Teaching for Intellectual Virtue in Logic and Critical Thinking Classes: Why and How

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Abstract: Introductory-level undergraduate classes in Logic or Critical Thinking are a staple in the portfolio of many Philosophy programs. A standard approach to these classes is to include teaching and learning activities focused on formal deductive and inductive logic, sometimes accompanied by teaching and learning activities focused on informal fallacies or argument construction. In this article, I discuss a proposal to include an additional element within these classes—namely, teaching and learning activities focused on intellectual virtues. After clarifying the proposal, I identify three reasons in favor of implementing it and I discuss how to implement it, focusing on questions about pedagogical strategies and pedagogical resources.

Introductory-level undergraduate classes in Logic or Critical Thinking are a staple in the portfolio of many Philosophy programs, especially in the United States. A standard approach to these classes is to include teaching and learning activities focused on formal deductive and inductive logic, sometimes accompanied by teaching and learning activities focused on informal fallacies or argument construction. In this article, I discuss a proposal to include an additional element within these classes—namely, teaching and learning activities focused on intellectual virtues. After clarifying the proposal in section 1, I go on to identify three reasons in favor of implementing it in section 2. I then discuss how to implement it in section 3, focusing on questions about pedagogical strategies and pedagogical resources.

1. Teaching for Intellectual Virtue: The Proposal

The project of this article involves comparing what I called in the Introduction a "standard" approach to teaching Logic and Critical Thinking classes with an approach that includes an additional element focused on intellectual virtues education. Some clarifying comments regarding

the classes I have in mind, the standard approach, and the proposed addition are all called for in order to make this comparison intelligibly.

First, regarding the classes that are my focus, it should be noted that these go by various titles, usually incorporating one or more of the terms "Logic," "Critical Thinking," "Reason" or "Argument." They are usually offered by Philosophy programs at the introductory level, with a content focusing substantially on skills of argument identification, evaluation, and construction. These classes have become quite common in university curricula, in part due to the efforts of the Critical Thinking movement stemming from the late 1970s (for a review of the history of this movement, see Lipman 2003: chap. 5).

For illustrative purposes, we might consider the following two paradigm examples of such classes: PHIL 155: Reason and Argument at Duke University, and PHIL 105: Critical Thinking at the University of North Carolina at Chapel Hill.

> PHIL 155 How to analyze, evaluate, and construct arguments of various kinds on a wide range of topics.[1]

> PHIL 105 A course on how to identify, analyze, and evaluate arguments by other people and how to construct arguments. Topics include argument reconstruction, informal logic, fallacies, introductory formal logic, and probabilistic reasoning.[2]

My focus will be on courses such as these. Often, such courses are the only generic Critical Thinking courses offered by the program in question. More occasionally, especially at larger universities, they are accompanied by "companion" courses, which students are required or encouraged to take alongside them. Or, they may be offered as one of several "alternate" generic Critical Thinking courses which can fulfill the same educational requirements for students, where students would be encouraged to select only one of these alternates. My focus will be on Logic and Critical Thinking courses fitting the above description which are offered either as the only generic Critical Thinking course provided by a program, or alongside companion or alternate courses that do not already implement something comparable to the proposal I will make below regarding intellectual virtues education. My focus is narrowed, moreover, to cases in which nothing comparable to this proposal regarding intellectual virtues education is already implemented more widely throughout the curriculum—for example, through a Critical Thinking across the disciplines initiative.

A standard approach to teaching Logic and Critical Thinking classes of the kind in view is to focus exclusively on teaching and learning activities pertaining to the following areas: identifying arguments; evaluating arguments using methods of formal deductive and inductive logic; (and somewhat less commonly) constructing argu-

ments; and identifying informal fallacies. I do not claim that this is the only approach taken to these classes, or even that there are not other common approaches. Nor is my claim that such an approach to these classes is a standard approach based on a systematic survey of the teaching practices of instructors of these classes. Rather, it is based on (i) the reported judgments of experienced teachers in the area regarding standard practices and (ii) the contents of widely-used textbooks for these classes. As an instance of (i), Heather Battaly, who taught at California State University, Fullerton, for seventeen years, says "Lower-division courses in logic and critical thinking standardly focus on skills in deductive and inductive reasoning" (Battaly 2016: 164). Similarly, Sharon Bailin (a past president of the Association for Informal Logic and Critical Thinking) and Mark Battersby (founder of the British Columbia Association for Critical Thinking Research) say "separate courses on critical thinking . . . generally limit their focus to logic, formal or informal, and the evaluation of individual arguments" (Bailin and Battersby 2015: 124). Examples of widely-used textbooks for classes in Logic and Critical Thinking that include an exclusive focus on the highlighted areas include Patrick Hurley and Lori Watson's *A Concise Introduction to Logic* (2017), which claims to be "the #1 introductory logic book on the market," and *The Power of Logic* (2012) by Frances Howard-Snyder, Daniel Howard-Snyder, and Ryan Wasserman, which is a competitor that has been through five editions. While there are surely other approaches to teaching these classes, the standard approach I have in mind here is likely quite common.

My proposal is to supplement the focal areas of teaching and learning exemplified in this standard approach with a further focal area concerned with intellectual virtues. In much the way that teaching and learning activities in the standard approach aim at student growth in skills of identifying, evaluating and constructing arguments, the supplemental teaching and learning activities I have in mind would aim at student growth in intellectual virtues. The distinctive aim of these activities would be for students on average to move closer to ideal intellectual virtuousness, regardless of how close or far away they are from that ideal to begin with (cf. Kotzee 2016: 157–58).

The supplemental teaching and learning activities I have in mind would focus primarily on particular intellectual virtues, rather than more generally on intellectual virtue as such. Candidate virtues that might be addressed in these teaching and learning activities would include the love of intellectual goods, inquisitiveness, intellectual courage, introspective vigilance, intellectual humility, intellectual carefulness, attentiveness, intellectual autonomy, intellectual thoroughness, intellectual tenacity, open-mindedness, fair-mindedness, interpersonal trust, interpretive charity, firmness, and intellectual empathy. They may

also include intellectual generosity, communicative clarity, honesty, and sensitivity to one's audience. I highlight these particular candidate virtues because they have received attention from virtue epistemologists in works in which they investigate a series of intellectual virtues at length (see Baehr 2015a, Byerly 2017, Dow 2013, King forthcoming, and Roberts and Wood 2007; I will have more to say about the pedagogical value of some of these works in section 3).

Different (though not necessarily mutually exclusive) accounts of what makes traits such as these intellectual virtues could be given. One common idea is that these are traits that make their possessors better as inquirers (Baehr 2011), or as participants in the community of inquiry (Byerly 2017; Lipman 2003). Another is that they are excellences of character regulating how a person inquirers (Lepock 2011; Roberts and Wood 2007). Another still that they are the kinds of traits we admire in the best thinkers (Costa 2009; Zagzebski 2017). I intend for my proposal to be taken in such a way that different approaches to this topic could be accommodated.

Similarly, there are different views about the structure of intellectual virtues—about which components, generally speaking, are required for a trait to be an intellectual virtue. A common view is that intellectual virtues have components of motivation, skilful behavior, and sensitivity or judgment (cf. Baehr 2016a, who notes widespread agreement among contributors to this edited volume). For example, open-mindedness might be understood to involve skill in considering alternative views on a topic or arguments on either side of an issue, sensitivity concerning when consideration of such alternatives is warranted, and a motivation to engage in using the relevant skills under the relevant circumstances for the purpose of achieving intellectual goods for their own sake. It is also frequently proposed that intellectual virtues must include affective components (again, see Baehr 2016a). For example, it might be claimed that the ideally open-minded person must tend to take pleasure in considering alternative views, and tend to be displeased when people refuse to consider arguments on both sides of an issue.

For my purposes, the recommendation to include intellectual virtues education within Logic and Critical Thinking classes is a recommendation to *at least* include teaching and learning activities pertaining to the skill and sensitivity components of intellectual virtues. Ideally and in cases where more time focused on intellectual virtues can be justified, teaching and learning activities would also address the motivational and affective components of intellectual virtues. I place a greater priority on the skill and sensitivity components of intellectual virtues because the arguments I will give on behalf of implementing the proposal to include intellectual virtues education in Logic and Critical Thinking classes provide greater justification for teaching and learning about

these components of intellectual virtues, and because these components of intellectual virtues are the least problematic to assess (cf. Siegel 2017: chap. 7). This is not at all to say that the other components cannot or should not be taught. Indeed, along the way I will highlight some reasons for thinking that they should and that they can be.

Hopefully the kind of supplemental teaching and learning activities I am proposing to include is sufficiently clear, at least in terms of the aims of these activities, even if the mechanics of the activities—*how* to do them—is not yet clear (the latter is my topic in section 3). We might ask, however; *just how much* of such activities are we talking about including? Here it isn't my intention to recommend a one-size-fits-all answer. The percentage of course time given to these activities may reasonably vary considerably from one course to another on the basis of a variety of factors such as instructor interest and experience, fit with departmental aims, fit with preferred teaching resources, and so on. But for purposes of ensuring that the proposal of this paper has teeth, I am envisioning instructors including enough of these activities that they would deserve mention alongside other topics listed in a summary list of topics (such as that for PHIL 105 above) that might show up in a description of the course used by students when selecting their classes. On the other hand, the envisioned activities needn't comprise so much of the course's coverage that the listed topics of the standard approach to Logic and Critical Thinking classes would have to be eliminated from such a course description, though some might be. In order to satisfy these requirements, I would estimate that the percentage of course time devoted to intellectual virtues education activities might be between 10 percent and 50 percent. For instructors including these activities within their courses for the first time, a percentage on the lower end of this spectrum may be quite sensible.

An immediate question about my proposal will be what I would propose to cut in order to accommodate the introduction of such a substantial percentage of course time focused on intellectual virtues education. After all, even 10 percent of course time doesn't come for free, much less 50 percent. In response, we might begin by noting that several authors who have advocated on behalf of educating for intellectual virtues, whether in Logic and Critical Thinking classes or elsewhere, have pointed out that teaching for intellectual virtue is less about doing something different than it is about doing differently what is already done (Baehr 2016b; Battaly 2016). Certain activities already commonly included in Logic and Critical Thinking classes could be modified in order to contribute to intellectual virtues education. For example, Battaly proposes that "asking students to provide multiple different proofs of the same problem . . . can simultaneously encourage them to develop logical skills and open-mindedness" (2016:

165). Another prime example is student projects. These projects might require students to, among other things, produce an argument about an issue they care about. As we will see in more detail below, such a project can be quite conducive toward intellectual virtues education if designed appropriately. The aim of such a suitably modified project would be not only to encourage students to exercise skills in argument construction, but virtues of inquiry into their chosen topic.

Still, some replacement of old activities with new ones will be necessary. Accordingly, we should still ask which of the old activities might be cut in order to introduce teaching and learning activities focused on intellectual virtues education that cannot be so easily integrated into the existing teaching and learning activities of the standard approach. My main suggestion, in response, is that instructors cut parts of the Logic and Critical Thinking course where there is significant overlap, either with the intellectual virtues education activities being introduced or with other components of the course.

For example, there is likely to be some overlap between the intellectual virtues education activities an instructor might introduce and teaching and learning activities devoted to *informal fallacies* that may already be included as part of the standard approach. Some of these fallacies are, we might say, acts characteristic of intellectual vices—those qualities of intellectual character to which intellectual virtues are opposed. At least, this is plausible in some cases where instances of the fallacies really are fallacious in a normative sense (cf. Aberdein 2016). Moreover, several authors have pointed out ways in which particular intellectual virtues would guard an inquirer against committing particular informal fallacies (e.g., Byerly 2017; Garcia and King 2016). An instructor who already devotes a portion of her Logic and Critical Thinking class to informal fallacies might accordingly consider replacing this component (or a portion thereof) of her class with intellectual virtues education, focusing on the intellectual virtues that tend to guard against the particular fallacies she tends to focus on in this component of the course. Doing so might all by itself enable her to devote 10 percent of course time to these activities, and so following this recommendation alone may be sufficient for some instructors to implement the proposal recommended here. When combined with integrative activities of the kind previously noted, the resulting percentage of time devoted to intellectual virtues education may be perfectly adequate for some instructors.

Other instructors, however, may wish to devote a greater percentage of time to intellectual virtues education. And still other instructors will not have already included the salient elements thus far discussed—student projects and activities focused on informal fallacies—that provide comparatively low cost opportunities for introducing intellectual virtues

education. My recommendation is that instructors in these scenarios cut elements of their course which overlap substantially with other elements of their course in terms of their pedagogical aims. For example, it is common for Logic and Critical Thinking classes to cover several distinct methods in deductive logic, such as the famous forms method, Venn Diagrams, truth tables, and proof methods of various kinds. I would suggest that instructors who are either unable to implement the present proposal in another way or who wish to devote a greater percentage of course time to intellectual virtues education cut down on the number of such methods in deductive logic that they teach. Students who mastered the remaining course content would still be proficient in evaluating arguments for validity, which is arguably the primary purpose of teaching them these methods.

I wish to stress one final element of my proposal before turning to reasons in favor of implementing it. The final element, as suggested briefly above, is that the skills typically taught in the standard approach and the virtues taught via my proposed addition be presented to students as integrated parts of a comprehensive and attractive intellectual ideal. One such ideal may simply be the ideal of intellectual virtuousness itself, supposing that intellectual virtuousness requires proficiency in intellectual skills (cf. Baehr 2016b). Alternatively, one might propose that the skills are themselves virtues of a certain sort—reliabilist virtues—which complement the responsibilist virtues that are the focus of my proposal (cf. Battaly 2016). Or one might appeal to the ideal of critical thinking, which as we will see momentarily is often thought to include both the skills and the virtues in view here. Further still, one might appeal to an ideal of intelligent inquiry as including these components (cf. Perkins and Tishman 2001). Whatever ideal one selects, what is important is that the skills and virtues are presented as integrated components of it.

2. Why Teach for Intellectual Virtue?

The previous section explained in some detail my proposal to integrate intellectual virtues education activities within Logic and Critical Thinking classes. The purpose of the present section is to identify three reasons in favor of implementing this proposal. But before getting to these reasons, I begin by identifying two assumptions I will be making in identifying these reasons. While each assumption in some way limits the target audience of my appeal on behalf of implementing the proposal, the target audience will remain sizeable.

For my first assumption, I simply remind the reader of a procedural point mentioned briefly in the previous section regarding the Logic and Critical Thinking classes that are my focus. My focus is on cases in

which what I called a "standard" approach to the Logic and Critical Thinking class is taken, and in which nothing comparable to my proposal regarding intellectual virtues education is already implemented in companion or alternate classes in Critical Thinking or more widely throughout the curriculum. I will be arguing that implementing my proposal in these cases has benefits over not implementing it. This is not to say that implementing the proposal in *just any* Logic and Critical Thinking class would have these same benefits.

The second assumption is more substantive than procedural. I will be assuming that some growth in intellectual virtue on the part of students is in fact attainable via implementing the proposal. The assumption isn't that all students will grow in intellectual virtue, any more than one would assume that all students would grow in the skills that are the focus of the standard approach. Nor is it that most or any students will, at the end of this one-semester class, have realized completely ideal intellectual virtue. Rather, it is that, on average, students will come out of the class closer to ideal intellectual virtue than when they began because of this teaching intervention (cf. Baehr 2016b). They will become, on average, more open-minded, vigilant, charitable, or inquisitive, for example, depending on which intellectual virtues are the focus of instruction. And they will be better positioned to continue pursuing growth in intellectual virtue over the long-haul.

Certainly there are some who may be suspicious of even this modest assumption. For example, they might be concerned that the challenge of situationism shows that there aren't really any character traits, or that what drives human behavior is situational rather than characterological factors (cf. Alfano 2012, 2017; Olin and Doris 2014). I am not going to be able to convince readers who are already convinced of this view to change their minds in a short paragraph here. I simply point out for readers who might not antecedently have a view about this debate that several authors have responded to this kind of challenge, defending the existence and explanatory role of character traits—including intellectual character traits—against it (e.g., Baehr 2016b, 2017; Battaly 2014, 2016; Hill and Sandage 2016; King 2014). Moreover, it is surely worth noting that while the situationist challenge originated in the work of psychologists as a challenge to the study of personality traits more broadly, many psychologists today are not moved by this challenge to abandon the study of personality or character (see, e.g., Fleeson et al. 2015; Fowers 2014). The work of positive psychologists, in particular, on character has become a burgeoning enterprise (for a review, see Niemiec 2013). Finally, some research has revealed that in the specific context of an appropriately designed introductory critical thinking class, students exhibit stronger gains in such attributes as truth-seeking and open-mindedness than peers not taking such a class (Rimiene 2002).

So while there may be some Logic and Critical Thinking instructors who cannot take this second assumption on board—and so they will drop out of my target audience—I expect that many instructors will affirm it, leaving a sizeable audience.

To this audience, I recommend implementing the proposal of section 1 for three reasons. The first reason is that by implementing the proposal, classes in Logic and Critical Thinking will do a better job of teaching an important component of critical thinking that is not explicitly addressed via the standard approach. To spell out this reason, begin with the observation that an important, if not the most important, pedagogical aim of classes in Logic and Critical Thinking is to teach critical thinking. It was for this purpose that these classes originated, as we saw briefly above. And this is one of the distinctive functions that such classes serve within university curricula. However, it is widely agreed by education theorists and philosophers of education that critical thinking includes at least two components: a skills component and a thinking dispositions component (cf. Siegel 2017: chap. 4; Davies and Barnett 2015). While the skills component focuses precisely on the kinds of skills that are the focus of the standard approach—skills in identifying arguments, evaluating them for validity and strength, and constructing arguments—the traits commonly identified as examples of critical thinking dispositions overlap substantially with the intellectual virtues. Classes in Logic and Critical Thinking, when taught using the standard approach, may do a fine job of teaching the skills component of critical thinking (for recent reviews of how well they do, see Dwyer 2017: chap. 11; Ennis 2018). But they largely neglect the thinking dispositions component. If the proposal of section 1 were implemented, and if—as I'm assuming—this resulted in student gains in such traits as open-mindedness, vigilance, and charity, then Logic and Critical Thinking classes would do a better job of teaching the critical thinking dispositions component of critical thinking.

It is worth pausing to observe the overlap between critical thinking dispositions and intellectual virtues in some detail. While not all authors who write about thinking dispositions conceive of them as intellectual virtues, some do, and it is undeniable that the traits named in lists of thinking dispositions overlap extensively with the traits named in lists of intellectual virtues such as the one given in the previous section, which was—to repeat—based of a survey of resources produced by virtue epistemologists. Indeed, of the twenty traits named in that earlier list, at least eighteen are either explicitly named or described in the lists of thinking dispositions offered by critical thinking scholars Dwyer (2017), Ennis (2018), Facione (1990), or Paul and Elder (2011). The two traits from the earlier list it is most difficult to locate within the latter lists are interpersonal trust and intellectual generosity, yet

even in these cases there is some overlap. While traits such as these are often described quite briefly in resources produced by critical thinking scholars, one of the distinctive values offered by the work of virtue epistemologists is their extended, detailed treatments of these traits (cf. Siegel 2017: 91–92).

Now, it would be overstating the case to say that students are not taught thinking dispositions such as these *at all* on the standard approach. They may be taught these thinking dispositions inexplicitly. As noted above, for example, students may be pushed by constructing multiple distinct proofs of an argument or theorem to engage in some activities characteristic of open-mindedness, and so may gain in this intellectual virtue to some extent. More generally, as reflected in the account of the components of intellectual virtues given in section 1, it is a common view that the full possession of an intellectual virtue will involve a component of judgment or sensitivity, which characteristically involves aptitude in assessing reasons—an aptitude toward which the skills taught in the standard approach are presumably conducive (cf. Baehr 2016b). The teaching and learning activities of the standard approach, then, do make some contribution to teaching the thinking dispositions component of critical thinking by themselves. And indeed this is a reason to retain a strong core of these teaching and learning activities within these classes, in accordance with the proposal of section 1 (for further reasons, see Hatcher 1999).

Still, what gains there are to be had in critical thinking dispositions on the standard approach are only partial and piecemeal. Which if any activities characteristic of the virtues are included within the standard approach is largely accidental. And we know from existing research that despite some success in teaching the skills component of critical thinking, sensitivity to occasions calling for exercise of critical thinking skills and dispositions remains a major bottleneck to critical thinking (Perkins and Tishman 2001). By contrast, if the proposal of section 1 were implemented, the thinking dispositions component of critical thinking would be taught explicitly and systematically, unlocking the potential for broader and deeper student gains in these traits. As we will see in more detail in the next section, there is evidence that a variety of pedagogical strategies involving explicit education for intellectual virtue can be effective in securing student gains in these dispositions. To anticipate that discussion briefly, these strategies include direct instruction in the nature of intellectual virtues, exposure to exemplars of these virtues, exercises involving evaluation of behaviors as virtuous or vicious, practice of the behaviors characteristic of the virtues, and student self-evaluation with respect to target virtues. By virtue of including such explicit and systematic instruction, Logic and Critical Thinking classes in which the proposal of section 1 is implemented

would make a more robust contribution to fulfilling their aim of teaching the thinking dispositions component of critical thinking. This is one reason to implement that proposal.

We might wonder whether this first reason provides any justification for teaching focused on the motivational and affective components of intellectual virtues rather than just their skill and sensitivity components. After all, what is uncontroversial is only that critical thinking dispositions include the skill and sensitivity components of intellectual virtues rather than their motivational and affective components (cf. Siegel 2017: chap. 7). So, while this first reason provides clear justification for including teaching focused on the skill and sensitivity components of intellectual virtues, we might think that it will only provide justification for teaching their motivational and affective components for instructors who endorse an expansive conception of the nature of critical thinking dispositions according to which they require all of the components of the intellectual virtues. This conclusion, however, would be premature, if it turned out that student gains in the motivational and affective components of intellectual virtues in fact strengthened their gains in the skill and sensitivity components of intellectual virtues. While I will not defend the conclusion that gains the in the former would strengthen gains in the latter at length here, I will briefly note two reasons to think that they might. First, as typically understood, it is the motivation for epistemic goods characteristic of the intellectual virtues that unites them together into a coherent whole (cf. Montmarquet 1993 on "conscientiousness"; Roberts and Wood 2007 on "love of knowledge"; Baehr 2011: chap. 6 on "positive orientation toward epistemic good"). Yet, a suit of dispositions for inquiry that are possessed more as a coherent whole are more likely to be stably possessed than a suite of dispositions for inquiry possessed less as a coherent whole. Thus, we might expect student gains in the motivational components of intellectual virtues to reinforce gains in their skill and sensitivity components. Second, according to the long-standing theory of cognitive dissonance in Psychology (Festinger 1957; for a recent review of research, see Gawronski and Strack 2012), people have a drive to maintain harmony or congruity between their affections, cognitions, and volitions. Insofar as such a view is correct, we should expect that students who experience gains in the motivational or affective dimensions of intellectual virtues to experience pressure to likewise gain in the skill and sensitivity components of these traits, especially as they are being taught to do so. Thus, while this first reason most clearly and uncontroversially supports including intellectual virtues education activities focused on the skill and sensitivity components of intellectual virtues, it may also provide some justification for including activities focused on their motivational and affective components.

While the first reason for implementing the proposal focuses on the intended learning outcomes of classes in Logic and Critical Thinking, the second focuses on the intended learning outcomes of the larger academic programs to which these classes contribute. After all, the intended learning outcome of critical thinking is just as important for these programs as it is for the classes that derive their title from it. In fact, it is a common view among philosophers of education that critical thinking is the primary aim of education, quite broadly (Siegel 2017: chaps. 1–2). It is also a key plank in the sales platform of higher education to prospective employers that graduates excel in critical thinking, given the value employers place on critical thinking (Casserly 2012). As such, there is both theoretical and practical reason for academic programs to which Logic and Critical Thinking classes contribute to aim to help students cultivate critical thinking dispositions.

Implementing the proposal of section 1 will better enable Logic and Critical Thinking classes to advance this aim. This is not merely because of the comparatively greater gains students should experience in critical thinking dispositions from the beginning to end of the Logic and Critical Thinking class itself. Just as importantly, it is because the foundational, preparatory role this class plays in students' overall education will enable the intellectual virtues education provided within it to enhance student growth in critical thinking dispositions throughout their academic tenure and beyond.

Logic and Critical Thinking classes are positioned within the curriculum where they are for a reason. They are intended to introduce students to a way of thinking—critical thinking—that instructors hope they will thereafter continue to refine and employ throughout their tenure in higher education and beyond. These classes are intended to initiate students into life-long critical thinking (Green 2015). Because of this foundational role, there is all the more reason to include intellectual virtues education within these classes. For, just as students are better equipped to employ the skills of deductive and inductive reasoning throughout their academic tenure and beyond if they are given explicit instruction, early on, in how to do this reasoning, students will be better equipped to engage in the activities characteristic of the critical thinking dispositions throughout their academic tenure and beyond if they are given explicit instruction, early on, regarding the nature and characteristic manifestations of these dispositions (cf. Battaly 2016: 165; Ennis 2018). If the proposal of section 1 were implemented, then students would be given this explicit instruction in Logic and Critical Thinking classes, and so these classes would make a greater contribution to helping those programs of which they are a part to teach critical thinking. Moreover, as noted above, insofar as we can expect students' gains in the skill and sensitivity components

of intellectual virtues to increase with gains in their motivational and affective components, this second reason will likewise provide justification for teaching focused on the latter. In fact, this second reason may provide greater justification for including teaching focused on the motivational and affective components of intellectual virtues than the first, as we may expect students' exercise of the skill and sensitivity components of these traits after exiting the Logic and Critical Thinking classroom to depend more heavily on their having such motives and affections than it does within these classes themselves.

Whereas the first two reasons focus on pedagogical aims that are not explicitly addressed by the standard approach to teaching Logic and Critical Thinking, the third focuses on pedagogical aims that are explicitly addressed by the standard approach. The third reason for implementing the proposal is that by implementing it Logic and Critical Thinking classes will better achieve their pedagogical aims with respect to the skills of identifying, evaluating, and constructing arguments. This is because when these skills are taught alongside intellectual virtues as two components of a broader and attractive ideal, this will both increase students' motivation to learn the skills and it will increase their aptitude to apply the skills beyond the narrow confines of the Logic and Critical Thinking class itself.

Research on learner motivation has revealed that when students see learning course content as part of achieving a broader, attractive ideal, they are more intrinsically motivated to learn this content (Pink 2009: 131). Moreover, research has also found that intrinsic motivation is a key predictor of performance, whether in learning or in life more generally (Cerasoli, Nicklin, and Ford 2014). Accordingly, if the skills that are the focus of the standard approach to Logic and Critical Thinking classes are taught alongside intellectual virtues as part of a broad and attractive ideal such as being a virtuous or intelligent inquirer, then there is reason to think students will do a better job acquiring these skills.

Now, whether this argument should motivate an instructor to teach only the skill and sensitivity components or also the motivational and affective components of intellectual virtues will depend on which more comprehensive ideal the instructor focuses on. If, for example, the ideal is that of critical thinking, and if the critical thinking dispositions constitutive of this ideal are conceptualized as not requiring the motivational and affective components of intellectual virtues, then the argument will not motivate instruction focused on these latter components. If the ideal is instead one that subsumes these components, such as the ideal of virtuous inquiry, then the argument will motivate teaching focused on these components as well.

It is worth noting, however, that there may be an additional, more direct way in which teaching focused on the motivational component of intellectual virtues may influence student gains in the skills that are the focus of the standard approach. As Battaly hypothesizes, "developing the dispositions of motivation that are characteristic of the responsibilist virtues is . . . likely to help students develop logical skills. After all, students who are learning to care more, and care appropriately, about truth are more likely to recognize the value of logical skills (as a means to truth) and to take their courses in logic seriously" (2016: 165–66). Accordingly, by virtue of multiple pathways, teaching critical thinking skills alongside intellectual virtues as part of a comprehensive and attractive intellectual ideal may enhance student motivation to acquire critical thinking skills, and thereby enhance student acquisition of these skills.

Teaching the skills that are the focus of the standard approach alongside intellectual virtues also promises to increase the likelihood that students will continue to use these skills throughout their academic tenure and beyond. As many authors have observed, it is one thing to know how to identify and evaluate an argument for soundness; it is quite another to be disposed to do so across a wide variety of contexts. And in fact studies have revealed that there is a significant problem of transfer when it comes employing the skills that are the focus of the standard approach outside the confines of the Logic and Critical Thinking class (Behar-Horenstein and Niu 2011; Perkins and Tishman 2001).

As Bowell and Kingsbury (2015) have suggested, intellectual virtues education may help to rectify this problem of transfer. Many of the intellectual virtues are precisely the kinds of traits that would dispose a student to use skills in deductive or inductive reasoning quite widely in contexts of inquiry. Open-mindedness, for example, disposes a person to seek out and evaluate alternative perspectives, while fair-mindedness disposes one to evaluate alternative perspectives by the same standards. Students who exhibit growth in these and related qualities, and who are established on a trajectory where they will continue to pursue growth in them, are in a better position to continue employing the skills of argument identification, evaluation and construction across different contexts of inquiry throughout their academic tenures and beyond. In fact, we may also expect students who gain in the affective or motivational components of intellectual virtues to experience greater transfer in the use of these skills, insofar as student gains in caring appropriately about epistemic goods is also part of the solution to the problem of transfer.

This last reason for implementing the proposal of section 1 should help to mitigate against a concern that might be raised regarding the first two reasons. These reasons focused on the fact that implementing

the proposal would serve the pedagogical aim of enhancing teaching the thinking dispositions component of critical thinking. But, one might worry that enhancing teaching of this component would only come at the expense of weakening teaching of the skills component of critical thinking. What we have just seen in considering the last reason for implementing the proposal should partially disarm this concern. While there is a danger of either weaker learning of the skills due to less practice or learning of fewer skills due to cutting coverage of some skills, especially where a proportion of class time on the higher end of the 10–50 percent spectrum is devoted to intellectual virtues education, these dangers are partially mollified by the promotion of increased student motivation to learn what *is* covered and increased long-term student aptitude to apply their learning. The danger is even less worrisome if the proposal is implemented as suggested in section 1 in such a way that only components of the standard approach which overlap with other components in their aims are eliminated (e.g., truth-tables are eliminated but proofs are retained). If implemented in this way, it is even more likely that students will emerge as all-around better life-long critical thinkers, both with respect to the skills of deductive and inductive reasoning they tend to apply and with respect to their thinking dispositions.

3. How to Teach for Intellectual Virtue

If the arguments of the previous section are successful, then there is reason to integrate intellectual virtues education into Logic and Critical Thinking classes in accordance with the proposal of section 1. But *how* might this integration be carried out? I will address this question in this section by focusing on pedagogical strategies for teaching intellectual virtues and pedagogical resources for teaching intellectual virtues.

Begin with the pedagogical strategies. How is an instructor to design teaching and learning activities that will support student growth in intellectual virtues? Notably, there is broad agreement among scholars who have addressed this topic regarding key strategies. And empirical research done on the topic offers some confirmation of this agreement. Drawing on this work, I will briefly discuss five strategies for teaching intellectual virtues.

The first strategy is direct instruction. This strategy involves teaching and learning activities aimed at student understanding of the nature of those intellectual virtues in which the instructor aims for students to experience growth. These activities might involve the instructor providing definitions of these virtues, explaining and illustrating the key features of these definitions, contrasting the virtues with opposing vices, and readings and assessments devoted to these topics. Intended

learning outcomes of this instruction would be that students are able to themselves state definitions of the virtues in question, explain and illustrate key features of these definitions, and contrast the intellectual virtues with opposing vices. Students who have fulfilled these learning outcomes will have acquired a conceptual and terminological repertoire in intellectual virtues language and thought that will enable them to discuss intellectual virtues intelligently.

Virtue epistemologists who have advocated on behalf of teaching for intellectual virtues have advocated for such direct instruction. For example, in his book *Cultivating Good Minds* (Baehr 2015a), Baehr lists direct instruction first in a series of classroom teaching strategies aimed at intellectual virtues education. Battaly (2016), discussing teaching for intellectual virtue in Logic and Critical Thinking classes specifically, proposes that two class periods be devoted to direct instruction about the intellectual virtues. Ennis, as a critical thinking scholar, has long argued in favor of explicit instruction in critical thinking, including its dispositional component (e.g., Ennis 1989).

The effectiveness of teaching for intellectual virtue development in part through direct instruction in intellectual virtues receives some confirmation through empirical research. Ritchart's (2002) case studies of effective teaching for intellectual character with middle school students found that among the methods used by effective instructors was direct instruction. Ritchart hypothesized that part of the explanation for this was that such instruction provided students with new categories necessary for viewing inquiry through the lens of intellectual virtue. A growing body of research likewise indicates that explicit instruction in critical thinking is more effective than inexplicit instruction (e.g., Abrami et al. 2008; Martin and Halpern 2011). Studies suggest that this may be true for critical thinking dispositions as well as critical thinking skills (e.g., Rimiene 2002). Dwyer, in a critical analysis of such findings, proposes much as Ritchart did earlier that part of the explanation for this effectiveness is that "training in CT (critical thinking) may provide students with the opportunity to develop the CT schemas necessary to decrease the intrinsic cognitive load associated with the application of CT" (Dwyer 2017: 195). Accordingly, one worthwhile component of teaching for intellectual virtue in Logic and Critical Thinking classes will likely be direct instruction in the focal intellectual virtues.

A second pedagogical strategy involves the use of exemplars of the focal virtues. Exemplars are admirable people who furnish excellent examples of virtues—for example, people who are highly open-minded or charitable toward co-inquirers. Teaching and learning activities concerned with the use of exemplars might involve instructors telling anecdotes about events in which exemplars of particular virtues

manifested behaviors characteristic of these traits; students reading or watching such anecdotes; and assessments in which students identify exemplars and their exemplifications of the virtues.

The idea that we grow in virtue in part through exposure to people who are more virtuous than we are is of course an ancient one, playing a key role for Aristotle and Confucius, among others. It has been re-introduced into Western education several times, and is currently something of a hot topic among philosophers of education (see, e.g., Kristjánsson 2015 and Zagzebski 2017). Exemplars of course provide rich illustrations of the concepts taught through direct instruction in intellectual virtues. But they may do more than this as well. It may be that, as Battaly suggests, students can "catch" (2016: 179) emotions characteristic of the virtues from exemplars. And, since exemplars are by definition admirable, exposing students to them may furnish a way of presenting intellectual virtues to students as compelling and attractive, thereby motivating students to pursue them.

A further reason why exposure to exemplars may improve student acquisition of the intellectual virtues is that this exposure begins to illustrate for students what the operation of the virtues is like in diverse, real-life contexts. As we noted in the previous section, there is a significant problem of transfer that intellectual virtues education promises to help address. Students appear to struggle with what some researchers have called "sensitivity," the disposition to identify in diverse, real-life contexts when critical thinking skills and characteristic behaviors of critical thinking dispositions are appropriately exercised (Perkins and Tishman 2001). An important component of intellectual virtues education, then, will be to train students to identify such opportunities, and exposure to exemplars contributes to such training.

However, exposure to exemplars by itself—at least as described above—is likely insufficient for such training. Achieving the learning outcomes of exposure to exemplars will enable students to recall certain salient examples of virtuous behavior to which they have previously been exposed. But students also need to be able to critically evaluate newly encountered, contextualized intellectual behaviors as more or less virtuous or vicious. They need to be able to anticipate what virtue calls for in novel contexts of inquiry. Toward this end, I suggest a third pedagogical strategy, also affirmed by other advocates of intellectual virtues education. It is a strategy concerned with identifying intellectually virtuous and vicious behaviors.

Teaching and learning activities of this third strategy may involve exercises in which students are presented with vignettes of contextualized intellectual behavior, and are asked to evaluate whether this behavior is more characteristic of focal intellectual virtues or their opposing vices, explaining why they have evaluated it as they have.

The use of these kinds of exercises has been defended, for example, by Battaly (2016: 175f.). A variant exercise, implemented by Baehr (2015a: 539–40), also uses vignettes, but instead of asking for an evaluation of relevant intellectual behaviors, asks students to identify which virtues are particularly called for in the occasion described.

Some empirically-informed research suggests that these strategies may be effective in training students to more consistently identify opportunities to exercise intellectual virtue "in the wild." For example, research on how to enhance students' sensitivity to occasions for employing critical thinking abilities has highlighted that previous exposure to similar occasions in which such abilities were or were not exercised is part of the answer. In particular, prior exposure to examples of thinking in similar circumstances that are either evaluated positively or negatively by students strengthens students' attitudes toward such behaviors, thereby making these behaviors and the occasions typical of them more salient in students' experience. Summarizing these findings, Leader and Middleton write that "Teachers and instructional designers can promote students' sensitivity to occasions that call for critical thinking. They can do this by providing sufficient opportunity for students to engage in motivating and deliberative activities that entail identifying occasions for critical thinking" (2004: 56).

A fourth strategy for educating for intellectual virtues is perhaps the most obvious: students must practice doing the behaviors characteristic of these traits. If they are to become open-minded, they must practice actively searching out and evaluating alternative perspectives on a topic of inquiry; if they are to become charitable toward co-inquirers, they must practice interpreting others' communications in a charitable manner, and so on. Teaching and learning activities of this fourth strategy, then, focus on providing students with opportunities in which they attempt to perform the behaviors characteristic of the focal intellectual virtues.

Practice exercises designed to promote these behaviors may be of varying lengths. Shorter exercises might utilize vignettes of comparable length to those discussed in the third strategy. For example, students might be given several contextualized communications and asked to produce charitable reconstructions of these communications (cf. Byerly 2017: chap. 5). Or they might be asked to identify some controversial topics about which they have an opinion, and to investigate and articulate fairly an opposing perspective on these. Alternatively, given the highly communal nature of certain intellectual virtues, students might be asked to engage in some group work in which there is opportunity to exercise intellectually virtuous behaviors such as the foregoing (cf. Battaly 2016: 179–80).

Such activities work in part because they habituate the characteristic activities of the intellectual virtues via routinization. And indeed, case studies have revealed that quite literally following a "thinking routine" over a period of time characteristic of one or more target virtues can be an effective means of habituating the behaviors characteristic of these virtues (Ritchart 2002). These thinking routines are simple practices with memorable names focused on engaging in behaviors characteristic of intellectual virtues. For example, the routine "See-Think-Wonder" invites students to respond to variants of the following questions regarding some focal object of inquiry: (1) What do you notice? (2) What do you think is going on? (3) What does this make you wonder? As Baehr points out, this routine invites students to practice behaviors characteristic of attentiveness, open-mindedness, intellectual thoroughness, and inquisitiveness (2015b: 23). One effective strategy for teaching intellectual virtues through practice, then, may be to ask students to apply relevant thinking routines in a series of short exercises.

There may also be scope for larger projects involving more sustained inquiry in some Logic and Critical Thinking classes. These projects can provide quite valuable opportunities for practicing a wide range of intellectually virtuous activities, often repeatedly over a period of time. For example, students might be asked to produce and present a substantive defense of their view regarding a controversial topic of their own choosing, approved by their instructor. They would have the opportunity to engage in relevant research concerning the topic, would perhaps be given an opportunity to present initial findings to a group of their peers and receive feedback, and then produce and present a final version of this work for summative assessment. Such a project, which might already be included even within the standard approach to Logic and Critical Thinking classes, offers numerous opportunities for students to practice intellectually virtuous behaviors, such as vigilant scrutiny of their own patterns of inquiry, fair-minded evaluation of opposing perspectives, and sensitivity to the audience to whom they present their work. When adapted for purposes of intellectual virtues education, students would be instructed to concentrate on practicing intellectually virtuous activity in the conduct of their inquiry and would receive feedback focused on their display of intellectually virtuous behavior throughout the duration of the project by their instructor. They might also engage in some self-reflection about the extent to which they capitalized on opportunities to manifest such behavior throughout the project. Empirical research has revealed that when exercises of this kind are integrated into critical thinking classes, these classes are more effective in teaching critical thinking (Hatcher 2009).

The final pedagogical strategy I will discuss is student self-assessment. The use of some form of student self-assessment in educating

for intellectual virtues or comparable thinking dispositions has been quite common across multiple age levels. For example, Jason Baehr (2015a: chap. 53) has led the Intellectual Virtues Academy of Long Beach, a charter middle school, to have students complete measures of the extent to which they possess and have progressed in the Academy's focal virtues at regular intervals. Arthur Costa and Bena Kallick (2009: chap. 11) report that many schools which have instituted some version of their Habits of the Mind program have incorporated student self-assessments. Noreen Facione and Peter Facione (1992) developed the California Critical Thinking Disposition Inventory, a standardized assessment which aims to measure the test subject's thinking dispositions; it has been taken by many college students, among others.

Teaching and learning activities of this last strategy will involve students engaging in self-evaluation of their own possession of focal intellectual virtues using instruments designed for such assessment. The instruments might be designed by the instructor, or they might be a standardized measure suited to the focal intellectual virtues. Ideally, students will be taught how to continue such self-assessment in the future, whether using this same instrument or another, and whether completing the test themselves or having someone else complete a peer-assessment version of it on their behalf. Indeed, in certain cases, peer-assessment or instructor-assessment versions of such tests may be a valuable tool within the classroom context itself.

Unlike the previous pedagogical strategies, it is probably not best to assess student performance using these measures in accordance with how well students perform on them (e.g., how open-minded the instrument says they are). One worries, in particular, that such an assessment would lead students to try to game the test (cf. Kotzee 2016: 158), and many relevant tests are likely to be vulnerable to gaming because they rely heavily on self-reports (Fowers 2014). The value of introducing students to these self-assessments is not so much for purposes of instructor assessment, but rather for purposes of equipping students to engage in continual self-assessment throughout their academic tenures and beyond. Introducing such assessments for these purposes is especially fitting in Logic and Critical Thinking classes, given their foundational position within the curriculum as spelled out in the previous section (cf. Green 2015: 119).

Part of the answer to the question of how to teach for intellectual virtue in Logic and Critical Thinking classes is to employ the five strategies surveyed here: direct instruction, exposure to exemplars, exercises pertaining to identifying intellectually virtuous and vicious behaviors, practice, and self-assessment. Another part of the answer will be concerned with pedagogical resources. Suppose you want to try implementing the proposal of this paper in your Logic and Critical

Thinking class. You want to cover many of the topics included in, e.g., Hurley and Watson's *A Concise Introduction to Logic*, but you also want to integrate intellectual virtues education activities exemplifying the five pedagogical strategies just outlined. Which pedagogical resources might enable you to do this? Specifically, what materials might you give to students (as opposed to only using yourself as instructor—for some useful resources of this latter kind, see Baehr 2015b; Battaly 2006, 2015 chap. 7)?

Start with the ideal. Arguably, the ideal would be a single, affordable textbook that included all of the elements discussed above. It would be like Hurley and Watson's book, plus some additional chapters on intellectual virtues, perhaps complete with an appendix of suggested teaching and learning activities of the kind briefly described above. This ideal, sadly, does not currently exist. It would be a potentially significant service to the profession if someone were to create such a book.

Some textbooks do come closer to the ideal than others. Three such books, in particular, deserve brief comment. First there is Paul and Elder's book, *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life* (2011). With a focus on practical decision-making that tends to be absent from introductory Logic textbooks, this book includes substantial materials devoted to what the authors call "fair-minded" thinking within a broad approach to teaching critical thinking. They characterize the fair-minded thinker using additional intellectual virtues vocabulary, such as "intellectual courage," "intellectual humility," and "intellectual empathy." Probably the greatest drawback of this text for present purposes is that it does not include a substantial introduction to the methods of deductive and inductive logic.

A second text is Bailin and Battersby's *Reason in the Balance: An Inquiry Approach to Critical Thinking* (2016). What distinguishes the approach of these authors is their intentional emphasis on teaching students to evaluate arguments on both sides of an issue as part of the communal process of inquiry. Their emphases on the *process* of inquiry and on the *communal* nature of inquiry, as opposed to simply the evaluation of isolated arguments, moves further in the direction of educating for intellectual virtue than texts which focus only on the latter, since the intellectual virtues are virtues *of inquiry*, many of which pertain to social dimensions of inquiry. Moreover, their text contains more material common to introductory Logic texts than does *Critical Thinking*, with introductions to deductive and inductive arguments and fallacies. Still, there is little space given to logical methods, and intellectual virtues are not an explicit focus of the text.

Finally, there is Byerly's *Introducing Logic and Critical Thinking: The Skills of Reasoning and the Virtues of Inquiry* (2017). The first part of this two-part text focuses on formal deductive and inductive

logic, while the second part focuses on ten intellectual virtues: love of intellectual excellence, intellectual courage and caution, introspective vigilance, interpersonal trust, interpretive charity, intellectual empathy, intellectual generosity, communicative clarity, and audience sensitivity. Several informal fallacies are treated in the second part of the text as behaviors characteristic of intellectual vices. The book includes practice exercises for each of the intellectual virtues. Most commonly, these require students to identify virtuous or vicious behaviors; in some cases, they involve practicing behaviors characteristic of the virtues. One drawback of this text is that it is written intentionally to appeal to a Christian audience, utilizing examples of special interest to Christian students and at times drawing upon Christian tradition (cf. here also Dow 2013). As such, it may not appeal to instructors and students at secular institutions. Another drawback is that the text does not consistently incorporate all five of the pedagogical strategies identified above.

Of course, one needn't utilize a single textbook in order to integrate intellectual virtues education into the Logic and Critical Thinking class. Indeed, the first time I implemented this approach myself, I used two textbooks: one focused primarily on deductive and inductive reasoning, and the other—Roberts and Wood's *Intellectual Virtues: An Essay in Regulative Epistemology* (2007)—focused on intellectual virtues. An attractive option of this kind only more recently available would be to use the several chapters of Part II of Battaly's *Routledge Handbook of Virtue Epistemology* (2018) as the text focusing on intellectual virtues. King's (forthcoming) book, once published, may also prove an attractive option. One danger, of course, when using more than one textbook is the cost. Roberts and Wood's book, for example, will cost students upwards of $40 in paperback. This is on top of the presumed cost of a standard introductory logic textbook, which can be more than twice this expensive.

We might ask, then, whether there are supplementary resources one could use for instructional purposes at little or no cost to students. One option would be to make a digitized version of a single book chapter on this topic available to students for free. One might, for example, use chapter 2 from Paul and Elder's book, if one can get access to this text from one's library. Yet, one chapter will not be enough material for some instructors' purposes. Another option would be to use several scholarly articles on specific intellectual virtues to which one's library provides electronic access. Yet, as with Roberts and Wood's (2007) and Battaly's (2018) texts, these materials will typically not be written specifically for students, and they will not contain practice exercises.

A unique option is provided by Baehr's book *Cultivating Good Minds: A Philosophical and Practical Guide to Educating for Intellectual Virtues* (2015a). Accessible online either for free or for a dona-

tion, this book is an outstanding resource for instructors who wish to teach for intellectual virtue, regardless of the level or subject which they teach. Most relevant to the present discussion is the second part of the text, which is comprised by nine chapters devoted to nine intellectual virtues: curiosity, intellectual autonomy, intellectual humility, attentiveness, intellectual carefulness, intellectual thoroughness, open-mindedness, intellectual courage, and intellectual tenacity. Baehr offers accounts of the traits, illustrates them with exemplars, and includes a few questions at the end of each chapter that could form the basis of practice exercises pertaining to the relevant trait. One drawback of the text is that these chapters, and the book as a whole, are written more expressly for instructors than for students, and this is reflected in the questions, which often focus on exercising virtue in one's teaching practice. Still, the writing is accessible to college-level students, and instructors might use Baehr's questions as points of departure for developing their own more appropriate exercises for students.

This brief review of existing pedagogical resources indicates that there are resources available for implementing intellectual virtues education in Logic and Critical Thinking classes. But it also reveals a need for further resources. In particular, a textbook like Byerly's pitched at a more general audience, or free or inexpensive resources like Baehr's but designed specifically for undergraduate students, would be quite valuable.

4. Conclusion

In this paper, I have developed a proposal to integrate intellectual virtues education into Logic and Critical Thinking classes alongside the skills in argument identification, evaluation and construction typical of a standard approach to these classes. I identified three reasons favoring this approach to the standard approach: namely, this approach promises to enable these classes to better achieve an aim they already have to educate for critical thinking dispositions; this approach promises to enable these classes to better aid those programs to which they contribute to achieve their aims to teach critical thinking dispositions; and this approach promises to enhance students' learning and transfer of the critical thinking skills that are the focus of the standard approach to teaching these classes. Finally, I addressed the question of how to implement the proposal by identifying five pedagogical strategies for teaching intellectual virtues and by reviewing existing resources for intellectual virtues education.[3]

Notes

1. Course description available at https://philosophy.duke.edu/courses/phil155; accessed 3/30/2018.

2. Course description available at https://philosophy.unc.edu/undergraduate/undergraduate-courses/spring-2018/phil-105-001-critical-thinking/; accessed 3/30/2018.

3. I am grateful that my research for this paper was supported through a Fellowship from the Epistemic Responsibilities of the University Project at Vrije Univeriteit Amsterdam, sponsored by the Templeton World Charity Foundation. The views defended here are not necessarily the views of the Epistemic Responsibilities of the University Project, the Vrije Universiteit Amsterdam, or the Templeton World Charity Foundation.

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