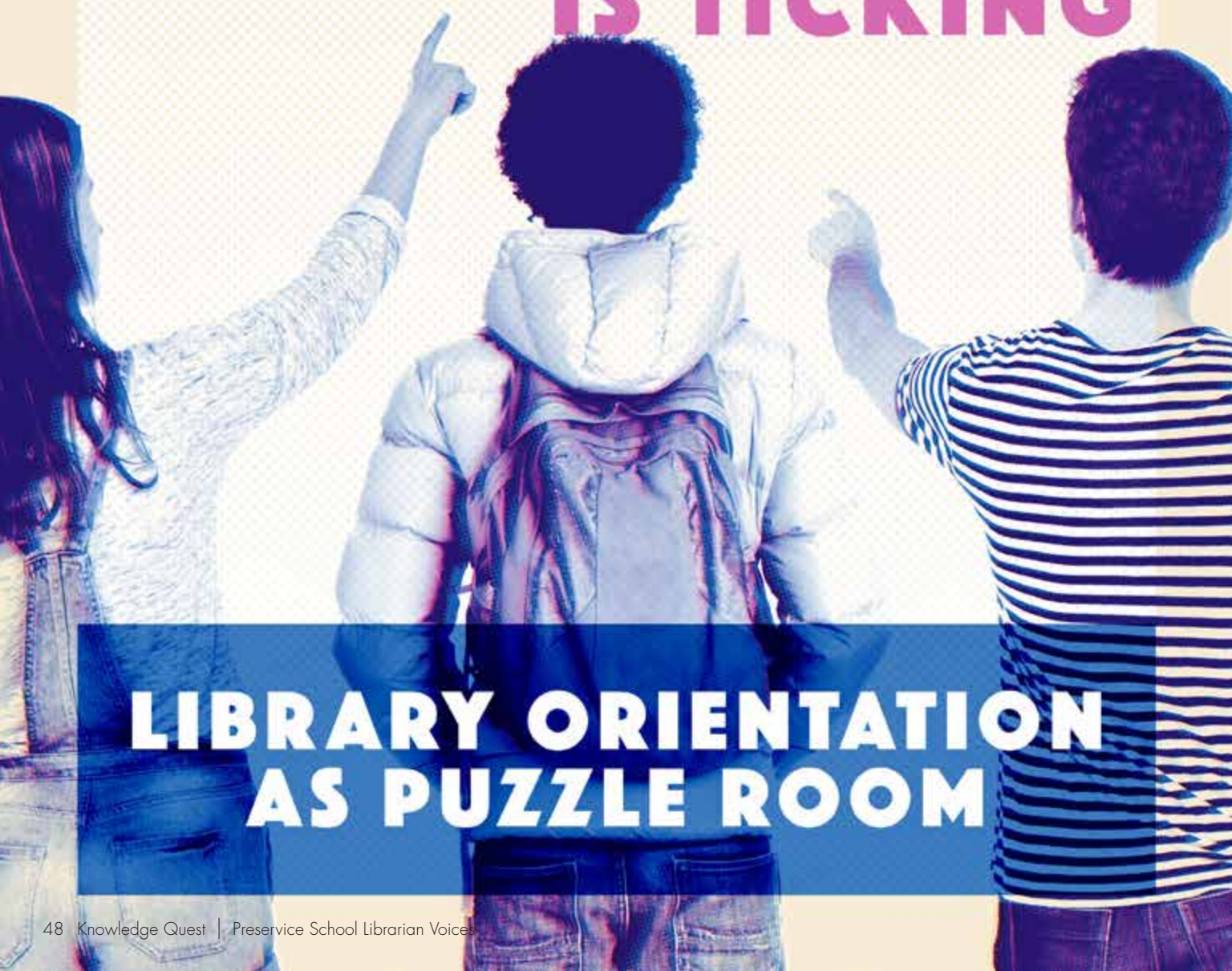# THE CLOCK IS TICKING

LIBRARY ORIENTATION AS PUZZLE ROOM

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Pretend for a moment you're in ninth grade, two weeks into high school and visiting the library with your classmates for orientation. The library staff tells you and your team of detectives—yes, they call you detectives—that a priceless statuette (i.e., action figure) from the library's art collection has been stolen, but fortunately the thief's M.O. is to hide the pilfered item in the very place from which it was taken. You have forty-five minutes to follow the thief's trail of riddles and puzzles and recover the statuette. After that, the thief—a stylish cat burglar known as Rayna Trix—has promised to return and steal it for good. A stopwatch projected against a screen in the library begins ticking.

"The thief left this," one of the librarians says. You open the proffered copy of William Messner-Loeb's graphic novel *Journey: The Adventures of Wolverine MacAlistaire* and find tucked in its pages a small square of blue paper on which "Hg" is printed.

What do you do?

From the description above, aficionados of live-action, team-based games might recognize identify-ing characteristics of the escape room variant known as a puzzle room: the clock, the clue, the narrative. (Film buffs might additionally recognize in the thief's M.O. a reference to one of the plot twists in *The Thomas Crown Affair*.) Though the first escape room is often traced to Japan in 2007 (Nicholson 2015, 3), my introduction to the concept came via a June 2014 *New York Times* article that described the phenomenon as a cross between video games and theater (Suellen-trop 2014). After reading several other articles about escape rooms and hearing of them on NPR, I started considering puzzle rooms in the context of our library orienta-tion program, which I wanted to remake. In December 2015 I began gathering ideas for puzzles and riddles, intending to test a design during the spring 2016 semester with a single team of students and to fully implement a puzzle room-style library orientation in fall of the same year.

Puzzle rooms, for those unfamiliar with them, present players with a set of challenges to solve; they require "teamwork, communica-tion, and delegation as well as critical thinking, attention to detail, and lateral thinking" (Nicholson 2015, 2). At their most elaborate, puzzle rooms offer a themed narrative that organizes a variety of clues—ciphers, symbol substitution, invisible ink—each of which contributes to the story. They differ from escape rooms in objective: not literal escape but some other victory condition, stipulated within the narrative. The objective might be solving a murder, committing espionage, or carrying out a heist (Nicholson 2015, 2, 13, 15).

To the qualities mentioned by Scott Nicholson (see above), add the notion that taking ownership of and respon-sibility for one's education, rather than passively waiting for others to provide direction and help, is greatly to be desired. In fact, it would be difficult to imagine a better set of attributes for students to develop.

Starting the Redesign Process

I began the redesign by identify-ing topics and areas to cover during the orientation, and cognitive processes to challenge. Topics to cover included knowledge of the library's catalog (Follett's Destiny) and of our OverDrive collection, the library's virtual and physical spaces, and some of its social media presence. The list of cognitive processes to challenge included attention to detail and close reading, especially of instruc-tions and directions, and critical and lateral thinking.

The next task in the redesign process involved a peripatetic brainstorm

session, a stroll around the school library to note anything that might furnish a puzzle, clue, or riddle. Whereas commercial puzzle rooms might use invisible ink, mirrors, and tests requiring hand-eye coordination—all enjoyable, of course—I wanted something more directly relevant to library and academic practices. Anything that could draw students' attention to call numbers, indexes, and the differences among fiction, nonfiction, and reference items would be useful.

For example, I adapted a puzzle room staple, the stopped clock, to my nefarious library orientation purpose: a team finds a riddle that reads, "The clock is stopped on a book, and in that book is your next clue." This riddle works on at least two levels. First, close reading: "*the* clock" rather than "*a* clock," and "stopped *on* a book." The former should cause the students to look for a specific clock in the library, while the latter's pivotal word, *on*, is designed to spark lateral thinking,

a deeper level of cognition. In the game, I remove the batteries from the library clock so that it perpetually gives a time of 7:01, clearly wrong. The team is left with a cryptic set of numbers. Only when they think of their context—of the fact that they're in a library and that some books have numbers on their spines and that "7:01" might in fact be "701"—will they solve the riddle and move on along their specific puzzle path to find 701 SHL, Leonard Shlain's *Art & Physics*.

Another skill worth developing is that of reading and interpreting the visual display of data. During my stroll, I stopped at the many infographic posters hanging on our school library's walls, artful organizations of data in subjects as varied as coffee, magical objects in the Harry Potter series, Avengers comic books, B-movie monsters, musical notation, college sports team names, and more. It was a happy moment when I realized these infographics offer a near-infinite array of numbers

that could either point to nonfiction books or reveal padlock combinations. How many ornaments are there in musical notation? Seven. How many types of espresso shots are there? Four. Which volume of the Avengers had the briefest run? Two. And there you have either a combination or a call number: 7-4-2.

Rationale behind Using Puzzles in the Library

The aim here is to employ constructivism, a theory built on the idea that people learn best when they construct knowledge based on experience, when they apply what they've learned, and when they have the chance to test and revise personally generated hypotheses, a theory that demands active learning. A 2011 study of physics teachers showed that students' understanding improved 38 percent after a switch to active learning from a more-traditional model (Stone 2016).

Therefore, rather than have students watch me and my colleagues, Shelley Horman and Terri Ingraham, demonstrate aspects of the catalog, with a few of the more ambitious among them perhaps following along on their laptops, we would rather hand students a locket with a note inside that reads, "This object is the clue. Good luck" (as, in fact, we did with one team) and see what they make of it. To figure out the meaning of this clue students need the Internet and some trial and error with search terms. For example, "The Locket" combined with "fiction," takes students to the correct answer, while searching only on "The Locket" sends them on a wild goose chase. With the former search, they find that Kate Chopin wrote a short story titled "The Locket." When searchers plug that information into Destiny, they discover we own a copy of *The Complete Works of Kate Chopin*. Necessary to the process of solving a single clue are complexities of thought sufficient to challenge the most-precocious ninth-grader.

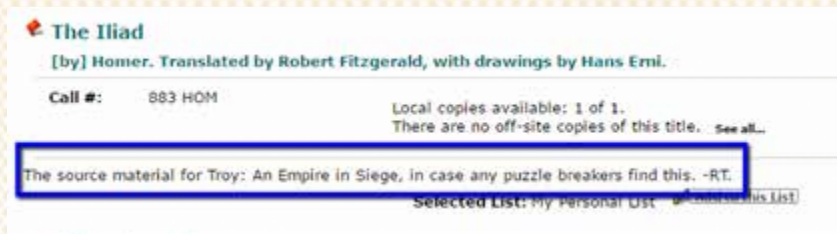*Figure 1. Location note in catalog as clue.*

Figure 2. Message left in our catalog for attentive students.

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Most of the clues demand attention to detail. For example, books in a series are arranged out of order so that the volume numbers point to a particular page or a call number. Woe to the team that heedlessly pulls books off the shelf and jumbles them up! Other examples of clues that require close attention to detail are those that direct students to catalog records. A fiction genre may be significant (see figure 1). The international art thief herself may leave taunting hints (see figure 2). Clues require scrutiny to successfully complete a task or solve a riddle, activities paralleling teachers' expectations that students will carefully read and understand their assignments, which will become more complicated as they move through high school and into college.

To test students' teamwork and delegation skills, some clues have several parts, three or four clues rolled into one. We planned to watch to see if these teams assigned individual members, or groups of two, to work on different parts of the clue, making efficient use of time and resources. Do they have one person ready with a QR code reader on his phone, another with her laptop poised at the catalog search screen, and a third charged with taking photos of anything that might be important later? Will the team designate one person to write down information gathered? The answers to some riddles to be solved in the early moments of the game don't come into play until later, and the most-successful teams will be those that keep track of what they've learned.

Testing and Revising the Prototype

I finished the prototype in May 2016 and ran a test with four volunteers, freshmen at the time, though with almost a full year of high school behind them. (Thank you, Brendon, Ashlyn, Rom, and Julianna!) They asked for many hints along the way and in the debriefing afterward said solving the puzzle was difficult but fun. Based on observing them during the challenge and on their feedback, I modified the wording of several clues that caused confusion or were simply too hard: a scrambled Virginia Woolf sentence whose intricate syntax foiled their every attempt to untangle it, the afore-mentioned clock clue, and a type of clue that has its answer hidden in plain sight. An example of this latter type is a message that reads, "Look for my mark in the white city. If you can't solve my riddles, I'll add your wonderful object to my index of treasures." The first sentence requires a literal reading to find the book that contains the next clue, and the second tells where in that book to find the clue itself: look in the index of Erik Larson's *Devil in the White City*. Revised, this became, "Look for my mark in the white city. If you can't solve my riddles, I'll add your wonderful object to my Index of treasures," with the italicized and incorrectly capitalized letters offering the sharp-eyed student a chance to solve the riddle without asking for help.

The Introduction of the New Orientation

After revising the prototype puzzle path, I created eight more paths to accommodate teams of three or four students in classes of up to thirty-six. Each clue was used in only one path. Therefore, creating the clues kept me busy all summer and right up to the first day of orientation in mid-August 2016. Along the way, I refined my technique, using a spreadsheet to deploy the various clue types among the nine teams to minimize traffic jams that might occur if too many students clustered in the same area of the library at the same time.

Students had two library visits (on consecutive days) to complete their team's puzzle path.

Before deploying the new paths, though, I had changed one type of clue, a twenty-four-piece jigsaw puzzle of a book cover. Why? I realized that if the jigsaw puzzle gave only a partial rather than a full image of the cover (see figure 3), along with part of a title or of the author's name, the students would have to use the asterisk wildcard to find the book in the catalog, possibly also having to notice that Destiny provides a thumbnail image of book covers and, thus, offers the students another point of reference against which to compare the partial image in the jigsaw puzzle. In the example given in figure 3, "Gross*" produces a manageable list of thirteen titles (see figure 4). Searching "Aus* Gross*" yields the specific title they need: Austin Grossman's *Soon I Will Be Invincible*. We'd never before had much luck getting students to use wildcards,
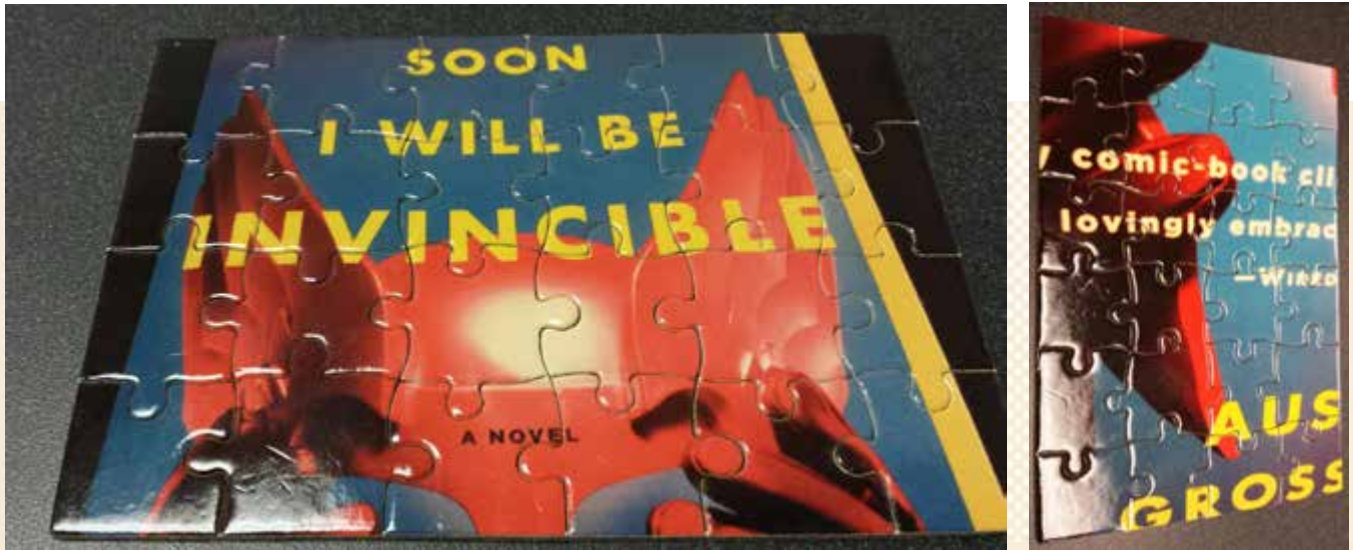
Figure 3. At left, cover image with the complete title; at right, partial cover showing only part of the author's name.

and now here they were learning by doing—every constructivist's dream.

Because they're freshmen and not expert detectives, the instructions include not only the narrative but also a list of the "expert knowledge" they must possess to use the clues. This list, containing tidbits such as how to use the asterisk wildcard, how to search on a phrase, and how to log into Destiny, provides everything the teams need, combined with their own problem-solving skills, to crack the case and recover the stolen treasure. We leave it up to them to make use of the information.

If stuck, teams can ask for help from the library staff. I generated a number of hints for each riddle and puzzle, starting with the most heuristic-friendly, encouraging students to use their own problem-solving and initiative, qualities highlighted as 21st-century skills in AASL's *Empowering Learners: Guidelines for School Library Programs* (2009). For students not yet ready for the most-challenging puzzles, less-subtle "hints" (akin to giving students the answers) are provided when necessary. The downside for teams who ask for assistance? Asking for hints amounts to stepping outside the narrative and their role as experts brought in to find the missing artifact, and so comes with escalating penalties that get added to a team's final time. The time element provided a competitive layer, allowing teams to compete with all other freshmen, four hundred in all.

The most-successful teams shared a number of characteristics. Each paid close attention to the expert-knowledge document, asked for hints early, and in so doing learned how to think about the various riddles and clues. As a result, these teams were less likely than other groups to get stuck in a single unproductive line of thought rather than explore alternative approaches. The most-successful teams were also the most curious, and the ones that embraced the narrative, consider-ing it a personal challenge to keep the library's art collection intact and out

Figure 4. Thumbnail image and location note that help alert students find the book pictured in the clue.

of burgling hands. In a debriefing session with the students after each game, we discussed the various strategies, successful and otherwise, they had used, and explicitly connected the skills required by the puzzle room with those demanded by high school research.

We made changes on the fly as we learned how the students thought. Among the changes that proved to be successful were:

- holding a meeting with each class the day before the challenge to go over the narrative, the expert knowledge required, the rules, and the objective;

- demonstrating the sort of problem-solving these puzzles required;

- color-coding the clue slips, so that a team that found another team's clue would not get hopelessly off track (see figure 5);

- eliminating from the narrative and the clues every mention of the specific action figures "stolen" (e.g., Iron Man, Thor) because

if the "stolen statue" was named, some teams immediately headed for the graphic novels involving the character, but instead of getting an easy win, they wasted time.

Looking Ahead

We considered the puzzle-based orientation to be a success based on students' enthusiasm, engagement, and subsequent ability to use the catalog and find books in the collection. We plan to use puzzles again to introduce ninth-graders to the school library. We intend to meet with students again to introduce the challenge and familiarize them with how to approach the puzzles. However, next year's version of the puzzle paths will fit completely inside a single class period instead of being broken into two consecutive days. We found that when the puzzle-based orientation was spread over two days, the students had difficulty remembering where they were in the puzzle path and what information they'd already gained (in spite of our reminders for them to take photos and notes). We are considering our options. Other

narratives are possible, as is the idea that all teams work on various parts of one overarching mystery.

Overall, we are happy with this inaugural effort. Students got repeated, hands-on exposure to the library website, Destiny, OverDrive, and physical collection and space, and that's exactly what we wanted.

Oh, and that "Hg" found in *Journey*? That's the chemical symbol for the element mercury, and *Mercury* is also the name of a graphic novel by Hope Larson. Congratulations, you solved your first puzzle!

Tripp Reade is the school librarian at Cardinal Gibbons High School in Raleigh, North Carolina. A member of AASL, he is the author of two recent articles published in The Review Review: "Esteemed Lit Mag Charts Wide Experience of Human Nature," in the April 4, 2016, issue and "Lit Mag Focuses on Justice, Broadly Defined," in the January 25, 2016, issue.
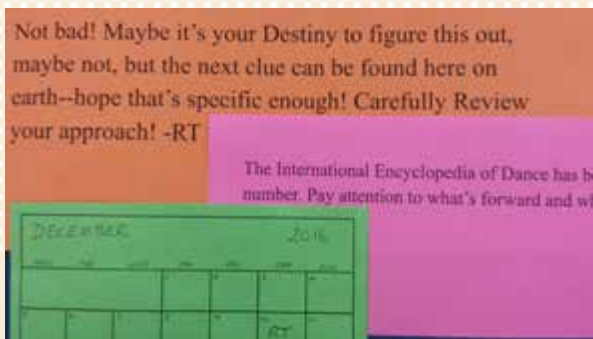
Figure 5. Color-coded clues to help teams stay on track.

In a debriefing session with the students after each game, we discussed the various strategies, successful and otherwise, they had used, and explicitly connected the skills required by the puzzle room with those demanded by high school research.

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