention. As Sosa explains,

"Reflective assessment cannot regress infinitely, nor can it circle endlessly. Nor can it rely ultimately on some arbitrary stance" (Sosa 2015:195). Given Montessori's epistemology, experience occurs in the light of interests, and we form interests in the context of our experience. This cannot regress infinitely, or circle endlessly, or end arbitrarily. Instead, it ends in unconscious interests present but indeterminate both at birth and at various developmental stages in which they emerge. These interests constitute "the irresistible force, the primordial energy" of unconscious horme (22:49). Infants direct attention toward particular features of their environment in keeping with developmental needs. When an infant shifts visual attention from others' eyes to their mouths, they are not *consciously* forming strategies for acquiring the requisite experience to cultivate their verbal and social skills. But they have *unconscious* interests that drive their attention toward developmentally salient features of their environments.

Horme is not merely a matter of following laws of nature. It involves self-*governance*, activity in accordance with *norms* one gives oneself. Montessori shares with some contemporary theorists the recognition that there are "non-deliberative processes that are … not self-aware or reflective yet … are intelligent and responsive to reasons *qua* reasons" (Railton 2009:103). In explaining that even very young children "like hard work," Montessori gives the example of

> a nine-month-old child that wished to see a piece of brown marble each day … [that] was set in a brown wall. There was very little difference between the marble and the wall, but the child was very interested in it. There was nothing attractive about it. It was just a stone … Yet the child delighted in it. Even before he reached ten months of age, he liked the work of distinguishing between two shades of the same color that were so nearly alike. (17:40)

This infantile activity of simple observation is continuous with the more advanced work that two- to four-year-old children do in Montessori classrooms when they distinguish and name different shades of particular colors. In each case, the child is attracted by a kind of intellectual *agency* with internal norms, values, and standards of success. The child must properly distinguish the boundary of the marble and correctly note the difference in shade. More generally, intellectual agents, even children, order and classify the features of their environment seeking to consistently identify like with like and to see relations among the features of the world in which they are interested. Alva Noë argues regarding many sensorimotor skills, "their subpersonal character notwithstanding, the attribution of these skills is governed by the kinds of considerations of holism and normativity that characterize the domain of the conceptual" (Noë 2004:201). So too, one's horme sets *standards, goals, and ideals* that are subpersonal (i.e., unconscious) but function normatively just as conscious standards and goals function. The infant attending to different shades of brown in a wall, the toddler seeking to fit the geometric puzzle pieces in their proper places, and the three-year-old arranging blocks in order by size all engage in activities that can be done well or poorly. They pre-reflectively govern themselves by norms implicit in the practices they choose for themselves (cf. MacIntyre 1981:187).

The role of unconscious, norm-governed agency is not limited to children. Tennis players, concert violinists, and conversationalists, as well as scientists, artists, and philosophers, govern themselves in accordance with norms of which they are not wholly conscious. Even when engaging in philosophical argument or mathematical proof, epistemic agents use norms of good reasoning of which they are unaware. Among the most pointed examples of the concurrence between strong normative constraints and unconscious motivation are "flow experiences," wherein, as Mihaly Csikszentmihalyi has put it, we "feel in control of our actions, masters of our own fate, … *in control of [our] lives*" while one's "body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile" (Csikszentmihalyi 1990:3). In such experiences, "action and awareness are merged" and "self-consciousness disappears" (Csikszentmihalyi 1996:111–112).[5] In cases of flow, one fully identifies with impulses directing one's activity and governs oneself toward doing an activity *well*, in accordance with determinate even if inarticulable standards. Intense self-control and "a very active role for self" join with "no room for self-scrutiny" and "loss of consciousness *of* the self" (Csikszentmihalyi 1990: 63–4). Flow highlights that unconscious norms are important parts of human life, beginning but not ending in infancy. And the presence of these norms justifies calling certain unconscious instincts in young children forms of something like "will," something Montessori calls *horme*.

Mere (unconscious) hormic self-regulation and self-conscious "willing" differ in that where horme selectively attends to particular features of one's environment and acts in norm-governed ways, the "will" *self-consciously* directs actions and attention to the world in the light of goals *of which one is aware*. Often this difference is described as a difference in *kind*, as in Searle (1992) or Nagel (2012). In the context of virtue epistemology, Sosa distinguishes prereflective animal epistemic "functionings" (Sosa 2015:205) from reflective epistemic agency. But Montessori argues that the boundary between conscious and unconscious engagement with the world is fluid, and the transition from unconsciousness to consciousness is *gradual*:

> The child goes through successive stages, from the unconscious to the subconscious, and so arrives at clear consciousness. This consciousness is shown by an attraction to certain objects, to choose these objects from amongst others, and to prefer one thing rather than another. When a child does this, we are sure that this stems from genuine consciousness … But before this, the child was able to distinguish many things … He did not become conscious suddenly, from one day to another, but through gradual development. From an unconscious being, intelligence emerges slowly, like the gradual rising of the sun whose light increases until midday. So the light of consciousness comes little by little over a short period of time. Before consciousness is mastered, there must be some internal work. (17:38)

As Robert Arp puts it, "consciousness … seems to come in degrees when we consider the developing mind of a human being" (Arp 2007:102; see also Morin 2005:359).[6] Observing the infant, say, we see that he attends more to the lips and faces of those in his environment than to other images, more to human language than to ambient

and come to be able to distinguish them. Even when the final step in this process involves conscious appreciation of relevant distinctions, intermediate stages require increasingly capable sortings of hues or shapes. Unconscious experience precedes conscious awareness: "You cannot transfer information directly to the conscious [mind]. You must first transfer information to the subconscious. Once the subconscious has acquired experience, the [conscious] intelligence will accept it" (17:78).

Second and equally importantly, mnemic changes that constitute cognitions are modifications *of volition*, ways that the world itself structures our agency. With Mneme, "the vital element, part of life itself … has the power of retaining part of all experiences that the individual has undergone" (6:10) such that the child "incarnates in himself all the works about him that his eyes see and his ears hear" (1:54). At the unconscious level, to "remember" or "cognize" something is essentially to change one's way of acting and choosing in a way determined by experiences of that thing. For example, the established inner order discussed in Chapter 2 is both a product of the order one experiences and a framework in terms of which one selectively attends to features in one's ongoing experience. Philosopher Adrian Cussins distinguishes "objectual" and "experiential" knowledge, where the former is the familiar propositional knowledge on which epistemologists often focus and the latter is "a skilled interaction with the world, … a sense of how the immediate environment would *afford* certain motions and *resist* others" (Cussins 2003:150; cf. Gibson 1979). Montessori's point is that at its base *all* knowledge is experiential. The unconscious categories through which we cognize the world are essentially modifications of horme, changed agential orientations. Even as we develop more abstract and self-conscious processes of thinking, knowledge remains essentially a matter of directing activity.

This process of mnemic transformation of horme generates a cycle of cognitive development. Interests give rise to experiences that consist in adaptation to our environment through cultivation of our interests and sensitivities. Experiences cultivate new interests and sensitivities, which structure future experiences. Over time, we come to what we might think of as "properly" epistemic interests: "the pursuit of truth, after all, [is] also [an] *activity*" (Noë 2004:204). Still, pursuits of particular sorts of truths, even at quite abstract levels, are efforts to recalibrate our interests and sensitivities into new patterns of attention. As Thompson and Stapleton explain, "What makes living organisms cognitive beings is that they embody or realize a certain kind of autonomy—they are internally self-constructive in such a way as to regulate actively their interactions with their environments" (Thompson and Stapleton 2009:24). When we try to discern, say, the nature of knowledge as such, this might *seem* to be what Cussins calls "objectual knowledge" (Cussins 2003:150). But from the standpoint of horme and Mneme, it is essentially a modification of interests toward attending to new features of the world in new ways, an adaptation to the cultural environment in which we find ourselves (cf. Noë 2004:203–205).

As in the case of horme, Mneme is active "in animals and men alike" (6:17) but exists in human beings in a special way, as conscious memory and higher cognitions. At the most basic level, as Lakoff and Johnson suggest:

> Every living being categorizes. Even the amoeba categorizes the things it encounters into food or nonfood … How animals categorize depends upon their sensing apparatus and their ability to move themselves and to manipulate objects. (Lakoff and Johnson 1999:17; cf. von Uexküll 1934)

This basic structure of categorization is shared between the advanced cognitions of human beings doing advanced mathematics and amoeba moving through a sucrose solution.[8] In both cases, categorizations shape future movements and thus successive experiences: "Adaptation to the environment is necessary for all living creatures" (17:79). Still, Montessori rightly notes, "There is a great difference between men and animals, because animals are born with a certain power of adaptation already prepared by nature … [But] man is not determined by heredity … He must construct his own adaptation" (17:79, 82). Even in animals, the ability to adapt through learned behaviors plays an important role in survival, reproduction, and the perfection of life, but animals' primary form of adaptation is biologically hereditary. Only with human beings does *psychological* adaptation—learning—dominate over hereditary adaptation. Mneme refers to the general capacity of living systems for the alteration of basic drives in the light of environment, a tendency that reaches a radically higher level in human beings.

The shift from hereditary–biological to mnemic adaptation marks an important similarity between *Montessori*'s concept of "Mneme" and the increasingly discussed concept of "memes" within contemporary neoDarwinian philosophy. As in Montessori's view, "memes" are seen as present in other living things, but their importance within human life marks a biological "revolution" that radically changes the structure of evolution (Dennett 2003:179). Daniel Dennett, one of the most prominent neoDarwinian advocates of the concept of memes, describes a meme as a "cultural replicator parallel to [a] gene," or, put another way, a "parasite … [that] use[s] human brains … as [its] temporary homes and jump[s] from brain to brain to reproduce" (Dennett 2003:175, cf. Dennett 1995; Dawkins 1976). As with Montessori's Mneme, the emergence of this new kind replicator makes possible forms of (cultural) evolution that can proceed at a faster pace and in a different way that standard hereditary (genetic) evolution. As Montessori puts it, "The baby has … no heredity. [A]daptation is made unconsciously by the absorbent mind of the child" (17:85).

The "absorbent mind" plays fundamental roles in Montessori's pedagogy and account of human intelligence. As she explains *The Absorbent Mind*, the child from birth to approximately age six is akin to a "spiritual embryo" still forming its basic character and attributes from its environment (1:53). Young children do not "learn" in the way adults do; instead, they "absorb" their surroundings (1:54). Language is paradigmatic: "he speaks his language according to its complex rules … not because he has studied it … [but because] this language comes to form part of his psychic life" (1:55). There is an "unconscious power" in early childhood, a "special sensitivity that leads him to absorb everything about him, and it is this work of observing and absorbing that alone enables him to adapt himself to life" (1:55). The absorbent mind in children is comparable to "heredity" (17:100)[9] but, unlike hereditary adaptation, is a fundamentally psychological—albeit unconscious—adaptation of basic hormic tendencies in the light of environmental conditions. The observation and absorption

of the environment is *both* an adaptation *and* an expression of unconscious hormic impulses (nebulae). In a much more profound way than for any *merely* biological system, children practice "adaptive autonomy" (Thompson and Stapleton 2014:25).

Mneme thus links life and mind at the level of *cognition* in ways akin to what horme does for volition. The child moves through the world with, at first, almost nothing that could be called "cognition," but children's experiences involve hormically driven attention to specific features of the world, such as human faces and speech or sharply delineated shapes. As children mature, their experiences shape their personalities, in the broad sense, such that they interpret their worlds in terms of repeated and now familiar structures with which they have actively engaged. For instance, children learn their mother tongues through attention to voices and faces of those around them. As they cultivate these sensitivities, they come to order other sounds in terms of the basic structures of their language. What began as the challenging and active *work* of selection in perception (see 22:31) is internalized in structures of expectation that make the perception of what is familiar seem automatic (17:78). As we saw in Chapter 2, the ordered structure of our cognition provides the basis for cognition. Unconscious modifications of horme absorbed from the environment shape cognitive structures; we then consciously attend to features of the world that fit the unconscious order we have developed. Finally, we come to have conscious knowledge of those features.

As we will see in Chapter 7, Montessori's developed "education of the senses" emphasizes how children's impulses toward activity can be shaped to give them ordered and refined sensory experiences and thereby coherent categories for making sense of that world. To a much greater degree than other animals, humans possess a biological tendency whereby our primitive sensitivity develops in the context of environmental conditions into a more focused, refined sensitivity. In the case of children and some animals, mnemic retention of impressions is partly conscious, but even in adults, *most* memories remain *un*conscious. We do not remember learning to speak, and we do not even consciously remember the difference between colors of red and blue. Rather, we *apply* an immediate awareness of that difference in our engagement with the world. As children age, mechanisms of imagination and abstraction take up mnemic adaptations to environment, as they become capable of formulating abstract cognitions of their world. These higher processes remain shaped by basic mnemic structures adapted to one's environment, and they remain *mostly* unconscious. We usually formulate general principles and concepts without clear awareness of how or why we group objects as we do. As we come to more reflectively and deliberately apply general concepts to our conceptualization, however, what were once cultivated and unconscious structures of sensitivity to the world take the form of propositional claims *about* that world. Mneme in its unconscious form remains fundamental to all engagement with the world, but through abstraction and deliberate, conscious application, Mneme takes shape as conscious *cognition*.

1.3 Unconscious intelligence: Engrams and association

Just as Montessori ascribes various "nebulae" to humans' horme, corresponding to the individual interests of a human will, so too she uses Richard Semon's concept of an

"engram" to refer to particular mnemic structures, akin to what we might call ideas, but not necessarily conscious (6:11–13; cf. Nunn 1930:40–41).[10] While the concept of "Mneme" refers to the faculty of (unconscious) memory, engrams are the particular "traces of [experiences] left behind in the Mneme." And just as particular nebulae guide intellectual development in specific ways, particular engrams "make a mind powerful" (6:11). As we saw in Chapter 2, Montessori follows Hume in emphasizing the role of the imagination in cognition, going so far as to ascribe all development of knowledge beyond perceptual experience—the whole "content of our mind"—to "what used to be called the Association of Ideas" (18:193; 6:12; cf. 9:157; 17:177f., 191). But she emphasizes, far beyond anything in Locke or Hume, that one need not be conscious of these associations. Human processes of reasoning involve conscious elements, as one deliberately hunts for connections between ideas or tries to follow out a coherent argument. But there are also "sub-conscious … association[s] of engrams [that are] spontaneous … [and t]hese … organize themselves to carry out work which we are unable to do consciously" (6:12–3). In an example she returns to in various guises, "a mathematical student may ponder for hours over some problem without success, till he decides to 'sleep on it' and on waking finds the solution easy" (6:13). Not only can perception and memory have unconscious components; mental processing, and even what we might call "reasoning," can be unconscious.

For understanding intellectual virtues, unconscious association of engrams is important. When someone seeks logical connections between propositions or looks for common traits among apparently diverse phenomena, we straightforwardly regard these tasks as intellectual acts. We epistemically criticize those who cultivate habits of sloppy connections or who ignore salient counter-examples, while we praise particularly careful and astute reasoners. Thinkers can exert themselves more or less diligently in connecting ideas and can cultivate various epistemic virtues in managing their intellectual lives. Montessori's point is that all of these things—the praiseworthy virtues and blamable faults, the cultivation and expressions of agency, the variations in diligence and attention—can be present in processing of engrams unconsciously just as much as in highly self-conscious reasoning. Moreover, in *any* epistemic activity, from "inspired" creativity to ordinary competent sorting and reasoning, most of our cognitive processes will be unconscious. We notice and make connections based on an implicit and internalized order consisting of "psychic complexes [that] are the construction of engrams" (6:13). Engram-complexes unconsciously facilitate intellectual activity "which we are unable to do consciously" (6:13); "an unconscious mind can be most intelligent" (1:20; cf. Wilson 2002). Just as the "marvelous mobility" of the "sub-conscious memory" supplements "the short-comings of conscious memory" (6:11), so too unconscious processes whereby we sort ideas and come to new insights often supplement shortcomings of conscious reasoning (as in the example of the mathematician).

Even granting unconscious trains of associations among engrams, one might wonder whether *legitimate knowledge* could emerge from mostly unconscious processes and whether one should get *credit* for such processes. Montessori's positive appraisal of unconscious cognition is plausible given four further features of her view. First, as the case of the mathematician illustrates, what emerges from unconscious mental activity

is often *conscious* awareness of a chain of reasoning establishing connections among various ideas. The mathematician who cannot figure out a proof awakes with insight that leads to discovery of the *proof*, not just a strong conviction of the conclusion. Unconscious intelligence eventually makes it possible to *consciously* "connect the things perceived logically" (9:167). Just as *all* conscious cognition ultimately rests upon prior unconscious assimilation—"you cannot transfer information directly to the conscious" mind (17:78)—so too the gradual acquaintance that prepares a mind for new knowledge is largely unconscious, but the *outcome* of that process is often conscious understanding.

Secondly, Montessori's broadly empiricist emphasis on the imagination defines a strong connection between "reasoning" and processes of association. Reason itself fundamentally consists of abstraction, analogy, and relation among ideas, all of which processes can happen unconsciously. One might even have rationally *justified* beliefs, even if one is not *consciously* aware of their justification. Here one is not merely accepting some *conclusion*. Rather, one is actually reasoning toward acceptance of that conclusion on the basis of justifications. But the reasoning, and many of the justifications, are unconscious. The situation here is more like that of proving something and then forgetting the proof than of simply accepting a conclusion without sufficient evidence.

Third, Montessori's emphasis on unconscious "intelligence" is not narrowly about demonstrative justifications for propositional claims. Her ideals of human intelligence include mathematical proofs but also scientific discoveries—which are as much about seeing things in a new way as about "proof"—and creative breakthroughs in art, poetry, or music. In these contexts, unconscious origins of insight are even less problematic than in cases of traditional "knowledge."

A fourth point addresses the issue of credit; unconscious cognition is ascribable to our agency and largely to cognitive dispositions acquired through past hard work of intellectual self-cultivation. The engram-complexes and principles of association by which we manipulate them are neither "innate" nor merely accidental; they arise through the work of selective attention and action within our environments, which work is provoked by unconscious agency (horme) but must actually be carried out diligently in order to form excellent processes of (unconscious) reasoning. Montessori warns of the danger when "a child has not been able to act according to the directives of his sensitive period" and suffers consequent intellectual weakness caused by "an obstacle to his [intellectual] toil," a "warping of his being … whose scars are borne unconsciously by most adults" (Secret 1966:39, 40). Hard work under the guidance of unconscious horme gives rise to intellectual virtues that promote unconscious intelligence.[11]

Cognition, intelligence, and even knowledge are forms of psychological adaptation to the world. Horme provides the general category for the world-to-mind fittedness that we associate with volition, wherein mental states seek to bring the world into conformity with themselves. But it also describes the sets of interests by means of which we attend to specific features of the world and come to have experience. Mneme has a mind-to-world fit wherein individuals conform their mental states to the world in which they find themselves, and all knowledge or understanding involves mnemic

language, she highlights "the muscles which must be used in order to speak" (17:54) and notes that "this special sensitivity [for hearing human language] is almost part of the ear" (17:55). Particularly with reference to the hand, she emphasizes that because "the skill of man's hand is bound up with [*legato a*] the development of his mind … the study of the child's psychological development must be closely bound up with the study of his hand's activities" (1:134–5).[18]

Throughout her discussions of the embodied nature of cognition, Montessori focuses on the practical-pedagogical task of developing the embodied mind. Early education in math and science, for instance, begins with training small children's *hands* to be able to write numbers and pour liquids with precision. Children only learn abstract concepts once they prepare their bodies to engage actively with those concepts. When it comes to assessing the cognitive abilities needed in order to progress to elementary school, she includes not only children's "many cultural interests and … passion … for mathematics" but equally centrally the fact that "his hand is already controlled, possessed and directed … in minute movements" (6:6). She contrasts typical approaches to "physical education," which cultivate bodies in ways that do *not* express mentality, from her own "exercises of practical life," which

> are a kind of gymnastic training for the harmonious development of the psychic and motor parts of the individual. The individual becomes a unity so that a movement is not just a movement of the hand, but a movement of the whole person. (17:162)

The *goal* of pedagogy should be an integrated education of neurons and muscles; any deficiency in the latter is a deficiency of intelligence, and any cultivation of the latter without the former is mere bulk and not really *human* muscular capacity. She sums up her view in a "helpful … analogy":

> We know that for the enjoyment of good health, heart, lungs, and stomach must all work together. Why not apply the same rule to the … central nervous system. If we have a brain, sense organs, and muscles, all these must co-operate. The system must exert itself in all its parts, none of them being neglected. We want, let us say, to excel in brain-power, but to succeed in this we must include the other sides also … The system of relations [to the world] is a single whole, even though it has three parts. Being a unit, it can only become perfect when set to work as a unit. (1:125)

There are such close causal connections between heart, lungs, and stomach that the defective operation of any one element inhibits all the others.[19] One *might* define health merely in terms of one organ—likely the heart—but it is better understood in terms of the unified operation of them all. Similarly, one *might* define the mind, or "higher spirituality," in terms of the central nervous system alone, but in fact, the interdependence of this system with the muscular is so complete that mind is best understood in terms of the unified operation of the whole. And crucially, when one wants to *cultivate* any element of this system—and in particular, when one wants to cultivate cognition—one must do so by developing the whole mind-body system.

in perceptually guided action and (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided" (Varela et al. 1991:173). As organisms perceptually *interact* with their environments, "cognition itself arises out of this same mode of adaptive interaction" (Ward & Stapleton 2012:91). Shaun Gallagher nicely ties together the enactive and embodied perspectives, contrasting them with a more traditional philosophy of mind:

> In the enactive view, the brain is not composed of computational machinery locked away inside the head, representing the external world to provide knowledge upon which we can act. Rather, in action—whether reaching and grasping, pointing, or gesturing—the brain partners with the hand and forms a functional unit that properly engages with the agent's environment … [I]n action, the hand is treated not as a body part differentiated from the arm, but as continuous with the arm … [T]he body schema functions in a holistic way … In the same way, … the brain is part of this holistic functioning. It is not a top-down regulation of movement, brain to hand; nor is it a bottom-up emergence of rationality, hand to brain. Rather, neural processes coordinate with and can be entrained by hand movements, forming a single integrated cognitive system. (Gallagher 2013:212–13, see also Columbetti 2007; Iverson and Thelen 1999; Noë 2009)

Rather than seeing "mind" or "consciousness" or "knowledge" as a *thing* or *state*, enactive approaches to cognition see the "mental" or "epistemic" as a way in which *bodies* can be *active*.[21]

Montessori's epistemology fits solidly within this enactivist approach. In the previous chapter, I discussed how she sees cognition as an *activity* that expresses agency oriented by particular interests; her empiricist epistemology is an interested, *agential* epistemology. And in §1 of this chapter, we saw how much of this activity can be unconscious, both by having unconscious motivations (*horme*) and through consisting largely of unconscious cognitive manipulations of engrams. The enactivist program in philosophy of mind strongly supports agency in cognition and goes beyond "agency" in a vague sense to specifically focus on *sensorimotor* activity, that is, goal-directed *movement* (see Di Paolo and Iizuka 2008; Thompson 2007:43–60; Varela 1979; Varela et al. 1991:139–140). Montessori's conception of interest and horme does not conceptually *imply* sensorimotor activity—in principle, the relevant "interest" and "actions" could be purely "in the head." However, along with commitment to embodied cognition, she equally strongly endorses sensorimotor-enactive cognition. In the previous section, we saw Montessori emphasize that to have cognition, "brain, sense organs, and muscles, all … must co-operate," but there I skipped over a crucial element of her discussion. After expressing her embodiment claim—"We want, let us say, to excel in brain-power, but to succeed in this we must include the other sides also"—she adds:

> To perfect any given activity *movement* will be needed as the last stage of the cycle. In other words, a higher spirituality can only be reached through *action*. This is the point of view from which *movement* has to be judged. It *belongs to the total activity*

> *of the central nervous system*, and as such it cannot be ignored … The development of mind comes about through movements. (1:125–6, emphasis added)

Cognition is not merely *activity*; as *embodied* activity, it requires movement. Montessori makes enactive mind fundamental to her account, which takes its "scientific departure … from the conception of an *active* personality … developing itself by a series of reactions induced by systematic stimuli" (9:56). Intelligence itself is a matter of movement:

> The being who can take the most from the environment, for instance by means of the senses, is intelligent and indeed a great part of the brain contains the sensory centers … But intelligence does not consist only of taking in, that is to say, it is not only the senses that are the foundation of the construction of the intellect but also the movements the intellect produces. (18:165; cf. 22:81–2)

Thus Renato Foschi rightly calls Montessori's claim that "movement and cognition [are] deeply intertwined" "the first true Montessori revolution" (Foschi 2012:132), and Angeline Lillard details how "movement and learning are perpetually entwined in Montessori education" (Lillard 2007:38).[22]

Sometimes, Montessori connects movement and cognition causally or developmentally:

> [When forced to sit still,] children do not concentrate … But if the children can move objects with their hands, their movements become correlated with their senses and their intellect develops accordingly … [I]t is necessary that the movement of the hands and the exercise of the senses work together. It is not that activity with the material stimulates the child to see something different, but that the movements of the hands together with the inner power of the intellect fixes something which is useful for … development. (17:168)
>
> The child's mind can acquire culture at a much earlier age than is generally supposed, but his way of taking in knowledge is by certain kinds of activity which involve movement. Only by action can the child learn at this age. (1:154)

Here she anticipates recent articulations of enactive cognition as involving the claim that "only through *self*-movement can one *test* and so *learn* the relevant patterns of sensorimotor dependence" that constitute normal cognition (or perception) (Noë 2005:13). Children are fundamentally active, and cultivation of hands, senses, and intellect best happens together. For Montessori, "Movement precedes cognition and is closely correlated with it" (Foschi 2012:132–3).

Montessori's point, however, is more fundamental. Moving hands together with intellect is "useful" because knowledge actually *is* a way of acting in the world. Montessori takes literally what might otherwise seem mere euphemism: "Many little children have actually said 'I see with my hands.' They have this sense of seeing with their hands" (17:168). She sees "thought and action" as "two parts of the same occurrence" (1:126) and *defines* "intelligence" as "the sum of those reflex and associative or reproductive

and Johnson 1999:17; see also Thompson 2009). In some cases, sensorimotor activities have a distinctive character that we call "conscious" (see 17:169). In other cases, we carry out these activities "unconsciously." Children know where the cylinder blocks fit because they put them there, a matter of muscle memory, hand–eye coordination, and so on. This knowledge is continuous both with unconscious forms of habituation in other living things and with more obviously self-conscious processes of reasoning and deliberation. The continuity between conscious and unconscious mentality follows naturally from the recognition that mind is embodied and enactive, and embodied cognition thereby provides a non-spooky form of unconscious cognition.

This recognition of epistemology as a subset of humans' active lives brings us back again in a profound way to the central theme of this book, the nature of intellectual agency. Our agency is dependent on the way our bodies are configured, and it is expressed in how we move those bodies. We orient our activities by unconscious tendencies that change and develop in response to the world we encounter in the course of those very activities. Cognition in general, and "knowledge" and "understanding" in particular, are ways that our active impulses change through actions within our environment. Virtues, in general, are excellences of active engagement with the world. "Epistemic" virtues will be those excellences that particularly relate to the ways that we respond to and partly incorporate the order and details of the world into our engagement with it.

This overall framework of Montessori's epistemology sets the stage for the major project of the rest of this book, a survey of several particular intellectual virtues and an account of their role in our epistemic lives. Before turning to that task, however, the next chapter directly takes on the question of what precisely epistemic virtues *are*. In this context, I shift from an engagement that has focused on Montessori, her contemporaries, and recent philosophers of mind. I turn now to specifically address the emergent virtue epistemological research program in contemporary analytic epistemology.

4

Intellectual Virtues

This chapter lays out a Montessorian concept of intellectual virtue. Montessori explicitly discusses "virtues [that] are the *necessary means*, the *methods of existence* by which we attain to truth" (9:103), and she describes specific virtues such as "humility" (9:103), "patience" (SA:103, 181; 18:231; 1:202), sensory acuity (15:356; Montessori 1913:167ff.), and "creative imagination" (9:179). However, this chapter is not an exegetical investigation of her uses of these terms; rather, I focus on developing a Montessori-informed account of the things that we (or, at least, I) typically call intellectual virtues. While rejecting standard distinctions between reliable faculties and traits for which one can be held responsible, my Montessorian account defines intellectual virtues as (innately) developmentally possible capacities developed, honed, and expressed through interested intellectual activity, whereby a person comes or tends to come to intellectually engage with (e.g., to know) reality excellently.[1]

Before laying out my Montessorian account, two methodological points are worth noting. First, Montessori's primary interest is the cultivation of excellent human beings, so "intellectual virtues" worth analyzing are those worth cultivating. Her analysis is essentially *normative* or what Jonathan Kvanvig calls "axiological," that is, one that "focuses from the outset on … what is worth theorizing about" (Kvanvig 2018:4). It is more like analyzing the nature of the Good (if there is such a thing) than like analyzing the nature of "the cat is on the mat" (Sosa 2015:7–10), "water" (e.g., Kripke 1980:128, 148), or even "knowledge" (Gettier 1963). To some extent, this approach presupposes what Jason Baehr calls a "personal worth conception of intellectual virtue" (Baehr 2011:88).[2] The most relevant intuitions for philosophical inquiry are not about whether this or that seems to be "knowledge" or "virtue" or "intellectual" but about whether this or that is something worth cultivating in human beings.[3]

Second, analysis of a thing can refer to necessary and sufficient conditions for that thing in any metaphysically possible world, even worlds quite different from our own. This conception invites fictional and often unrealistic hypothetical cases as means of clarifying the nature of a thing. The possible worlds that interest Montessori, however, are ones that can and should be brought about. Her account of intellectual virtues describes the nature of those virtues in the world as it exists, or as it could exist through human effort. This shifts her methodology of analysis from intuitions about far-fetched hypotheticals to normatively loaded investigation—including empirical investigation—of real circumstances of human intellectual activity. In both of these

respects, her (and my) philosophical methodology differs from common practice in some spheres of contemporary epistemology.

This chapter proceeds in five sections. I start in Section 1 by defending the claim that intellectual virtues cover a broad range of cognitive excellences, situating this defense vis-à-vis Jason Baehr's attempt to distinguish "virtues" properly speaking from "faculties, talents, temperaments, and skills" (Baehr 2011:22). In Section 2, I offer and respond to two reasons that some theorists have been reluctant to include common human traits (basic perceptual abilities, memory, and so on) in the category of intellectual virtues. In Section 3, I show how Montessori's concept of intellectual virtue situates her vis-à-vis reliabilist and responsibilist approaches. In Section 4, I defend the value of intellectual virtues in Montessori's sense. This approach sets the stage for discussions of specific intellectual virtues in the rest of the book.

1. Virtues as cognitive excellences

In one of the most important recent books in virtue epistemology, Jason Baehr argues that virtues must be distinguished from other "related varieties of cognitive excellence" in order to "fix the referent" of his virtue epistemology (Baehr 2011:22, 32). His discussion of the unique place of virtues in *his* system can help clarify what *I* will mean by virtues throughout this book.[4] Consistent with Aristotle's own identification of "virtue" and "excellence," I reject the distinction between virtues and other cognitive excellences, but I do *not* reject Baehr's focus on virtues as "excellence[s] of intellectual *character*,"[5] and I do not even disagree with his claim that "intellectual virtues can be understood as 'personal intellectual excellences,' or as traits that contribute to their possessor's 'personal intellectual worth'" (Baehr 2011:8, 88–89).

My argument has two main parts. First, I address faculties, talents, and temperaments, the cognitive excellences that Baehr considers to be unlike virtues primarily because they are "innate" (Baehr 2011:22, 25, 27). I agree with Baehr that virtues "require an exercise of agency" (Baehr 2011:23), but argue that what we typically *call* faculties, talents, and temperaments in fact *do* require agency both for their exercise and in their origination.[6] Second, I turn to the case of skills, where Baehr's argument turns on the fact that "skills are not personal in the way that intellectual virtues are" in part because they are not "constituted by certain admirable … motives" (Baehr 2011:30). Here I argue that we can and should think of both virtues and skills as covering various possible domains, so that—with Aristotle—we can talk about a good knife or flute-player or epistemic agent or human being. In some cases—a much wider range than Baehr supposes—the relevant excellences require particular motivations, and in others they do not. Only those excellences that fall within the domain of being a good *person* will bear on *person*al worth.

1a. Virtues and faculties

Baehr gives three arguments for distinguishing virtues from "faculties, which include our sensory modalities (vision, hearing, etc.), as well as memory, introspection, and


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