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Creating Fair Game, an Online Computer Game on Fair Use

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Abstract

Fair Game is an online computer game that teaches undergraduate students about ethically using copyrighted materials in course assignments. The game, created in a collaboration between Augusta University Libraries and the Center for Instructional Innovation, focuses on the doctrine of fair use and its four factors. This article presents a case study on the game's design and development following a recommended practice from the literature: mapping an information literacy model to gameplay using the game design theory of aligning game mechanics to learning mechanics. The authors discuss their experience with mapping portions of the Association of College and Research Libraries framework (2015) and using the Learning Mechanics–Game Mechanics Model (Arnab et al., 2015) for designing *Fair Game*. The authors recommend future game makers also consider aligning motivational learning theories to game design.

Creating Fair Game, an Online Computer Game on Fair Use

Introduction

When completing course assignments, undergraduate students may not always consider issues of copyright infringement or applying the doctrine of fair use when reusing materials; in fact, in her book *Copyright Conversations: Rights Literacy in a Digital World*, Benson (2019) explores and indeed points to the general limited knowledge students have about copyright. This lack of knowledge presents a prime opportunity for academic librarians to further enhance students' existing information-seeking behaviors by teaching them how to ethically use copyrighted works. Instruction on copyright and fair use is of course a foundation to the library science profession. The *Framework for Information Literacy for Higher Education* (henceforth *Framework*) by the Association of College and Research Libraries (ACRL; 2015), for example, emphasizes the understanding of copyright and states that learners developing their information literacy skills should be able to "articulate the purpose and distinguishing characteristics of copyright, fair use, open access, and the public domain" (p. 16). Teaching students how to appropriately engage with information helps prepare them to become not only responsible users but also responsible creators of information.

However, librarians may find that traditional instructional methods are challenging for engaging students with instruction on copyright and fair use. For instance, if instructional time is limited to a single one-hour session, understanding copyright and applying fair use when using copyrighted works may not be included in the session's learning objectives. Additionally, hosting themed workshops around annual copyright and fair use awareness weeks might not garner large attendance numbers due to the heavy legal scope of the subject. An alternative for librarians to consider when teaching copyright is to use game-based learning, which can be used for both synchronous and asynchronous instruction and has been found to increase student engagement and learning (Broussard, 2012; Dale et al., 2019; Smale, 2011; Walsh, 2014).

Transforming instruction into a game may certainly take more time to plan and develop, particularly if librarians are incorporating technology unfamiliar to them, but games can make the learning content more appealing to learners (Broussard, 2012; Rush, 2014); after all, games are supposed to be fun. Librarians must also consider the gaming experience, which is just as important, if not even more important, than the learning experience (Amory, 2007; Arnab et al., 2015; Boyle et al., 2016; Urban, 2019). One way that academic librarians can achieve this balance when creating educational games is to purposefully map an information literacy model or other conceptual framework using game design theory (Arnab et al., 2015; Urban, 2019). Game design theory offers evidence-based strategies for designing games that maintain players' attention and allow players to achieve the game's objectives. For example, game design theory states that successful games are ones that are designed by intentionally aligning game mechanics with learning mechanics (Amory, 2007; Arnab et al., 2015; Baldeón et al., 2016; de Freitas & Oliver, 2006; Lameras et al., 2017; Lim et al., 2013; Van Staalduinen & de Freitas, 2011; Urban, 2019). The term *game mechanics* refers to the actions a player encounters or takes while playing a game, such as collecting items, earning rewards and penalties, and interacting with non-player characters (NPCs), while the term *learning mechanics* refers to the actions taken by the player that facilitate learning. Learning mechanics in game design theory are often derived from pedagogy literature, such as Bloom's taxonomy; examples include identifying, discovering, and demonstrating (Arnab et al., 2015).

At Augusta University (AU), the libraries collaborated with the university's Center for Instructional Innovation to create an online computer game by intentionally mapping an information

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literacy model to gameplay using game design theory. This online computer game, which was aptly named *Fair Game*, was created for librarians to use in either traditional instruction sessions or as a stand-alone learning activity, ensuring that students receive this important content even if not covered in a traditional instructional session due to the time or scope of the lesson plan. The creators of *Fair Game* mapped a portion of the ACRL *Framework* (2015) to the gameplay by identifying appropriate game mechanics and purposefully aligning them to learning mechanics. Despite this intentional development of *Fair Game*, the creators questioned whether students would want to play it, which led the creators to also incorporate motivational learning theories into the game's design. The creators aligned these motivational learning theories to the game mechanic and learning mechanic alignments in hopes of better facilitating players' motivation to play *Fair Game*, because if students do not want to play *Fair Game*, they ultimately cannot learn from it.

In this case study, the authors will first provide a description of *Fair Game*, then discuss their process in using game design theory to present an information literacy model. Lastly, the authors will describe how they aligned motivational learning theories to the game mechanic–learning mechanic alignments and explain why they recommend that future game makers follow this additional practice when developing game-based learning to teach information literacy skills.

Description of *Fair Game*

Fair Game was created with the assumption that players would have little to no prior knowledge of copyright and fair use. The learning objectives of *Fair Game* thus include the following: understand what the terms *copyright* and *fair use* mean, identify the four factors of fair use, and apply fair use when using copyrighted materials. The game's introduction situates players as students who need resources for an in-class presentation. Players are cautioned that simply copying resources from the internet could lead to negative consequences and are encouraged to learn about fair use to ensure that they are using copyrighted works appropriately. Explanations of the terms copyright and fair use are provided to players. Copyright is defined as the legal ownership of a work that allows the owners to decide who can use their work and how. Fair use is described as the allowance for the use of brief excerpts of copyrighted materials like books, music, and videos without having to obtain permission from the copyright holder under certain circumstances, which includes educational purposes such as an in-class presentation. The game then explains that fair use is determined by the balancing of four factors, which players must discover by playing the game.

Directions are provided to players that they are to explore the university campus to find the four factors of fair use and use them to answer questions from the NPCs about reusing copyrighted material from NPCs. Each fair use factor is symbolized as a uniquely colored key that players must collect (Figure 1). Once a key is found, the corresponding fair use factor is explained in a pop-up window (Table 1). Each NPC suggests how players can reuse a given copyrighted material for their in-class presentation, and players must determine through question-and-answer quizzes whether this use would be considered fair use or a copyright infringement (Table 2). Players can find the keys and answer the game's questions in any order, but they have only four chances, or game lives, to answer all questions correctly; if they lose all four lives, they lose the game and must start over. Players earn points for correct answers, and once they have collected all four keys and have earned 30 points, they win the game. Feedback is provided by the NPCs for both right and wrong answers. *Fair Game* is not timed, and players can view their progress from the game's dashboard, which indicates the number of keys collected, number of points earned, and number of lives lost.

Figure 1: Fair Use Key. Players must find four keys, each of which represents one of the four factors of fair use.

Table 1: The fair use keys and their accompanying information.

Key in Game	Fair Use Factor
Pink key	The Purpose of Use: What are you using the copyrighted work for? Ask yourself: ● Is it for nonprofit educational use? ● Are you using it for criticism or commentary, such as interpreting the work's meaning? ● Will the work be restricted to a limited number of people, such as the instructor and class members? If yes, your use of the material weighs in favor of being considered fair, but remember that Fair Use is determined by balancing all Four Factors.
Blue key	The Amount Used: How much of the work are you using? Ask yourself: ● Is the amount used relatively small, such as one chapter? ● Have you used only the amount necessary vs. the whole work? If yes, your use of the material weighs in favor of being considered fair, but remember that Fair Use is determined by balancing all Four Factors.
Green key	The Nature of the Copyrighted Work: Ask yourself: ● Is the work published? ● Is the work nonfiction or factual? ● Is the work NOT a workbook or test or something similar? If yes, your use of the material weighs in favor of being considered fair, but remember that Fair Use is determined by balancing all Four Factors.
Purple key	The Effect of Use on Potential Market: How will your use affect the copyright owner's future sales or revenue? Ask yourself: ● Can you buy the work in a store or online? ● Can you obtain a digital license to re-use the content? If no, your use of the material weighs in favor of being considered fair, but remember that Fair Use is determined by balancing all Four Factors.

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Literature Review

Seminal scholarship on creating library instructional games includes explorations and scoping reviews of how librarians have incorporated games into their instruction (Broussard, 2012; Smale, 2011; Urban, 2019), frameworks for game design models (Amory, 2007; Arnab et al., 2015; Baldeón et al., 2016; de Freitas & Oliver, 2006; Lameras et al., 2017; Lim et al., 2013; Urban, 2019; Van Staalduinen & de Freitas, 2011), and case studies on developing library games (Broussard & Oberlin, 2011; Dale et al., 2019; Guo & Goh, 2016; Kearns et al., 2017; Markey et al., 2008; Rush, 2014; Urban, 2019). From this body of scholarship, the creators of *Fair Game* identified that an effective approach to creating an information literacy game about copyright and fair use was to intentionally map an information literacy model to game play by aligning the game mechanics to learning mechanics. Concern about whether students would actually play *Fair Game* led its creators to further explore motivational learning theories to incorporate them into the game's design. The following literature review first addresses mapping information literacy models to game play and then discusses aligning game mechanics to learning mechanics. Lastly, motivational learning theories are addressed.

Mapping Information Literacy Models to Game Play

The literature shows that many information literacy games map established conceptual frameworks to bridge the entertainment value of playing games to the educational components of learning information literacy concepts (Guo & Goh, 2016; Kearns et al., 2017; Markey et al., 2008; Smale, 2011; Urban, 2019). In her literature review of information literacy games created through 2010, Smale (2011) highlighted many early information literacy games that map the ACRL *Information Literacy Competency Standards* (2000), the precursor to the 2015 *Framework*, in their designs to support student learning (Beck et al., 2008; Broussard, 2010; Kasbohm et al., 2006). Urban (2019) expanded upon Smale's work in his scoping review of information literacy games created from 2013 to 2018 and explicitly stated that future game makers should frame their games within a specific information literacy model or other conceptual framework to direct the flow of game play.

The literature has shown various conceptual frameworks used in library game design. For example, Markey et al. (2008) used the General-to-Specific (GenSpec) model developed by Kirk (1974) for their online computer game *Defense of Hidgeon: The Plague Years*, Guo and Goh (2016) designed their online computer game *Library Escape* around the Information Search Process (ISP) model formalized by Kuhlthau (2004), and Urban (2019) used the Guided Inquiry Design Process (Kuhlthau et al., 2012) for the online computer game *Chroniclers*. Naturally, several games have used ACRL's *Competency Standards* or *Framework* (Beck et al., 2008; Broussard, 2010; Broussard & Oberlin, 2011; Dale et al., 2019; Kasbohm et al., 2006; Rush, 2014). One game in particular was used as a model for *Fair Game*: Broussard and Oberlin's (2011) *Goblin Threat*, because *Goblin Threat* was successful at mapping the ACRL *Competency Standards* into its game play and serves as an example of an information literacy game that covers the singular topic of ethically reusing copyrighted materials as opposed to other information literacy games that mostly cover the research process in general.

Goblin Threat is a digital computer game created to teach undergraduate students at Lycoming College about plagiarism (Broussard & Oberlin, 2011). The game specifically addresses ACRL's fifth competency standard, which states that "the information literate student understands many of the

economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally" (2000, p. 11). *Goblin Threat* requires players to save the college campus from invading goblins by finding the goblins in various rooms and eliminating them by correctly answering questions on plagiarism or academic dishonesty. For instance, a player might be presented with a scenario of reusing work and must determine whether that scenario would be considered plagiarism. Players have an unlimited number of attempts to answer each question correctly, and progress is tracked by a dashboard that indicates how many goblins are left to find and eliminate. Once each room is cleared of its goblins, players can proceed to a different room until the game is completed.

Broussard and Oberlin (2011) reported initial feedback collected from students who played *Goblin Threat*. While the authors did not report on findings related to player learning, they did emphasize that on a survey completed by 66 students, 84% of the respondents indicated that they found the game to be educational and 25.8% of respondents described the game as fun, entertaining, or interesting. Broussard and Oberlin (2011) also stated that students appreciated the short length of the game, with a majority completing it within 20 minutes. Although *Goblin Threat* does not cover copyright issues or fair use specifically, the creators of *Fair Game* used *Goblin Threat* as the general model for *Fair Game* by incorporating similar game play. In *Fair Game*, players search Augusta University's campus, where they are presented with various scenarios of reusing copyright works and must determine whether the given scenario is considered fair use. This incorporation of game play in creating *Fair Game* is discussed further below.

These findings suggest that if games are designed with such purposeful intention, that is, mapped to an information literacy model or other conceptual framework, playing said games offers a suitable way for students to learn information literacy concepts.

Aligning Game Mechanics to Learning Mechanics

Game design theory establishes that aligning the actions a player encounters or takes while playing a game (game mechanics) to the actions taken by the player that facilitate learning (learning mechanics) promotes engagement and supports the game's learning objectives (Arnab et al, 2015; Boyle et al., 2016; Smale, 2011; Urban, 2019;). There are several frameworks that game makers can use to ensure that game mechanics are appropriately aligned with learning mechanics (Amory, 2007; Baldeón et al., 2016; de Freitas & Oliver, 2006; Lameras et al., 2017; Lim et al., 2013; Urban, 2019; Van Staalduinen & de Freitas, 2011; Gunter et al., 2007). An early framework by de Freitas and Oliver (2006), called the Four-Dimensional Framework, emphasizes coordinating learner specifics (e.g., how learners learn and what their needs are), pedagogy (e.g., the learning and teaching models), representation (e.g., how interactive the learning should be), and contexts (e.g., where the learning will take place and the subject of learning). A more recent framework developed by Arnab et al. (2015) takes a more direct approach to match traditional learning mechanisms that describe knowledge acquisition and skill training to commonly implemented game mechanics. This framework is called the Learning Mechanics–Game Mechanics (LM-GM) model. Arnab et al. identified learning mechanics from established education pedagogy and identified game mechanics from published game design research. The LM-GM model aligns each learning mechanic to the game mechanic that Arnab et al. believed best supports achieving the learning mechanic. For example, the learning mechanics of guidance and instruction are aligned with the

game mechanics of role play and behavioral momentum, because, according to Arnab et al., players best achieve guidance and instruction through role-playing and behavioral momentum. Arnab et al. (2015) emphasized that the LM-GM model is not prescriptive but rather descriptive and advises game designers to align mechanics to individual needs. The creators of *Fair Game* implemented elements of the LM-GM model into *Fair Game*'s design, which is illustrated in Figure 2. The learning mechanics are listed in Column A, and the game mechanics are listed in Column B.

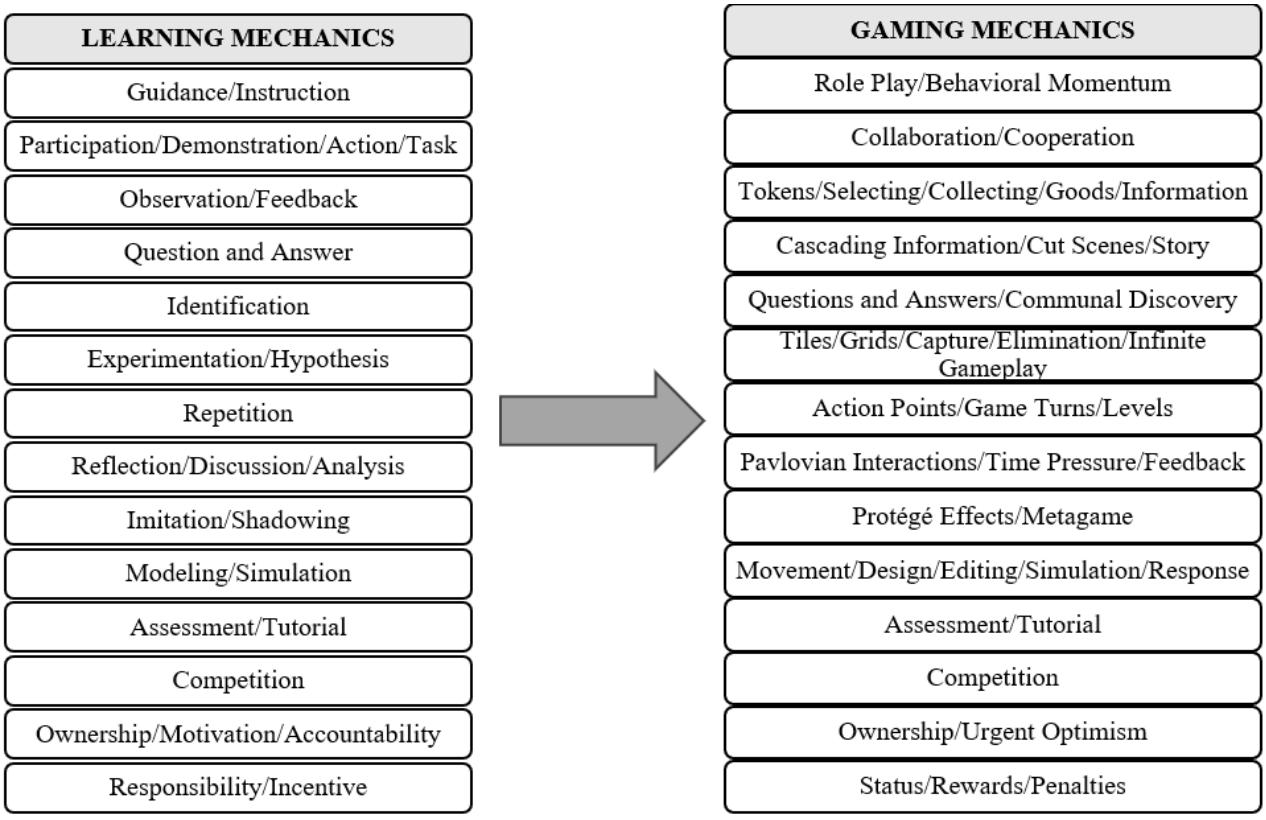

Figure 2: Modified LM-GM Model

This figure illustrates a modified version of Arnab et al. (2015) Learning Mechanics–Game Mechanics (LM-GM) model that the creators of *Fair Game* constructed and used in *Fair Game*'s design. The learning mechanics of Column A are aligned with the gaming mechanics of Column B that best achieve the learning outcomes of Column A, as identified by Arnab et al.

Urban (2019) offered a case study of creating the online computer game *Chroniclers* using the LM-GM model to demonstrate the model's application. The author used a table to explain the game mechanic and learning mechanic alignments and then included descriptions of how each alignment was implemented within *Chroniclers*. Table 3 illustrates Urban's (2019) application with the learning mechanics of observation, demonstration, and analysis aligned with the game mechanics of goods and information, selecting and collecting, and design and editing. These alignments were then implemented into *Chroniclers* by asking the players to watch tutorials on constructing database searches, select information to answer a designated research question, and create infographics to present findings.

Table 2: Example of Urban's (2019) LM-GM Model Alignments in *Chroniclers**

Learning Mechanics	Game Mechanics	Implementations
Observation	Goods and Information	Watching tutorials on constructing database searches
Demonstration	Selecting and Collecting	Selecting information to answer a designated research question
Analysis	Design and Editing	Creating infographics to present their findings

*Table is modified to fit the purposes of the current discussion and is not an exact replica of the table used by Urban (2019).

Urban (2019) did not offer any assessment on creating *Chroniclers* using the LM-GM model because the game was still in development at the time of writing; however, other case studies outside of information literacy games, have discussed applying the LM-GM model. These case studies support Urban's and Arnab et al.'s (2015) claim that the LM-GM model better directs the flow of the game and players' ability to achieve the game's learning objectives than other models (Baldeón et al., 2016; Hauge et al., 2015). Baldeón et al. (2016) used the LM-GM Model to create *3DVirtualPC*, an online computer game for teaching computer literacy to school-aged children and concluded from their assessments that the use of LM-GM model allowed for successfully integrating both learning objectives as well as game attributes like motivation and fun. Hauge et al. (2015) found during the designing phase of *PR:EPARe*, an online computer game that teaches adolescents about sexual health, that the LM-GM model was particularly beneficial as they were selecting the mechanics of the game.

The creators of *Fair Game* modeled Urban's (2019) application of using a table to align learning mechanics to game mechanics and to describe the various implementations in *Fair Game*. This process is detailed further below.

Motivation Theories and Game-Based Learning

The creators of *Fair Game* had concerns about whether students would want to play *Fair Game* and looked to motivational theories and their application in game-based learning. Many theories on motivation exist, which several authors have reviewed to determine which are best supported in game design theory (Bakan & Bakan, 2018; Boyle et al., 2016; Bozkurt & Durak, 2018; Dichev & Dicheva, 2017; Landers et al., 2017; Mora et al., 2017). Among those identified by *Fair Game*'s creators and implemented into *Fair Game*'s design were goal-setting theory, self-determination theory, and behavioral reinforcement theory. These three theories are each addressed below.

Goal-setting theory (Locke & Latham, 1990) was developed from studies conducted within industrial and organizational settings that examined how goals motivate employee performance. Locke and Latham (1990) found that goals that were more specific and were considered harder to achieve led to a higher level of task performance than goals that were considered easier and more abstract. Locke and Latham concluded that harder goals are, therefore, more motivating because

these types of goals require employees to perform at a higher level in order for them to feel satisfaction in their performance. This satisfaction can, in turn, positively influence continued behavior and commitment to additional goals. Reviews of the literature on games have found that many game makers apply goal-setting theory in their development of game tasks, for example, that players must perform tasks to move forward in the game (Dichev & Dicheva, 2017; Landers et al., 2017).

Self-determination theory distinguishes between two types of motivation: intrinsic motivation and extrinsic motivation (Ryan & Deci, 2000). Intrinsic motivation is performing a behavior for the sake of the behavior itself, as opposed to extrinsic motivation, which is performing a behavior to obtain external rewards. Self-determination theory asserts that for intrinsic motivation to occur, one must feel satisfactory levels of autonomy, competence, and relevance (Ryan & Deci, 2000). The literature shows disagreement on whether information literacy games can ~~support~~ generate intrinsic motivation. Many authors have argued that game-based learning encourages only extrinsic motivation because players play for external incentives, such as earning badges (Buckley et al., 2017; Ding et al., 2017; Urban, 2019); however, other authors have argued that because games are naturally enjoyable and fun to play, games can support intrinsic motivation (Kuo & Chuang, 2016).

Behavioral reinforcement theory proposes that positively rewarding behavior reinforces that behavior (Skinner, 1938). While reinforcement theory emphasizes changing behaviors and forming habits, the positive reinforcement used in doing so can also influence one's motivation to perform the desired behavior. In game-based learning, behavioral reinforcement theory suggests that extrinsic game mechanics, such as rewards, can positively influence players' motivation to play the game (Kordaki & Gousiou, 2017). Furthermore, behavioral reinforcement theory also argues that earning more positive reinforcement, such as by collecting rewards, increases players' level of self-efficacy, which is defined as one's belief in their ability to effectively perform a task (Bandura, 1982). The more one believes that they can effectively perform the task, the more they are motivated to complete the task (Bandura, 1982).

This literature review presented the benefits of mapping an information literacy model or other conceptual framework to game design and presented the benefits of intentionally aligning game mechanics to learning mechanics as a way to explain why this approach was used to design *Fair Game*. In the following section, the creators of *Fair Game* will describe how they applied this approach into the game's design.

Creating *Fair Game*

Mapping an Information Literacy Model in Fair Game

Fair Game maps to the third frame of the ACRL's *Framework* to teach undergraduate students about the doctrine of fair use in an entertaining way, that is, through play. The third frame, which is called "Information Has Value," states, "Learners who are developing their information literate abilities … articulate the purpose and distinguishing characteristics of copyright, fair use, open access, and the public domain" (ACRL, 2015, p. 16). The content of *Fair Game* focuses on fair use with the following learning objectives: identify the four factors of fair use, differentiate between fair use and copyright infringement, and apply the four factors of fair use when reusing copyrighted works. The creators of *Fair Game* found that more specificity was much less overwhelming when deciding how information would be presented in *Fair Game*; for this reason, *Fair Game* focuses only on fair use

and does not include information on copyright laws. Additionally, the creators of *Fair Game* assumed that players would have little to no prior knowledge of the doctrine of fair use.

As previously described, *Fair Game* first situates players as students who need resources for an in-class presentation and then presents an explanation of the terms copyright and fair use to orient players to the game's learning objectives. The game explains that fair use is determined by the balancing of four factors, which players must discover and learn about by playing the game. *Fair Game*'s introduction maps to the third frame of the *Framework* (ACRL, 2015) by emphasizing that players are creators as well as users of information and reinforcing that the reuse of previously created works should be appropriate; the *Framework* states that "As creators and users of information, experts understand their rights and responsibilities when participating in a community of scholarship." (p. 16).

Fair Game also requires players to answer questions about reusing materials to demonstrate their understanding of fair use and copyright; different scenarios of reusing copyrighted materials are presented to players by various NPCs, and players must answer whether these given scenarios are considered fair use. The scenarios in *Fair Game* are scenarios that students will likely encounter in their own various course assignments. The following table presents the scenarios and the questions presented to players.

Table 3: Fair Use Questions in *Fair Game*

Scenario	Question Presented to Players	Answer
I can make a copy of the music I have and email it to you so you can use it in your presentation.	Would this be considered fair use?	No. Although it is for educational use and restricted to the class, making a copy of the music is considered a copyright violation.
You should play a movie as part of your presentation.	Would this be considered fair use?	Yes, it is considered fair use because it is for educational purposes and restricted to the class audience; however, the sources should be cited to avoid plagiarism.
You should scan a copy of Dr. Seuss's *Oh, the Places You Go* and include it in your presentation.	Would this be considered fair use?	No. Although it is for educational use and restricted to the class, making available an entire book can have a potential effect on the economic market since the book is easily available for purchase.
You should submit your presentation to the undergraduate student conference!	Would your images and music clips be considered fair if you were to present at the conference?	No. Images, music, and film are creative works by others and conferences will often post presentations on their websites or publish in conference proceedings. You can either obtain permission or use content in the public domain.

These questions map to the third frame of the *Framework* by illustrating how intellectual property is a legal (and social) construct (ACRL, 2015).

Confident that the *Framework* was purposefully mapped in *Fair Game*'s design, the creators of the game next identified and aligned the game mechanics to the learning mechanics.

Aligning Game Mechanics to Learning Mechanics in Fair Game

The game mechanics of *Fair Game* were intentionally chosen to meet the game's learning goals. The creators used the Learning Mechanics–Game Mechanics (LM-GM) model from Arnab et al.

(2015) to identify game mechanics and learning mechanics (see Figure 2) and followed the recommendation of Urban (2019) to map these alignments in table form and describe their respective implementations in *Fair Game*. These alignments and their implementations are discussed further below and are presented by "scenes" and "parts," which represent different sections of the game. Hereafter, game mechanics are noted as GMs and learning mechanics are noted as LMs.

Scene 1, Part A

Fair Game begins with a classroom setting in which players are told by an NPC that they are students needing sources to give an in-class presentation. The GM incorporated here is role-playing, and it is aligned with the LM instruction. Role-playing allows players to imitate the character and behavior of someone else. The LM instruction provides players with direction. This alignment of role-playing to instruction orientates players to understand the context of *Fair Game*.

Table 4: GM-LM Implementation in Scene 1, Part A of *Fair Game*

Scene 1, Part A: The game begins in a classroom setting.		
Game Mechanics	**Learning Mechanics**	**Implementations**
Role Play	Instruction	The game situates players as students needing resources for an in-class presentation.

Scene 1, Part B

Next, players are presented with the goals of *Fair Game*: As students needing sources for their assignment, players must learn about fair use and how to reuse copyrighted material in an ethical manner. Players are then given a definition of the terms copyright and fair use and given directions on how to play the game. Players are told to explore the university campus with Augusta University's jaguar mascot, Augustus, to find and collect the four factors of fair use, which are symbolized as keys. Players are also told to find NPCs and answer their questions regarding fair use. The GM in this segment of *Fair Game* is storyline, which is aligned with the LM instruction. Storyline is defined as the plot of the game. This alignment of GM storyline to LM instruction allows players to understand the premise of *Fair Game*.

Table 5: GM-LM Implementation in Scene 1, Part B of *Fair Game*

Scene 1, Part B: The game begins in a classroom setting.		
Game Mechanics	**Learning Mechanics**	**Implementations**
Storyline	Instruction	Players are warned that copying works from the internet can lead to a bad grade or to more serious consequences; players are told they need to learn about fair use.

Scene 2, Part A

After players are given the goals and purpose of *Fair Game*, the scene changes from the classroom to the college campus. The GM used here is cut scene, which is defined as a non-interactive

sequence. Cut scene is aligned with the LM instruction to simply progress the game forward. Cut scenes signal to players that this section of the game is complete and the new section will begin momentarily; applied here in *Fair Game*, players will take the instruction received from the first two parts of the game and utilize this instruction in the proceeding parts.

Table 6: GM-LM Implementation in Scene 2, Part A of *Fair Game*

Scene 2, Part A: Transition		
Game Mechanics	**Learning Mechanics**	**Implementations**
Cut Scene	Instruction	The game transitions from a classroom setting to the college campus.

Scene 2, Part B

The action portion of *Fair Game* involves the players exploring campus. The GM movement is incorporated here and is aligned with the LM simulation. Movement is defined here as how the players physically navigate in the game. Simulation replicates players' activities, in this case, walking on campus. In *Fair Game*, players can walk the college campus either by using a computer keyboard's arrow keys or by clicking on arrow keys from the game's home screen using a computer mouse. This alignment of movement to simulation provides players with a sense of familiarity, as they should recognize the game's landscape as their college campus.

Table 7: GM-LM Implementation in Scene 2, Part B of *Fair Game*

Scene 2, Part B: The college campus		
Game Mechanics	**Learning Mechanics**	**Implementations**
Movement	Simulation	Players use arrow keys on the computer keyboard or click on arrow keys on the computer screen to facilitate their movement.

Scene 2, Part C

The first goal of *Fair Game* requires players to collect four keys, each of which symbolizes one of the factors of fair use (Figure 1). The GM incorporated here is collection and is aligned with the LM task. Collecting, in this case, is defined as physically gathering items. Tasks are actions players must complete in order to progress in the game. This alignment signifies players collecting knowledge. After collecting a key, a pop-up window appears with the content of the key's fair use factor (Table 1). The goods and information GM is used here to align with the LM observation. The alignment of information to observation facilitates players' understanding of the four factors of fair use because it allows players to study the content of each of the keys.

Table 8: GM-LM Implementation in Scene 2, Part C of *Fair Game*

Scene 2, Part C: Collecting the Four Keys of Fair Use		
Game Mechanics	**Learning Mechanics**	**Implementations**
Movement	Simulation	Players use arrow keys on the computer keyboard or click on arrow keys on the computer screen to facilitate their movement.
Collecting	Task	Players must collect the four factors of fair use, symbolized in the game as keys.
Goods and Information	Observe	Players study information about the four factors of fair use from the collected keys.

Scene 2, Part D

The second goal of *Fair Game* requires players to answer questions from NPCs about fair use. Each NPC suggests to players how they should use a particular copyrighted material and asks players whether this suggested use would be considered fair (see Table 3 for the list of questions). Players answer yes or no to the questions, and feedback is provided to them by the NPCs. If players answer correctly, they earn points, but if they answer incorrectly, they lose a game life. Once players have earned 30 points, they win the game, but if they lose four gaming lives, they lose the game and must start over. Here, there are multiple GM-LM alignments incorporated. The first GM used is NPCs, which is aligned with the LM guidance. The NPCs' purpose here is to provide guidance to players. Guidance refers to providing players with advice on how best to use copyrighted materials in an ethical manner.

The second GM used here is questions and answers, which is aligned with the LM identification. The LM identification refers to establishing whether the suggested use would be considered fair. The third GM used here is feedback, which is aligned with the LM reflection. The NPCs provide verbal encouragement or suggestions of which keys may need further reviewing, which players can use to reflect on their answers. Reflection allows players to consider their answers to the NPCs' questions. The fourth GM used here is rewards and penalties, which were aligned with the LM feedback. Feedback here as an LM, as opposed to the feedback a GM, allows players to self-assess their learning.

Table 9: GM-LM Implementation in Scene 2, Part D of *Fair Game*

Scene 2, Part D: Determining Fair Use Scenarios		
Game Mechanics	**Learning Mechanics**	**Implementations**
Questions and Answers	Identification	Players must determine whether the NPCs' suggested uses of resources are considered fair or are copyright infringements.
Feedback	Reflect	Feedback from the NPCs tells players whether they answer correctly or incorrectly.
Rewards	Assessment and Feedback	Players earn points by correctly answering NPCs' questions.
Penalties	Assessment and Feedback	Players lose lives if NPCs' questions are incorrectly answered.

Aligning Motivational Learning Theories to the LM-GM Mechanics in Fair Game

As previously stated, the creators of *Fair Game* used goal-setting theory, self-determination theory, and behavioral reinforcement theory in their game design. Goal-setting theory was applied in *Fair Game* by designing multiple tasks that must be completed: Players are challenged to find

and collect the four keys of fair use as well as to find the avatars and answer their questions. These goals are communicated to players in the game's introductory scenes, Scene 1, Parts A and B, and reinforced in Scene 2, Parts B–D, in which players must complete tasks in order to progress in the game. To assist players with their progress, the game makers also included a dashboard that shows the number of keys collected, number of points earned, and number of lives lost.

Self-determination theory was applied in *Fair Game* in several ways. The GM movement, which aligned with the LM simulation, allows players to choose both where to go on campus and in what order to answer questions. Facilitating movement and choosing order are two features that can increase players' sense of autonomy. According to self-determination theory, when the feeling of autonomy is high, intrinsic motivation to play the game increases (Ryan & Deci, 2000). Additionally, *Fair Game* replicates the university campus to provide players with familiarity and a sense of relevance, which self-determination theory claims can increase intrinsic motivation, as well.

Self-determination theory was further applied in *Fair Game* with behavioral reinforcement theory in the following instances. When players earn points by answering questions correctly, they receive positive feedback to continue their behaviors to earn more points. Likewise, when players earn points, they receive positive feedback and assessment, which increases their feelings of competence, in turn driving players' motivation to play the game.

In contrast, answering questions incorrectly leads players to lose lives. This penalty (GM) provides negative feedback (LM), which decreases players' competence level and, in turn, lessens their motivation to play the game. However, combining penalties with the game mechanic feedback aligns with the learning mechanic reflection, which neutralizes players' feelings of competence and their motivation. In *Fair Game*, when students answer incorrectly and lose a life (penalty), the NPC provides encouragement and assistance (feedback) that players can use to reflect (LM) on the question before attempting to answer a second time.

The full alignments and flow of *Fair Game* are presented in Appendix A.

Discussion

Future information literacy games may benefit from following the presented creation process of mapping an information literacy model or other conceptual framework to game play by aligning game mechanics to learning mechanics and aligning motivational learning theories.

The creators of *Fair Game* found that mapping an information literacy model in an information literacy game design allowed for easily defining the learning objectives of the game, which is consistent with previous game-maker experiences (Dale et al., 2019; Guo & Goh, 2016; Kearns, Kirsch, & Cononie, 2017; Markey et al., 2008; Smale, 2011; Urban, 2019). As described above, *Fair Game* mapped to the third frame "Information Has Value" of the ACRL *Framework* (2015). The game's learning objectives are: identify the four factors of fair use, differentiate between fair use and copyright infringement, and apply the four factors of fair use when reusing copyrighted works. *Fair Game* requires players to collect the four keys, which represent the four factors of fair use, and to demonstrate their understanding of fair use versus copyright infringement by answering whether presented scenarios are considered fair. In doing so, *Fair Game* emphasizes that players are creators as well as users of information and continuously reinforces that intellectual property is a legal and social construct.

Identifying and aligning learning mechanics to game mechanics using the LM-GM model by Arnab et al. (2015) helped the creators of *Fair Game* bridge the entertainment value of games to

the learning concepts of copyright and fair use, and applying motivational learning theories helped reinforce player engagement. The creators found that the first part of *Fair Game*, setting up the game's premise, was the hardest section to align game mechanics with learning mechanics because at this stage players are only passively receiving knowledge about the game itself. However, this part of the game was in turn the most important for aligning motivational learning theories to engage players. Several authors recommended using role-playing as a way to grab players' attention (Broussard, 2012; Kearns et al., 2017; Smale, 2011), but Rush (2014) found that information literacy games should be relevant to players' information needs. Kearns et al. (2017) also found success in using their university mascot in *Agoge* as a unique but familiar interest to players. Additionally, goal-setting theory establishes that goals motivate performance (Locke & Latham, 1990), and self-determination theory establishes that sense of relevance can increase intrinsic motivation (Ryan & Deci, 2000). *Fair Game* therefore situates players as students who needs resources for an in-class presentation (role-playing and relevancy) and challenges players to explore campus with Augusta University's jaguar mascot (sense of relevance) to learn about fair use (goal-setting theory).

The creators of *Fair Game* found that the second part of *Fair Game* was the easiest section to align LMs to GMs and to motivational learning theories because this part consists of all the actual game play itself and contains less conceptual information. However, Urban (2019) and Boyle et al. (2016) cautioned game makers that choosing the wrong alignments will not promote player engagement or support learning because players will have more difficulty achieving the learning outcomes. The creators of *Fair Game* therefore designated this section of the game to contain the majority of the game's tasks (GMs), which players must complete to progress in the game (goal-setting theory) in whatever order they chose (self-determination theory).

The third section of *Fair Game* was more challenging with identifying and aligning the game mechanics to best support the learning mechanics because this part of *Fair Game* is where the majority of learning should occur. Like Markey et al. (2008) experienced with *Defense of Hidgeon*, *Fair Game*'s creators struggled with how they could ensure that *Fair Game* would be effective at teaching players about copyright and fair use. Previous case studies recommended collecting student feedback during the design phase (Markey et al., 2008; Urban, 2019), but *Fair Game* was on a limited timeline for completion and launching. Therefore, the creators of *Fair Game* depended on the theoretical aspects of behavioral reinforcement theory with influencing player motivation through feedback (GM) and assessment (LM).

Fair Game was launched during Fair Use Week in 2019 and is still being used by librarians at Augusta University to teach undergraduate students about fair use. Although no formal assessment has been conducted yet, informal feedback from both librarians and students has been collected. Many students have indicated that they liked playing *Fair Game* more than attending a lecture-style class but commented that they would likely not play the game more than once and would only play it if required. This finding is similar to several other reported information literacy game experiences (Markey et al., 2008; Rush, 2014; Smale, 2011) and upholds Broussard's (2012) recommendation of creating games to be used as part of a class activity or as a homework assignment. Additionally, other students who played *Fair Game* said that they would have preferred to receive the content in a simple handout. This response demonstrates that learning style preferences are significant, which librarians must also consider when creating games (Broussard & Oberlin, 2011; Smale, 2011). This finding is similar to one of Broussard and Oberlin's (2011) conclusions after creating *Goblin Threat*: The authors suggest that future game makers should provide players with options that include traditional learning tools.

Feedback on *Fair Game* from librarians has also been mixed. While some said *Fair Game* was a fun way to teach students about fair use, others called the game cheesy. Additionally, almost all of the librarians said that they just point out in their instruction sessions that the game exists but do not actually have students play it during the instruction session itself because the game takes too long. This attitude confirms what Smale (2011) listed in her literature review as a potential barrier to games-based learning.

Conclusion and Future Directions

This article presents a case study on creating an online computer game following the practice of mapping an information literacy model to gameplay by purposefully aligning game mechanics to learning mechanics. The authors discussed their experiences in implementing this approach to create *Fair Game* and offer recommendations to future game makers to align motivational learning theories to the LM-GM mechanics. Deciding which information literacy model or other conceptual framework and determining which learning motivational theories to map to the mechanical alignments can be challenging without prior knowledge of the models and theories themselves, but taking the extra time to become more familiar with their respective concepts is beneficial for addressing how players might approach playing the game. For example, will players find a scavenger hunt enticing enough to play without having a rewards and penalties system? Will players want to play the game if they cannot recognize how it relates to their current needs? Without studying the perspective of user groups prior to actually making the game, creators should exert all efforts in designing games to motivate players to play the game.

Fair Game was designed around the "Information Has Value" frame of the ACRL's (2015) *Framework* with emphasis on applying the four factors of fair use when reusing materials in class assignments. *Fair Game* used the Learning Mechanics–Game Mechanics model (Arnab et al., 2015) and recommendations from a previous author (Urban, 2019) to align game mechanics to learning mechanics, which were further aligned with the motivational learning theories of goal setting, self-determination, and behavioral reinforcement. Future plans for *Fair Game* include formal assessments of its design and the impact on player motivation and learning.

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References

Amory, A. (2007). Game object model version II: A theoretical framework for educational game development. *Educational Technology Research and Development*, *55*(1), 51–77. https://doi.org/10.1007/s11423-006-9001-x

Association of College and Research Libraries. (2000). *Information literacy competency standards for higher education*. American Library Association Institutional Repository. http://hdl.handle.net/11213/7668

Association of College and Research Libraries. (2015). *Framework for information literacy for higher education*. American Library Association Institutional Repository. http://hdl.handle.net/11213/8657

Arnab, S., Lim, T., Carvalho, M. B., Bellotti, F., de Freitas, S., Louchart, S., Suttie, N., Berta, R., & De Gloria, A. (2015). Mapping learning and game mechanics for serious games analysis. *British Journal of Educational Technology*, *46*(2), 391–411. https://doi.org/10.1111/bjet.12113

Bakan, U., & Bakan, U. (2018). Estudios sobre aprendizaje basado en juegos en revistas educativas: Una revisión sistemática de tendencias recientes [Game-based learning studies in education journals: A systematic review of recent trends]. *Actualidades Pedagógicas*, *72*, 119–145. https://doi.org/10.19052/ap.5245

Baldeón, J., Rodríguez, I., Puig, A., Gómez, D., & Grau, S. (2016, June 15–18). *From learning to game mechanics: The design and the analysis of a serious game for computer literacy* [Conference session]. 11th Iberian Conference on Information Systems and Technologies (CISTI), Gran Canaria, Spain. https://doi.org/10.1109/CISTI.2016.7521614

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*(2), 122–147. https://doi.org/10.1037/0003-066X.37.2.122

Beck, D., Callison, R., Fudrow, J., & Hood, D. (2008). Your library instruction is in another castle: Developing information literacy based videogames at Carnegie Mellon University. In A. Harris & S. E. Rice (Eds.), *Gaming in academic libraries: Collections, marketing and information literacy* (pp. 135–148). Association of College and Research Libraries.

Benson, S. R. (2019). *Copyright conversations: Rights literacy in a digital world*. American Library Association.

Boyle, E. A., Hainey, T., Connolly, T. M., Gray, G., Earp, J., Ott, M., Lim, T., Ninaus, M., Ribeiro, C., & Pereira, J. (2016). An update to the systematic literature review of empirical evidence of the impacts and outcomes of computer games and serious games. *Computers & Education*, *94*, 178–192. http://dx.doi.org/10.1016/j.compedu.2015.11.003

Bozkurt, A., & Durak, G. (2018). A systematic review of gamification research: In pursuit of homo ludens. *International Journal of Game-Based Learning*, *8*(3), 15–33. https://doi.org/10.4018/IJGBL.2018070102

Broussard, M. J. S. (2010). Secret agents in the library: Integrating virtual and physical games in a small academic library. *College & Undergraduate Libraries*, *17*(1), 20–30. https://doi.org/10.1080/10691310903584759

Broussard, M. J. S. (2012). Digital games in academic libraries: A review of games and suggested best practices. *Reference Services Review*, *40*(1), 75–89. https://doi.org/10.1108/00907321211203649

Broussard, M. J. S., & Oberlin, J. U. (2011). Using online games to fight plagiarism: A spoonful of sugar helps the medicine go down. *Indiana Libraries*, *30*(1), 28–39. https://journals.iupui.edu/index.php/IndianaLibraries/article/view/1912

Buckley, P., Doyle, E., & Doyle, S. (2017). Game on! Students' perceptions of gamified learning. *International Forum of Educational Technology & Society*, *20*(3), 1–10. https://www.jstor.org/stable/26196115

Dale, M., Wetzel, D., & Kani, J. (2019). Hitting it out of the park with game-based learning for FYEs and libraries. *College & Undergraduate Libraries*, *26*(3), 205–220. https://doi.org/10.1080/10691316.2019.1650683

de Freitas, S., & Oliver, M. (2006). How can exploratory learning with games and simulations within the curriculum be most effectively evaluated? *Computers and Education*, *46*(3), 249–264. https://doi.org/10.1016/j.compedu.2005.11.007

Dichev, C., & Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. *International Journal of Educational Technology in Higher Education*, *14*, Article 9. https://doi.org/10.1186/s41239-017-0042-5

Ding, L., Kim, C., & Orey, M. (2017). Studies of student engagement in gamified online discussions. *Computers & Education*, *115*, 126–142. https://doi.org/10.1016/j.compedu.2017.06.016

Gunter, G. A., Kenny, R. F. & Vick, E. H. (2007). Taking educational games seriously: Using the RETAIN model to design endogenous fantasy into standalone educational games. *Educational Technology, Research and Development*, *56*(5–6), 511–537. http://dx.doi.org/10.1007/s11423-007-9073-2

Guo, Y. R., & Goh, D. H.-L. (2016). Library escape: User-centered design of an information literacy game. *The Library Quarterly*, *86*(3), 330–355. https://doi.org/10.1086/686683

Hauge et al. (2015).

Hauge, J. B., Stănescu, I. A., Stefan, A., Carvalho, M. B., Lim, T., Louchart, S., & Arnab, S. (2015). Serious Game Mechanics and Opportunities for Reuse. *ELearning & Software for Education*, *2*, 19–27. https://doi.org/10.12753/2066-026X-15-094

Kasbohm, K. E., Schoen, D., & Dubaj, M. (2006). Launching the library mystery tour: A library component for the "first-year experience." *College & Undergraduate Libraries*, *13*(2), 35–46. https://doi.org/10.1300/J106v13n02_03

Kearns, A., Kirsch, B. A., & Cononie, V. (2017). Agoge: An information literacy game for transfer students. *Reference Services Review*, *45*(2), 314–331. https://doi.org/10.1108/RSR-09-2016-0054

Kirk, T. (1974). Problems in library instruction in four-year colleges. In J. Lubans, Jr. (Ed.), *Educating the library user* (pp. 83–103). R.R. Bowker.

Kordaki, M., & Gousiou, A. (2017). Digital card games in education: A ten year systematic review. *Computers & Education*, *109*, 122–161. https://doi.org/10.1016/j.compedu.2017.02.011

Kuhlthau, C. C. (2004). *Seeking meaning: A process approach to library and information services*. Libraries Unlimited.

Kuhlthau, C. C., Maniotes, L. K., & Caspari, A. K. (2012). *Guided inquiry design: A framework for inquiry in your school*. Libraries Unlimited.

Kuo, M.-S., & Chuang, T.-Y. (2016). How gamification motivates visits and engagement for online academic dissemination – An empirical study. *Computers in Human Behavior*, *55*(Part A), 16–27. https://doi.org/10.1016/j.chb.2015.08.025

Lameras, P., Arnab, S., Dunwell, I., Stewart, C., Clarke, S., & Petridis, P. (2017). Essential features of serious games design in higher education: Linking learning attributes to game mechanics. *British Journal of Educational Technology*, *48*(4), 972–994. https://doi.org/10.1111/bjet.12467

Landers, R. N., Bauer, K. N., & Callan, R. C. (2017). Gamification of task performance with leaderboards: A goal setting experiment. *Computers in Human Behavior*, *71*, 508–515. https://doi.org/10.1016/j.chb.2015.08.008

Lim, T., Louchart, S., Suttie, N., Ritchie, J. M., Aylett, R. S., Stanescu, I. A., Roceanu, I., Martinez-Ortiz, I., & Moreno-Ger, P. (2013). Strategies for effective digital games development and implementation. In Y. Baek & N. Whitton (Eds), *Cases on digital game-based learning: Methods, models, and strategies* (pp. 168–198). Information Science Reference. https://doi.org/10.4018/978-1-4666-2848-9.ch010.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. Prentice-Hall, Inc.

Markey, K., Swanson, F., Jenkins, A., Jennings, B. J., St. Jean, B., Rosenberg, V., Yao, X., & Frost, R. L. (2008). Designing and testing a web-based board game for teaching information literacy skills and concepts. *Library Hi Tech*, *26*(4), 663–681. https://doi.org/10.1108/07378830810920978

Mora, A., Riera, D., Gonźalez, C., & Arnedo-Moreno, J. (2017). Gamification: A systematic review of design frameworks. *Journal of Computing in Higher Education*, *29*(3), 516–548. https://doi.org/10.1007/s12528-017-9150-4

Rush, L. (2014). Learning through play, the old school way: Teaching information ethics to millennials. *Journal of Library Innovation*, *5*(2), 1–14. https://www.oalib.com/journal/5506/2#.Yjin4urMLcs

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54–67. https://doi.org/10.1006/ceps.1999.1020

Skinner, B. F. (1938). *The behavior of organisms: An experimental analysis*. Appleton-Century Company.

Smale, M. A. (2011). Learning through quests and contests: Games in information literacy instruction. *Journal of Library Innovation*, *2*(2), 36–55. https://www.oalib.com/paper/2839494#.YjiQ6erMKUk

Urban, A. C. (2019). Serious games for information literacy: A scoping review and design recommendations. *Library Hi Tech*, *37*(4), 679–698. https://doi.org/10.1108/LHT-01-2019-0010

Van Staalduinen, J. P. V., & de Freitas, S. (2011). A game-based learning framework: Linking game design and learning outcomes. In M. S. Khyne (Ed.), *Learning to play: Exploring the future of education with video games* (pp. 29–54). Peter Lange Publishers.

Walsh, A. (2014). The potential for using gamification in academic libraries in order to increase student engagement and achievement. *Nordic Journal of Information Literacy in Higher Education*, *6*(1), 39–51. https://doi.org/10.15845/noril.v6i1.214

Appendix A: Alignments and Flow of *Fair Game*

Scene 1, Parts A and B: The game begins in a classroom setting.			
Game Mechanics	*Learning Mechanics*	*Implementations*	*Motivational Learning Theories*
Role Play	*Instruction*	*The game situates players as students needing resources for an in-class presentation.*	*Goal-setting theory: Players are told the premise of the game.* *Self-determination theory (SDT):* *The game makers chose a real-world example that players will most likely encounter in their academic careers. This sense of relevance will increase their motivation to play to play the game.*
Storyline	*Instruction*	*Players are warned that copying works from the internet can lead to a bad grade or more serious consequences; players are told they need to learn about fair use.*	

Transition			
Game Mechanics	Learning Mechanics	Implementations	Motivational Learning Theories
Cut Scene	Instruction	The game transitions from a classroom setting to the college campus.	The creators replicated the university campus to provide familiarity and a sense of relevance to players. SDT proposes that a high level of relevance increases intrinsic motivation.

Scene 2: The college campus			
Game Mechanics	Learning Mechanics	Implementations	Motivational Learning Theories
Movement	Simulation	Players use arrow keys on the computer keyboard or click on arrow keys on the computer screen to facilitate their movement.	SDT: When the sense of autonomy is high, intrinsic motivation to play the game increases.
Collecting	Task	Players must collect the four factors of fair use, symbolized in the game as keys.	Goal-setting theory: Tasks must be completed in order to progress and win the game.

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Goods and Information	Observe	Players study information about the four factors of fair use from the collected keys.	Goal-setting theory: Tasks must be completed in order to progress and win the game.
Questions and Answers	Task	Players must answer the NPCs' questions.	Goal-setting theory: Tasks must be completed in order to progress and win the game.
Questions and Answers	Identification	Players must determine whether the NPCs' suggested uses of resources are considered fair or are copyright infringements.	Goal-setting theory: Tasks must be completed in order to progress and win the game.
Feedback	Reflection	Players receive feedback from the NPCs whether they answer correctly or incorrectly.	Feedback reinforces players' behaviors (reinforcement theory).
Rewards	Assessment and Feedback	Players earn points by correctly answering NPCs' questions.	Earning points increases players' competence in answering the fair use questions, which increases their motivation to play the game (SDT). Earning points also reinforces players' points-earning behavior, which increases their motivation to play the game (reinforcement theory).
Penalties	Assessment and Feedback	Players lose lives if NPCs' questions are incorrectly answered.	Losing lives but receiving feedback neutralizes players' competence in answering the fair use questions, which diminishes their motivation to play the game (SDT). OR Losing lives neutralizes players' behavior to earn more points, which neutralizes their motivation to play the game (reinforcement theory).