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ORIGINAL ARTICLE

Creativity and genius as epistemic virtues: Kant and early post-Kantians on the teachability of epistemic virtue

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Abstract
There is a classical paradox in education that also affects the epistemic virtues: the paradox inherent in the demand to develop general strategies for training persons to be free and creative individuals. This problem becomes particularly salient with respect to the epistemic virtue of *creativity*, the more so if we consider a radical form of creativity, namely, *genius*. This paper explores a historical constellation in which rigorous claims about the standards for knowledge and morality were developed, along with a highly influential notion of genius: the philosophy of Kant and of immediate post-Kantian philosophers. The paper shows how in this historical moment came together a new notion of "science," a theory of "genius" and of virtues, and an analysis of the promises and difficulties inherent in educating a virtuous or creative individual. In this constellation of ideas, there also emerges a potentially fruitful account of how to teach intellectual creativity.

KEYWORDS
"science," Immanuel Kant, genius, creativity, epistemic virtues, Friedrich Wilhelm Joseph Schelling

1 | EPISTEMIC VIRTUES AND GENIUS: BEYOND PROCEDURAL ACCOUNTS

The property of being creative is an important test case for any version of a virtue epistemology and, more generally, for any reconstruction of epistemic practices that intends to capture the practice of the sciences. *Creativity* is neither a necessary nor a sufficient criterion for an epistemic practice being successful, but creativity clearly is a highly appreciated characteristic in any epis-

temic practitioner.[1] One feature that brings creativity into close contact with virtue epistemology is that the property of being creative can—by definition—never sufficiently be explicated in terms of strict procedures.[2] Just like virtues in general, creativity is a very personal trait that nevertheless can be put to good use in an open infinity of possible situations. But note that it is not necessary to exercise creativity everywhere and at all times in our epistemic practice; ethical virtues function differently because in ethics we typically demand that ethical virtues should have a pervasive effect in every (morally relevant) action that we perform.

Virtue *epistemology* (VE) takes its inspiration from the idea that in order to account for successful epistemic practices, we should learn from notions developed in virtue *ethics*. This is elaborated in great detail in one of the founding texts in the field of VE (Zagzebski 1996). Both in ethics and in epistemology, a virtue-based approach is motivated by the idea that we should not place so much emphasis on evaluating the results of (epistemic or ethical) practices and that we should not assess them according to (more or less) formal criteria, which is what we should do according to consequentialist theories in ethics. Neither can we assume that there are principles that can be given in the form of clear rules that we need to follow, as the typical deontologist would claim. In particular, (ethical or epistemic) results or principles cannot be evaluated in isolation.[3] The unit of evaluation is not the individual action or the general principle; rather, what we need and can evaluate is the *character* of the (ethical or epistemic) *practitioners*. This, then, implies that we can no longer describe or prescribe standardized *procedures* for producing knowledge. Virtues need to be flexible and open for another reason too: virtues are characterized by their being universally applicable, without any previous knowledge as to what kind of situation one may encounter. This openness needs to be built into our account of these virtues. Still, we need to unpack these virtues so as not to let them remain a black box. In particular, in order to be able to assess virtues or to install into our practices the proper virtues (or to install virtues at all, instead of installing vices), we need to be able to say more about how virtues can be *acquired* or *trained*—in order for a character trait to count as a virtue, it must be possible to acquire this trait.[4]

The problems just adumbrated are well known as the classical *paradox of education*, that is, the problem of developing clearly structured and controlled educative programs with the goal of producing fully autonomous, creative citizens (scientists, artists, and the like). These problems become even more complex if we look into various ways in which creativity can manifest itself in humans. We find the most radical embodiment of creativity in the persona of the *genius*, that rare figure who is able to come up with creative innovations of the highest order.[5] Is it, then, possible to acquire the capacity of being a genius? (This will also have implications for the question as to whether being a genius can be counted as an epistemic virtue at all; Baehr 2018, for example, is sceptical here.) Because the ideal of creativity is so deeply inscribed into the personae of artists, scientists, philosophers, and engineers—and many other groups (Andreas Reckwitz [2012] has

[1]An overview of philosophical debates on creativity is given in Gaut and Kieran 2018; see also Kieran 2019. For a comprehensive study of the emergence of creativity as an imperative with powerful roles in modern societies see Reckwitz 2012; but here, creativity is mainly linked to the realm of the aesthetic.

[2]A detailed discussion of the question whether creativity is indeed an epistemic virtue—with an affirmative answer—can be found in Baehr 2018. The feature highlighted in section 1 of the present paper—creativity's non-procedural character—is absent from Baehr's list of "putative features of creativity" (2018, chap. 2.1). Baehr's feature of leading to "new and unexpected" products is, however, closely related to the issues I am emphasizing here.

[3]See Zagzebski 1996, chap. 2.2, arguing against taking the proposition as the unit of epistemological investigation, with reference to Jonathan Kvanvig.

[4]See again the list of criteria for calling a character trait an epistemic virtue in Baehr 2018. On some general issues related to training intellectual virtues, see Baehr 2013.

[5]It is important to note that while for creativity to become an epistemic virtue one normally requires *reliability* in coming up with innovative solutions, this does not seem to be required for ascribing the status of genius. A stroke of genius can be a unique event—even though we particularly admire those figures who acted as geniuses in a rather consistent way. This is, admittedly, again a somewhat ambiguous issue. There is also a standard narrative of the unique heroic act that is attached to the persona of the genius—and it is imaginable that the heroic exercise of genius occurs just once. Stefan Zweig's series of historical miniatures, *Sternstunden der Menschheit*, gives eloquent expression to this heroism.

argued that a "creativity imperative" belongs to the signature features of modernity)—it is tempting to look into the question of how the requirement of teachability functions with respect to more ambitious claims relating to creativity, with "genius" being a key challenge in this context.

In order to address these issues, the present paper zooms in on a particularly salient historical moment—the impact that Kant's philosophy had upon our ideas concerning science, genius, creativity, and the necessity to study epistemic practices in a virtue-based way (section 3). Kant was operating at the precise historical moment in which creativity became inscribed into these personae. Given the pervasive importance of this moment in intellectual history, this historical question also contains a systematic challenge: If creativity becomes a key issue in our view of the successful employment of our cognitive faculties, but at the same time is subject to the paradoxical problem of installing creativity via education, how, then, can these two aspects in our thinking about creativity be harmonized? Again, a closer look at the role of Kant and post-Kantian philosophers in bringing about the modern persona of the scientist will be shown to be relevant here, in particular because Kant himself ascribed a key role to problems concerning the teachability of virtues, both in the epistemological realm and in the ethical realm (section 4). Within this philosophical framework, a program for educating creative minds can be seen to emerge; this is sketched, in a very preliminary outline, in section 5.

2 | SOME REMARKS ON THE PHENOMENOLOGY OF EPISTEMIC CREATIVITY

In many cases, the literature on creativity as an epistemic virtue is dealing with getting the phenomenology of creativity right. Here is an illustration that is intended to demonstrate that we indeed need a non-procedural, open understanding of creativity, and that this introduces complex issues with respect to different degrees of being creative. Bence Nanay (2014) argues for an "experiential" instead of a "functional" account for the workings of creativity in cognitive processes. He has very convincing arguments to the effect that creativity does not constitute a natural kind in the domain of mental events, and that therefore we should go for an account of creativity that takes our *experience* of creativity as the defining feature of what it means to be creative. He describes this experience, however, via a rather procedural account: a creative contribution is one that an agent "experiences as something that is different from all the possibilities she considered at time t" (2014, 23). There is a phenomenological problem here: Nanay requires the agent to consider "a number of possibilities" in order to then experience that the new step she takes has not been among them. This is problematic, given that it is clearly impossible to consider all possibilities that are available at a certain moment, such that a new step may well have been possible at time *t* but has remained unconsidered. Also, more detail is required as to what Nanay means by "possibilities" here. In order for something to count as a creative step, and therefore also to answer the first problem raised above, it seems necessary to require that before arriving at the new step, the epistemic community was not even able to imagine what a potential solution to a problem, or the next step in a cognitive process, might look like. This requirement, due to its modal component and to the key role ascribed to the role of the imagination, is stronger than just knowing that the new step is not in our current repertoire.[6]

Consider another example of the necessity of transcending established boundaries in epistemically creative acts. Typical accounts of the virtue of *intellectual courage* tend to conflate the epistemic and the ethical rather too easily by defining intellectual courage as the courage of applying knowledge or knowledge-generating practices in potentially dangerous situations,

[6]There is another problem here. In all these different versions, this account still is a psychological one, and it requires more discussion of potential differences between a first- and a third-person perspective: it might be possible that what is seen as an extremely creative train of reasoning by the outside observer follows a transparent internal logic for the creative genius. Interestingly, precisely this issue was taken up in the debates of the period around 1800 in which our notion of creative genius in the sciences was developed—one of the requirements discussed here was that the genius herself is not in command of her creative acts.

that is, in the kind of situation in which also non-intellectual courage is in place. While this certainly involves a form of courage, it is not a specifically *intellectual* form of courage. Rather, a genuinely intellectual form of courage requires its practitioner to transcend well-established boundaries within the cognitive realm, to dare to conceive of ideas that have not been thought or explored before. The opponent here is not the social world in which an exercise of our cognitive capacities might be dangerous but the constraints inherent in the epistemic situation we are working in. As I make clear in section 4, courage, or "fortitude" (in the terminology of the eighteenth-century authors I discuss there), is a key term in virtue ethics; if genuine intellectual courage is important for understanding creativity, we then get yet another important link between virtue discourses more generally and VE.

3 | KANT ON GENIUS AND SCIENCE

Among his many other achievements, Kant has been the key figure in an enormously influential conceptual co-creation: the double act of (1) claiming a concept of *rigorous science* as a concept that guides the interaction between disciplines and instructs the institutionalization of disciplines that then could be called scientific and (2) of initiating a complex discourse on the idea that science is a natural habitat for *genius*. This double event, in the immediate aftermath of Kant's philosophy, found its way into the institutions devoted to the promotion of science, in particular into the programmatic writings that gave rise to the University of Berlin, founded in 1809. Here what we today call the research university was established on the basis of Kant-inspired programs—certainly one of the great success stories in the history of philosophy.[7]

Reflections on the ideal of scientificity, of providing the most rigorous foundations for knowledge, motivate and pervade Kant's writings in the field of theoretical philosophy. This led to important terminological innovations that tend to go unnoticed because these terms have become fully self-evident by now: Kant was instrumental in establishing the German terms "Wissenschaft" and "Naturwissenschaft" in the functions they now have, in particular in their use as collective singulars.[8] A parallel step in the English language supports the claim that the conceptual field of talking about the sciences was consolidated only around, or even considerably after, 1800: the term "scientist" in English is of even younger origin than the collective singulars "Wissenschaft" and "Naturwissenschaft" in German, and can be dated very precisely to William Whewell's reflections in the year 1834 when he was looking for an integrative term for the persona that then came to be called a "scientist" (see Ross 1962).

In his *Critique of the Power of Judgment* (*CPJ*), Kant defines "genius" with explicit (and thus also exclusive) reference to art, as the "talent (natural gift) that gives the rule to art," as an "inborn productive faculty of the artist" that "itself belongs to nature" (AA 5: 307).[9] Some immediate comments on this definition are required. Kant uses explicitly *virtue-related terms* here when he defines genius as a "talent" or, some lines later, as an "inborn predisposition of the mind" (AA 5: 307; see also the detailed taxonomy of virtue-related terms in Baehr 2011). In Kant's analysis, genius, as a characteristic of the artist, has to grapple with the predicament that it aims at establishing rules for that "for which no determinate rule can be given," that is, rules for that which is original and thus falls outside the realm of pre-given rules. That genius "belongs to nature" is key here: no pre-established transcendental principles are available that could provide these

[7]Regarding the foundation of Berlin's university, the most relevant texts—by Fichte, Schleiermacher, Wilhelm von Humboldt, and others—and documents are collected in Weischedel 1960. On the idea of the research university, see Clark 2006. See also Ziche 2009 on Friedrich Wilhelm Joseph Schelling's discussion with F. I. Niethammer about the institutional implementation of Schelling's philosophically informed ideas about creative science.

[8]This claim is argued for in detail in Ziche 1998; see also Ziche 2019 on the usage of the relevant terms as collective singulars.

[9]The same terminology is employed in Kant's *Anthropology* (AA 7: 223–26). Quotations from Kant's works are from the *Cambridge Edition of the Works of Immanuel Kant*, with the standard reference to volume and page in the Academy edition (AA) of his works.

rules; the genius's achievements emerge in a natural, unconscious way.[10] Genius is necessarily original, produces completely new, unheard-of, previously unimaginable products; still, however, genius remains linked, in complex ways, to the issue of rules. Clearly, the paradox of education is inscribed into this analysis of the artist's genius in that the rules that genius establishes cannot be made (fully) explicit; they are not algorithmic recipes that can simply be followed.

Both in his *CPJ* and in his *Anthropology*, Kant explicitly discusses how the concept of genius, originally developed in the context of art production, relates to the realm of knowledge production—but this relationship is a negative one. In § 47 of the *CPJ*, he very explicitly states that the natural scientist cannot be called a genius (AA 5: 308–9). From today's perspective, this is counterintuitive. We take it as being fully self-evident that natural scientists can be geniuses; indeed, today's most popular icon of being a genius is a scientist: Einstein. This close link between science and genius is a pretty recent achievement for which we have to thank, again, the immediate successors of Kant. While in the seventeenth century the term "genius" was closely linked with those practices that we today would call "scientific" (see Ziche 2022b; Williams 2021), Kant's critical intervention dramatically complicates things.[11] After Kant, some considerable argument was required to claim (or reclaim) the status of genius for the scientist. What requires explanation, thus, is: Why did Kant withhold the status of genius from scientists, and what changes when this status is explicitly claimed?

In Kant's analysis, the key notion that accounts for the difference between art and the sciences as regards the applicability of the term "genius" is *teachability*. The basic argument is straightforward. While it is possible to acquire a full grasp of what can be found in a great work in science—think of the paradigm example, Isaac Newton's *Principia*—through hard work in the classroom, this cannot be achieved with respect to proficiency in the arts. No amount of study can teach the apprentice to do all that is required to produce a work of art; and even a perfect act of imitating a work of art, if that were possible, is not sufficient, according to Kant, because art always requires creativity (see *CPJ* § 47 against a possible role for imitation in the arts). This argument clearly requires considerable refinement, in particular in what it says about science. What certainly can be learned is to perform all the arguments, calculations, and proofs in the *Principia*. But does that also mean that the Newton scholar could bring about the original invention of Newton's ideas and methods, or of another original work in science? Interestingly, Kant addresses this problem explicitly in § 47 of the *CPJ*. Even if Newton, as a matter of fact, arrived at his ideas in ways that had not been taught to him, he *might* have come to his results on the basis of what he might have been taught (AA 5: 308). Kant's argument for this claim considers the fact that Newton's arguments can be presented in textbook form, that is, as results arrived at via "the natural path of inquiry and reflection in accordance with rules" (AA 5: 308). In more recent terminology, we can redescribe Kant's point as the claim that whatsoever the process of discovery in the sciences was, the results of this process can be presented in a form of justification that can be understood and appropriated by all experienced reasoners. And, even more, this presentation encapsulates all there is that we might expect from science.

But still, this will leave the modern reader unsatisfied. Kant's argument implies that the role of creativity within the sciences needs to be tightly controlled; science can never go beyond what

[10]These arguments would be taken up in Schelling's analysis of genius in the final chapter of his *System of Transcendental Idealism*, first published in 1800.

[11]Typical pre-Kantian authors who do use the term "genius" for the scientist are William Duff (1767), Joseph Addison (1711), and Alexander Gerard (1774). Edward Young's influential discussion of "original composition"—which is a product of genius—gives quite a lot of attention to the teaching of creativity but sets apart "learning" and "genius" (1759, 36–37). Young also recognizes genius in relation to cognition; with reference to Bacon, genius "may take a nobler name, and be called Wisdom" (36), but a "too great indulgence of Genius" (39) needs to be brought under control. Young gives the titles "great *Original*" and "genius" to Bacon and Newton (in later editions to Boyle as well), next to Shakespeare and Milton (76). For an overview of the relevant literature, see Engell 2013 and Essex 2003. Essex 2003 also discusses the use of the term "genius" as applied to natural scientists, with Humphry Davy and William Whewell being key protagonists. Given the importance of Kant and post-Kantian philosophers for British authors in the early years of the nineteenth century, these interactions deserve more elaborate discussion.

can be described as following the "natural path" according to rules. This has clear implications for the role that the products of science and of the arts play in educative practices. While it is perfectly possible and perfectly sufficient, in Kant's eyes, to be able to imitate a great work in science, it is clearly different in the realm of the arts, where the unruly nature of genius is required for a genuine contribution to aesthetic creations. For the arts, Kant has a phenomenologically adequate account (inspired by the traditional practice of teaching the artist) of the role of the great works from the past. These works serve not as stable standards for imitation but as "models," that is as *exemplary* products that can only lead to novel artworks if used as sources for inspiration, not as standards for imitation (AA 5: 307; there is a classical and very rich discussion in Gammon 1997). In the course of the nineteenth century, we see an interesting shift, with works of science being described in art-inspired terminology as great "masterpieces" (these are what the Deutsches Museum in Munich, established in 1903, is supposed to collect) or as "classics" (as in the title of Wilhelm Ostwald's series "Klassiker der exakten Wissenschaften," begun in 1889, which still makes available works from the past in easily accessible editions). These classic masterpieces thereby acquired the role of the canonical works of art that are used as inspiring exemplars in teaching. Also note another important implication of looking into these practices: if works from the past are used as exemplars, not as standards for imitation, the issue of correctness loses its relevance. Newton's *Principia* can function as a source of inspiration even if some of his results have had to be modified or corrected; the dynamics of science, including its revolutionary aspects, can easily be captured in this move beyond standardized imitation.[12]

Again, however, Kant complicates matters enormously when he emphasizes the necessity of carefully balancing rule-governed procedures and innovation in the practice of the arts, and thus also in the education of artists. Kant is perfectly aware of the fact that true genius is a rare natural gift; and he is enough of a realist to see the relevance of training producers who can deliver tasteful, pleasant, up-to-standard, well-executed products. In fact, he is explicit in preferring "taste" (that is, production according to the rules of the genre) above genius (which goes beyond the existing rules), at least in cases of doubt. Genius is not without rules, and Kant rejects the idea of a completely anarchic genius (AA 5: 319–20)—genius establishes its own rules, which can then serve as rules of taste in the future. The need to keep unruly genius under control is a standard point raised throughout the eighteenth-century literature on genius (in Addison, Young, Duff, and Gerard just as well as in Kant).

In his *Anthropology*, Kant is even more explicit with respect to the differentiating functions of teaching and teachability. Mechanical teaching is here explicitly described as being inimical to the "budding of a genius" ("Aufkeimen eines Genies," AA 7: 225)—the emergence and development of genius is here grasped via a biological metaphor that emphasizes that genius needs to grow autonomously and organically. Interestingly enough, one of the key terms that Kant uses over and over again when discussing issues in pedagogics, "cultivation," also comes from an organological context, but with the important difference that it refers to the active working of the soil that has to bear fruit, not to the autonomous growth of the crop. As in his *CPJ*, the necessity of balancing creativity and rules is taken up here. Kant again needs to deal with the dialectics of openness and control: without strict rules, which need to be learned "by means of school rigor" ("mit Schulstrenge," AA 7: 225), it would be impossible for the products of genius to acquire paradigmatic status.

In endorsing a clear distinction between the artist and the scientist (who could not be labelled as such at the time), Kant stands at an historical watershed. The role of Newton illustrates this position: in the *CPJ*, Newton is used to illustrate the non-genius status of science,

[12]Here, it would be important to include Kant's discussion of exemplary models in moral education; see Kuehn 2012; Guyer 2012. See also the literature on "styles" of doing science (e.g., Kwa 2011).

but in Kant's *Anthropology*, Newton (and also Leibniz) is called a genius (AA 7: 226).[13] The key criterion is precisely what we would expect: Newton's work is innovative, "epoch-making," and Kant even adds "in everything he undertakes." The textual status of this remark is somewhat unclear, however; whether it is an apocryphal note that entered the published text from one of Kant's lectures or indeed documents a clear change of position in Kant has to remain unanswered here.[14] What remains a move that is not fully embraced by Kant himself does become a fully explicit claim in the immediate successors of Kant. Friedrich Wilhelm Joseph Schelling, for instance, fully decided to claim the status of being a genius for natural scientists—in his case, Johannes Kepler is the key example (Ziche 2022b). We can leave open whether these early adoptions of the term "genius" for the scientist (again, this is still avant la lettre as far as the term "scientist" is concerned) are supported by the fact that the great scientist also is to some extent an artist. If the natural scientist now starts to be addressed as a genius, this does not mean an historical reversal to the already established use of "genius" for artists.[15] Rather: in the most ambitious and influential philosophical discussion of science so far, scientists are endowed with faculties and achievements that had been denied them by some of the very authors that stimulated this discussion on the notion of science. In a second key step, the post-Kantian authors bring another, but related, Kantian hint to fruition when they give institutional reality to Kant's ideas about philosophy being the discipline responsible for controlling and inspiring the scientificity of all other disciplines. Again, it is the new university in Berlin that fully implements this idea. The watershed is also nicely illustrated by the remarkably untechnical terminology Kant uses to describe genius and to set acts of genius apart from merely imitative behaviour. Here, he does not take up the official terminology of his extremely refined faculty discourse as developed in the *Critique of Pure Reason* but instead uses terms such as the informal generic "Kopf" (AA 5: 308; literally, "head"; the translation with "mind" already transforms this term into rather too technically philosophical jargon) and "Pinsel" (AA 5: 308; the translation "blockhead" does not quite capture the connotations of this term, which is motivated by the painter's brush that has no active potential in itself but is only acted upon from the outside).[16]

To some extent, Kant falls prey to the conceptual options that he himself unleashed. While he aimed at a new philosophy that could make reliable and controlled progress, his most important followers did not continue his program in a linear fashion; they relished the creative overturning of established philosophy and could—for instance, by looking at the role of autonomy and genius in his philosophy—view this move as still being inspired by Kant. This creativity imperative reflected back upon the persona of Kant himself, as perceived by his successors. In his *Lectures on the History of Modern Philosophy*, Schelling describes Kant as a philosopher who is best characterized as an "instinct" philosopher (1861, 73; see Ziche 2022a). The key argument is, again, derived from a strong notion of creativity, in this case both the creativity displayed by the great philosopher and the creativity his readers have to employ in understanding, appropriating, and transforming Kant's ideas. Schelling makes a classical point from hermeneutics (which also found its first canonical formulation in Friedrich Schleiermacher's works from precisely this historical constellation): the author himself cannot, even if he is Kant, have full control over what is done with his work. Here, then, philosophy and progress in philosophy are treated in full analogy with the arts and their progress, and both become related to the progress of the sciences.

[13]When Edgar Zilsel, in his monograph *Geniereligion* (first published in 1918), claims that philosophy and the sciences have not profited from genius, he remains close to Kantian arguments: erudition and hard work are quite sufficient for important work in these fields, according to Zilsel (1990, 183).

[14]Reinhardt Brandt's commentary leaves that question open (1999, 330–31).

[15]Note that in one important terminological step, Kant has already fully committed himself to using the term "artist" for the producer of fine art, no longer as an umbrella term for the producers of fine arts and of technological products.

[16]See also corresponding passages in Kant's *Anthropology* (AA 7: 138, 210). In German, the word "Pinsel" also evokes associations with the rather derogatory term "Einfaltspinsel," a very naive person.

4 | KANT ON VIRTUES, INNOVATION, AND MORAL APATHY

Kant did indeed change our understanding of the philosopher, the artist, and the scientist. So far, it has been emphasized that Kant initiated crucial steps towards conceptual innovation with respect to the notion of genius in the sciences but did not quite take the innovative steps himself. Kant does, however, offer a very precise analysis of a key term of the discussion so far, that of the *teachability of a virtue*, in his doctrine of virtue in the *Metaphysics of Morals*. Here, Kant takes up precisely the issues that figure in the brief account of the conceptual history of "genius" in the sciences as given above. In the opening passages of *Doctrine of Virtue*, part 2 of his *Metaphysics of Morals*, Kant defines virtue as a form of "fortitude" (AA 6: 380), more precisely as the ability to heroically withstand a powerful but unjust opponent that is opposing us in our own mind, "within us": virtue refers to our ability to fight our very own inclinations that work against our acting morally. The rather martial comparison with the fortitude required for opposing an opponent in wartime has important implications. Possessing virtue means that the virtuous person needs always to be alert and always able to react towards unknown and unexpected challenges.[17] This implies that virtues are not sufficiently explained as being an "aptitude" ("Fertigkeit"; "skill" might also be an adequate translation) or "habit" ("Gewohnheit"; both terms at AA 6: 383). There are various arguments at play here, all having to do with how we acquire virtues or skills. "Aptitudes" are learned via extensive training, via "practice" ("Übung," AA 6: 383), and thus become "habits." This model, clearly in line with empiricist accounts of how our mental capacities are formed, is inadequate if we need to account for moral virtues, for two reasons. One reason has already been mentioned: the necessity to react virtuously in an infinite number of unpredictable situations that cannot reliably be guaranteed on the basis of a finite number of instances from past experience (note: this argument had already been used by Kant as an argument against empiricist explanations for cognition/experience in his theoretical philosophy, and had been a reason for adopting a priori, universal, situation-independent principles for pure cognition). The other reason turns this negative argument—that virtues cannot be acquired via customization—into a positive claim: moral virtues need to rely upon, and come forth from, rationally consolidated principles, and for this reason, again, the empiricist model of training via customization is insufficient. As is characteristic, however, of Kant's doctrine of virtue, a purely reason-based account does not work either—in other passages, Kant prescribes that we should combine rational contemplation with "Übung," that is, with practice (AA 6: 397).[18]

Things get even more complicated when Kant explicitly states that virtue always needs to be "*in progress* and yet always starts *from the beginning*" at each and every moment (AA 6: 409). This seems to imply that the exercise of virtue is always bound to be a creative act, but the ever-innovative character of creativity is also reined in when he presents these two characteristics as being in some sort of conflict ("and yet"): that virtue is progressive suggests some form of continuity in the exercise of virtue, which is, at least on the surface, denied when virtue has to start anew.[19] It is easy to reconcile both versions, of course.[20] One only has to argue that each

[17]"Able" needs to be worked out in more detail. "Able" is chosen here as a deliberately unassuming term. What would have to be discussed is the relationship of this characteristic of virtues to that of "being disposed" or of "being prepared" to act in a certain way.

[18]This is discussed in quite some detail in the literature on Kant's theory of moral education. Characteristically, literature on Kant's ideas about education tend to focus upon the specific topic of moral education—this is what most of the texts in Roth and Surprenant 2012 discuss. For an overview that integrates the different domains of education in Kant see Esser 2009; for the role of genius see Bird-Pollan 2013.

[19]The same idea can be found in Kant's *Anthropology* (AA 7: 147): virtue should be understood not as a "skill" or "aptitude" ("Fertigkeit") but as the "moral strength in adherence to one's duty, which never should become habit but should always emerge entirely new and original from one's way of thinking."

[20]What probably would not work is an argument to the effect that progress might be taken as being discontinuous, and in this sense could allow for new steps everywhere: this does not seem to do justice to the reliability and consistency that is required for morality.

individual moment in a sequence of successive steps can be new (for instance, in the sense of not being predictable on the basis of the previous moments in the sequence), even if all the individual moments contribute to an overall progress. But note that this argument works only in retrospect (it is fully analogous to the hermeneutic, retrospective reconstruction of an historical logic in the process of art history, for example). What is even more important are the arguments that Kant gives for his double claim. He claims that virtues are progressive because full moral perfection can only be an ideal that we can never fully achieve, only approximate; and the reason we need to start anew over and over again comes from the human predicament of always being affected with sensuous inclinations that make us struggle to follow the moral imperative. This necessity of ever fighting makes it impossible to achieve the virtuous state via customization. Customization, after all, tends to make things easier; but that is precisely not what we need when we need to always actively exercise fortitude. The issue of trainability is, therefore, deeply inscribed into Kant's account of virtues. Interestingly, the necessity to find a foundation of virtuous action in pure morality and the empirical facts about the human predicament both lead to the same result here. In Kant's *Pedagogics*, we again encounter the paradox of education: moral culture is based upon (has rational insight into) moral maxims, not upon "discipline" (AA 9: 475, 480).

In the introduction to the *Doctrine of Virtue*, Kant gives another description of what is required for acting virtuously, in which he ennobles a term that, at first sight, engenders rather negative expectations: "apathy" (AA 6: 408–9; see also Formosa 2011). Kant's use of the term "apathy" must not bar the way to action, of course; he is careful to distinguish his notion of apathy from mere indifference, from a lack of direction, from being inert. Rather, apathy means the mental state in which a being is untroubled by sensuous stimuli, or the result of the fight against our sensuous inclinations that, if successful, leaves us in a state of serene tranquillity: "The true strength of virtue is a *tranquil mind* with a considered and firm resolution to put the law of virtue into practice" (AA 6: 409). Other than the description of virtue quoted above, this account does not contain a "yet"—the calm and serene state that is described here can, at least according to Kant, very well include strong determination as an integral feature. Kant conceives of a form of tranquillity that comes paired with strong determination, but with a form of determination that is—see the necessity to react flexibly—omnidirectional.

This brings us back to more recent discussions in VE. Lorraine Daston and Peter Galison (2007), for instance, strongly focus upon ascetic epistemic virtues, virtues of self-restraint, of the elimination of the purely subjective. Kant, however, rather suggests what we may call a form of *rich asceticism*, a form of tranquillity that does not stand in the way of creative exuberance.

5 | TEACHING GENIUS, INSTALLING VIRTUES: PREPARING FOR THE UNEXPECTED

Zooming in on Kant's contribution to our conception of genius in science transports us into a particularly fertile moment in intellectual history. Probably no philosopher has done more for shaping our ideas of the personae of the modern scientist and the philosopher than Kant: he stimulated the institutionalization of a philosophically founded ideal of scientificity in the form of the modern research university, established our notions of science and natural science, and stimulated a discourse that led to a universal creativity imperative (see Reckwitz 2012) in the arts, but also in science and philosophy, and to a strong focus on education as a theoretical argument and as an issue for practical implementation. At the very moment when our modern notion of science has been conceptually clarified and institutionally installed, the typical dilemma of education is inscribed into this very notion of science: we are required, according to Kant (and even more according to his successors), to implement scientificity in our institutional practice, with its basis in rules and their precision, but in a context in which the transgression of rules is deemed at least as important as the safeguarding of rules.

The educative paradox carries over both to ethics, as the problem of moral education in the Kantian framework, and to epistemology, as the problem of training creative minds or of geniuses.[21] In both cases, what is at issue is the difficulty of striking a balance between strict rules, on the one hand, and the unruliness of the human nature or of innovative discoveries, on the other. Beyond this common framework, things are pretty different, however. In ethics, we have a clear conception of the relevant rules, and of the human predicament that is in conflict with this rule. In epistemology, the problem presents itself in a more radical way: what is required here is that we become active in a context that is precisely not governed by rules. Beyond this difference, an important shared element is emerging in discussions of epistemic and ethical virtues in the Kantian framework: in all cases, we need to *prepare for the unexpected*. So far as ethical virtues are concerned, Kant devises an argument to show that we need to face the unexpected, that which is beyond our control, not only in rare situations that solicit the exercise of moral fortitude but also in each and every moment of our human existence: this is guaranteed, according to Kant, because of our human predicament of being finite, imperfect beings that cannot get rid of their sensuous inclinations.

Can the same move be made in epistemic contexts? Genius and creativity manifest themselves in extraordinary situations—but Kant also gets close to claiming that original acts are required everywhere in our cognitive practice. We need to become active in an autonomous fashion, as he emphasizes in his text on the notion of the Enlightenment, and equally in his *Lectures on Pedagogy*. The cultivation of the higher mental faculties is best achieved by doing oneself what one wants to accomplish (AA 9: 477). Taken to the final consequence, this implies that every thought should be and needs to be an original and creative one, in the sense that we need to fully perform and grasp each thought ourselves. This is a point that Johann Gottlieb Fichte would emphasize when he transformed Kant's striving for a foundation of scientificity into a strictly Idealist position.

At this moment, we again arrive at an historical watershed. There are two ways for elaborating upon this claim to originality in our cognitive practice: on the one hand, the Fichtean argument of strict *autonomy* and full *self-control* in all our acts, including our epistemic acts. On the other hand, one may try to include the moment of *surprise* (on this term in the context of Schelling's philosophy, see Nicholls 2006, chap. 6), of encountering the unexpected, into the attitude that is required for epistemic success. This is an argument that we find in the realist critics of Fichtean (and Kantian) Idealism, but also in the middle and later philosophy of Schelling, who attempts to go beyond what we can cognitively control in his attempt to arrive at a genuine foundation of philosophy. This attitude could be described as the attempt to actively prepare ourselves for being passive, to work hard in order to let ourselves be surprised by, for instance, the result of a scientific experiment (see also Ziche 2012). This results in a non-Fichtean analysis of a cognitive situation in which *everything* that we are going to experience in this kind of state will be new, in the relevant sense of not adopted by us in the mode of passive imitation.

This latter way of phrasing the cognitive attitude of the successful creative reasoner links up with some of the ideas that had been highlighted in the analysis of Kant's ideas about creativity: creativity should be seen as a virtue that is as much about restraint as about exuberance, about conscious autonomy and unconscious surprises; it is about an attitude of apathy with strong but undirected determination. An important result is that this analysis of the epistemic virtue of creativity—which should be integrated, via either of the two arguments just given, in all our cognitive acts—gives a far more specific account of epistemic virtues than we get in the literature. Consider, for instance, a definition by Jason Baehr: "An intellectually virtuous person is one who thinks, reasons, judges, interprets, evaluates, and so on, in an intellectually appropriate

[21] What should be discussed here (but cannot, due to lack of space) is the problem of *moral genius*: just like the idea of a naively "beautiful soul," the idea of a moral genius is severely criticized by, for example, Schelling and Hegel, with the Kantian argument that morality is a matter of precisely determined duties, not of creativity.

or rational way" (2011, chap. 2.1). This definition leads to more questions than it answers: Is it required that the virtuous person act in this way all the time or only in salient cases? How can we flesh out the ideal of being "appropriate"? How to spell out the open list that is indicated via "and so on"? Again, the discourse from the period around 1800 might have something interesting and conceptually strong to offer here: at this time, key authors integrated the tension between being highly specific and fully determined, on the one hand, and being creatively open, unpredicted, and unexpected, on the other, into the most ambitious conceptualization of science that had so far been available.

REFERENCES

Addison, Joseph. 1711. "On Genius." *The Spectator* no. 160, September 3, 1711. In *The Spectator*, edited by Donald F. Bond, 126–30. Oxford: Clarendon Press, 1965.

Baehr, Jason. 2011. *The Inquiring Mind: On Intellectual Virtues and Virtue Epistemology*. Oxford: Oxford University Press.

Baehr, Jason. 2013. "Education for Intellectual Virtues: From Theory to Practice." *Journal of Philosophy of Education* 47: 248–62.

Baehr, Jason. 2018. "Intellectual Creativity." In Gaut and Kieran 2018, 42–59.

Bird-Pollan, Stefan. 2013: "Kant, Genius and Moral Development." In *Kant und die Philosophie in weltbürgerlicher Absicht: Akten des XI. Kant-Kongresses 2010*, edited by Stefano Bacin et al., 591–600. Berlin: De Gruyter.

Brandt, Reinhardt. 1999. *Kritischer Kommentar zu Kants Anthropologie in pragmatischer Hinsicht (1798)*. Hamburg: Meiner.

Clark, William. 2006. *Academic Charisma and the Origins of the Research University*. Chicago: University of Chicago Press.

Daston, Lorraine, and Peter Galison. 2007. *Objectivity*. New York: Zone Books.

Duff, William. 1767. *An Essay on Original Genius; and Its Various Modes of Exertion in Philosophy and the Fine Arts, Particularly in Poetry*. London: Edward and Charles Dilly.

Engell, James. 2013. *The Creative Imagination: Enlightenment to Romanticism*. Cambridge, Mass.: Harvard University Press.

Esser, Andrea Marlen. 2009. "Vernunft in der Entwicklung: Kants Konzept der Erziehung und Bildung." In *Bildung als Mittel und Selbstzweck: Korrektive Erinnerung wider die Verengung des Bildungsbegriffs*, edited by Axel Hutter and Markus Kartheininger, 16–41. Freiburg i. Br.: Alber.

Essex, Caroline J. 2003. "In Pursuit of Genius: Tracing the History of a Concept in English Writing, from the Late Enlightenment to the Dawn of the Twentieth Century." Ph.D. thesis, University College London (https://discovery.ucl.ac.uk/id/eprint/10100428/1/U643280.pdf).

Formosa, Paul. 2011. "A Life Without Affects and Passions: Kant on the Duty of Apathy." *Parrhesia* 13: 96–111.

Gammon, Martin. 1997. "'Exemplary Originality': Kant on Genius and Imitation." *Journal of the History of Philosophy* 35: 563–92.

Gaut, Berys, and Matthew Kieran, eds. 2018. *Creativity and Philosophy*. London: Routledge.

Gerard, Alexander. 1774. *An Essay on Genius*. London: W. Strahan, T. Cadell and W. Creech.

Guyer, Paul. 2012. "Examples of Moral Possibility." In Roth and Surprenant, 124–38.

Kieran, Matthew. 2019. "Creativity as an Epistemic Virtue." In *The Routledge Handbook of Virtue Epistemology*, edited by Heather Battaly, 167–77. New York: Routledge.

Kuehn, Manfred. 2012. "Kant on Education, Anthropology, and Ethics." In Roth and Surprenant, 55–68.

Kwa, Chunglin. 2011. *Styles of Knowing: A New History of Science from Ancient Times to the Present*. Pittsburgh: University of Pittsburgh Press.

Nanay, Bence. 2014. "An Experiential Account of Creativity." In *The Philosophy of Creativity: New Essays*, edited by Elliot Samuel Paul and Scott Barry Kaufman, 17–35. Oxford: Oxford University Press.

Nicholls, Angus. 2006. *Goethe's Concept of the Daemonic: After the Ancients*. Rochester: Camden House.

Reckwitz, Andreas. 2012. *Die Erfindung der Kreativität: Zum Prozess gesellschaftlicher Ästhetisierung*. Frankfurt a. M.: Suhrkamp.

Ross, Sidney 1962. "*Scientist:* The Story of a Word." *Annals of Science* 18: 65–85.

Roth, Klas, and Chris W. Surprenant, eds. 2012. *Kant and Education: Interpretations and Commentary*. New York: Routledge.

Schelling, Friedrich Wilhelm Joseph. 1800. *System des transzendentalen Idealismus.* Translated as *System of Transcendental Idealism* by Peter Heath, introduction by Michael Vater. Charlottesville: University Press of Virginia, 2001.

Schelling, Friedrich Wilhelm Joseph. 1861. *Sämmtliche Werke*. Edited by Karl Friedrich August Schelling. Vol. 1: 10. Stuttgart: Cotta.

Weischedel, Wilhelm, ed. 1960. *Idee und Wirklichkeit einer Universität: Dokumente zur Geschichte der Friedrich-Wilhelms-Universität zu Berlin*. Berlin: De Gruyter.
Williams, Jessica J. 2021. "Kant Against the Cult of Genius: Epistemic and Moral Considerations." In *The Court of Reason*: *Proceedings of the 13th International Kant Congress*, edited by Beatrix Himmelmann and Camilla Serck-Hanssen, 921–30. Berlin: De Gruyter.
Young, Edward. 1759. *Conjectures on Original Composition: In a Letter to the Author of Sir Charles Grandison*. London: A. Millar and R. and J. Dodsley.
Zagzebski, Linda Trinkaus. 1996. *Virtues of the Mind: An Inquiry into the Nature of Virtue and the Ethical Foundations of Knowledge*. Cambridge: Cambridge University Press.
Ziche, Paul. 1998. "Von der Naturgeschichte zur Naturwissenschaft: Die Naturwissenschaften als eigenes Fachgebiet an der Universität Jena." *Berichte zur Wissenschaftsgeschichte* 21: 251–63.
Ziche, Paul. 2009. "Ausbildung zum Genie: Schelling und die Bildung zur Innovationsfähigkeit." *Bildung als Mittel und Selbstzweck: Korrektive Erinnerung wider die Verengung des Bildungsbegriffs*, edited by Axel Hutter and Markus Kartheininger, 63–81. Freiburg i. Br.: Alber.
Ziche, Paul. 2012."'Höherer Empirismus': Passive Wissenschaft, letzte Tatsachen und experimentelle Philosophie bei F. W. J. Schelling." *Internationales Jahrbuch des Deutschen Idealismus/International Yearbook of German Idealism 8/2010: Philosophie und Wissenschaft/Philosophy and Science*, 165–84. Berlin: De Gruyter
Ziche, Paul. 2019. "Begriffliche Metareflexion im kollektiven Singular: Neue Begriffsstrukturen in Vorlesungsverzeichnissen und einführenden Lehrtexten um 1800." In *Genealogien der Natur und des Geistes: Diskurse, Kontexte und Transformationen um 1800*, edited by Franziska Bomski and Jürgen Stolzenberg, 43–61. Göttingen: Wallstein.
Ziche, Paul. 2022a. "Drives in Schelling: Drives as Cognitive Faculties." In *The Concept of Drive in Classical German Philosophy*, edited by Manja Kisner and Jörg Noller, 255–79. Cham: Palgrave Macmillan.
Ziche, Paul. 2022b. "Schelling über Kepler: Der Naturwissenschaftler als Genie." *Schelling-Studien* 9: 175–97.
Zilsel, Edgar. 1990. *Die Geniereligion: Ein kritischer Versuch über das moderne Persönlichkeitsideal, mit einer historischen Begründung*. Edited by Johann Dvorak. Frankfurt a. M.: Suhrkamp.

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