

## **Take a Trolley Ride with Socrates: Using the Trolley Car Simulation to Teach Plato's *Republic***

James M. DeLise, [delise@temple.edu](mailto:delise@temple.edu)

Temple University

### **Abstract**

Because the subfield of political theory deals primarily with abstract concepts and arguments, students in political theory courses often have difficulty understanding the relationship between primary course texts and contemporary political events (Gorton and Havercroft 2012). This disconnect between theory and reality may impede student interest and engagement and present obstacles to student learning. To help overcome this disconnect, I offer an active-learning exercise for instructors to use with a commonly taught political theory text: Plato's *Republic*. The exercise is an adaptation of Philippa Foot's famous trolley problem, and instructors may use this adaptation to teach two important elements of the *Republic*: Socrates' method of argument—*elenchus*—and the two modes of moral reasoning Plato employs throughout this classic text, categorical and consequentialist. Preliminary survey evidence suggests that this method helps to increase student interest and engagement as compared to traditional methods of content delivery—a finding consistent with some of the literature on the use of simulations and games in teaching.

**Keywords:** political theory, simulations, Plato, pedagogy

Draft prepared for the Teaching and Learning Conference at the American Political Science Association (APSA) Annual Meeting

August 30 – September 2, 2018

Boston, MA

## Introduction

In this paper, I describe a simulation method for teaching Plato's *Republic* in political theory and general education humanities courses. More specifically, I explain how instructors can use an adaptation of Philippa Foot's trolley car thought experiment to teach Socrates' method of argument—*elenchus*—and the two modes of moral reasoning Socrates employs throughout this classic text. The simulation thrusts students into scenarios where they must engage in moral decision-making, and it forces them to choose between consequentialist and categorical justifications for their moral decisions. These two modes of moral reasoning—consequentialist and categorical—provide a critical lens through which to examine Plato's argument for justice in the *Republic*, as his definition of justice incorporates both methods of reasoning about morality. Additionally, through exposure to different scenarios and modes of moral reasoning, students have an experience that models the dialogues in the *Republic*; students experience Socrates' method of argument and must consider how to resolve a tension between their existing beliefs and the moral principles they espouse in the simulation. Preliminary survey evidence suggests that use of the trolley car simulation to teach these important elements of Plato's *Republic* helps to increase student engagement and understanding as compared to traditional methods of lecture and note taking. These findings, while preliminary and limited, comport with the general conclusions of work examining the effectiveness of simulations and games in teaching.

I proceed by summarizing some of the literature on simulations and games. Building on this foundation, I explain the trolley car simulation in its myriad forms, as well as how instructors can use this simulation to teach two significant elements of Plato's *Republic*. I conclude by discussing the findings of a survey designed to assess the effectiveness of this

method for teaching the *Republic*. The findings are, generally, encouraging, and I offer some suggestions for future research.

### **Simulations as a Valuable Teaching Tool**

While there is no standard or textbook definition of educational simulations, Hertel and Mills (2002) define simulations as “sequential decision-making classroom events in which students fulfill assigned roles to manage discipline-specific tasks within an environment that models reality according to guidelines provided by the instructor” (15). The trolley car thought experiment under examination in this paper satisfies every element of this definition. Students must take on the role of trolley driver (scenario one) and bystander (scenario two), creatively imagining themselves in different real-world scenarios under conditions designed to bring to the fore some of the core principles that animate everyday moral decision-making. Decision-making must adhere to strict, instructor-imposed guidelines, and instructors sequence the two distinct—but related—decision-making scenarios of the trolley car thought experiment to elicit a particular student response. Eliciting this response through sequencing serves a multitude of educational objectives, and the preliminary data reported below (see “Preliminary Evidence and Results”) jibe with wider scholarly studies on the effectiveness of simulations and gaming.

Since their introduction into the disciplines of sociology and political science in the 1960s, use of simulations across political-science subfields and scholarly studies analyzing their efficacy have increased markedly. The results of these studies are, for the most part, promising, with researchers concluding that a nexus exists between simulations, gaming, and learning (Darr and Cohen 2016; Gorton and Havercroft 2012). Many argue that simulations facilitate command of course content and create deeper learning experiences than traditional learning processes of lecture and note taking (Hertel and Mills 2002; McKeachie 2002; Shellman 2001). Explanations

for these findings generally focus on (1) student engagement and motivation, (2) student participation and experience, and (3) student information retention and course-content application.

Because they foster active learning—affording students the opportunity to experience in real time the concepts, hypotheses, and theories examined in a given course—simulations “can bring the course material to life and emotionally engage an entire class as few methods can” (Nilson 2010, 148). Instructors’ ability to engage and motivate students is paramount when endeavoring to facilitate student learning, as motivation is one of the “key components” to deep learning. Simply stated, “we learn best when we feel we need to know” (Rhem 1995, 4). However, researchers studying motivation agree that instructors cannot force motivation on students. Thus, those interested in fostering deep learning must figure out non-coercive ways to motivate students, and there is consensus among researchers that the kind of active learning simulations entail can induce such motivation (Hertel and Mills 2002, 2-3). Simulations appear to do a good job of engendering student interest and motivation, offering a pleasing alternative to traditional modes of instruction (Endersby and Webber 1995, 522; Jefferson 1999, 591). What is more, the particular challenge a given simulation presents can serve as a powerful initial motivating force, and, as some scholars contend, it is motivation that leads to active learning—not the other way around: “Active participation in simulation games is not the cause of motivation but rather the result of it” (Orbach 1979, 7).

The ability of simulations to motivate students to participate actively in class takes on new significance when one considers some of the research into participation, experiential learning, and information retention and application. Simulations offer students an experiential learning opportunity; “students...experience material rather than simply hearing about it,” and a

host of benefits follows from the participatory, experiential nature of simulations (Darr and Cohen 2016, 269). For example, there is evidence that simulations help students to delineate connections between political concepts and reality (Sunderland, Rothermel, and Lusk 2009, 544), to access and comprehend difficult course material (Sands and Shelton 2010, 134), to understand the operation of political institutions (Endersby and Webber 1995, 520; Hardy, Rackaway, and Sonnier 2005, 413; Smith and Boyer 1996, 690), to think critically through problem solving (Dougherty 2003, 240), and to engage in perspective taking—the ability to “see through the eyes of others” (Paul, Dodder, and Hart 2004, 185-6). Lastly, through their encouragement of active learning processes, simulations in particular and active learning exercises in general contribute to knowledge retention because students “retain 90% of what they do and say together” (Smith and Boyer 1996, 691; Stice 1987, 293). Berstein and Meizlish (2003) and Olson (2012) have offered evidence consistent with this finding as well.

Therefore, it should come as no surprise that positive results regarding use of simulations have obtained across political science subfields and a wide variety of issue areas. Scholars have found simulations to be effective in teaching global capitalism and social stratification (Darr and Cohen 2016; Paul, Dodder, and Hart 2004), political theory and history (Gorton and Havercroft 2012), judicial politics (Hardy, Rockaway, and Sonnier 2005), international relations (Flynn 2000; Krain and Lantis 2006; McIntosh 2001; Sunderland, Rothermel, and Lusk 2009), American politics and civic engagement (Berstein and Meizlish 2003), public policy and interest groups (Endersby and Webber 1995), and comparative politics (Shellman 2001). The particular application of the trolley-car simulation examined in this paper builds on this rich tradition of simulation use in political science and offers instructors a novel, active-learning approach to

teaching elements of Plato's *Republic* in introductory political theory and general education humanities courses.

### **The Trolley Problem: An Overview**

Because theoretical inquiry often presents the greatest impediment to generating student interest and engagement, there is a demonstrable need for active-learning approaches to teaching political theory texts, such as the *Republic*. As Gorton and Havercroft (2012) argue, the subfield of political theory deals primarily with abstract concepts—e.g. justice, equality, and power—and this makes it difficult for students to understand the relevance of course readings to their lives and to contemporary politics (50). The trolley-car simulation is one strategy—among many—that instructors could employ to increase student engagement and learning in the political-theory classroom, and instructors need not use this simulation in connection with Plato's *Republic*, though I have found such usage to be fruitful. In this section, I provide an overview of the trolley-car simulation and its basic learning objectives.

The trolley-car simulation traces its origin to moral philosopher Philippa Foot's Spur dilemma, published originally in the *Oxford Review* in 1967 and republished in a collection of essays in 2002. In the original version of the dilemma, Foot asks her readers to imagine the moral predicament that the driver of a runaway tram might face. The tram is hurtling down the tracks, and the driver has the ability to switch between two narrow tracks; five persons are working on one track and one person on the other. Knowing that the tram cannot stop and will strike and kill anyone in its path, should the driver switch to the track on which fewer persons are working? And, if switching onto the track on which fewer persons are working is the right thing to do, what is the justification for this decision (Foot 2002, 23)? Variations of Foot's original trolley problem abound, and Massachusetts Institute of Technology (MIT) philosopher Judith

Jarvis Thompson created what is, perhaps, the most well-known variant of Foot's thought experiment: the fat man (Jarvis Thompson 1985, 409). While Foot compared her scenario to hypothetical cases involving the framing of an innocent person, the distribution of life-saving medicine, the extraction of body parts from living persons, and the torturing of persons, Jarvis Thompson introduced the fat-man scenario as a means of comparison (Foot 2002, 23-26).<sup>1</sup> Harvard political philosopher Michael Sandel (2009) offers a succinct adaptation of Jarvis Thompson's fat-man scenario, and Sandel's version of the trolley-car simulation serves as the focus of the remainder of this paper.

Sandel asks his readers to imagine two different—but related—scenarios. First, imagine you are the driver of a trolley car. As your trolley hurtles down the track at sixty miles an hour, you notice up ahead in the distance five persons working on the trolley track. Upon noticing this, you reflexively try to stop the trolley car, but, to your dismay, the brakes have failed. A sense of desperation begins to wash over you as you realize that, if you do not stop the trolley, you will strike the five workers and they will die. This you know with absolute certainty. Although desperate, you still have your wits about you, and, as you try to find a way out of this dreadful circumstance, you notice a side track off to the right. There is one person working on that track, and you have the ability to turn your trolley onto the side track. However, turning onto the side track will lead to the death of the one worker, but it will spare the five on the other track. This, too, you know with certainty. What should you do and why? As Sandel notes, most people agree that you should turn (Sandel 2009, 21). In fact, many appear to argue that “it is not only permissible to turn the train...it is actually required—morally obligatory” (Edmonds 2014,

---

<sup>1</sup> For an overview of the many variations of the trolley problem, See Edmonds, David. 2014. *Would You Kill the Fat Man?: The Trolley Problem and What Your Answer Tells Us about Right and Wrong*. Princeton: Princeton University Press. See, especially, pp. 35-43.

9). Lingering beneath the surface of this decision to turn is an incipient moral justification: It is better to save more lives than fewer (or something closely resembling this) (Sandel 2009, 21).

While scenario one seems to bring about moral clarity, scenario two appears to engender nothing but moral opacity. In the second scenario, Sandel asks his readers to imagine they are no longer a trolley driver; this time they are standing on a footbridge that overlooks the trolley tracks. A trolley is once again hurtling down the tracks, and, similar to scenario one, the brakes on the trolley have failed. You are overcome with stress and anxiety because—just as in scenario one—there are five persons working at the end of the track, and the train is about to strike and kill the five workers. As an onlooker, you feel helpless—that is, until you realize there is a rather large man standing next to you on the bridge; you know that you can push the large man over the bridge and he will fall directly onto the track. Due to his large size, he will stop the trolley and prevent the train from striking and killing the five workers. He will die in the process, but his death will spare the lives of the five workers (Sandel 2009, 21-22). What should you do and why? Is it right to push the large man over the bridge to save five lives? Most people respond that it would be categorically wrong to push the man over the bridge (Sandel 2009, 22). In fact, a BBC study found that, although roughly 80 percent of those surveyed thought the trolley should turn onto the side track in scenario one, only about 25% of persons thought the large man should be pushed over the bridge (other surveys have found an even smaller percentage of persons willing to push the large man) (Edmonds 2014, 93). But, as Sandel notes, these results bring to the fore an interesting moral conundrum: “Why does the principle that seems right in the first case—sacrifice one life to save five—seem wrong in the second?” (Sandel 2009, 22)? Participants overwhelmingly contend that pushing the man over the bridge constitutes an act of murder—the intentional killing of an innocent—and that such an

action is unequivocally wrong, whereas scenario one does not entail similar intentionality or willful ending of another's life. Thus, operating pursuant to the principle that ending the life of an innocent person is universally wrong, most students argue that the right thing to do is to abstain from pushing the man over the bridge.

It is this conundrum—this tension between the modal decision-making principles of scenarios one and two—that serves as a valuable teaching tool. Those turning onto the side track in scenario one operate in accordance with a consequentialist principle of action. The rightness of turning onto the sidetrack derives not from anything intrinsic to the chosen action itself, but rather, derives from something extrinsic to the action: the consequences that follow from turning onto the side track. Specifically, the consequence or result of turning is saving five lives, and living in this state of affairs—where one dies so five can live, where I save more lives rather than fewer—is preferable to the alternative state of affairs (where five die so one can live or I save fewer lives). At this point, instructors have an opportunity to provide students with a brief introduction to prominent schools of thought in the history of philosophy that prioritize this mode of reasoning (e.g. Utilitarianism). In contradistinction, this consequentialist principle does not hold up when subjected to the stress of scenario two because of its perceived conflict with the categorical principle that it is wrong to kill an innocent person. Here, the rightness or wrongness of the particular action derives from something intrinsic to the act itself; it is wrong regardless of the “positive” results that follow from the particular action in question. After highlighting this mode of reasoning and its impact on student decision-making, instructors have an opportunity to provide students with a brief introduction to prominent schools of thought in the history of philosophy that prioritize this mode of reasoning (e.g. deontology).

Regardless of the particular merits or demerits of the distinction students often make between scenarios one and two (i.e. that one scenario entails intentional killing and the other does not), the perceived tension between these scenarios provides instructors with fertile ground on which to elucidate two common modes of moral reasoning and to underscore the processes through which individuals reconcile their particular moral judgments and the principles on which those judgments are predicated. As Sandel (2009) notes, there is a strong inclination among students to find a compelling distinction between these two scenarios, and, if they are unable to find such a distinction, to recalibrate their specific judgments in each case. For example, if, on closer examination, students find that neither scenario entails intentional killing, then perhaps student aversion to pushing the man in scenario two follows from the intimate, physical nature of the act—not the intentionality of the actor.<sup>2</sup> Recognizing this as the real distinction might lead students to change their particular moral judgment in scenario two (23). Alternatively, perhaps, on closer examination, the distinction as originally stated stands. Then students have to acknowledge two competing principles and decide which should get priority under what circumstances and why. Either way, this should help students to understand better not only what they believe, but also why they believe it.

Gaining a deeper understanding of what they believe and why they believe it, of these common modes of moral reasoning and the process of reconciling particular moral judgments with underlying principles of action, is not merely an exercise in abstract philosophy. The kind of decision-making these two scenarios embody is similar to actual circumstances that confront us regarding collateral damage in war and rationalizations for the torture of terrorism suspects,

---

<sup>2</sup> Sandel (2009) offers a useful thought experiment to ferret out whether the physical nature of the act brings about student aversion. He asks his readers to imagine the large man is standing over a trap door. Students can open the door with a lever, and the same result will follow: the large man will fall onto the tracks and prevent the train from killing the five workers (23).

for example. Consider the case of German V-1 rockets in WWII. The German rockets bombarded South London—even though the Germans had aimed the rockets at more central locations in London. The British allowed the Germans to think the rockets were hitting their intended target (i.e. hitting central London) and even employed double agents to convince the Germans to aim their rockets farther south. “The government deliberately placed southern suburbanites in danger, but one scientific adviser...estimated that 10,000 lives were saved as a result” (Bakewell 2013). A similar argument undergirded the American decision to bomb Hiroshima and Nagasaki in the following year—that use of weapons of mass destruction would hasten the end of hostilities and save lives (Blakewell 2013; Aplerowitz 1995). More recently, a group of U.S. Navy SEALs confronted a similar scenario in Afghanistan: kill a group of seemingly innocent persons to save more lives or let them go and risk a larger death toll (Sandel 2009, 25). Bringing things more into the everyday and, perhaps, mundane, with the advent of driverless cars, engineers have had to deal with the thorny ethical dilemma of the trolley-car simulation when determining how to program these autonomous machines (Shashkevich 2017).

Although a degree of uncertainty not similarly found in the trolley-car simulation plagues the aforementioned examples, the trolley-car simulation still proves useful in isolating the principles animating our moral judgments and allows students to analyze the power and relevance of these principles (Sandel 2009, 24). Therefore, this exercise serves at least three general learning objectives. First, students understand/comprehend two common modes of moral reasoning: consequentialist and deontological. Second, students identify the processes at work when making such moral decisions; specifically, they understand the dialectical process of

reconciling moral principles with particular judgments.<sup>3</sup> Lastly, students apply these modes of reasoning and thought processes to real-world examples, appreciating that this is not merely an exercise in abstract philosophizing, but one with momentous consequences.

### **Using the Trolley Simulation to Teach Important Elements of Plato's *Republic***

In addition to illuminating common modes of moral reasoning and their application to real-world examples, the trolley-car simulation helps to shed light on two important elements of a text commonly taught in introductory political theory courses: Plato's *Republic*. The simulation serves as a valuable experiential learning exercise for teaching Socrates' method of argument—*elenchus*—and the two modes of moral reasoning/justification employed in the *Republic*: deontology and consequentialism.<sup>4</sup> In this section, I provide evidence from Books 1 and 2 of Plato's *Republic* and explain how the trolley-car simulation serves as a valuable aid for teaching students these important elements of this classic text. I begin with Socrates method and then briefly discuss the modes of moral justification employed.

Socrates' method of argument follows a particular form in the *Republic*. One can find evidence of this form of argument in Book 1. With each of his interlocutors, Socrates attempts to reveal a conflict between a person's existing beliefs (and the particular judgments these beliefs support) and the principle of justice that he/she embraces. Once Socrates makes the contradiction between an existing belief and a given principle of justice manifest, his interlocutor must either jettison his principle of justice or his existing belief if he desires to maintain consistency between beliefs (the particular judgments they inform) and principles (See Reeve

---

<sup>3</sup> This is similar to John Rawls' notion of "reflective equilibrium." See Rawls, John. 1999. *A Theory of Justice*. Cambridge: Harvard University Press. See, especially, pp. 18-19.

<sup>4</sup> For an overview of *elenchus*, see Reeve (2004) pp. xii-xv.

2004, xii-xv). Usually—as is the case with Cephalus, Polemarchus, and Thrasymachus—the interlocutor abandons his principle of justice.

For example, Book 1 begins with Socrates and Cephalus discussing justice, and Cephalus contends that justice is associated with not cheating, not lying, and not owing money. Socrates interprets this as the general principle of “speaking the truth and paying whatever debts one has incurred” (Plato [380 B.C.E.] 2004, 5). However, Socrates gets Cephalus to reveal that it would not be right to return a knife to a madman (a particular moral judgment); it would not be right or just to repay this particular debt. This belief—that a mad person should not have a knife and the particular judgment that follows from it—are in direct conflict with Cephalus’ initial principle of justice (as interpreted by Socrates). Thus, Cephalus agrees that there is a circumstance in which his original principle of justice would not apply—thus ruling out his proposed principle of justice or requiring him to abandon his existing belief for the sake of consistency between particular judgments and moral principles. Before we can determine in definitive fashion which course of action Cephalus pursues, Polemarchus inherits the argument from Cephalus.

Socrates brings up his objection to Cephalus’ definition of justice again—that you would not return a knife to a lunatic—and Polemarchus notes that this definition of justice, a definition that comes from the great poet Simonides of Ceos, must mean something else. Polemarchus contends that Simonides means the following: “treating friends well and enemies badly is justice” (Plato [380 B.C.E.] 2004, 7). After Polemarchus offers this definition of justice (harming one’s enemies and helping one’s friends), Socrates gets Polemarchus to admit that justice, however defined, is never associated with harm, so in the particular case of harming a friend or enemy one cannot label such an action just. Therefore, again, one finds an existing belief (and the particular judgments that follow from it) contravening the original principle of

justice proffered, leaving the interlocutor with a difficult choice: revise his existing belief or abandon his original principle of justice for the sake of consistency between particular judgments and moral principles. Polemarchus abandons his original definition of justice (Plato [380 B.C.E.] 2004, 10).

After Socrates vanquishes Polemarchus, an exasperated Thrasymachus inherits the debate—offering his might-makes-right principle of justice: “Justice is nothing other than what is advantageous for the stronger” (Plato [380 B.C.E.] 2004, 15). And, since the strongest element in any society is the ruling element, Thrasymachus transposes this into the following principle: justice is whatever is to the advantage of the ruling class in society. Through a long and tortuous line of argument, Socrates gets Thrasymachus to express an existing belief—mainly that, in every craft (i.e. medicine, horse breeding, etc.), practitioners consider what is advantageous to “that with which it deals” (horse breeders consider what is advantageous to horses, etc.). “No kind of knowledge considers or enjoins what is advantageous for itself, but what is advantageous for the weaker, which is subject to it” (Plato [380 B.C.E.] 2004, 20). Admitting that he holds this belief represents Thrasymachus’ undoing, as the particular judgments that follow from it are antithetical to his initial principle of justice. For if no knowledge considers or enjoins what is advantageous for itself, but rather, what is advantageous for its subject, then rulers, too, must rule to the advantage of their subjects (not themselves). Therefore, with Thrasymachus, as with Polemarchus and Cephalus, Socrates elicits existing beliefs from his unsuspecting interlocutor, and he shows how these existing beliefs (and the particular judgments that follow from them) directly contradict their principle of justice. Again, Socrates leaves his interlocutor with a difficult choice: revise his existing belief or abandon his original principle of justice for the sake of consistency between particular judgments and moral principles.

Similar to Socrates' encounter with each interlocutor, student participation in the trolley-car simulation reveals a conflict between an existing belief—mainly that it is wrong deliberately to kill an innocent human being (and the particular judgments that followed from this)—and a principle of action (our principle of justice in scenario one): that it is better to save more lives than fewer (or the one should die to spare the five). Students, just like Cephalus, Polemarchus, and Thrasymachus, are put in the position of having to abandon their existing belief (and the particular judgments that follow from it) or their moral principle of action (for the sake of logical consistency between particular judgments and moral principles). Students, just like the interlocutors in Book 1, tend to jettison their original moral principle of action. The change in conditions between scenarios one and two brings students' existing beliefs and their principle of action into conflict, and most students resolve this conflict in the same way that the interlocutors from Book 1 resolve the conflict between their existing belief and principle of justice. Thus, through the trolley-car simulation and ensuing dialogue students are able to experience firsthand the method of Socrates. They play the role of interlocutor without initially having cognizance of it, and there is some prima-facie evidence that this method of experiential learning enhances student understanding of and engagement with Socrates' method: *elenchus* (see "Preliminary Results and Evidence" below).

Increased student understanding and engagement applies not only to Socrates' method—*elenchus*—but also to the modes of moral reasoning underpinning the main argument for justice in the *Republic*. Although he has not yet defined justice at the beginning of Book 2, Socrates reveals something significant about the structural features of justice: justice is both inherently good and good because of its consequences. To Socrates, there are three types of goods. There are things that are good for their own sake (intrinsically good and valuable), things

that are good strictly because of their consequences (good follows extrinsically), and things that are good in and of themselves (for their own sake) and because of their consequences. When asked in which of these three classes of goods he would place justice, Socrates responds, “I myself put it in the finest one—the one that anyone who is going to be blessed with happiness must love both because of itself and because of its consequences” (Plato [380 B.C.E.] 2004, 36). Justice, then, is good both because of its intrinsic value—good in and of itself—and good because of its consequences.

In this short passage from the beginning of Book 2, it becomes clear that justice is an amalgam of the two modes of moral reasoning from the trolley car simulation: deontological/categorical and consequentialist. Individuals are duty bound to act justly because of the intrinsic value of justice—regardless of the consequences that follow from acting justly—but the consequences that follow from acting justly are also good. In other words, the value or worth of justice also appears to flow forth from its consequences—mainly, the just city is the happy city and the just person is the happy person (Plato [380 B.C.E.] 2004, 157; 289). What is more, happiness does not appear to be a mere byproduct of just action. Throughout the *Republic*, Socrates justifies certain actions and socio-political features of the ideal city because of their salutary consequences; they bring about the greatest degree of happiness for the city as a whole.<sup>5</sup> While the importance of consequentialism to Socrates’ argument for justice is unquestionable, what is less clear is whether “he saw this principle as a criterion for the rightness and wrongness of all actions” (Creed 1978, 359). Virtue serves as an important limiting principle on what truly

---

<sup>5</sup> See, especially, the Myth of Metals (414c - 415e) and holding women and children in common (459d – 461e5). In each of these examples, goodness appears to derive not from something intrinsic to individual actions or social arrangements themselves, but rather from the consequences they produce.

counts as happiness, and there are circumstances under which justice comes about through duty—not through an appeal to desirable consequences (Plato [380 B.C.E. 2004, 214).

Regardless of how one resolves this important hermeneutical question in the *Republic* (i.e. the ultimate criterion of the rightness or wrongness of an act), the exchange between Glaucon and Socrates in Book 2, as well as a host of examples throughout the *Republic*, requires students to have a basic understanding of consequentialist and categorical forms of moral reasoning. These modes of reasoning provide a critical lens through which students can decode and appraise the justificatory mechanisms lingering beneath the surface of Socrates' argument, and use of the trolley-car simulation offers students a basic introduction to these modes of reasoning that they can apply to their analyses of this canonical text. Evidence recorded in the next section indicates that this active-learning approach to teaching this element of the *Republic* helped students better to understand these modes of moral reasoning (see “Preliminary Results and Evidence” below).

### **Preliminary Evidence and Results**

During a summer session in 2018, I used the trolley-car simulation as a tool for teaching elements of Plato's *Republic* in a general education humanities course. On the last day of class, I had students complete an anonymous survey to assess the effectiveness of the simulation. Although this is a small sample (the class had an enrollment of 15 and 12 students were present for the survey), the results are encouraging and call for further investigation and study. A supermajority of students either strongly agreed or agreed that the simulation was a useful learning tool and enjoyable (92 and 83 percent respectively). 83 percent of students found the exercise to help them better understand the method of Socrates and the modes of moral reasoning employed, and by a ratio of two-to-one (eight to four) students preferred the simulation to

traditional modes of lecture and discussion. Large majorities found the simulation engaging; 75 percent of students agreed or strongly agreed it helped them to get more involved in class, and 83 percent recommended using the simulation in future courses.

### Anonymous Survey of Trolley-Car Simulation<sup>6</sup>

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
<i>The trolley simulation was a useful learning tool.</i>	7	4	1		
<i>The trolley simulation was enjoyable.</i>	7	3	1		1
<i>The trolley simulation helped me better to understand Socrates' method and modes of moral reasoning.</i>	5	5	2		
<i>The simulation caused me to get more involved from this class.</i>	6	3	2	1	
<i>I prefer traditional lecture and discussion to the trolley simulation.</i>			4	4	4
<i>This simulation should be offered in this course in the future.</i>	9	1	2		

While the results chronicled above are encouraging, there are some drawbacks to the methodology employed and some important considerations for future study. First, as noted above, the sample size is small and three of the students did not complete the survey. Numerically, this translates into 20 percent of students not completing the survey. Even if one assumes that these students would have responded negatively, in most categories three votes would not alter the overall trend—that an overwhelming majority of students found the exercise enjoyable, useful, and helpful. Nonetheless, it would be interesting to repeat this with a larger sample size. Second, there was no cross-sectional comparison and no control group. It is

---

<sup>6</sup> I modeled these questions on a survey conducted by Endersby and Weber (1995). See Endersby, James W. and David J. Weber. 1995. "Iron-Triangle Simulation: A Role-Playing Game for Undergraduates in Congress, Interest Groups, and Public Policy Classes." *PS: Political Science and Politics* 28(3): 520-523.

possible that the results are anomalous and peculiar to this section; examining results across sections over time might help to militate against the possibility of aberrant results. Additionally, having a control group—a section that does not use the simulation as a teaching tool for the *Republic*—would help to increase the reliability of the data. How would student learning differ between sections employing the simulation and those making use of more traditional content-delivery methods? Third, I conducted the survey at the end of the semester—approximately three weeks after the exercise. Would the results change if students completed the survey proximate to the in-class simulation? Had student memories faded too much to offer reliable results? Finally, the survey included students from a general education course. Would the results differ in a political science course required of majors? Any future examinations of the efficacy of this simulation should endeavor to improve upon these limitations, and one should exhibit caution when extrapolating from the results obtained in this study, however promising they may appear at first blush.

## **Conclusion**

In the previous sections, I have endeavored to show the pedagogical value of the trolley car simulation in political theory and general education humanities courses. As preliminary data suggest, this simulation can serve as a valuable tool for teaching important elements of Plato's *Republic*. Specifically, instructors have the ability to link this simulation to the method of Socrates—*elenchus*—and the modes of moral reasoning he employs throughout the text. Anonymous student feedback on the simulation is consistent with research into the relationship between simulations and games in particular and active learning in general. Students overwhelmingly viewed the simulation positively, and most preferred it to traditional modes of course-content delivery. Although the results obtained are limited, the encouraging findings of

other studies examining the link between simulations and learning outcomes and the particular results reported in this paper at the very least provide a good starting point for further research into the utility of this simulation for teaching the *Republic*.

## Works Cited

- Alperovitz, Gar. 1995. "Hiroshima: Historians Reassess." *Foreign Policy* 99: 15-34.
- Bakewell, Sarah. 2013. "Clang Went the Trolley: Would You Kill the Fat Man and the Trolley Problem," *New York Times Sunday Book Review*, November 22. Last accessed 8/2/2018.  
<https://www.nytimes.com/2013/11/24/books/review/would-you-kill-the-fat-man-and-the-trolley-problem.html>
- Bernstein, Jeffrey L. and Deborah S. Meizlish. 2003. "Becoming Congress: A Longitudinal Study of the Civic Engagement Implications of a Classroom Simulation." *Simulation & Gaming* 34(2): 198-219.
- Creed, J. L. 1978. "Is It Wrong to Call Plato a Utilitarian?" *The Classical Quarterly* 28(2): 349-365.
- Darr, Benjamin J. and Alexander H. Cohen. 2016. "The Rules of the Game: Experiencing Global Capitalism on a Monopoly Board." *Journal of Political Science Education* 12(3): 268-281.
- Dougherty, Beth K. 2003. "Byzantine Politics: Using Simulations to Make Sense of the Middle East." *PS: Political Science & Politics* 36(2): 239-244.
- Edmonds, David. 2014. *Would You Kill the Fat Man?: The Trolley Problem and What Your Answer Tells Us about Right and Wrong*. Princeton: Princeton University Press.
- Endersby, James W. and David J. Webber. 1995. "Iron Triangle Simulation: A Role-Playing Game for Undergraduates in Congress, Interest Groups, and Public Policy Classes." *PS: Political Science and Politics* 28(3): 520-523.
- Foot, Philippa. 2002. *Virtues and Vices: and other essays in moral philosophy*. Oxford: Oxford University Press.

- Flynn, Stephen E. 2000. "Drug Trafficking, the International System, and Decision-Making Constraints: A Policy-Making Simulation." *International Studies Perspectives* 1(1): 45–55.
- Gorton, William and Jonathan Havercroft. 2012. "Using Historical Simulations to Teach Political Theory." *Journal of Political Science Education* 8(1): 50-68.
- Hardy, Richard J., Chapman Rockaway, and Laurie E. Sonnier. 2005. "In the Supreme Court Justices' Shoes: Critical Thinking through the use of Hypothetical Case Law Analyses and Interactive Simulations." *PS: Political Science & Politics* 38(3): 411–414.
- Hertel, John P. and Barbara J. Millis. 2002. *Using Simulations to Promote Learning in Higher Education: An Introduction*. Serling, VA: Stylus Publishing.
- Jarvis Thompson, Judith. 1985. "The Trolley Problem." *Yale Law Journal* 94: 1395-1415.
- Krain, Matthew and Jeffrey S. Lantis. 2006. "Building Knowledge? Evaluating the Effectiveness of the Global Problems Summit Simulation." *International Studies Perspectives* 7: 395-407.
- McIntosh, Daniel. 2001. "The Uses and Limits of Model United Nations in an International Relations Classroom." *International Studies Perspectives* 2: 269-280.
- McKeachie, Wilbert James. 2002. *McKeachie's Teaching Tips: Strategies, Research, and Theory for College and University Teachers*. Boston, MA: Houghton Mifflin.
- Nilson, Linda. 2010. *Teaching at Its Best: A Research-Based Resource for College Instructors*. San Francisco: Jossey Boss.
- Olson, Karen S. 2012. "Making it Real: Using Collaborative Simulation to Teach Crisis Communications." *Excellence in College Teaching* 23(2): 25-47.
- Orbach, Eliezer. 1979. "Simulation Games and Motivation for Learning." *Simulation & Games* 10(1): 3-40.

- Paul, John, Richard A. Dodder and Kristine Hart. 2004. "Ideal World or Real World: Using Monopoly to Teach Social Stratification." *Free Inquiry in Creative Sociology* 32(2): 179-186.
- Plato. 2004. *Republic*. Trans. C.D.C. Reeve. Indianapolis: Hackett.
- Rawls, John. 1999. *A Theory of Justice*. Cambridge: Harvard University Press.
- Rhem, James. 1995. "Deep/Surface Approaches to Learning: An Introduction." *The National Teaching and Learning Forum* 5(1): 1-12.
- Sandel, Michael J. 2009. *Justice: What's the Right Thing to Do?* New York: Farrar, Straus, and Giroux.
- Sands, Eric C., and Allison Shelton. 2010. "Learning by Doing: A Simulation for Teaching how Congress Works." *PS: Political Science & Politics* 43(1): 133-138.
- Shashkevich, Alex. 2017. "Stanford scholars, researchers discuss key ethical questions self-driving cars present." *Stanford News*, May 22. Last accessed on 8/2/2018.  
<https://news.stanford.edu/2017/05/22/stanford-scholars-researchers-discuss-key-ethical-questions-self-driving-cars-present/>
- Shellman, Stephen M. 2001. "Active Learning in Comparative Politics: A Mock German Election and Coalition-Formation Simulation." *PS: Political Science & Politics* 34(4): 827-837.
- Smith, Elizabeth T., and Mark Boyer. 1996. "Designing In-Class Simulations." *PS: Political Science & Politics* 29(4): 690-694.
- Stice, James E. 1987. "Using Kolb's Learning Cycle to Improve Student Learning." *Engineering Education* 77(5): 291-296.
- Sunderland, Sheri, Jonathan C. Rothermel, and Adam Lusk. 2009. "Making Movies Active: Lessons from Simulations." *PS: Political Science & Politics* 42(3): 543-547.