

Leaving the Cave Without Losing the Transfer: ARGs and Integrated Performance in *Operation ARETE*

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Abstract: The transfer problem troubling the game-based learning field extends backward through the annals of history to Plato's renowned Allegory of the Cave. A worked example from a course on Greek philosophical writings, in which the transfer problem itself has a key place in the learning-objectives, may therefore present a viable way forward. This paper outlines the use of an Alternate-Reality Game (ARG) layer in a learning game centering on Plato's Academy. Through that ARG-layer, the game is fully-integrated into the curriculum: the game, as a world-saving "operation," is "disguised" as the course in the same way that the shadow-puppet play of the cave is disguised as real life. Because the ARG-layer encloses a role-playing game, students, as the game/course's basic mechanic, practice transfer from the RPG to the ARG. We suggest that Plato's solution to the transfer problem may have important design implications for game-based learning in the present.

The Transfer Problem

The study of transfer (i.e., the improvement of a particular mental function and its subsequent application in another context) has troubled educational psychology since the field's inception during the early 20th century (Boring, 1929; Dewey, 1897; Thorndike & Woodworth, 1901). Detterman and Sternberg's (1993) *Transfer on Trial* perhaps framed the problem best through Gick and Holyoak's (1980) study of college student learning – in it, only one-fifth of participants were able to carry their learning experience to another, almost identical context within 24 hours of exposure to a particular problem-solving technique. Even with explicit direction indicating that the same problem solving strategy would be used on the second challenge, fewer than 50% of participants exhibited any sign of transfer. While individuals tended to learn information quite well within the presentation context (e.g., how to conquer a cube-shaped castle), they could merely recite what they had learned during the given activity without being able to put that information (i.e., "inert knowledge" (Whitehead, 1929)) to use.

After three decades of additional exploration studies like these, transfer remains extremely difficult to measure, and, as noted by Bransford and Schwartz (1999), the bridge from learning to application appears to lie within four critical situated criteria: 1) what information is being taught; 2) how directly target action parallels real-world action; 3) whether or not the activity specifically points out how and where content can be transferred; and 4) how performance and growth are facilitated by a more knowledgeable other (Brown, Collins, & Duguid, 1989; Collins, Brown, & Newman, 1989; Lave & Wenger, 1991; Young, 2004). Young et al.'s (2012) meta-review of game-based learning research highlights how this fundamental issue has widely affected the design side of contemporary studies in game-based learning. Cross-literature findings suggest that while games are good at teaching one thing really well (i.e., how to play the game), they generally fail to help students reach learning objectives unless there is a clear, isomorphic connection between the game and real-world performance. The application of standard game mechanics to a particular action or behavior seems to have little effect on achievement, something that becomes even more pronounced when comparing simulation-based training tools with more recent game-based endeavors (Honey & Hilton, 2011). As noted by Young, Slota, & Lai (2012):

Not only is transfer quite difficult to find (e.g., Detterman & Sternberg, 1993), but the notion is premised on an assumption that the cognitive processes involved in playing a particular game are somehow identical across players and can be controlled as independent variables during empirical study...In our article, we emphasized that video game play is dynamic and situated (Brown, Collins, & Duguid, 1989). Different players play the same game with different goals, intentions, and definitions of achievement, which can lead to very different, and even opposite, academic outcomes. A player's game-player interactions change dynamically from play to play such that the same game can never be played precisely the same way twice. We can only conclude that the educational outcomes of video game play rely heavily on the nature of this interaction and not solely on the nature of the cognitive processes presumed to be involved (pp. 297).

Because many educational games so thinly parallel real world application, any information applied in the game world tends to be limited in comparison to application through other pedagogical tools like anchored instruction (e.g., CGTV, 1992), case-based learning, or constructionism (e.g., Papert, 1980). There generally tends to be little theory applied during game-based instruction implementation, and many attempts to refine these programs emphasize behavioral reinforcement (e.g., gamification) rather than complex thought processes (e.g., critical thinking, problem solving, meta-reflection). Indeed, overcoming the transfer problem to design meaningfully authentic learning games relies on both a strong understanding of the top-down approach associated with strong curriculum design (e.g., Bergmann & Sams, 2012) and an eye toward the situated nature of learning as a whole.

The Cave

Ironically, the most potent solution to our transfer dilemma may be found in a relic of the ancient world. In his Allegory of the Cave, Plato presents a culture – that is, prisoners and their relationship to the shadow-puppet play they watch as their lifelong activity – in which there is no transfer problem because learning and doing are the same:

And now, I said, let me show in a figure how far our nature is educated or uneducated: --Behold! human beings living in an underground den, which has a mouth open towards the light and reaching all along the den; here they have been from their childhood, and have their legs and necks chained so that they cannot move, and can only see before them, being prevented by the chains from turning round their heads. Above and behind them a fire is blazing at a distance, and between the fire and the prisoners there is a raised way; and you will see, if you look, a low wall built along the way, like the screen which marionette players have in front of them, over which they show the puppets (*Republic 7*, trans. Jowett, slightly modified).

Here, Plato acknowledges the same challenge that led modern man to create formal institutions for education (i.e., schools and universities): while the cave's prisoners were able to avoid the issue of transfer, they inadvertently stumbled into a much more substantial problem – the impossibility of reflection (Figure 1). Only one prisoner, Socrates, has the luxury of achieving reflection and subsequently seeing the importance of tools like philosophy, analysis, and evaluation, or, in other words, identifying the higher-order learning objectives for which educators seek to design instruction.



Figure 1: Plato's Cave

When the enlightened (literally – he's been outside, remember) man (i.e., avatar for Socrates) returns to the cave, though, the transfer problem surfaces with a literal vengeance: as he tries to persuade his peers to stand and admire the world around them, they turn and murder him in the depths of the cave. The casual reader might assume that Plato is arguing the impossibility of teaching philosophy, though closer scrutiny reveals that he has cleverly constructed an alternative message in the style of the Wachowski's (1999) *The Matrix* character, Morpheus: no one can be told about philosophy. That is, transfer is not a simple process, and Socrates cannot provoke others into standing by lecturing them about the sun. The vast majority of those who have read *Republic*, many of them professional classicists and philosophers, have missed this detail – *Republic* itself serves as both a curriculum and game to be played by young philosophers performing as Socrates and his interlocutors (an intricacy made even more salient considering the ancients' tradition of reading aloud).

Putting the ARG-Layer to Work

Republic may be the first course to feature an ARG-layer, but, as of 2009, it was not the last. *Operation KTHMA* (Travis, 2010; Travis & Young, 2010) has helped revive Plato's pedagogical model while two similar programs of study, *Project ARKHAIA* (classics) and *Operation BIOME* (biology), have extended it to include foreign language and science instruction. However, the authors have chosen to focus on *Operation ARETE*, a game/course in Greek philosophical writings, due to its use of an ARG-layer to provide the same kind of transfer envisioned by Plato and lauded by contemporary educational psychology. In view of its classical-philosophic learning objectives, it serves as a prime example of successful instructional bridging between course, game, and real world activity.

Project ARKHAIA's ARG-layer uses the power of immersion (e.g., Gee, 2013) to evoke student performances that cross the transfer divide. When a student performs at this level, s/he demonstrates progress toward both course learning objectives and the development of underlying skills required for more progress – a dynamic that the authors have come to refer to as “continuous formative embedded assessment.”

Functionally, the *Operation ARETE* instructor “recruits” his or her students at the beginning of the game/course as operatives engaged in a confidential project (i.e., *Project ARKHAIA*) run by a shadowy corporate organization known only as Mission Control. The project's prime directive, as well as that of the individual operation, is to save the world (including its peoples, cultures, and other social elements) by broadening awareness of ancient civilizations. As the operation moves forward, students (i.e., operatives) inherently accomplish this goal in themselves and one another: the transfer problem, as in Plato's cave, does not manifest since student participation in the game/course directly matches progress towards the learning objectives at a 1:1 ratio.

Within this framework, course activities are not simply the process of completing homework and attending class but instead an integral part of saving the world. Each assignment and text annotation is a collaborative effort to wrestle with Plato's ideas in the context of the students' own world. When students demonstrate growing mastery of Plato's cultural context and its influence on ethics and epistemology, they do so explicitly in order to use the ethics and epistemology embodied in Plato's works to make their lives, and the lives of those around them, better.

Importantly, the ARG-layer is used to scaffold a narrative role-playing game through which the student operatives portray young Athenians on a mission to understand Plato's philosophy and counterpose it to that of Aristotle. With the ARG layer designed to facilitate entrance into the world of the RPG, the operatives are able to fulfill the missions given to them by people like Plato (e.g., “Infiltrate the Academy, then the Lyceum”). Such performance actions, filtered through the ARG, consequently emulate the performances conducted by young philosophers thousands of years ago. Additionally, this permits students to collaborate in analyzing practices and artifacts from contemporary culture in terms of Platonic philosophy. The comedy of Stephen Colbert, for example, has served as a jumping off point for an analysis of the difference between true Socratic elenchus like that performed by Colbert and the academic philosophical discourse found in the lecture halls of philosophy departments. In this way, the interface between ARG and RPG gives students no choice but to connect their creative critical thinking in the world of the text-based simulation to their reflection on their own cultural positions. Within this framework, course activities are not simply the process of completing homework and attending class but instead an integral part of saving the world. Each assignment and text annotation is a collaborative effort to wrestle with Plato's ideas in the context of the students' own world. When students demonstrate growing mastery of Plato's cultural context and its influence on ethics and epistemology, they do so explicitly in order to use the ethics and epistemology embodied in Plato's works to make their lives, and the lives of those around them, better.

The ARG/RPG synergy described above powerfully emerges at the end of the game/course when the RPG world begins to break-down in the face of contradiction about the basic nature of philosophy (Figure 2). Can philosophy be written? Can it be taught? Plato and Aristotle disagreed on how to solve these enigmas, and their disagreement forces the operatives to craft potential solutions to the problems highlighted during the game/course (i.e., real world philosophical problems) by practicing Platonic philosophy to demonstrate that Plato was right and Aristotle wrong, or vice versa, or that both were right, or that both were wrong.

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