Operation MHNIΣ: Mapping learning objectives to play objectives

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Abstract: In this worked example, we examine the UConn game/course *Operation MHNIΣ*/CAMS1101 "Greek Civilization" as an illustration of the problem of ruleset-mapping in learning games. Through an example of a crucial humanities learning objective, textual analysis, we explore the idea that key affordances of game-based learning come from rules and not from content, whether that content is 3D graphics or physics facts. The format of *Operation MHNIΣ*, in which an alternate-reality game encloses a role-playing game, permits a ruleset that fosters culturally-sensitive textual analysis as an essential element of the course's gameplay. We suggest that the importance of achieving learning outcomes in skills like textual analysis may make low-tech text-based games just as successful as (if not more successful than) video games at producing favorable student outcomes.

At the 2011 Games+Learning+Society conference, a team from the University of Connecticut led by Roger Travis and Michael Young presented their work on a learning game called *Operation LAPIS*, whose most distinctive feature is that it represents a full curriculum in introductory Latin: the game is the course and the course is the game. In this worked example, we explore the founding principle of *Operation LAPIS* in another game/course. We examine the theory behind the principle that mapping play objectives onto learning objectives lets rulesets themselves foster learning, and suggest its implications for practice, in the context of Travis' game/course called *Operation MHNIΣ* (say "MEH-nis"), a game/course both in Greek civilization and in introductory Greek.

Like *Operation LAPIS*, *Operation MHNIΣ* presents an important challenge to the game-based learning community. It does not look like a video game. Indeed, we believe it calls into question the usefulness of video games for learning higher-order skills like analysis and interpretation. Salen and Zimmerman (2003) argue persuasively in *Rules of Play* that immersion in games comes from rules and not from visual or spatial interaction; the UConn group's research strongly suggests the same conclusion based on humanistic inquiries in Homer and Plato (Travis, 2011a), which also suggest that this rule-created immersion creates powerful affordances for learning (Travis, 2011b). Further, a meta-analysis of research on video games in education by a UConn team suggests that the areas of promise in video game-based learning arise in games in which the rules themselves (e.g. "Speak the target-language") embody the learning objectives (Young et al., in press).

However, if immersion comes from rules and thus the bundles of rules we call "mechanics," what kinds of mechanics could possibly teach students to analyze literary texts? Behind *Operation MHNIΣ* lies the idea that humanistic learning objectives like culturally-sensitive textual-analysis can be mapped onto play objectives through well-designed rulesets in a one-to-one relationship so as to foster this crucial skill. This idea, which the UConn team calls the "practomimetic principle," is based on an insight arising from a ludic analysis of homeric epic and Platonic philosophy that indicates that, to put it simply, games teach their rulesets, not their content.

Roger Travis has explored the classical, humanistic underpinnings of what he calls "practomimetic learning" in several publications (e.g. Travis and Young, 2010; Travis, 2011b), and has written extensively about the relationship between the insights to be had from a comparative analysis of classical literary forms and modern games, and the development of game-based curricula (Travis 2010). Travis sees homeric epic's role in the educational practices of ancient Athens, together with Plato's critique of that role, as presenting modern learners with an opportunity for a kind of game-based learning that reawakens the powerful affordances of classical epic and philosophy both for educational institutions and for our communities more generally.

If games teach their rulesets, however, the game-based learning community has a problem. The games we think of when we say Games+Learning+Society—that is, video games—do not have rulesets that teach humanities learning objectives in the upper tiers of Bloom's taxonomy (Bloom, 1956; Anderson and Krathwohl, 2000). Clicking on evidence to assemble an argument, for example, as the mechanics of several stat-of-the-art learning games have run recently (e.g. Filament Games' *Resilient Planet* and *Argument Wars*), is not the same thing as constructing an argument. The mechanics of these games allow players to change the game-state not using analytic skills but rather using skills of recognition and identification. If games teach their rulesets, the student may learn to recognize a piece of evidence, but

s/he will not learn to use it analytically. If we want to be able to design games that teach analysis and creativity with texts, for example, we need to find a different kind of ruleset.

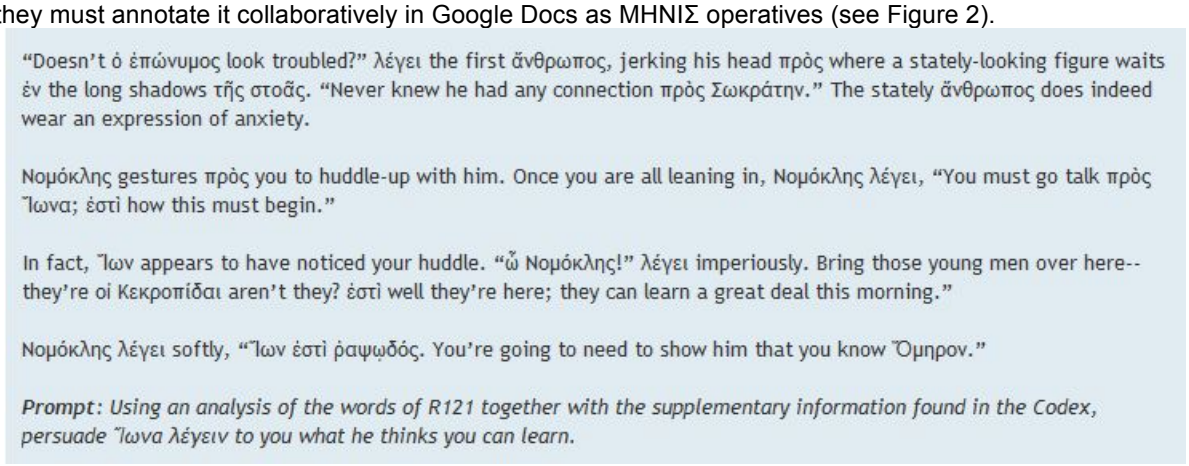
The development of our example, *Operation MHNIΣ*, reflects a potential solution to this problem. Through a situated cognition framework, we have adopted a learning-by-doing model wherein students must problem-solve, create, and capitalize on other 21st century skills that reflect knowledge as action specifically in order to master learning objectives in the domain of textual analysis (Brown, Collins, and Duguid, 1989). The game is an RPG wrapped in an ARG: by forcing students, playing as operatives at the ARG layer, to analyze on the one hand the text-based narrative in the RPG-layer, and, on the other, the "text-briefings" of the game (i.e., the reading of the course), the game uses its ruleset to foster the achievement of higher-order learning objectives associated with deeply contextualized problem-solving (Bransford and Stein, 1984; Polya, 1945). Rules are mapped to learning objectives in a one-to-one relationship: papers become mission-briefings; detailed textual analysis becomes intelligence gathering; collaborative annotation of classical texts becomes fieldwork for developing virtuosic role-playing performances.

For this reason, *Operation MHNIΣ* does not look like a video game. If anything, it looks like a text-adventure accompanied by a series of supplementary texts. Students/players spend most of their time conducting analyses of the Greek texts that are always at the heart of the learning goals for a course in Greek civilization: Homer, Herodotus, Thucydides, Aeschylus, Sophocles, Euripides, Plato. These analyses result from a ruleset that imposes analysis as a mechanic—that is, a bundle of rules that controls the relationship between player-input and game-state (Ferrari, 2010). When students input their analyses in the team-workspace forum, they receive points, and when they input role-playing performances governed by that analysis in the text-based RPG, their characters receive rewards.

The unification of instructional-design and game-design implied by the practomimetic principle means learning activities become themselves the mechanics by which mastery is both achieved and measured. The mechanics of the game/course foster progress towards learning objectives in the domain of textual analysis by making the reading itself the game/course's fundamental activity/mechanic: reading, and analyzing that reading, is the fundamental activity of *Operation MHNIΣ.*

For example, three complementary mechanics foster achievement of the learning objective "culturally-sensitive analysis of classical literature": the annotation mechanic, the collaboration mechanic, and the immersion-response mechanic. The first of these mechanics takes place in the ARG layer, as student-operatives team up as an entire class to annotate for example the text of the homeric *Iliad*; the second takes place between the ARG and RPG layers, as they divide into their character-teams to collaborate on what their characters will do in the RPG based on their annotation of the text; the third takes place inside the RPG, as the lead operative for a given immersion posts his or her team's character's actions in response to the action in the text-based simulation of the ancient world.

So when the student-operatives approach an RPG situation early in the game/course in which their characters must prove to the homeric rhapsode Ion why he should talk to them about the ancient notion of excellence (see Figure 1), their text-briefing, as the reading is called in-game is from the homeric *Iliad*, and they must annotate it collaboratively in Google Docs as MHNIΣ operatives (see Figure 2).


"Doesn't ὁ ἐπώνυμος look troubled?" λέγει the first ἄνθρωπος, jerking his head πρὸς where a stately-looking figure waits ἐν the long shadows τῆς στοᾶς. "Never knew he had any connection πρὸς Σωκράτην." The stately ἄνθρωπος does indeed wear an expression of anxiety.

Νομόκλης gestures πρὸς you to huddle-up with him. Once you are all leaning in, Νομόκλης λέγει, "You must go talk πρὸς Ἴωνα; ἐστὶ how this must begin."

In fact, Ἴων appears to have noticed your huddle. "ὦ Νομόκλης!" λέγει imperiously. Bring those young men over here--they're οἱ Κεκροπίδαι aren't they? ἐστὶ well they're here; they can learn a great deal this morning."

Νομόκλης λέγει softly, "Ἴων ἐστὶ ῥαψῳδός. You're going to need to show him that you know Ὅμηρον."

Prompt: Using an analysis of the words of R121 together with the supplementary information found in the Codex, persuade Ἴωνα λέγειν to you what he thinks you can learn.

Figure 1: **RPG immersion-prompt**

In Figure 2, we see Operative Traffic (not his/her real name) beginning the arduous process of mastering the concept of double-determination, an absolutely key learning sub-objective for doing culturally-sensitive

analysis of homeric epic. We also see the two kinds of feedback offered by the text-based mechanics of the course/game: the instructor's scaffolding feedback and the experience point system, called "Hellenism Points" in *Operation MHNIΣ.*

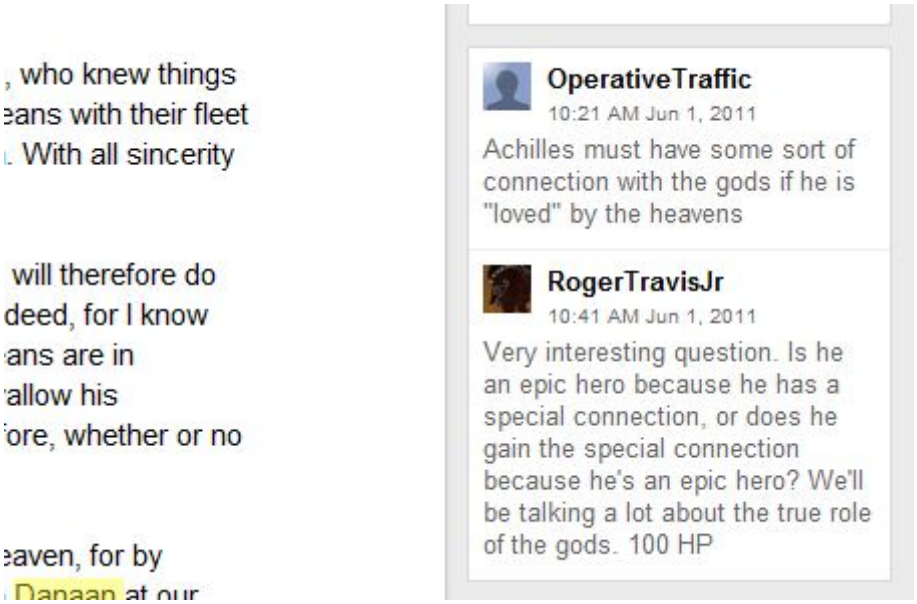


***Figure 2*: ARG text-briefing annotation**

In turn, students/players use this ARG information when crossing the divide between ARG and RPG, in their team-workspaces (see Figure 3).

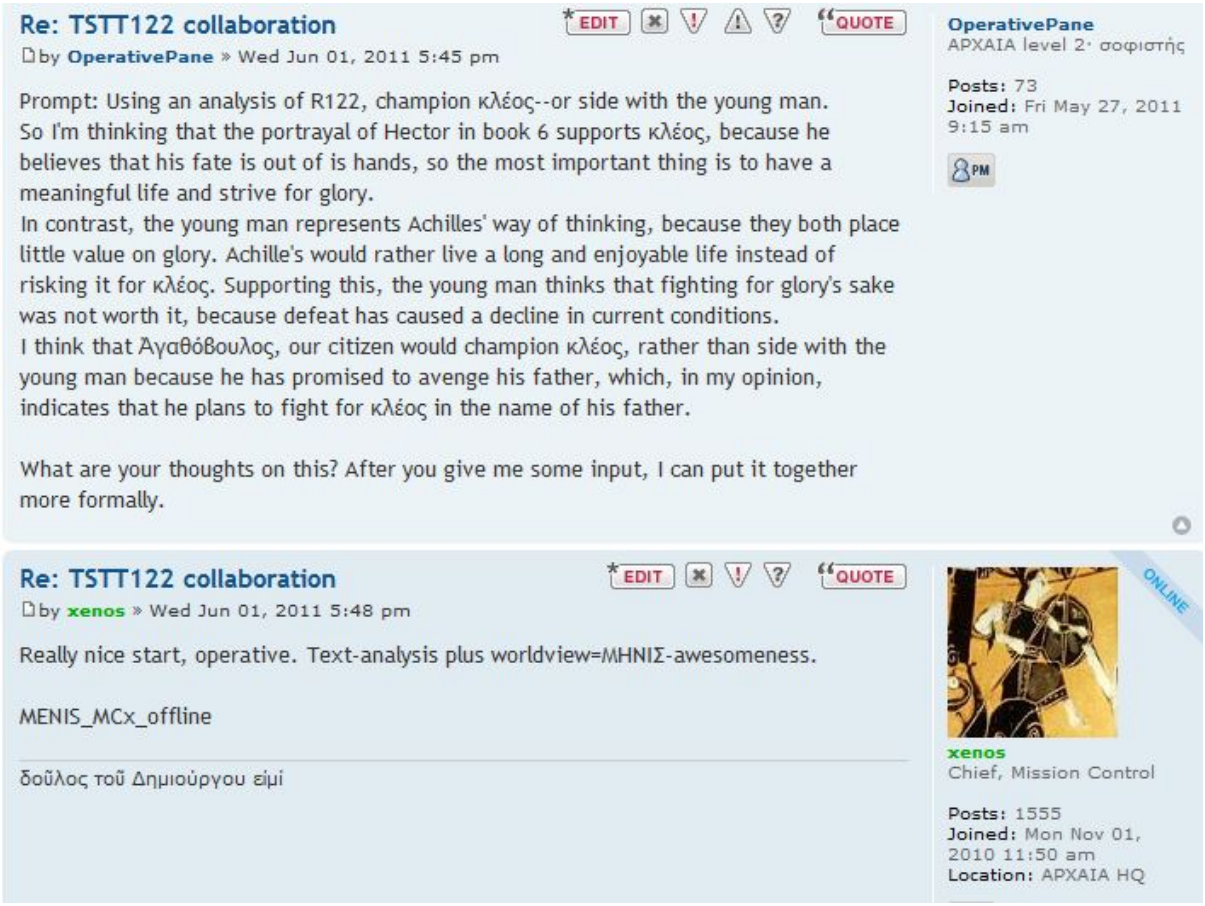


Figure 3: **Team textual-analysis**

Operative Pane (a student-selected pseudonym) brings what s/he learned through annotating the text-briefing into the space between the ARG and RPG layers; the authentic learning of concepts that would seem far removed from the player/student's life happens effortlessly here in the interstices of the game/course's ruleset. This player/student is the "lead operative" for this particular immersion-session, and so is tasked with organizing the collaboration; unsurprisingly, player/students' growth is greatest (at least as measured in the number of HP awarded) when they must serve in this capacity.

This mastery of text-based learning objectives translates directly into the character-teams' response to the immersion session, as seen in Figure 4.

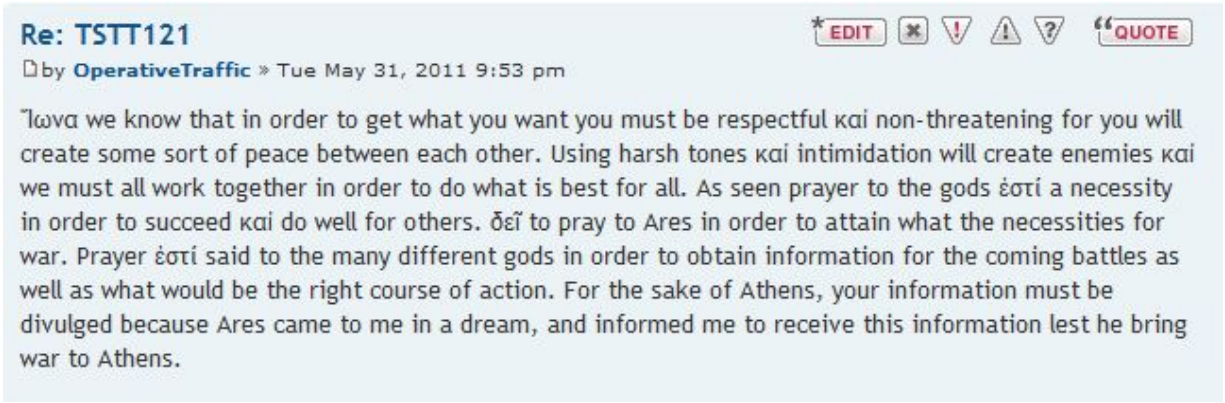


Figure 4: **Player/student immersion-response**

As lead operative of the character-team for the team-character called Stratomedon, a team tasked with bringing to life a young Athenian warrior, Operative Traffic shows, through a performance exercise, authentic beginning mastery of the terribly complex ideas behind the way Greek religion functions in literary texts.

These examples might invite the reader to ponder the full implications of James Paul Gee's famous carefulness about asserting that video games are in and of themselves good learning tools—for example, "Game design is applied learning theory, and good game designers have discovered important principles of learning without needing to be or become academic learning theorists" (Gee, 2008, p. 24). Video games may embody principles of learning, but the kind of learning that video games enable must always depend on the learning objectives embodied in their rulesets. In a classics course—or, really, any humanities course—textual learning objectives are the name of the game, quite literally. We would submit that there is a need for similar constraints, embodied in rulesets, whether of a textual or perhaps even of a chemical or statistical nature (that is, in courses in chemistry or statistics), for any game that seeks to foster accomplishment of key learning objectives in an established academic domain.

Indeed, the ruleset-mapping found in *Operation MHNIΣ* allows its mechanics to foster mastery of its learning objectives and exposes itself as a constructed ludic artifact, allowing its players access to a meta-cognitive perspective on both their play and learning. The ARG layer of the operation, as an extension of the practomimetic principle, makes students operatives; as operatives they become players of the RPG layer of the game: in order to accomplish the play objectives of *Operation MHNIΣ* they must also accomplish a fundamental learning objective that we believe may be unreachable in any other kind of course of study: save the world by gaining an education.

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