1. Introduction

This paper will argue for a change to what I call "status quo pedagogy". I argue that status quo pedagogy pays little to no attention to the development of what are known as "component skills". Component skills are skills that bear something like a constitutive relation to complex skills. Skills that are constitutive to the practice of philosophy, such as argumentation, exegesis, and critical evaluation of arguments are complex skills. The ability or lack of ability to perform these complex skills will at least be partly a function of one's ability to develop the appropriate component skills. Because status quo pedagogy places little to no focus on the development of component skills, I argue that status quo pedagogy is sub-optimal. Consequently, an instructor who wants to improve learning outcomes should pay serious attention to the component skills that constitute complex philosophical skills and carefully consider what sorts of activities and assessments promote the development of such skills.

The paper proceeds as follows. In section two I clarify what I mean by "status quo pedagogy". I also provide the main argument for this paper. In support of this argument, in section three I draw an analogy between the practice of philosophy and the playing of strategic games such as chess and Go. Under the assumption that status quo pedagogy largely or entirely ignores component skills, in section four I argue that status quo pedagogy is sub-optimal in the sense that that it fails to produce satisfactory learning outcomes related to the mastery of philosophical skills. In section five I describe a variety of activities that can promote the development of component skills. Finally, in section six I address objections and end with some considerations of the pedagogical merits of developing component skills.

2. Status Quo Pedagogy

In a typical introduction to philosophy class, the course instructor will lecture for most to all of the class period, stopping occasionally to field questions or to spur discussion. Lectures are usually supplemented with PowerPoint or some other presentation software. The content of the lecture is generally as follows: the instructor introduces some view, either in some area of philosophy or held by

some historical figure. The instructor may introduce some terminology or do some conceptual setup. The instructor will then go over arguments in favor of said view, along with either arguments against the view, or objections to the arguments given in favor of the view. The typical medium through which a philosophical position is taught is some philosophical essay.

For example, an instructor might teach the Evidential Argument from Evil. The instructor might work though a paper like William Rowe's "The Evidential Argument from Evil and Some Varieties of Atheism". The lecture usually starts with some terminological setup. The instructor would likely cover notions like omnipotence, omniscience, and moral perfection. Moreover, the instructor would explain the notion of gratuitous evil. After the preliminaries, the instructor would then proceed to cover the argument, laying out the premises and the conclusion. Clarification and defense of premises might be given. (We assume that the argument is given in deductively valid form.) Then the instructor might go over responses to the argument. She might cover various theodicies, or introduce skeptical theism, along with the CORNEA principle. Along the way, the instructor might stop here to field questions, or to perhaps spur on discussion by asking students what they think of the argument or the responses.

Typical assessments in this kind of class come in the form of either essay exams, papers, or both. In either form of assessment, the student is generally asked to do something like the following: provide a summary of some philosophical view including terminological clarifications, explain an argument in support of that view in their own words, explain some objection to the argument, and give a response to that objection. Note that what the student is asked to do in their assessments mirrors what goes on in a typical class.

I will call above-described method of teaching the "status quo pedagogy".[i] What is missing from this pedagogy is an explicit attention paid to the development of what are called "component skills". Component skills are skills that bear something like a constitutive relationship to what I call "complex"

skills. I will argue below that at least some important philosophical skills are complex skills that are composed of various component skills.

I will argue that due to this neglect of component skills, the status quo pedagogy is a sub-optimal method of teaching philosophy. It is sub-optimal in the sense that it often fails to produce satisfactory learning outcomes with respect to the development of philosophical skills. The argument is as follows:

1. Status quo pedagogy neglects the development of component skills.

2. If status quo pedagogy neglects the development of component skills, then status quo pedagogy is sub-optimal.

3. Therefore, the status quo pedagogy is sub-optimal.

Given how I've described status quo pedagogy, I will take it that premise 1 is analytically true. The term "status quo" may turn out to be misleading, as I am not aware of what proportion of philosophy instructors actually employ status quo pedagogy. Although I suspect that a decent proportion of instructors are status quo pedagogists, I have no hard evidence to back my suspicions. It may turn out to be the case that the vast majority of philosophy instructors make use of teaching methods that develop component skills. Regardless of what is actually the case, it is my hope that the reader will find this essay to be useful. If you already teach component skills and are convinced that the argument is sound, feel free to skip ahead to section 5. For those who choose to read on, in section three I will draw an analogy between philosophy and strategy games both for illustrative and dialectical purposes. In section four, I will defend premise two.

3. Philosophy and Strategy Games

The practice of philosophy bears a relevantly analogous relationship to strategy games like chess and Go.[ii] What is the relevant similarity between philosophy and such activities as chess or Go? What we observe about both philosophy and about chess and Go is that these involve complex skills that can be broken down into component skills. Chess and Go involve a considerable amount of complex

decision making, and such decisions can be broken down into simpler component decisions. For instance, decision making processes in such games are often broken down into three phases: early, middle, and late game. In each of those phases, there are relatively simpler decisions to be made that contribute to the bigger picture strategy.

There are number of examples of such decisions that are made throughout a game. These include opening moves, chess tactics like forking, pinning, or discovered attack, tactics like ko fighting or solving life-death puzzles in Go, as well as endgame decisions like mating patterns in chess. Acquiring proficiency in strategy games is in large part a function of mastering these component skills, and successfully executing a large-scale strategy is unlikely without this mastery. These component skills are simpler relative to larger scale decisions that dictate the general direction that a player takes towards their goal of winning. Such component skills typically involve recognition of simpler patterns and the ability to make correct decisions given a limited range of alternatives. For example, mastering a chess tactic like forking requires that the player be able to recognize that such an opportunity is available in a given board state, and then be able to arrive at the conclusion that the forking tactic results in the best outcome vis-à-vis other possible moves in that particular context.

Just as playing a strategy game well requires mastery of component skills, being able to follow and understand a game from a spectator perspective requires at the very least familiarity with these smaller decision-making processes. If I have no knowledge of any Go strategy, then watching a game between two professionals will make little sense to me. I will not know why either player makes the moves that they do, and I will not understand why it is that one player emerged as the victor. The crucial point of similarity here involves something like constitution. A well-executed plan in a strategy game will, at the very least, be a partial function of the proper execution of simpler components that in some sense compose the larger game plan. I will return to this point in section three.

The practice of philosophy is similar to the playing of strategy games in this respect. The practice of philosophy involves complex skills that can be broken down into simpler component skills. Consider the action of writing a philosophy paper. This action can be broken down into actions such as formulating a central claim, motivating the claim, giving an argument for the claim, giving arguments for the premises of the main argument, responding to objections, discussing implications, and so on. The task of giving an argument is a complex action that can be broken down further still. Giving a persuasive argument requires that one be able to identify plausible premises for the argument. Furthermore, one must be able to correctly identify and apply the inferential relations between premises and conclusion, whether deductive or inductive. It is likely that at least one of these premises will be logically complex, and so the giver of the argument must be able to formulate these premises to ensure both truth and validity.

Similarly, following and evaluating arguments is a complex skill that can be decomposed into relatively simpler component skills. Much of those actions will be the same as the actions involved in giving an argument. Additionally, there are such actions as being able to engage in a charitable reconstruction of the author's argument, as well as evaluating the validity or evaluating the truth of certain premises by being able to produce counterexample cases. These sorts of component skills go into the making and evaluating of arguments, and it would be unlikely that an individual would be able to successfully give or evaluate arguments without sufficient mastery of these component skills.

We observe this relationship between complex and component skills not just in strategy games and philosophy, but also in a variety of areas, including music, dance, theatrical performance, rhetoric, sports, craftsmanship, etc. In recognizing this distinction between complex and component, it strikes me as at least *prima facie* plausible that good pedagogy should pay careful attention to the development of component skills. In the next section I will develop this line of thought and present

several arguments in defense of premise two of the main argument. That is, I will argue that the neglect of component skills in status quo pedagogy leads to sub-optimal teaching.

4. The Sub-Optimality of Status Quo Pedagogy

The first argument for premise two leans on the analogy that I made between philosophy and strategy games. Suppose that the practice of philosophy is relevantly similar to the playing of strategy games like chess and Go. Given this similarity, what would status quo pedagogy look like in chess and Go? I'll start with the claim that a philosophical essay is analogous to a chess or Go match. Both are self-contained entities that involve demonstrating philosophical mastery and strategic mastery respectively. Granted that philosophical papers are analogous to chess or Go matches, a chess or Go instructor using the status quo pedagogy would teach their students various strategies by working through games. The instructor would conduct a lecture for most of the class, stopping occasionally to field questions or perhaps quiz students. The content of the lecture would go over a strategy by perhaps reviewing famous games move-by-move. By way of assessment the instructor would review their student's games, then provide analysis and feedback to their students. In sum, the status quo pedagogy for strategy games would exclusively involve the playing and analysis of games.

Having provided this general description, we can now ask the following question. Does this description match the best practices in chess and Go instruction? The answer is no. While indispensable, the playing and analysis of games alone is insufficient for effective chess or Go pedagogy. The teaching of chess and Go involves more than playing and analyzing games. Training regiments in chess include activities like tactics exercises, endgame drills, middlegame strategy, and opening studies.[iii] In Go, training regiments include activities like Tsumego puzzles, Joseki training, opening studies, life and death exercises, Ko fighting problems, and endgame strategies.[iv] So, what we observe in chess and Go is that playing and analyzing games is supplemented with a variety of activities that focus on the improvement of some smaller component of gameplay. From this we can infer that the consensus in

the chess and Go community is that playing and analyzing games alone is insufficient for becoming an effective player.

Why think that the presence of such supplemental activities leads us to conclude that effective chess or Go instruction requires these activities? There seem to be institutional reasons for thinking so. Both games are embedded in an institution of competitive play. There are a number of strong incentives for players to engage in the best pedagogical practices. If working through the abovementioned activities didn't result in better play, then individuals expending the time and effort to work through those activities would lose their competitive advantage. Given the strong incentives for winning, if players found that these activities didn't make them better players, then they would abandon them, and the community as a whole wouldn't recognize these activities as an important part of training and pedagogy. Since these activities are widespread throughout the community, we have some reason to think that they constitute an important part of training.

The second argument for premise two is conceptual and related to the points that I made in the previous section. Mastery of a complex skill is in part a function of the mastery of component skills that constitute the complex skill. Mastery of component skills improves one's ability with respect to the corresponding complex skill. Lack of attention to component skills tends to result in stunted mastery of the corresponding complex skill. The general principle at play seems to involve a kind of constitutive explanatory relation. At least some properties of an entity are at least partly explained by properties had by its constituting entities. For example, at least some properties of a statue, like its mass and its hardness, are explained by the properties had by the matter that constitutes the statue.

Analogously, mastery of a complex skill is explained at least partly by mastery of component skills that compose the complex skill. Such explanatory relationships tend to have determinative and supervenient features.[v] Changes in the component skills determine in some respect changes in the complex skills. Changes in the complex skill supervene in some respect on changes in the component

skills. I've already described complex skills in chess and Go in terms of various component skills. Moreover, I've already shown how philosophical skills are complex skills composed of various component skills. If the general principle with respect to constitutive relations has some analogous application to the acquisition and development of skills, then we have at least a defeasible a priori justification for believing that neglecting such component skills leads to sub-optimal pedagogy.

We needn't rest our laurels on armchair theorizing, however. The third argument is one from empirical observation. There are a number of studies that show that development of component skills leads to improvement of the corresponding complex skill. Susan A. Ambrose et al, in their (2010) *How Learning Works*, summarize research that shows that deficiencies in component skills lead to poorer performance in mathematical subjects like statistics, whereas focused teaching on component skills resulted in significant improvements. The results are striking. Here's Ambrose:

> Lovett (2001) found that if beginning students were given a mere 45 minutes of practice identifying statistical problem types, and were given feedback on this particular skill, they were able to select appropriate analyses as adeptly as students who had had a semester-long course. In other words, even a small amount of focused practice on key component skills had a profound effect on overall performance.[vi]

Such results are not restricted to mathematics. There is extensive literature showing the role component skills play in reading comprehension[vii] and writing ability.[viii] If it is indeed the case that component skills play an important role in the development of mathematical, reading, or writing ability, then it seems quite plausible to suppose that component skills play a similar role in the development of philosophical ability.[ix]

Wrapping up, I gave three arguments for the claim that status quo pedagogy is sub-optimal. First, we observe that institutions built around competitive strategy games like chess or Go provide strong incentives to formulate the best pedagogy for its practitioners. That pedagogy includes various

activities and methods focused on developing mastery of component skills. Assuming that pedagogy is part of the relevant similarities between philosophy and strategy games, we can infer from this that a pedagogy that doesn't include the development of component skills is sub-optimal. Second, we observe that there is a conceptual relation between mastery of some complex skill and mastery of various component skills that constitute the complex skill. Third, there is a well-documented literature of empirical observations showing a connection between the development of component skills and performance in different academic areas.

If I've succeeded, then I've made a case for a negative claim. I've shown that status quo pedagogy is sub-optimal. In the next section I will provide a number of suggestions for teaching activities that can help to develop component skills, which can in turn address the sub-optimal state we might find ourselves in as philosophy teachers.

5. Activities to Develop Component Skills in Philosophy

If the argument I defended is sound, then status quo pedagogy is sub-optimal. It is sub-optimal because it fails to recognize the importance of component skills in philosophy, and thus lacks methods or activities that hone these component skills. In this section I will offer some suggestions on activities that focus on component skills. These activities can be woven into an instructor's curriculum with relative ease. Furthermore, what I suggest can be rather easily modified to fit the desired learning outcomes for any introductory course and can also maintain their utility in upper-level undergraduate courses. This can be done while sacrificing very little with regards to the intended course material. Finally, activities for developing component skills can be easily adapted for any class size, or any class modality. I've used variations of the activities described below for small and large in-person classes, as well as in asynchronous and synchronous online courses. For more on how these activities fit into an actual lesson plan, and for assignments involving the development of component skills, see the appendices.

How much, and how often should an instructor make use of teaching methods to develop component skills? This is a difficult question to answer, and I unfortunately have no exact prescription to offer. It seems to me that the most sensible thing to say at this point is that each instructor should use their discretion when deciding how much and how often they will implement component skill-building methods. Instructors can decide how much is needed partly on the basis of observing how well their students are mastering the corresponding complex skills. As mentioned above, many of the kinds of activities that build component skills are flexible enough such that instructors can decide on the fly whether or not to make use of them.

Activity 1: Counterexampling

This is more a type rather than one particular activity. If the reader has any exposure to analytic philosophy, then they've encountered their fair share of counterexamples. Providing counterexamples is a bread and butter technique in philosophy and is used, among other things, to show that some conditional statement is false, some argument form is invalid, or to show that some conceptual analysis is incorrect. Training students by having them practice counterexampling improves their mastery of necessary and sufficient conditions. It also improves their ability to evaluate arguments, as many philosophical arguments are such that most of the action occurs at premises that are conditional statements. There are a number of ways that students can practice counterexampling. Here are some suggestions.

Select two concepts, F and G. Ask the student, is F necessary for G? Is F sufficient for G? Have them provide a counterexample for each case. The instructor, by their choice of concepts, can vary the level of difficulty of this exercise. The instructor can start with easy examples. What is the relationship between the concept of dog and the concept of pet? What about between the concept of a celebrity and the concept of an athlete? From there the instructor can introduce cases of increasing difficulty and philosophical controversy. What is the relationship between legal obligation and moral obligation?

What is the relationship between mind and the brain? Is one a necessary or sufficient condition for the other? What are counterexample cases? This activity is quick and easy. It can be introduced as a way to warm up the class prior to engaging in more involved philosophizing. There is no constraint on what concepts can be chosen, and the instructor can choose concepts that are pertinent to the course material.

Have students evaluate conditional statements. Conditional statements are everywhere in philosophy. It's difficult to find a philosophical argument that doesn't make use of at least one conditional statement. As such it is crucial for students to be able to understand what it means for a conditional to be false. One way for students to master this is for them to practice counterexampling. The instructor provides a conditional, "if p, then q". Can the student provide a case of p without q? This is similar to the above activity involving concepts. The instructor can provide a number of different examples for conditionals and can tailor them to be relevant to the course material. Any student coming out of any introductory philosophy course should be able to understand what it means for a conditional statement to be false, and this should be close to second nature for them.

Have students devise thought experiments. This last counterexampling exercise is relatively more advanced, but a worthwhile endeavor. Philosophical mastery is constituted in part by one's ability to use one's imagination to explore modal space. When asked to provide counterexamples, students have a tendency to rely on actual cases. Having students practice devising their own counterexamples encourages them not only to explore more exotic cases, but also to see how such cases might be relevant even if they are not realistic. When presented with a thought experiment like the Trolley Problem, it's common for respondents to try to wriggle their way out by introducing some factor that allows them to avoid the dilemma. Can they alert the people on the track to get out of the way? Can they improvise some tools to jam the trolley wheels? Can they sacrifice themselves to save all lives? Asking these questions misses the point of Trolley Problem. When students gain more experience with

creating and evaluating thought experiments, they become better positioned to assess the dialectical role that they play in philosophical disputes.[x]

Activity 2: Conceptual Mapping

Conceptual mapping is like mind mapping. But whereas in a mind map concepts are related in any number of ways, concepts in a conceptual map are related in the following ways:

1. F is necessary for G
2. F is sufficient for G
3. not-F is necessary for G
4. not-F is sufficient for G
5. None of the above

The activity consists of an instructor providing a list of concepts, and the students relating those concepts in any of the five ways mentioned in the above list. Once completed students can evaluate each other's maps. This activity can be done conjointly with counterexampling activities.

Activity 3: Distinction Making

Many words in natural language are imprecise and ambiguous. It is standard philosophical practice to draw distinctions for the purposes of theory development and for critical evaluation. Distinction-making is a component skill, and it is worthwhile for beginning students to gain proficiency at doing so early on. In this activity, instructors can select words that admit of ambiguity in a number of different ways. The students are then charged with the task of identifying a number of unique concepts denoted by the term. Additionally, students can then be asked to identify whether there are any necessary or sufficient relations between the concepts post-disambiguation. The instructor can draw from a number of examples of varying difficulty and that involve different kinds of distinction drawing, depending on relevance to their course material.

Activity 4: Demarcating

Many philosophical essays and books are written with their structure made more or less explicit. Books are divided into chapters, and chapters are divided into sections. Sections are sometimes further

divided into subsections. These divisions are often titled, giving the reader signposts indicating the book

or essay's internal logic. However, not all such books and essays have these explicit divisions, and when

they don't, they give an opportunity for the reader to identity where the most sensible divisions might

be. Identification of such divisions is what I call "demarcating".

Instructors can select philosophical essays or portions of essays don't already come divided into

sections. Alternatively, instructors can prepare essays that do have such division so that those divisions

are removed. The student is then asked to insert divisions where they are most appropriate and entitle

the divisions. This exercise seeks to improve a student's exegetical ability, as many students tend to

read sentence by sentence, and thus lose sight of the overall structure of a text. This lack of perspective

results in either a lack of understanding or erroneous understanding of what a particular text is saying.

Activity 5: Why-Questioning

A common form of reasoning in philosophy is inference to the best explanation (IBE). IBE infers

the probable truth of some claim on the basis of its being a better explanation of the evidence than its

competitors. We observe the use of IBE when philosophers try to settle disputes by appealing to the

explanatory virtues of their own view and criticizing the explanatory vices of opposing views.   It's

common in such cases for philosophers to appeal to notions like parsimony, explanatory power,

research fertility, or theoretical conservatism when arguing that their view is the best explanation.

In order to follow this line of reasoning, and also to employ it in one's own philosophizing,

students need to be able to identify what might count as evidence and identify what might count as

candidate explanations for that evidence. This is where why-questioning comes in. In this exercise,

students formulate their own why-questions, and then provide at least two plausible but logically

incompatible hypotheses that answer the question. Many why-questions can be straightforwardly

formulated and answered with at least two explanations, as many why-questions are answered with

causal explanations. Simple causal why-questions are questions like, "Why is the window broken?" or

"Why did the guests at the party get sick the next day?" There are complex causal why-questions like "Why is there poverty?" or "Why do civilizations decline and fall?" Additionally, there are non-causal why-questions that are of particular interest to philosophers. In particular, there are why-questions that are answered with grounding relations, i.e., metaphysical explanations. Examples include "Why are some moral claims true?", "Why is there consciousness?", or "Why does time only move in one direction?" As with the other exercises, the instructor has the liberty to restrict why-questions to topics relevant to the course material. Furthermore, the instructor can either add or loosen constraints on the kinds of why-questions students can formulate to adjust the difficulty of the exercise.

I've argued that teaching philosophy with no attention given to the development of component skills is sub-optimal pedagogy. I've just given some examples of supplementary learning activities that can help develop component skills. In the next section I will address some concerns that one might have about this pedagogical approach.

6. Objections

6.1 Everyone already teaches component skills.

A large part of what motivates this paper is that there is relatively little attention paid to the notion of a component skill in philosophical pedagogy. A search for the phrase "component skills" yielded a total of three results in the journal *Teaching Philosophy* and twelve results in the category of teaching philosophy in the Philosophy Documentation Center. However, a lack of coverage in the literature does not imply a lack of attention paid to component skills in the classroom. I assume, perhaps tendentiously, that a significant proportion of philosophy courses taught around the world pay little if any attention to component skills. If the reader already incorporates activities designed for the purpose of developing component skills, then I salute them. If it turns out that most instructors already employ activities like the ones that I described above, then the dialectical portion of this paper doesn't really need to be written. However, my own experience speaking to instructors, examining syllabi, and

speaking to students seems to indicate otherwise. Of course I grant that my own experience constitutes evidence of anecdotal nature.

One might point out that by covering arguments, students are implicitly exercising component skills. If a complex skill shares something like a part-whole relation to a component skill, then it follows that in engaging in a complex skill, one is also engaging in all of the component skills that constitute the complex skill. Consequently, by just covering arguments, one might argue that status quo pedagogy does indeed cover component skills.

This objection has force to the extent that just covering arguments in the usual way is sufficient for mastery of the component skills that comprise the complex skill of making and evaluating arguments. It is plausible to say that for at least some students, just going over arguments is indeed sufficient. It is also plausible to say that in any given philosophy course, there will be students who occupy different positions along the wide continuua of philosophical ability, training, and interest. This is especially the case for introductory courses. It's hard to see how time spent developing component skills wouldn't be of benefit to the many students for whom philosophical argumentation is unintuitive. I would also point the objector back to the analogies that I drew between philosophy and other skill-based activities. There is widespread consensus that "just playing the game" is insufficient for mastery in games like chess and Go.

6.2 Development of component skills is already covered in courses like critical thinking and introduction to logic

To the extent that there is discussion of component skills in the literature on philosophy pedagogy, such discussion is had in the context of teaching logic or critical thinking.[xi] This might lead one to think that component skill development is an issue just for logic or critical thinking, courses that are ostensibly more methodological. Consequently, since students get coverage in component skills in those

courses, instructors in other philosophy classes need not devote any time or energy to the explicit development of such skills.

This line of reasoning is mistaken for several reasons. First, it is far from guaranteed that students taking a course like introduction to philosophy or introduction to ethics will have already taken a course like critical thinking or introduction to logic. Thus, such students will not have had any exposure to the development of the skills that are components of complex skills like argumentation. Second, it is by no means guaranteed that such logic or critical thinking courses will spend time developing the component skills that are directly relevant to the goals pursued in other philosophy courses. Third, even if a student were to take a logic or critical thinking course that just happened to focus on relevant component skills, it is a mistake to think that spending at most fourteen weeks on the development of such skills is sufficient for mastery. Spending one summer learning how to execute a jump shot or how to identify checkmating patterns is far from sufficient for the mastery of said skills. Why think that spending a semester is sufficient for component skills in philosophy? Such skills require a considerable amount of repetition before they become automated mental processes, and thus it is of pedagogical value to have students practice such skills in classes outside of logic or critical thinking.

6.3 Courses like introduction to philosophy are not about teaching "skills".

Some instructors may balk at the idea that teaching introductory philosophy courses should be oriented around teaching skills. Perhaps for these instructors the objectives for introductory courses center around notions like exploring ideas and having students wrestle with longstanding philosophical questions. Perhaps emphasizing the development of component skills introduces some kind of rigidity that ruins the mood the instructor is trying to set for the course, or somehow goes against the ethos of engaging in something like freeform exploration of ideas.

While it is difficult for me to imagine a philosophy course that doesn't involve the development of a complex skill and its constituent component skills, I will assume that it is possible to teach courses in

that way. It is not the purpose of this paper to try to convince anyone to adopt a certain set of general

course objectives. If there are such objectives that don't involve the development of any complex skills,

and if these are indeed worthy course objectives, then I will qualify the claims made in this paper as

directed towards those instructors of courses whose objectives involve the development of complex

skills. I'm fairly confident that this applies to the vast majority of instructors.

Having said that, I would like to encourage those instructors whose course objectives don't

involve the development of complex skills to examine their assessments. What exactly are you

assessing? How are you performing this assessment? Sometimes we might see ourselves as teaching a

kind of course that involves a free exploration of ideas, but our assessments, especially if they involve

the typical exams and papers, betray the expectation that students are to learn complex skills. It is

important to reflect on this, as I take it to be a plausible norm in pedagogy that one's course design

display a unity with respect to what one teaches in the classroom and what one requires of their

students for their grade.[xii]

6.4 Activities that develop component skills sound like drills, and drills are boring.

Consider a complex skill like playing the violin. Playing scales in order to develop the ability to

automatically place one's fingers on the correct locations on the violin strings is a standard part of the

process of learning to play. However, very few individuals enjoy these kinds of activities. Those who

persist in learning how to play the violin do so in spite of having to work through these drills, not

because of them. In general, there seems to be a pedagogical worry that requiring students to perform

activities related to developing component skills will lead to disengagement. Philosophy instructors

already have a difficult time getting students engaged in material that might be perceived as irrelevant

to their lives. Making them do drills may just lead the students to tune out completely.

In response, it's important to note firstly that there is nothing essential to component skill-

building activities that makes them boring or tedious. For any relevant component skill in philosophy, it

is possible there exists some activity for developing that skill that is engaging for the students doing that activity. A skilled instructor can create activities for developing component skills that will suit the interests of their students and thus sustain engagement.

Moreover, component skill-building activities can not only sustain engagement, but such activities can *increase* engagement. Engagement is a function not only of interest, but also of mastery, or at least a student's perceived sense of mastery. When a student is faced with the task of rationally reconstructing and critically evaluating some philosophical passage, they can and often do despair at the prospect of performing what they take to be such a daunting task. This despair usually stems from a perceived lack of ability to perform the complex skills of constructing and evaluating arguments. In turn, these kinds of negative attitudes lead to disengagement. To the extent that component skill-building activities increase one's sense of mastery with respect to complex skills, such activities can also increase engagement.

Aside from increasing engagement, it is worth pausing here to note the other pedagogical benefits of including component skill-building activities. Teaching students to master a particular skill is most effectively done when instructors provide timely and targeted feedback. Component skill-building activities provide instructors with the opportunity to give such feedback on a regular basis. By having students participate in such activities either in class or as work outside of class, instructors can find out before major exams and papers whether students are proficient in some relevant component skill and employ appropriate interventions.

Moreover, there seems to be a general consensus in the pedagogical literature that scaffolding is an effective tool for mastery. Scaffolding refers to the support that an instructor provides to students when they are engaged in activities and work related to the course. For instance, an instructor can scaffold the process of writing a paper by first assigning relatively simple paper writing tasks and increasing the complexity of subsequent assignment. Component skill-building activities can be used as

a form of a scaffolding. Rather than having students directly exercise some complex skill, an instructor can focus on having them master the relatively simpler component skills as a way of building up to mastery of the corresponding complex skill.

Participating in component skill-building activities can also promote a growth mindset attitude in students. When instructors employ the status quo pedagogy, some students will succeed in being able to reconstruct and evaluate arguments. Others will fail. Students in this context may be led to believe that engaging in philosophical argumentation is something that you either "get" or you don't. Students who struggle may be led to believe that they are not "philosophy" people, i.e., that they have no innate talent for doing philosophy. Employing component-skill building activities can help disabuse students of this kind of fixed mindset. As students succeed in mastering component skills, they can observe themselves trending towards mastery of the corresponding complex skill. If students believe that mastery of a complex skill is at least partly a function of mastery of the constituting component skills, and if students observe themselves gaining mastery of the components skills, then it's plausible to think that they'll perceive their mastery of the corresponding complex skill as primarily the result of effort, rather than innate ability.

Engaging in component skill-building activities can improve a student's metacognition. Metacognition refers to one's awareness of oneself as a learner. Someone who is metacognitively aware can assess their own learning progress and evaluate the effectiveness of various learning tools and methods on their own learning. Metacognitive awareness contributes to a student's sense of personal autonomy and empowers them to take control over their own education. This in turn raises the likelihood that such students will learn more efficiently and more effectively. If a student recognizes that a complex skill can at least partly be broken down into component skills, then they will have a better sense of what it means to master the complex skill. This greater understanding provides them with the means to assess the degree to which they are mastering the complex skill. Suppose that a complex skill S

is at least partly constituted by component skills A, B, and C. A student can monitor their progress in S in part by monitoring their progress in A, B, and C. Are they mastering A, B, and C? That might give them some reason to believe that they are making progress in S. Are they struggling with S? They might be able to diagnose their struggle by assessing how well they do with respect to A, B, or C.

Finally, it is worth noting that the benefits of developing component skills extend beyond philosophical mastery. First, it is plausible to think that component skills play a constitutive role not just in complex skills that are uniquely philosophical but also in a number of complex skills in use in other academic disciplines. For instance, developing the component skill of demarcating contributes not only to the complex skill of exegeting philosophical texts, but also to the complex skills of exegesis in other disciplines. Additionally, the component skill of drawing distinctions not only constitutes the complex skill of philosophical argumentation, but also constitutes the complex skill of legal writing. Second, component skills have their own value apart from the complex skills that they constitute. Being able to explore modal space in order to formulate a number of different why-questions that purport to explain some observed phenomena is surely a valuable skill across all of the sciences. If students, by mastering component skills, come to learn that these skills have applications beyond philosophy, then it is likely that their assessment of philosophy's value will be more favorable. The same could also be said of administrators if they observe better overall academic performance from students who've taken philosophy courses that teach component skills.[xiii]

7. Conclusion

I was trained in status quo pedagogy. Like many others I learned to teach philosophy by working as a teaching assistant under a faculty member. When I went on to teach my own courses, I created my syllabi simply by copying and pasting elements from the preexisting syllabi of faculty members and senior graduate students. I covered topics typical to an introduction to philosophy course or an introduction to ethics course. I spent class time lecturing about philosophical views and arguments for

those views. Assessments were typical of status quo pedagogy. I gave exams and assigned papers. I would often complain about the poor quality of work that my students submitted, as if I bore no responsibility for their learning outcomes. It was ironic that I, as a supposed philosopher, exercised zero self-reflection with respect to my own teaching.

It was fortunate for me that at some point I was struck by the consistent lackluster results of my teaching efforts. At some point I conducted a kind of Cartesian method of doubt, where every element of my teaching and course design was held under suspicion. I was led to the rich literature on philosophical pedagogy, general pedagogy, and the psychology of education. Time spent reading, reflecting, and experimenting in the classroom led to the conclusions drawn about component skills in this paper. I encourage the reader to experiment with activities directed towards the development of component skills and observe whether such activities lead to improved learning outcomes. This has been the case for my own teaching. At this point there is little by way of empirical evidence showing the efficacy of component skill development in improving corresponding complex skills in philosophy. I hope that this paper might help encourage instructors to gather the data showing whether, and to what extent the development of component skills contributes to overall philosophical mastery.

Appendix 1: Lesson Plan

Below is a description of a typical lesson plan for an introduction to philosophy course. For context, I devote a portion of the course on conceptual analysis. After spending several classes going over the method and practicing with some examples, we move on to work through more ostensibly philosophical concepts. The following plan is an example of such an activity.

Step 1: Analyze the concept of happiness

I frequently use a polling website like Poll Everywhere, which allows me to not only take your typical multiple-choice polls but allows me to create polls where students can submit open-ended response. Using this site, I create an open-ended response poll where I ask, "What necessary conditions must be in place in order for you to be happy?" I then type out the responses in a separate document that is also visible on the screen.

As a pedagogical aside, I make it a point to stress that for nearly every question I ask in class, the question is directed at them specifically. Suppose I was to phrase the above question as follows: "What necessary conditions must be in place in order for someone to be happy?" This wording often prompts many students to reply, "It depends", which in turn can lower engagement and stymie further discussion. Pointing all questions directly at students reinforces the notion that philosophy is a self-reflective activity, something that I try to emphasize repeatedly. Interpreting the activity of philosophizing as at least partly involving self-reflection helps to increase engagement, as many, if not all students, value increased self-understanding.

Step 2: Counterexamples

At the end of this poll, I will have typed out a list of potential necessary conditions. I then ask students to evaluate this list and identify any as being too narrow. That is, I ask them to identify any necessary condition that excludes what they take to be plausible cases of happiness. Typically, there will be some responses given that admit of relatively easy counterexamples, and students will focus on

those. For example, some students may respond by saying that a necessary condition for them to be happy is to have a lot of money. Others will then point out that a condition like this is too narrow. I take a response like this and any others that students identify as too narrow and then ask students to formulate counterexamples. For instance, can they think of situations in which they don't have a lot of money, but are still happy? I record counterexample cases that students provide in the open document. I then proceed to make more polls. In these polls I insert counterexample cases provided by the students, and the class votes on whether they consider these to indeed be plausible cases of happiness that are excluded by conditions such as the one involving having lots of money.

Step 3: Identifying conceptual relations

A similar activity that I conduct in class involves drawing conceptual connections. When asking for necessary conditions for happiness, students will generally give plausible conditions. One such condition might be pleasure. A necessary condition for an individual to be happy is that the individual is experiencing pleasure. I will then take this condition and ask what the conceptual relation between happiness and pleasure is. I give the following five options to select from. (The logical formulations are for clarity to the reader only and are not presented to the students. I explain to the students informally how the relations work, which amount to the same thing as the formulas given.)

A. Happiness and pleasure are the same concept. ($\forall x(Hx \leftrightarrow Px)$)

B. Happiness is a subcategory of pleasure. ($\forall x(Hx \rightarrow Px) \land \neg\forall x(Px \rightarrow Hx)$)

C. Pleasure is a subcategory of happiness. ($\forall x(Px \rightarrow Hx) \land \neg\forall x(Hx \rightarrow Px)$)

D. Pleasure and happiness partially overlap. ($\exists x(Px \land Hx) \land \exists x(Px \land \neg Hx) \land \exists x(\neg Px \land Hx)$)

E. Pleasure and happiness are completely unrelated. ($\forall x(Hx \leftrightarrow \neg Px)$)

If students choose any option other than A, I then tell them to provide instances of one without the other. Can they think of an example of something that brings happiness but no pleasure? Can they

think of something that brings pleasure but no happiness? This presents a different way for students to

practice counterexampling and shows how different philosophical methods can be related.

Appendix 2: Assignments

Below are two assignments. The first assignment is given in an introduction to ethics course and develops the student's ability to create thought experiments. The second assignment is given in an introduction to human nature course and develops the student's ability to give and evaluate explanations.

Assignment 1: Thought Experiments

Provide thought experiments that introduce conflicts between the following pairs of values:

1. Well-being and autonomy

2. Well-being and fairness

3. Fairness and autonomy

4. Fairness and loyalty

5. Fairness and respect for authority

6. Well-being and loyalty

7. Autonomy and loyalty

8. Well-being and respect for authority

9. Autonomy and respect for authority

Assignment 2: Explanations

1. Ask a why question. Give a good answer to this question. Give a bad answer to this question. Why is

the first answer good and the second answer bad?

2. Ask a different why question. Provide two different answers to this question that are both causal

explanations. Tell me what kind of evidence would favor one explanation over the other.

3. Ask another different why-question. Give a causal explanation that answers this question. Then give a

non-causal explanation that answers this question. Tell me why the first is a causal explanation and why

the second is a non-causal explanation.

4. Follow these steps:

    1.   Ask a why question.
    2.   Give an explanation that answers the why question.
    3.   Ask a why question about the explanation given in 2.
    4.   Give an explanation that answers the why question given in 3
    5.   Ask a why question about the explanation given in 4.
    6.   Give an explanation that answers the why question given in 5.

Here's an example:

    1.   Why is it morally wrong to murder?
    2.   Because society says that murder is morally wrong.
    3.   Why does society say that murder is morally wrong?
    4.   Because the individuals that are part of society believe that murder is morally wrong.
    5.   Why do the individuals that are part of society believe that murder is morally wrong?
    6.   Because these individuals have brains that have been evolved to avoid behavior like murder.

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[i] See Walker (2021) for another description of status quo pedagogy.

[ii] There are many strategy games. Henceforth I will use chess and Go as representative of the class.

[iii] For example, major chess websites all provide resources for training component skills in chess. Chess.com features a section on solving daily puzzles and lessons on openings, tactics, and endgame. Chess24.com features a tactics trainer. Chesstempo.com features trainers for openings, tactics, and endgame. Chessable.com offers courses on openings, tactics, and endgame. See also classic chess instruction texts, such as Lasker (1928) and Capablanca (1921).

[iv] Sensei's Library (https://senseis.xmp.net/), a prominent English-speaking Go website, regularly features exercises and other resources directed towards the development of component skills in Go.

[v] For more on constitutive explanations see Brenner et al (2021) and Bliss & Trogdon (2014).

[vi] Ambrose (2010) chapter 4 pp 99 - 101

[vii] See Clemens, et al (2020), Goldhammer, Kroehne, Hahnel, & De Boeck (2021), and Carr & Levy (1990)

[viii] See Kent & Wanzek (2016).

[ix] For empirical work on component skills in philosophy, see Iliadi, Theologou, and Stelios (2019).

[x] See Wieland and Endt (2017).

[xi] See Iliadi et al (2019), Elksnin (2005), Possin (2008) and Shahrokh (1998).

[xii] See Fink (2015)

[xiii] Thanks to an anonymous referee for making this point.