Overcoming intellectualism about understanding and knowledge: a unified approach

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Abstract: In this paper I defend a unified approach to knowledge and understanding. Both are achievements due to cognitive abilities or skills. The difference between them is a difference of aspects. Knowledge emphasizes the successful aspect of an achievement and the exclusion of epistemic luck, whereas understanding emphasizes the agent's contribution in bringing about an achievement through the exercise of one's cognitive skills. Knowledge and understanding cannot be separated. I argue against the claim that understanding is distinct from knowledge because the former is compatible with environmental luck. Achievements rule out environmental luck because abilities can be exercised only in their proper environment. I also reject the intellectualist claim that understanding requires the ability to explain what one intends to understand. The understanding of an item is reflected in our ability to solve cognitive tasks using that item. The more tasks one can deal with by using an item, the deeper is one's understanding of that item. Being able to explain why a claim holds is not necessary for possessing understanding, even though it may be necessary for accomplishing some very specific tasks. Neither understanding nor knowledge require any kind of second-order cognition by default.

Keywords: Intellectualism, understanding, knowledge, skills, Linda Zagzebski, John McDowell

1. Introduction

Many contemporary accounts of knowledge and understanding flirt with intellectualism, the thesis, as I construe it, that epistemic standings must be guided by reflective second-order cognition. For instance, in John McDowell's view of perceptual knowledge[1], factive episodes of perception are in themselves insufficient for knowledge and the agent must potentially also have reflective access to these episodes. In the same vein, Ernest Sosa, despite distinguishing between animal knowledge and reflective knowledge and acknowledging that the former has some autonomy in relation to the latter, defends that reflective knowledge is epistemically superior to animal knowledge in that "any performance suffers if it is not fully apt."[2] That is, even a reliable or safe belief suffers if it is not guided by second-order knowledge that believing in the current situation would be safe. The scenario is even worse regarding understanding, where it is widely accepted that understanding requires the ability to explain what one intends to understand. Linda Zagzebski[3] and Duncan Pritchard[4], by accepting such an explainability requirement, set the bar high for the achievement of understanding.

In this paper I will argue against such intellectualism while simultaneously defending a unified approach to knowledge and understanding. Both are achievements due to cognitive abilities or skills. The difference between them is a difference of aspects. Knowledge emphasizes the successful aspect of an achievement and the exclusion of epistemic luck, whereas understanding emphasizes the agent's contribution in bringing about an achievement through the exercise of one's cognitive skills. Knowledge and understanding cannot be separated. I argue against the claim that understanding is distinct from knowledge because the former is compatible with environmental luck. Achievements rule out environmental luck because abilities can be exercised only in their proper environment. I also reject the intellectualist claim that understanding requires the ability to

1 John McDowell, *Perception as a Capacity for Knowledge* (Milwaukee: Marquette University Press, 2011).

2 Ernest Sosa, *Judgment and Agency* (Oxford/New York: Oxford University Press, 2015), 87.

3 Linda Zagzebski, "Recovering Understanding," in *Knowledge, Truth and Duty,* eds. Matthias Steup and Netthias Steup (New York: Oxford University Press, 2001), 235-252.

4 Duncan Pritchard, "Knowledge and Understanding," in *Virtue Epistemology Naturalized: Bridges Between Virtue Epistemology and Philosophy of Science,* ed. Abrol Fairweather (New York: Springer, 2014), 315–327.

explain what one intends to understand. The understanding of an item is reflected in our ability to solve cognitive tasks using that item. The more tasks one can deal with by using an item, the deeper is one's understanding of that item. Being able to explain why a claim holds is not necessary for possessing understanding, even though it may be necessary for accomplishing some very specific tasks. Neither understanding nor knowledge require any kind of second-order cognition by default.

I start Sections two and three by putting forward McDowell's intellectualist account of perceptual knowledge and Zagzebski's intellectualist account of understanding. The aim of these two sections is to explicitly identify first the intellectualist requirements these accounts lay on knowledge and understanding, and second to identify the difference that is commonly held between knowledge and understanding. In Section four I argue against the main reasons for such a difference. Knowledge and understanding can both be achievements. Finally, in Section five, I submit a unified approach to knowledge and understanding without intellectualist requirements. This approach is based on the notion of cognitive skills in a Rylean spirit. I then turn to cases of perceptual knowledge and scientific understanding to show how the approach deals with them.

2. McDowell and Reflective Perceptual Knowledge

Disjunctivist views of perception are used to explain how one can be entitled to make a perceptual knowledge claim. John McDowell[5] and Duncan Pritchard[6] have offered explanations of this kind. The general idea is very simple. As exercises of our perceptual capacity[7] in good conditions of observation yield non-defective episodes of perception, if one recognizes them as such, one can base a belief upon that kind of episode. A belief thus justified is perceptual knowledge and it is legitimate to claim it as such. Therefore, if something green is visually present to me and I

5 See McDowell, *Perception as a Capacity for Knowledge*, especially §3.

6 Duncan Pritchard, *Epistemological Disjunctivism* (Oxford: Oxford University Press, 2012), see especially 13-17.

7 In this paper I take terms such as *skill*, *ability*, *capacity* and *techne*, at least as *techne* is construed by Zagzebski, as interchangeable, and I will change from one term to another depending on the author discussed.

recognize that I see something green, then I have a conclusive warrant for the belief that this thing is green. Two features here are very important: first, a non-defective episode of perception is a factive reason. As McDowell says,

> "when all goes well in the operations of a perceptual capacity of a sort that belongs to is possessor's rationality, a perceiver enjoys a perceptual state in which some feature of her environment is *there* for her, perceptually *present* to her rationally self-conscious awareness."[8]

The warrant provided by this kind of perceptual state is indefeasible[9] and conclusive. According to McDowell, an inconclusive warrant is not sufficient to explain how we can have perceptual knowledge, since recognizing the warrant as inconclusive seems to acknowledge that for all the subject knows her perceptual belief may be false.[10] Another motivation for requiring this kind of warrant is that it is sufficient to avoid Gettier-style cases. Borrowing an example from Chisholm[11], suppose a person is looking into a field and forms the belief that there is a sheep in the field. Suppose further that this belief is true. However, unbeknownst to this person, the animal she is looking at is in fact a dog that is occluding a sheep just behind it. The belief of this person is true and based on perceptual evidence, but it is not a case of knowledge because it is just a matter of luck that her belief is true. Luck, in this case, got in the way of knowledge. To deal with such Gettier-style cases, epistemologists have proposed an anti-luck condition for knowledge that guarantees that the target belief could not easily be false. Indefeasible warrants, as proposed by

8 McDowell, *Perception as a Capacity for Knowledge*, 30-31.

9 McDowell, *Perception as a Capacity for Knowledge*, 31.

10 It is usually acknowledged that ascribing knowledge to someone excludes the possibility of this agent being in error, as Austin points out, "'when you know you can't be wrong' is perfectly good sense. You are prohibited from saying 'I know it is so, but I may be wrong.'", see John Austin, "Other Minds," in *Philosophical Papers*, eds. James Opie Urmson, and Geoffrey James Warnock (London: Oxford University Press, 1979), 76-116, and especially 98. It is of course a matter of debate whether infallibility is required for ruling out a possibility of error that prevents one from knowing.

11 Roderick Chisholm, *Theory of Knowledge* (New Jersey: Prentice-Hall, 1977), 105.

McDowell, may be stronger than necessary, but certainly does the job.[12] In the present case, the subject's perceptual capacity at best provides her with an indefeasible warrant that she is seeing an animal but not any specific kind of animal. Thus, her belief that there is a sheep in the field is unwarranted and thereby it is not in the market for knowledge.

The second important feature in McDowell's view of perceptual knowledge is that the subject must have reflective access to the factive reason, e.g., that one sees something green, in order to be able to use it as a reason for a belief. Otherwise one's belief would not be warranted and one would not be entitled to make the corresponding knowledge claim. Again, in McDowell's own words,

> "a rational subject who has a bit of perceptual knowledge is self-consciously aware of the warrant provided for her knowledge by a perceptual state she is in. She can invoke her perceptual state in order to say how she is warranted in a belief that counts as knowledgeable by virtue of being warranted in that way."[13]

This feature is an internalist ingredient of knowledge and it is necessary to satisfy the conception of knowledge that Sellars advocates. According to Sellars, an episode can be characterized as knowledge only if the subject is able to place this episode in the logical space of reasons. McDowell completely agrees with this constraint to knowledge, as he points out, "the warrant by virtue of which a belief counts as knowledgeable is accessible to the knower [...] As Sellars put it, she occupies a position in the space of being able to justify what one says."[14] Perceptual knowledge, such as McDowell construes it, intrinsically involves rationality; it is an act of reason and therefore

12 For instance, some authors defend that the safety principle is sufficient to exclude epistemic luck. A belief is safe if it could not have easily been false. That is, one's belief that p is safe if and only if in the close possible worlds in which one continues to believe that p on the same basis as in the actual world one's belief continues to be true. An infallible belief is safe, but a safe belief is not necessarily infallible. In any case, infallibility excludes the type of luck present in the Gettier-style cases. For a detailed discussion about the safety principle, see Duncan Pritchard, "Knowledge Cannot Be Lucky," in *Contemporary Debates in Epistemology*, eds. Matthias Setup, John Turri, and Ernest Sosa (Oxford: Wiley Blackwell, 2013), 152-163.

13 McDowell, *Perception as a Capacity for Knowledge*, 23.

14 McDowell, *Perception as a Capacity for Knowledge*, 17.

it is possessed only by rational creatures. For McDowell, the main reason for supporting this view of perceptual knowledge, according to which the subject must be able to place a perceptual episode in the logical space of reasons, is explicitly to avoid the myth of the given. As Sellars insisted repeatedly, no sensing is in itself an episode of knowledge.[15] Rationality must operate in perception from the beginning so that its deliverances may have a rational bearing on our beliefs.

A second motivation for requiring reflective access to factive reasons is to equip the view with resources to deal with what Pritchard called *environmental luck*[16]. For instance, this is the kind of luck a subject has for being in an environment favorable to the successful exercise of her perceptual capacity when she could very easily be in an unfavorable environment. To illustrate this idea, suppose a subject who is able to identify the colors of things by looking at them and is aware that she is reliable in doing so. Let us call her Mary. Thus, Mary is able not only to identify the color of a ball before her but also to claim that she knows the color of this ball because she is reliable in telling the color of things by looking at them. In normal conditions, Mary has reflective access to her episodes of perceptual color discrimination and is able to use them to justify knowledge claims about the color of objects in view. Now suppose that Mary is invited to participate in a psychological experiment. She is going to be asked to determine the color of objects she is presented with in a series of tests. In half of these situations, the light conditions will not be suitable for the exercise of her color discriminatory capacity and she is told that. In a particular test, however, Mary does not know whether the lights are suitable or not. The question then is whether she can identify in a particular test the color of the object presented to her. Of course she cannot know in those cases where the light conditions are unsuitable for the exercise of her color discriminatory capacity. A white wall can appear red under red lights. In this situation, Mary cannot

15 As Sellars points out, there can be no basing relation between sensations and empirical beliefs about the world because sensations do not have propositional content. Sensations do not have epistemic efficacy. For an elaboration of this point, see Wilfrid Sellars, *Science, Perception and Reality* (London: Routledge & Kegan Paul, 1963), especially 127–134.

16 Duncan Pritchard, "Knowledge, Understanding and the Epistemic Value," *Royal Institute of Philosophy Supplement* 64 (2009):19-43, and especially 27.

identify the color of the wall. However, what about a test where the light conditions, unbeknown to Mary, are suitable? This is a typical case of environmental luck. Although Mary is under suitable light conditions, during the experiment she could very easily find herself under light conditions unsuitable for the exercise of her color discriminatory capacity. Thus, if she takes the object presented to her now as having the color it appears to have, her belief could easily be false. She does not have knowledge. According to McDowell, even if we suppose that she is able to exercise her color discriminatory capacity, since the light conditions are good, and to see the color of the object, she does not have access to this episode of seeing[17]. Therefore, she cannot use it to sustain a knowledge claim about the color of this object. To prevent such environmental luck from getting in the way of her perceptual knowledge, Mary needs to have reflective access to the fact that she sees the object as having a determinate color. In the situation under consideration, in order to obtain such access, she needs to defeat the testimony that the chances of the light conditions being unsuitable are fifty percent. Thus, reflective access, which I will henceforth call the *reflective-requirement,* seems to be an interesting requirement for perceptual knowledge, as McDowell construes it.

3. Zagzebski and Reflective Understanding

In recent years there has been intense debate in epistemology as to whether understanding is distinct from knowledge. To illustrate the intuition behind the view that understanding is *sui generi*s and irreducible to propositional knowledge, we can imagine an individual who learns a theoretical claim by testimony. For example, suppose someone reads in an authoritative book that the Second Law of Newton is $f = m.a$. On the one hand, there is a clear sense in which that individual knows the Second Law of Newton. This person can state the law if asked. On the other hand, there seems to be a sense in which that person does not understand the Second Law if she or he is unable, for example, to apply the law to a variety of cases and, perhaps, to relate it to Newton's other two laws. Therefore, that person can apparently know the Second Law without understanding or grasping how

17 McDowell, *Perception as a Capacity for Knowledge*, 46.

the law works. In a second example, we can imagine an individual who knows by testimony each proposition in the proof of a theorem but does not yet understand the theorem. That person does not understand how these propositions are related to one another. In both cases, the subject, despite having knowledge, falls short of understanding those propositions whose truth is known by the subject. Thus, understanding seems to be something different from propositional knowledge and may not be reducible to it.

What is necessary for understanding that *p*? According to Zagzebski, a person who understands that *p* needs to grasp how that piece of knowledge fits into a body of knowledge; understanding, she points out, "involves the grasp of part/whole relations."[18] Turning to our example, a person who understands Newton's Second Law must be able to relate it to Newton's other two laws and explain these relations within the field of physics. Nevertheless, this will not do, at least not without a caveat. If this person were told again by an authoritative testimonial that Newton's Second Law relates to the other two in such and such ways, and that it can be explained within physics by such and such explanations, it would seem that what this person possesses falls short of understanding even though it cannot be denied that this person possesses knowledge of Newton's Second law and of its relations to Newton's other two laws. Again, if there is a genuine difference between knowledge and understanding, this difference cannot be cashed out in terms of the amount of knowledge. The difference must be of another kind. One suggestion, which finds an echo in Zagzebski's work, is to equate understanding with achievement resulting from the exercise of an ability or skill. As she points out,

> "Understanding is a state gained by learning an art or skill, a *techne*. One gains understanding by knowing how to do something well, and this makes one a reliable person

18 Zagzebski, "Recovering Understanding," 242.

> to consult in matters pertaining to the skill in question [...] The person who has mastered a *techne* understands the nature of the product of the *techne* and is able to explain it."[19]

The key notion here is that of *techne* or skill. Without learning a skill, without knowing how to do something well and become a reliable person in the subject matter pertaining to the skill in question, the person cannot have understanding. A skilled musician, for instance, can hear notes and tones in music and relate them in a way that I cannot. Similarly, someone who did not learn math well cannot understand a theorem, although they may know it by testimony. Following Zagzebski, it may be claimed that a person who understands a theorem must be able to produce a proof of this theorem and explain its stages. Similarly, a musician who understands a composition must be able to produce this composition and explain how its elements are related to each other. Thus, the special relation of understanding between a person and a product, which may be a theorem, a composition, or an empirical proposition, depends on two requirements: (i) this product must result from the exercise of a *techne* or skill possessed by the person in question, and (ii) its production can be explained by the person in question. The first requirement might be termed the *achievement-requirement* and the second the *explainability-requirement.* A person who learns an explanation for Newton's Second Law only by testimony does not meet the achievement-requirement. She or he may have knowledge but surely, on this account, does not have understanding of Newton's Second Law.

The testimony case shows how knowledge is possible without understanding. However, is understanding possible without knowledge? Zagzebski, following Elgin[20], thinks that it is, because comprehensiveness instead of truth is the goal of understanding. Incorrect models and false generalizations such as "Objects in a vacuum fall toward the Earth at a rate of 32 ft/sec2," may provide us with more understanding than the much more complex correct model or the more

19 Zagzebski, "Recovering Understanding," 241.

20 Catherine Elgin, *Considered Judgment (*Princeton, N. J.: Princeton University Press, 1996), especially 123-124.

complicated truth.[21] Understanding would have more to do with comprehensiveness than with truth, which would mean that propositional understanding does not need to be factive.[22] Other authors do no follow Zagzebski on this. Grimm, for instance, paying attention to everyday situations in which we try to understand why something happened, points out that "our understanding of natural phenomena seems conspicuously factive—what we are trying to grasp is how things actually stand in the world."[23] Our tacit grasp of understanding is simply not in agreement with the idea that it is possible to deepen our understanding through false propositions or incorrect models.

Despite that, there is another reason to think that understanding is possible without knowledge. Given that understanding is an achievement, if achievement is possible without knowledge, then understanding is possible without knowledge as well. Pritchard, for instance, sustains that while knowledge is incompatible with environmental luck, achievement is not. Thus, there may be cases of achievement that are not cases of knowledge because of the presence of environmental luck (Pritchard 2014, 317). Imagine, for example, that a well-trained scientist called Kate is in the lab observing a chemical reaction. Through controlled experimentation and using appropriate instruments, she learns that the chemical reaction takes place when oxygen is mixed with a certain substance. Since Kate is very well acquainted with chemistry theories, she is able to provide an explanation of why mixing oxygen with that kind of substance causes that chemical reaction. She satisfies both conditions for understanding and thus understands why such a chemical reaction takes place. Now suppose that the instrument could easily malfunction, that is, in the majority of the nearby possible worlds, it is the case that the instrument does malfunction and so at best it provides the correct result in the actual world by chance. That Kate is in a situation where the instrument does function well is a case of environmental luck. Therefore, she does not have knowledge since

21 Zagzebski, "Recovering Understanding," 244.

22 The reason given by Zagzebski is that "understanding [..] is a state that is constituted by a type of conscious transparency," that is, when one has understanding it cannot be the case that one does not understand that one understands. It seems then that for this to be the case it is necessary that all the factors that constitute understanding are internal and therefore not necessarily factive. See Zagzebski, "Recovering Understanding," 246.

23 Stephen Grimm, "Is Understanding a Species of Knowledge?," *British Journal for the Philosophy of Science* 57 (2006): 515-535, and especially 518.

her belief could easily be false. However, according to Pritchard, she has understanding. As Kate employed the instrument skillfully in order to find out what causes the chemical reaction in question, which was her achievement, and the instrument did function properly in that particular situation, she continues to satisfy both requirements for understanding. There seems to be no barrier for her understanding in such a case.

4. Knowledge and understanding cannot be separated

We saw that there are good reasons for thinking that knowledge and understanding can be separated. Testimonial knowledge seems to fall short of understanding because it is not a robust epistemic achievement; and understanding, in turn, does not eliminate environmental luck which is a requirement for knowledge. However, I will argue that this gap between knowledge and understanding can be closed. The difference between them is more a difference between aspects of the same epistemic episode than a difference between two kinds of epistemic episodes. To obtain this outcome, I will first argue that knowledge is also an achievement, even in the case of testimonial knowledge. Then I will argue that achievements exclude environmental luck because *techne*s and skills can only be employed or exercised in their proper environment. Finally, I will also sustain that the reflective-requirement and the explainability-requirement are not respectively requirements for knowledge and understanding, which are not in fact different types of achievements.

Let us examine again the case of testimonial knowledge. Remember that is was claimed that knowing by testimonial that $f = m.a$ is Newton's Second Law is not enough to possess understanding of Newton's Second Law because understanding also requires achievement. However, if our view of testimony is that it is also a *techne* or skill, for instance, the skill of deciding to accept conscientiously a testimonial, which can be improved over time with the right

instructions and feedback, then there is no good reason to deny that its successful exercise is a perfect case of achievement. Thus, someone who comes to know Newton's Second Law by testimony in a conscientious way accomplishes an achievement. Can we also ascribe to this person an understanding of Newton's Second Law? It is important to bear to mind that this person should possess the concepts that figure in the law, otherwise it would be difficult to comprehend how it is possible for her to understand what is asserted by the statement of the law and to believe it is Newton's Second Law. In this scenario, a rudimentary but proper understanding of Newton's Second Law might be ascribed to her. It may still be claimed that this achievement is not enough for understanding, since the second requirement for understanding, the explainability-requirement, is not fulfilled in this case. For instance, Pritchard, commenting on Kate's case discussed previously, points out that understanding a causal connection requires "being able to offer a *sound explanatory story* [emphasis added] regarding how cause and effect are related."[24] A similar consideration would apply to understanding the identity relation that figures in Newton's Second Law, or any kind of relation whatsoever. Thus, as the argument goes, a person who is able to pass on Newton's Second Law, learned by testimony, is likely to have a conception of why something might be related to something else, but this is not sufficient for one to be able to provide a sound explanatory story regarding why something is related to something else. To that, it is necessary to also have a sound epistemic grip on why something is related to something else.

Let us suppose, however, that our hero learns by testimony in a conscientious way that Newton's Second Law holds because of such-and-such factors, that is, she learns by testimony an explanation why that law holds. Now both conditions for understanding are apparently met. Learning Newton's Second Law by testimony as well as an explanation of why such a law holds are both cases of achievement. If this person is asked why the law holds, she may reply asserting the explanation she has learned. What more could be required? Pritchard again resists ascribing understanding to a case similar to this one in almost every relevant aspect. The only difference is that he does not explicitly

24 Pritchard, "Knowledge and Understanding," 323.

consider the episodes of testimony as achievements. Nevertheless, he insists that this person still does not have a "sound epistemic grip" on the explained relation,[25] which in his example happens to be a causal relation. I grant that there is a clear sense in which the person in question does not have a deep understanding of Newton's Second Law. Even after learning an explanation for why such a law holds, and assuming that she has a rudimentary understanding of the relevant concepts, she may yet be unable, for instance, to frame different explanations of why that law holds. Her assimilation of Newton's system is still too partial and insufficient to afford a full understanding of Newton's Second Law. All this, however, is beside the point. Once it is accepted that knowledge by testimony is an achievement, why keep saying that testimonial knowledge does not provide understanding, even rudimentary and limited understanding? Pritchard's position seems untenable. On the one hand, if only an achievement can provide a sound epistemic grip on why something is related to something else, then it is unintelligible why testimony construed as an achievement cannot provide such a grip. On the other hand, if that grip depends on acquiring pieces of knowledge about the relevant subject-matter above a certain threshold—for instance, one understands Newton's Second Law only after learning a quite significant part of the Newtonian system—then the difference between knowledge and understanding is not substantive or qualitative, and it is absolutely arbitrary where the line for that threshold is drawn. Moreover, as I see it, the explainability-requirement is too strong. The only evidence Pritchard provides in its favor, apart from an appeal to intuition,[26] is linguistic. He points out that someone who claims to understand some event represents him or herself to others as being able to offer a sound explanatory story about why something else causes that event.[27] In my view, this seems to confuse the requirements for claiming understanding with the requirements for possessing understanding. I will return to this point later, but for now I will point out that it is also common to ascribe understanding of a product, which can be a proposition or an instrument, to someone when this person intelligently uses this product to solve a task.

25 Pritchard, "Knowledge and Understanding," 316.

26 Pritchard, "Knowledge and Understanding," 316.

27 Pritchard, "Knowledge and Understanding," 322-23.

Notwithstanding the effort for construing knowledge by testimony as an achievement, Pritchard might reply that this will not do because achievements are compatible with environmental luck, whereas knowledge is not. This is a problem that different versions of virtue epistemology have to deal with. Suppose, for instance, the definition of knowledge as a cognitive success—e.g., a true belief—due to cognitive ability or skill. This view of knowledge can handle Gettier-style cases. In Chisholm's case discussed in section one, the person does not have knowledge that the animal before her is a sheep because obtaining a true belief does not result from her perceptual ability. This definition, however, does not seem to have the resources to deal with cases of environmental luck. In the psychological experiment, Mary may succeed in determining the color of an object when, unbeknownst to her, the light conditions are good. This would be a case of achievement—success because of cognitive ability—but it is far from clear that it is a case of knowledge since environmental luck is present in the situation.

At this juncture there are two options: (1) the first is to reject the idea that knowledge is incompatible with environmental luck and, thereby, to claim that Mary's achievement in the psychological experiment is an episode of knowledge after all; and (2) the second is to deny that Mary successfully exercised her color discriminatory capacity in the psychological experiment, and thereby to claim that Mary did not attain any achievement regarding the color of things presented to her. The first approach is carried out by John Turri who argues that reliabilism in epistemology should be replaced with a position he calls *abilism*[28]. According to him, folk intuitions regarding knowledge attributions are much more tolerant to the presence of luck than the epistemological tradition has been willing to accept. I do not intend to discuss Turri's position here, I merely want to comment that, even assuming that Turri's empirical evidence is correct, it does not follow that epistemologists should preserve all folk intuitions in their accounts of knowledge. Due to the

28 John Turri, "A New Paradigm for Epistemology: From Reliabilism to Abilism," *Ergo* 3, no. 8 (2016): 189–231.

normativity of knowledge and its connections to other concepts equally central to our world view, this dispute is not to be resolved only on empirical grounds. For the time being, I will stick with anti-luck intuitions. One way to pursue the second approach is to argue that an ability or skill is relative to a type of environment in that it cannot be exercised unless the person who possesses it is in the proper environment.[29] As Millar points out, "being competent at ϕing is being good enough at ϕing and being good enough at ϕing with respect to some environment is being good enough at ϕing there."[30] Accordingly, Mary cannot exercise her color discriminatory capacity in the psychological experiment because the employment of this capacity requires normal light conditions. Anticipating this move, Pritchard replies that the relativization of abilities to environments has the result that they are infallible, which is an unwelcome consequence. In addition, it sounds strange that one loses an ability when one enters a deceptive or unsuitable environment.[31] Both challenges are addressed by Alan Millar who defends that abilities do in fact depend on suitable or favorable environments.[32] First, we are fallible in relation to an ability in the sense that we can try to exercise it and fail to do so. However, this is not a defective exercise of that ability but a failed attempt to exercise it. This can happen because some unexpected cause intervenes or because the environment is not favorable. Second, one does not lose an ability when one enters in an unfavorable environment, one is prevented from exercising it. This is because an ability is not completely internal to the individual, on the contrary, it is partially constituted by environmental factors in that its exercise can only occur in the presence of these factors.

It may seem that Mary is able to identify a red thing when there is one before her in the psychological experiment, but she cannot do that in that environment, since she could very easily

29 I will not defend this claim here. Millar leans on the idea that an ability must be successful every time it is manifested, as he points out, "the notion of the manifestation or exercise of an ability is a success notion." For this to be the case, the current environment must be favorable. See Alan Millar, "What is it that cognitive abilities are abilities to do?," *Acta Analytica* 24, no. 4 (2009): 223-236, and especially 224, where that quotation appears.

30 Millar, "What is it that cognitive abilities are abilities to do?," 229.

31 Pritchard, "Knowledge, Understanding and the Epistemic Value," 27.

32 Alan Millar, "Abilities, Competences, and Fallibility," in *Performance Epistemology: Foundations and Applications, ed. Miguel Ángel Fernández Vargas* (New York: Oxford University Press, 2016), 62-82, and especially 64.

have mistaken a white object for a red one. In that environment, she has the ability to identify whether something is red fifty percent of the time in which she tries to do so, which is, as it were, an ability too trivial to deserve mention. In the first section, in line with McDowell's view of perception, I mentioned that if Mary were able to rule out the possibility of inappropriate light conditions—suppose, for instance, she notices an alternation in the facial expression of the experimenter which is reliably correlated with the light conditions being good or bad—then she would be able to identify red things in the psychological experiment. This is not in tension with the present discussion. Much more is required for Mary to be able to identify red things in the psychological experiment. Similarly, much more is required for an archer to be able to shoot at fixed targets in a strong storm than in clear weather. It is perfectly possible to have the latter ability without having the former. The same applies to Mary. It is a mistake to think that all the requirements one must fulfill to be able to identify red things in the psychological experiment are also requirements one must fulfill to be able to identify red things in good light conditions. Variations in the environment or in the target task have consequences for the requirements for having or exercising the relevant ability. Consequently, McDowell's reflective-requirement is not, I claim, a general requirement for all perceptual discriminatory abilities in whatever environment one happens to find oneself. It may be necessary in some environments or for accomplishing some special tasks, but perceptual knowledge in general does not depend on fulfilling that requirement. Additionally, for reasons that will soon become clear, we should think in the same way about the explainability-requirement for understanding, since it is necessary only in special environments or occasions.

5. Retreating from Intellectualism: a unified approach

Cognitive episodes that are the outcome of the exercise of a cognitive ability are cases of knowledge. They are successful because of cognitive ability, and they avoid environmental luck

because cognitive abilities can only be exercised in favorable environments. At the same time, the exercise of a cognitive ability manifests understanding; it is an achievement and the agent deserves credit for it. The difference between knowledge and understanding is a difference of aspects. When we describe a cognitive episode as a case of knowledge, we emphasize its success, its safety, and the exclusion of epistemic luck, whereas if the same episode were described as a case of understanding, the emphasis would fall on its being the outcome of the exercise of a cognitive ability. Thus, without betraying my claim that the same cognitive episode can simultaneously be a case of knowledge and a case of understanding, there is a sense in which understanding is more agent centered than knowledge. We describe a cognitive episode as an episode of understanding when we are interested in the abilities of the agent who manifests that understanding, that is, we are interested in what that agent is able to do regarding the object of her understanding.[33] This explains why our ways of expressing understanding is more sensitive to gradation than our ways of expressing knowledge. Insofar as cognitive abilities may be better or worse at achieving cognitive episodes, the understanding obtained by exercising them can be deeper or shallower. Thus, someone who can explain Newton's Second Law by relating it to other principles of Newton's physics understands it better than someone who can apply that law to only a few situations. Suppose the first is a well-trained physicist and the second is an apprentice who are learning Newton's physics mostly by conscientious testimony. Both understand Newton's Second Law, but the first individual, being able to use this law to solve a richer set of problems, has a deeper understanding than the second. Nevertheless, when these episodes are seen as cases of knowledge, there is no significant difference. That Newton's Second Law is $f = m.a$ is equally safe in both situations.

My proposal is that understanding a product, which, remember, can be a theorem, a composition, an empirical proposition etc., is a function of what the agent is able to do with this product, of how rich

33 Zagzebski seems to sustain a similar view when she says that “understanding is a property of persons.” See Zagzebski, “Recovering Understanding,” 245. I would prefer to say that understanding is a relation between a successful cognitive episode and a cognitive ability. Agent's abilities, rather than one's own current mental states, are the agent’s crucial factors when we are talking about understanding.

is the agent's space of actions in which this product is placed. A person has more understanding of a product than another person if the first person is able to do more things with that product than the second. The set of tasks an agent is able to solve using a product offer a measure of the depth of the agent's understanding of that product. On this account, propositional understanding and objectual understanding can be addressed in the same way since they both rest upon skills and *techne*s. We learn and improve specific skills, such as perceptual and recognitional skills, in order to deal with certain types of objects as well as learning and improving specific skills, such as inferential skills, in order to deal with certain types of propositions.

One last point about understanding: it does not require the explainability-requirement. This requirement can be necessary for accomplishing specific tasks due to the very nature of the task, but there is nothing special about the explainability-requirement regarding the nature of understanding. Being able to do something with a product is sufficient to have some understanding of the product. This feature of the proposed view should be seen as a virtue, since it helps to avoid a potential regress generated by the reflective-requirement as well as the explainability-requirement. If perceptual knowledge required that one knows that one is perceiving because an episode of perception must be placed in the space of reasons, then it should be expected that one knows that one knows that one is perceiving because an episode of placing an episode of perception in the space of reasons must itself be placed in the space of reasons and so forth. If understanding required that one is able to explain a product, then it should be expected that one is also able to explain that explanation and so forth. As I will illustrate bellow in the case of perception and in the case of science, perceptual understanding and scientific understanding do not necessarily require second-order cognition.

5.1. Perceptual Knowledge and Understanding

First, we should be more explicit in pointing out that the reflective condition is a requirement not for the possession of knowledge, but for the legitimacy of claiming knowledge. The task of claiming perceptual knowledge is distinct, although it presupposes the task of discriminating an object by sight or touch in the surrounding environment. We can and should conceive of perception and introspection as separate capacities or skills whose deliverances can be intelligently combined in order to sustain a perceptual knowledge claim. However, unlike McDowell's view, perception knowledge is possible without introspection. If, following Ryle, we conceive perceiving as "exercising an acquired skill"[34] to detect or discriminate things, then the exercise of a perceptual skill yields perceptual episodes in which a feature of the environment is present to a subject. I would not say that this is achieved without the help of rationality, but at least without the necessary help of introspection. An individual can see a red object without knowing that she is having an episode of vision. The latter achievement is not constitutive of the former, it is, perhaps, merely a necessary condition for the act of claiming perceptual knowledge. A subject can act upon what is disclosed by her perceptual states, accomplishing a wide range of different tasks, long before she can introspect those states. As Gibson points out, "to see things is to see how to get about among them and what to do or not do with them. If this is true, visual perception serves behavior, and behavior is controlled by perception."[35]

Are we back to the myth of the given? I do not think so. I agree with Sellars and McDowell that pure sensing is not in itself an episode of knowledge. However, now we are talking about a perceptual capacity or skill possessed by an agent. A perceptual skill must at least be distinguished from a thermometer. In order to make this distinction, we need to see this skill as sensible to some counter-factual conditions, and its exercise must make adjustments in the face of changes in the perceived object or in the environment. The sensibility to counter-factual conditions does not need

34 Gilbert Ryle, "Sensation," in *Collected Papers, Volume 2: Collected Essays 1929–1968* (Oxford: Routledge, 2009), 349-362, and especially 360.

35 James Gibson, *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979), 223.

to involve the possession of propositional knowledge since it can be explained by a kind of practical understanding. Perceptual skills embody practical understanding because the agent knows how to deal with some counter-factual conditions in order to bring about certain desired results. This notion of practical understanding comes from John Campbell who points out that "a squirrel interacting with a nut […] does need to be able to think about the nut, to identify its casually indexical properties […] A practical grasp of the properties of the nut means that it can bring about the desired result."[36] In a very similar line, Alva Noë says, "We can see what there is when it is there, and what makes it the case that it is there is the fact that we comprehend its sensorimotor significance. Sensorimotor understanding brings the world into focus for perceptual consciousness." (2012, 20) On the sensorimotor view of perception, a subject can see the voluminousness of a tomato, for instance, if she knows how to explore her sensorimotor abilities in order to place the back of the tomato in plain view. Perception construed as a set of specific skills to explore properties of objects or as a set of skills to accomplish discriminatory tasks involving these objects embodies practical understanding. The more discriminatory skills one has to deal with an object, the deeper one's perceptual understanding of that object. In this sense, we are far away from the myth of the given.

5.2. Scientific knowledge and understanding

As in the case of perceptual knowledge and understanding, I do not think that the explainability-requirement is necessary to have an understanding of a proposition. Contrary to Zagzebski's suggestion, a person may acquire a skill and not be able to explain its products or exercises. This is easier to accept in the perceptual case. A trained musician can explain how or why she can hear notes in music that I cannot hear. She can even be a bad instructor in teaching someone else how to hear and discriminate those types of notes. This sounds reasonable in the case of perception. However, I submit that similar considerations also apply to an academic or intellectual skill. In

36 John Campbell, *Past, Space and Self* (Massachusetts: The MIT Press, 1995), 49.

Thomas Kuhn's account of scientific knowledge, what a scientist learns when she assimilates an exemplar, a paradigm, is not a set of methodological rules prescribing how science should be practiced, but a set of skills on how to practice science:

> "Scientists can agree that a Newton, Lavoisier, Maxwell, or Einstein has produced an apparently permanent solution to a group of outstanding problems and still disagree, sometimes without being aware of it, about the particular abstract characteristics that make those solutions permanent. They can, that is, agree in their identification of a paradigm without agreeing on, or even attempting to produce, a full interpretation or rationalization of it. Lack of a standard interpretation or of an agreed reduction to rules will not prevent a paradigm from guiding research. Normal science can be determined in part by the direct inspection of paradigms, a process that is often aided by but does not depend upon the formulation of rules and assumptions. Indeed, the existence of a paradigm need not even imply that any full set of rules exists."[37]

A scientist apprentice first learns how to solve basic problems before trying to solve more complex ones. Initially, the apprentice applies principles learned by testimony without wondering why they work, relying rather on the expertise and authority of senior scientists. The skill to explain the principles of a discipline or the skill to relate one to another in a very systematic way is assimilated very late in the learning process. Before becoming a senior scientist, the apprentice is able to solve a wide range of scientific problems without being able to explain the very principles being used to deal with these problems. This is because the skill or ability to explain the principles of a discipline is important for dealing with some very specific tasks, such as the task of articulating a theory, but it is much less relevant for those who are merely applying the theories of a discipline. For instance, senior experimental physicists are not so skillful in articulating the theories of their fields as their

37 Thomas Kuhn, *The Structure of Scientific Revolutions, 50 Anniversary Edition* (Chicago: University of Chicago Press, 2012), 44.

corresponding senior theoretical physicists, simply because they do not need this skill in a very high level to do their job. Moreover, even senior theoretical physicists do not fulfill the explainability-requirement in a full-blown sense; this is the point of Kuhn's remarks. Senior scientists know how to do theoretical physics without being able to explain how or why science works; they generally are not, nor need to be, philosophers of science. Of course, as already said, they must be able to explain how some things work in the laboratory and why some objects behave in certain ways and not in others. That is, they need to know how to provide good explanations about the subject-matter of their disciplines. They need to know how to do that only because in this case discipline-specific explanations are necessary to solve some specific tasks in their disciplines. However, they do not need to know how to explain why some of those discipline-specific explanations are good and others are not, although they need to be able to tell them apart. No scientist is less entitled to be called a 'scientist' simply because she is not able to offer a philosophical theory of explanation. Nothing that I have said prevents a scientist from learning how to provide those kinds of second-order explanations, nor implies that her scientific practice could not be improved by learning or developing such a theory. The main point is that science can be done well and it is normally done well without any kind of reflective understanding about the practice of science itself. At the same time, it can be granted that our understanding of a subject-matter is deepened by improving our scientific skills to deal with that subject-matter.

6. Concluding Remarks

Zagzebski sustains that understanding "is an episode that is constituted by a type of conscious transparency [...] it is impossible to understand without understanding that one understands."[38] For her, the explainability-requirement is necessary for understanding. Notwithstanding, I argued that understanding does not necessarily involve the explainability-requirement, since one can understand a product without being able to explain why this product comes about or how it is related to other

38 Zagzebski, "Recovering Understanding," 246.

products. This is because understanding requires only achievement obtained by the exercise of a cognitive skill or *techne*; even when the achievement is theoretical; theoretical understanding stems from the exercise of explanatory and theoretical skills. As Gilbert Ryle points out, "a scientist is primarily a knower-how and only secondarily a knower that."[39] In terms of explanation, skills come first. I submit that an agent understands a product only if this agent has a skill or a set of skills by which one is able to accomplish a set of tasks involving that product. Without a skill to deal with that product, the agent cannot grasp or understand that product. Skills are the basis of understanding. A skillful person embodies understanding which is manifested when she exercises her cognitive skills. Apart from avoiding the regress problem, the present account of understanding also does more justice to the gradual aspect of understanding. We deepen our understanding of a kind of product when we learn to accomplish more tasks involving instances of this kind of product. There is nothing special about reflection—understood as a second-order cognition—it is just a complex skill required for accomplishing some specific tasks. Finally, knowledge and understanding are achievements because of cognitive skills. Since abilities or skills can be exercised only in their proper environment, their exercise rules out epistemic and environmental luck. Depending on the skill, its exercise yields knowledge of objects or propositional knowledge. Knowledge and understanding are not different kinds of cognitive episodes, they merely single out different aspects of cognitive achievements.

39 Gilbert Ryle, "Knowing How and Knowing That," *Proceedings of the Aristotelian Society* 46, no. 1 (June 1946):1-16, and especially 16.