

# Pennsylvania Libraries: *Research & Practice*

Practice

## Campus Clue

### *Habituating Students to the Information Search Process via Gaming*

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Escape rooms have become very popular with the public in the past few years. Outside of the for-profit sector many grade schools and public libraries have used them to teach and entertain. This article shows how an academic library was able to successfully use the popularity of escape rooms and their teaching advantages to create an escape experience for students. By creating an experience that remained true to the original purpose of escape rooms, but which spanned the whole campus rather than one room, players learned about the library and other campus services by solving a series of ciphers and riddles.

### Escape Rooms and Pedagogical Practice

We are in the era of escape rooms. They started with the company SCRAP in Kyoto, Japan in 2007, and their popularity spread through the rest of Asia and into Europe before reaching North America where they are now in every major city in the United States. Their popularity has also brought them into public libraries around the country.

A typical escape room involves a locked room with a narrative or theme about why you are locked in the room and how much time you have to escape. At Kitchener (Ont.) Public Library, participants are told they have fallen asleep at their books, only to awake in a locked room with an important exam looming in 15 minutes (O'Reilly, 2016). At the for-profit escape room, [Can U Xcape](http://canuxcape.com) (canuxcape.com), in Bloomsburg, PA, players are told they are in a submarine and must stop an evil crew member who had disabled the sub, and stop the nuclear missile he is set to launch (). Within the rooms are a variety of props placed to make players feel as though they are part of the narrative. Some of the props serve the dual purpose of containing clues or puzzles that can lead players to escape.

Like public libraries, educational institutions have also adopted these rooms. The benefits of having a class engage in interactive problem solving that facilitates inquiry and collaboration in a classroom are many (Goerner, 2016). However, most of the adoption of escape rooms in education has been in grades K-12. While many academic libraries and colleges have used augmented reality games (ARGs), which take place in a completely virtual world, to enhance learning experiences for their students, few have ventured into escape rooms, which occur in real life (Rimland, 2014).

Schools have used escape rooms to reinforce course material and the common core, but public libraries, while they have had escape rooms, have yet to use them to educate their patrons about specific library resources or services.

Escape rooms and games in general are great ways to impart skills and information. Two basic underpinnings of all games are that they are fun, and they teach the player how to play the game. Rowan Tulloch in his article "Reconceptualizing Gamification: Play and Pedagogy" points out that "As a practice gamification does not assume engagement and interest, but seeks to generate it...For games maintaining engagement and enjoyment is critical" (2014, p. 327). The fun in a game that keeps people engaged comes from a "combination of simple, well-worked basic rules and an exponentially emerging complexity..." (Chatfield, 2010, p11). We like exploring, experiencing, and overcoming challenges, and this enjoyment is harnessed to teach the player how to play the game. In Oblinger's study of the use of games in high school and college classrooms (2004), she shows that each game comes with its own rules, strategies and goals that allow a player to win (. Feedback on players' actions are given quickly with points, lives, and or progress (Tulloch, 2014). When playing Super Mario Brothers, through trial and error, you quickly learn that stars and red and green mushrooms are good, and turtles and brown mushrooms are bad based on what happens when you encounter them. Players are willing to go through these learning curves because the game makes the process fun and rewarding. This "learning by doing approach of games encourages transfer to future learning activities or life" (Oblinger, 2004, p.15).

While some escape rooms have been used to reinforce course content, we wanted to attempt to teach students research skills and build their confidence as researchers. In Carol C. Kuhlthau's 1991 article "Inside the Search Process: Information Seeking from the User's Perspective" she identified six stages of the information search process (ISP) students go through: initiation, selection, exploration, formulation, collection, and presentation. In the stages of initiation, selection, and exploration, when students are first faced with the problem and the need to start engaging with sources for their research, they face feelings of apprehension, anxiety and doubt. If students are not helped or encouraged through these moments of doubt, they "may actually be inclined to abandon the search altogether..."(INSERT PAGE # only). However, Kuhlthau also discovered that people who had experienced the information search process before, "had gained a sense of their own pace in the ISP," and "expected to be uncertain at the beginning and had developed tolerance for the early uncertainties in the formative stages" ( p.368). This confidence about being able to work through the initial insecurities was a learned behavior from past experiences. Escape rooms provide an easy way to give students a positive ISP experience, which will give them confidence going forward. They teach problem-solving skills and critical thinking. Much like the real-world, clues and information that can be used to achieve the answers are all over the place. It becomes a matter of knowing where to look and assessing the information you find. As French teacher Nicole Naditz said in an article on escape rooms in *The Atlantic*, "In life and work outside of the classrooms, solutions aren't singular, nor are they neatly packaged or synthesized into multiple choice responses...Breakout events prepare students for a more nuanced approach to solving problems"(Stone, 2016, p. #). When students are faced with the escape room puzzles, the element of fun puts them in an invitational mood, which takes the edge off their initial apprehension, anxiety and doubt, and allows them to move towards the formulation and collection stages, where they gain confidence and clarity (Kuhlthau, 1991). When their research pays off and they solve the puzzle they receive a huge confidence boost. This boost can give students the confidence they need to get through the difficult part of their information search process as they start to work on papers and projects (Kuhlthau, 2008). By making players go through three of these one week after another, we were able to build up their confidence in the ISP, along with getting them acquainted with detective fiction and ciphers.

## Challenges

Our academic library is a one room, open floor plan library consisting of 25,000 volumes with four study rooms and a computer lab off of our main space. We serve a population of under 400 students and are always looking for new ways to engage with them.

One major hurdle to hosting an escape room is space, and equipment. Even the most basic of rooms requires a lock and props that can be battered by players as they search for clues. Space a library can devote to a locked room is often limited. Some have devised creative ways around the lack of a room by using screens or a locked box rather than a room but these tradeoffs still require something to be purchased or constructed (O'Reilly, 2016). The commercial educational escape company [Breakout EDU's](http://breakoutedu.com) escape box kit, with access to their platform of scenarios, starts at \$150 (breakoutedu.com). Space is an issue for our library. The main area of the library has very high ceilings so the possibility of curtaining off a space is unfeasible. On top of the small size and open plan, we are also very busy. The students use the permanent study rooms heavily during the day, and we did not want to restrict access to these resources.

The primary goal of escape rooms is to provide a real-life action adventure. The founder of the first commercial escape room company SCRAP, Takao Kato's original motivation for creating escape rooms was to capture a sense of adventure. "When he was a child he would be filled with a sense of envy after reading novels and manga. 'I wondered why interesting things didn't happen in my life, like they did in books,' he said. 'I thought I could create my own adventure, a story, and then invite people to be a part of it'" (Corkill, 2009, p.#).

In an effort to provide a sense of adventure in real life but without the aid of a room we could lock, the staff of the library decided to eliminate the room from the escape room equation. Instead we returned to the idea of interesting things happening in real life, and used the whole campus as our 'locked room.' Instead of having the puzzles in one room or box, we spread them out over several departments on campus.

We wanted to use the escape game to introduce students to services which they may not have been aware of on campus, but which were vital to their success. Based on feedback from the different campus departments, we chose to feature health services, student activities, counseling services, and of course the library.

We also wanted to introduce students to the non-academic or "fun" collections in the library. Since the game would be played in October, the season of mystery, we used the game to introduce participants to the genre of detective fiction, and ciphers, a secret system of writing where each of the individual letters in the message are replaced with another letter, figure, or symbol.

## The Game

In preparation for the game, which we named "Campus Clue," we partnered with our campus's student activities office. We wanted the game to provide students with a wider understanding of the campus's many student services. Student Activities, which coordinates out of classroom experiences through clubs and events, and helps our students to form a sense of community, seemed like a perfect partner for this project. They helped us pinpoint departments to include, and assisted with the planning and set up of the game.

Once we identified the partner departments and contacts, and decided how the game would flow, we created fliers using detectives from popular culture to advertise the game and hung them up all over campus. We also posted similar ads on the Student Activities' and campus Library's Facebook pages.

The week prior to the start of the game, we created the clue cards that would be handed out for each week, and case files for students. These 6.5" x 9.5" manila envelopes, on which we stenciled "Case File" and "Confidential," not only helped us advertise the game but also allowed for easy collection of the clue cards from players at the end of the game. Each case file included an outline of the game and a "detective sheet" asking the owner to fill out their name

and email address so that we could contact them later. We set up the case files in the library and in the Student Commons with one of our fliers and instructions on how to play the game.

The game consisted of three ciphers over the course of three weeks. On the Monday of each week a new cipher was posted in two different locations on campus; the entrance to the Library and in the Student Commons, right next to the case files. We chose to run the game for three weeks, one week for each clue card: the murderer, the weapon used, and the location of the murder. We also wanted to give our commuter students, who are on campus limited hours, plenty of time to see the cipher and solve it.

Players were open to use anything from anywhere to solve the ciphers. Normally in an escape room clues about how to solve the puzzle to escape are scattered in various items around the room. In our case, on Monday when we posted the cipher for the week we also posted "extra evidence" on the Student Activities' Facebook page. This allowed students who needed help in the exploration stage to gain clarity about what they needed to find. Clues were also available in the monthly displays at the Library; one on detective fiction and the other on the history of ciphers.

For example, the second week's cipher was a keyword cipher. This type of cipher is similar to a classic Caesar cipher in that you shift the alphabet. For a keyword cipher you utilize a keyword at the start of the alphabet and then proceed with the rest of the alphabet in order, skipping the letters that were in the keyword. The keyword we used was "Turing," after Alan Turing, the cryptographer. This held double-meaning, since Turing had been prosecuted for his homosexuality, and National Coming Out day fell within that week. The cipher ran as follows:

T	U	R	I	N	G	A	B	C	D	E	F	H	J	K	L	M	O	P	Q	S	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

The capitalized text on the top is the ciphertext, and the lowercase letters on the bottom are the plaintext. In the display on the history of ciphers, we had a photograph of Turing and talked about his work decrypting the German Enigma cipher during World War II. On the Student Activities Facebook page, we posted the same picture of Turing and a key. The cipher posted that week read as follows:

JKJQ PQONPP TUKSQ QBCP RTPN QBNOTLNSQCR QBSO WCFE RNOQTCJFY BNFL YKS FCABQNJ  
YKSO HNJQTF FKTI

To solve it you look at the upper case letter and write the corresponding lowercase letter to break the code. Once a student had solved the cipher it gave them a riddle pointing them to an individual or a location which they had to visit to collect a clue card. The first week's riddle read, "Don't stress about this case. Therapeutic Thur will certainly help you lighten your mental load." This pointed students towards a mental health event that our campus counselor holds every month, called Therapeutic Thursday, which was well advertised by Student Activities. When students attended the event they had to tell our counselor that they were playing Campus Clue and she handed them the clue card for that week; the murderer, Mrs. Peacock.

The first week's riddle was encoded in semaphore, a cipher that involves using flags held at arm's length in various positions. Each position represents a letter of the alphabet. Semaphore is commonly used at sea. Once solved the riddle read, "Our Madame Pomfrey inspected the body of the victim. U should pay her a visit in the 'hospital wing' to learn more." This riddle led students to our health services office. The extra piece of evidence we posted on the Facebook page was an image of Madame Pomfrey, the school nurse from the Harry Potter series, and Harry in a hospital bed with the text "We don't have Quidditch at this campus but we do have someone to look after you if you are injured during a game or come down with a cold."

The last cipher was in Pigpen, which is made up of symbols and is therefore harder to solve. We used several different resources to create our three ciphers. Two books that were very helpful were *Top Secret: A Handbook of Codes*,

*Ciphers and Secret Writing* by Paul B. Janeczko and Jenna LaReau, and *A Brief History of Cryptology and Cryptographic Algorithms* by John F. Dooley. There is also a lot of information available online. By doing a simple search for “cipher” we found several helpful sites. Besides the Wikipedia entries on substitution ciphers and transposition ciphers, one site we found useful was [Practical Cryptography](http://practicalcryptography.com/ciphers) (practicalcryptography.com/ciphers). They have a list of different ciphers and how they work so you can easily encode your own messages. Sticking to good game design, we tried to slowly up the ante each week, starting with the simple and easy-to-recognize semaphore as the first week’s cipher, then increasing complexity over the next two weeks, finishing with the pigpen cipher. We used ourselves and our work study students as guinea pigs to test our ciphers. If our testers found it too hard or too easy we changed to one they found easier or harder to solve. Once we determined what cipher we wanted to use, and the riddle we wanted to encode, it only took an hour at most to encode the message, have a tester decode everything to ensure it was coded correctly and there were no spelling or grammatical errors, and then reproduce a clean copy to be posted. The riddle we encoded in the pigpen cipher was incredibly easy to do since there is a pigpen font you can download. The pigpen cipher read as follows:

VE<FLOV EC FGCCEFB>GEGB JFO  
FVFBFB>JGB>, OVFOLEFJLE< F<JLEF>< EGBV .  
LEGB FGB J UEEB ,  
FB >NFGB >NE<VJGB CE<F N<GBFBGB  
CEFB><OFGB>  
J CE<F  
J OFGB><VGBGB  
GBGB>GBGB GBGB><GBGB  
J<FBFB, L. J<F<V>GB >E UB VFOLEFGL .  
CFGB LEEGB >EE .

Not only was cipher the hardest one to solve, so was the riddle. Once deciphered it read:

"Sources of information are important, especially quality ones. Like in a book,  
PN three thousand four hundred fortyeight  
D four  
M eightyseven  
nineteen ninety-nine  
Dupin, C. Auguste to be specific. Free coffee too."

Students who correctly interpreted the riddle as describing a Library of Congress classification call number went into the library stacks and found *The Encyclopedia of Murder and Mystery*. If they opened to the entry on Dupin, the detective created by Edgar Allen Poe, they found a sticky note with the message, "See Megan at the circulation desk and tell her; PQOTJI HTATZCJN 1893"

They had to decode the cipher, which was in the keyword cipher from the week before, and visit the circulation desk to tell one of our librarians the decoded answer, which was "strand magazine 1893" The librarian then gave them their last clue card and collected their case file to be entered to win the grand prize. The librarian also asked what the significance of "strand magazine 1893" was in detective fiction, and if the students answered the question correctly they received a University Libraries’ branded water bottle. Although some could have used Google to

identify the significance of the term, the library display on detective fiction also contained a section describing how Sir Arthur Conan Doyle tried to kill off his very popular detective Sherlock Holmes in the short story "The Adventure of the Final Problem" which was published in the *Strand Magazine* in 1893.

At the end of the three weeks, all students who submitted their case files with the three clue cards were entered to win a grand prize, which consisted of a t-shirt with the Campus Clue logo, a Sheetz gift card, and a 3D-printed Sherlock Holmes trophy.

## Results

The time it took to design and create the game was fairly quick. The hardest part was creating riddles that people would be able to guess. The actual encoding of the riddles took very little time. After laying the ground work, this project could easily be created over the course of a week.

We initially anticipated around 20 students would participate based on the number of case files that were picked up before the game started. In the end we had nine students complete the game, and despite the small number, those that played gained a lot from it. After they turned in their case files we sent them a survey on the game and received five responses. Based on this feedback we learned that Campus Clue fulfilled both of the key parts of a game; it was fun, and students learned from it. All respondents enjoyed it and wanted it to continue beyond three weeks. Students learned about the game through all the channels we had set up; fliers, Facebook posts, word of mouth and seeing the first cipher. Students rated the first week's cipher as the easiest and the last week's cipher as the hardest. When asked what they liked about the game they responded "how it tried to get students involved and go to the different places and events around campus," and "Got me reading murder mysteries, a genre I never tried before." Students also said they learned "about the pigpen cipher" and "much more about Turing and semaphore." One student also stated "Was a fun activity to look forward to. Great opportunity for learning experience."

## Conclusion

Escape rooms are great ways to impart research and source evaluation skills. If students find bad information, they are unable to solve the puzzle and they are forced to go back and reevaluate what they found and where they found it, or perhaps how they used it. Creating a challenge that is fun gives students the extra bit of internal motivation they need to get through the difficult parts of research. This experience of the research process will give them confidence when it comes to researching for papers and projects. They will know what to expect, and what to do if a challenge should arise. Escape rooms can also be used to engage students in learning how to use the library and other resources on campus. By using Campus Clue rather than an old fashioned information session, we were able to inform students about different services on campus and resources in a much more engaging way that made the information more memorable, and the learning process more helpful. Any piece of the Campus Clue game can easily be changed

in order to fit a different narrative or to impart a different skill set on players. For example, ciphers could be used to point to a book's title or call number in order for participants to gain familiarity with library call numbers and online search engines. Challenges could consist of putting something into proper APA citation format in order to gain access to a clue card. The possibilities are endless.

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