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"Train a Scribe" card from *Lost & Found*, illustration by Annie Wong and Mimi Ace

Finding *Lost & Found*: Designer's Notes from the Process of Creating a Jewish Game for Learning

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Abstract

This article provides context for and examines aspects of the design process of a game for learning. *Lost & Found* (2017a, 2017b) is a tabletop-to-mobile game series designed to teach medieval religious legal systems, beginning with Moses Maimonides' *Mishneh Torah* (1180), a cornerstone work of Jewish legal rabbinic literature. Through design narratives, the article demonstrates the complex design decisions faced by the team as they balance the needs of player engagement with learning goals. In the process the designers confront challenges in developing win-states and in working with complex resource management. The article provides insight into the pathways the team found through the challenges in the creation of the game.

Keywords: game design, games and learning, Jewish, religion, medieval, Mishneh Torah, Maimonides, collaboration, cooperation, gameenvironments

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This article provides context for and examines aspects of the design process of a game for learning. *Lost & Found* (2017a, 2017b) is a tabletop-to-mobile game series designed to teach medieval religious legal systems, beginning with Moses Maimonides' *Mishneh Torah* (1180). The aim of this article is to provide insight into a number of the specific decisions faced by the design team in the creation of the first game in the series. Creating games for learning is always a dual-design process, that of creating an engrossing game system for the players while also following the research in games and learning, focusing on enhancing formal and informal learning environments. The constraints of the given learning goals mean that the design

elements of the game are often bounded in different ways than in games not consciously intended to enhance learning environments. Through sharing design rationale and design narratives and accounts of discussions and decisions, this article will explore the intellectual, pedagogical tensions and production decisions during that process.

This design narrative can be understood in the context of design cases as well as in the context of design studies. Design cases use deep dives in to the design process to provide design knowledge in context, specifically providing accounts of precedent for other designers (Boling 2010, Howard 2011, Smith 2010). While small n (sample size) human subjects research was conducted regarding talk-practice with the strategy game, and eventually led to the development of the party game, discussion of that human subjects research is limited strictly to that limited n talk-practice study, examining discourse of the participants. The rest of the process for this article is drawn from internal design review and playtesting (not human subjects research, an important methodological distinction for researchers) and taken from over three years of design meeting notes, prototypes, and documentation such as team white papers.

The design narratives in this article should be of value for a number of audiences. For scholar-educators designing games for learning, these cases provide details in the process of creation of a game that crosses a variety of subjects from history, to religion, to law, to fine arts and architecture. For Jewish studies and Jewish education scholars, these accounts show process inside the design-studio for moving conversations about Jewish legal systems from the page to the game-table. For game designers, the decisions can serve as case studies for challenging dual-design problems, in which constraints are strict. For those studying religious education,

these cases provide details of pedagogical game-design debates. The game system provides alternative ways by which to examine laws and legal structures and may prove useful for those interested in teaching and learning law. The output of the design team itself also provides artifacts of learning, as I will demonstrate later in the article. In addition to player-learner experiences, there are designer-learning processes as the design team approaches a historical and religious text from the middle ages. Because the game is designed to encourage a broadening of discourse in the public around conceptions of religious legal systems, internal design-team discourse can also provide insight into discourse possibilities for the game and game-based curriculum.

Design Rationale and Origins of *Lost & Found*

Lost & Found (2017a, 2017b) is both a game and game series. Unless otherwise noted, in this article, I am referring to the initial game in the series, a strategy game which is designed for teaching aspects of *Mishneh Torah* (1180), including legal case law as well as elements of the cultural milieu of 12th century North Africa. The second game in the series is called *Lost & Found: Order in the Court – The Party Game* (2017). The *Lost & Found* series was planned to be modular, so that additional later modules could fit into the game system. The forthcoming module to enter development is one that addresses Islamic law including *Al Hidayyah* by Burhan al-Din al-Marghinani (al-Marghinani 2008), and *The Distinguished Jurist's Primer* by Ibn Rushd (Averroes) (Rushd 2000).

The strategy game *Lost & Found* is a two-five player game intended for high school and undergraduate players in which players take on the role of townsfolk who must balance responsibility to community with responsibilities to family, while dealing with

a variety of situations of lost and found objects including animals, coins, and garments. Turns revolve around events based on laws addressing lost and found objects, and these events generate cases that players must face. For example, players will lose or find animals, coins, or other objects and then have to make decisions about whether to follow the law, break the law, or go above and beyond the law. Going above and beyond the law costs resources, though it might result in late game assistance from the wider community (symbolized by the Heshbon, or “accounting” deck), while breaking the law might result in punishment if caught (also represented in the Heshbon deck). The game is both competitive and cooperative, but not in the standard ways of previous games using a “traitor” mechanic (see, for example, *Shadows Over Camelot* 2005). Any or all players can win, but if one player goes “destitute,” meaning having an inability to cover required costs, then all players lose. All players can also lose if communally, they are not able to avert crises and disasters. The base condition to win is that all players must cooperatively “build” six communal responsibilities. Then any player that can build at least three family responsibilities wins. Family responsibilities are modified for a combination of player behavior and chance (a chance someone is caught when they steal, a chance as to whether having helped a neighbor in the past means the neighbor helps you).

Communal responsibilities are drawn from the Babylonian Talmud Sanhedrin 17b, which lists what every town must have in order for a Torah scholar to reside there, including a public bathhouse, a synagogue, a charity system, a court of justice, a doctor, bathrooms, a scribe/notary, and a school-master. We added “clean water” which Maimonides adds in his version of the list in *Mishneh Torah* (1180, Hilkhot De'ot 4:23)ⁱ. The family responsibilities are drawn from Talmud Kiddushin 29a, regarding what a father’s obligations to his son, including redemption of the firstborn from the priesthood (a charity), teaching Torah (the law), guiding towards a

marriage, teaching a trade, and teaching the child to swim.ⁱⁱ

I developed the initial concepts for *Lost & Found* in 2011 at ConverJent, Jewish Games for Learning, an organization I founded in 2010 at the National Jewish Center for Learning and Leadership (CLAL). While working on my Ph.D., I recognized a connection between games as rule-based systems and Jewish legal codes as rule-based systems. I recognized an opportunity to design a game system which could generate live cases based on the law. Perhaps a game could allow for the teaching Jewish law in a way that was more experiential, tactile, and could free the law from the pages of the written text (Gottlieb 2015). I noted the circulation of resources and varying types of cooperation in addition to competition in popular table-top hobby games at the time (*7 Wonders* 2010, *Agricola* 2007, *Pandemic* 2007, *Settlers of Catan* 1996), many of which have mobile versions. I began experimenting with the Biblical injunctions around lost and found objects (Deuteronomy 22:1-3) and how they were understood in the Mishnah (redacted circa 250 CE), the first post-biblical code of law.

I then turned to the treatment of lost and found objects in *Mishneh Torah* by Moses Maimonides (1180) in the book of *Nezekim* (damages, as in torts) and the chapter *Gezalah va'Avedah* (laws regarding robbery and returning lost objects). Maimonides wrote *Mishneh Torah* in Fustat (Old Cairo) from 1170-1180. Maimonides was and remains to this day a highly influential philosopher, legal scholar, rabbi, and physician. His legal works were influenced by Islamic scholars and likewise influenced Islamic scholars. In order to begin to formulate possible rule systems for a game, I needed a set of Jewish laws that, like the Mishnah, were terse and condensed but that also held understanding of a broader history of the debates and discussions surrounding the laws. In his fourteen volume *Mishneh Torah*, Maimonides condensed sprawling debates about the Mishnaic law that are contained in the Talmud (the

Babylonian Talmud was redacted circa 600 CE). *Mishneh Torah* was, in part, an attempt to provide clarity of laws such that a person could determine how to conduct day to day life – a condensation of sorts. In addition, by setting a game in 12th century Egypt, I could explore the interplay between Jewish philosophers and legal scholars and nearly contemporaneous scholars and philosophers of Islamic law, as well as potential to explore the contemporaneous local Christian communities. This would allow for a natural modularity of the game and broader audiences. We could then also begin to explore the interplay of Jewish and Islamic law systems. Our design process always paid close attention to game mechanics and learning mechanics.

Game Mechanics, Learning Mechanics, and Early Design Evolution

In this article “game mechanics” refers to an action the player takes that has an effect in the game system. I follow Fullerton’s (2014, 210) definition of a core mechanic as “the actions that a player repeats most often while striving to achieve the game’s overall goal”. Learning mechanics refers to Plass et al.’s (2011, 4) notion tying core mechanics to desired learning activities: “Learning mechanics are patterns of behavior or building blocks of learner interactivity which may be a single action or a set of interrelated actions that form the essential learning activity that is repeated throughout the game”. According to Plass, et al., designers should ensure that learning mechanics maintain mental effort and must not introduce either extraneous cognitive load or unnecessary confounds (such as mechanics in a math game stress motor skills over mathematical problems solving). There is also an understanding in the games and learning literature that learning games are to be understood as part of a broader curriculum (Hays 2005, Sitzmann 2011).

And so, from the beginning we concerned ourselves as designers with connecting the game mechanics with the desired learning activities. We considered these activities the balancing, or complex trade-offs between the needs of the community and the needs of the individual or family in the context of possible legal cases related to, or in the game, generated by the laws. As a graduate student in Jewish studies while I was in rabbinical school at Hebrew Union College, I studied with Rabbi Dr. Leonard Kravitz, who pointed to the ways in which the law functioned to maintain community, and stressing what might be called the realpolitik, as I eventually would discuss it with Dr. Philip Ackerman-Lieberman, a key consultant on the game. I also had discovered the work of evolutionary biologist and anthropologist David Sloan Wilson (2011, 2013), who discusses the ideas around “prosocial” aspects of religion such as collaboration and cooperation. And so, as I began to explore Talmud, tractate Bava Batra, I realized the depth at which the laws and the debates were concerned with issues such as tragedies of the commons, which my colleague at RIT, Ian Schreiber pointed out are often also addressed in games.

By early 2014, Rabbi Daniel Fliegel, a graduate student in seminary at the time, and I began formulating a game system at ConverJent that drew from game mechanics in tabletop hobby games, such as “Eurogames” like *Settlers of Catan* (1996). We understood the task as to somehow design a system that addressed the kinds of decisions that people have to make in relation to the law. Lost and found objects afforded us both resources, a key element of any game, and also a tie between resources and effects on players in regard to the laws. The premise of the initial prototype was that players were villagers who were dealing with the kinds of problems in the book of Gezeleh v’Avedah. We arrived at a prototype that could reward players both for resource management and also for their reputation within the community (other players and/or non-player characters (NPCs)).

In the fall of 2014, I brought the initial concept and paper prototype to my new position at the Rochester Institute of Technology (RIT). A number of graduate students and I delved into the *Mishneh Torah* and related texts as we rebuilt the prototype. The students and I unwrapped a number of concepts that would be critical to the halchot (laws) we were examining. For example, the status of an owner “despairing for the loss” of an object (sometimes also translated as “forsaken hope of finding” the object), which is a legal status based on both realizing the item was lost and the low likelihood of having found the object, versus a willful abandonment, which had to be witnessed. We unpacked details such as the relative values of the coinage, for example the relationship between a dinar and peruta. We discussed the differences between common law and the Jewish law. In particular, we considered the heightened responsibilities found in the Jewish laws as compared to common law, as we read in Broyde and Hecht (n.d.):

“Jewish law imposes a duty to rescue the lost property of one's neighbor, while the common law does not require that one initiate the process by retrieving the article. Thus according to Jewish law, when one happens to stumble across lost property, one must intervene to retrieve it; according to the common law one need not. Second, Jewish law imposes ethical duties as part of its legal mandate, a practice the common law does not follow.” (Introduction, paragraph 2)

For example, a person who finds a missing animal must not only repeatedly attempt to return the animal, but must feed and care for the animal in the intervening time, up to a year. They should hire them out (so the finder does not profit from their use – and any profit beyond feed, they must hold the profit for the owner). After a year, they are considered co-owners of the animal (Maimonides 1180 with Touger translation and notes 1997, 360, Hilchot Gezeilah Va’Avedah 13, 15).

We worked to flesh out the prototype further and interrogate a number of questions, such as improving and clarifying player goals and then running a variety of scenarios in our internal design reviews. We were conscious of having to address both the engagement/engrossment question as well as the learning objectives – that players would learn key elements about the trade-offs in the law through the process of play and discussion in curriculum. If the players were to work together to bring resources together, how could we account for catch-up mechanics, a key element of game balance? Roughly, game balance is a process which seeks to afford a fair chance of winning to all players. While this seldom addresses the novice/expert problem, it seeks to afford engaging play to a broad spectrum and from all role positions in a game. Catch-up mechanics are often required to maintain player engagement when a player that falls so far behind that s/he loses interest and self-ejects from the game. Players need to have a chance to re-strategize, or ally with others, or some other method for maintaining their engagement in play, at least until late-stage of the game. Graduate student Alex Lobl was particularly adept at finding balance problems for players in our two-track system, noting that player profiles of those playing directly for the win would likely adopt a spoilsport role if afforded the opportunity, in effect ruining play for all.

By January of 2015, two more faculty members joined the team. Game designer Ian Schreiber joined and helped us quickly move to our first fully playable prototypes and helped us to re-envision our uses of resource management as well as restructure our win-states. Kelly Murdoch-Kitt, faculty in Graphic Design, also joined us and brought aboard students who would work with us on the look and feel of the game through graphic design and illustration. In addition to working with Murdoch-Kitt, the graphic design and illustrations students also worked with Philip Ackerman-

certain Euro-mechanics (see Gottlieb and Schreiber forthc.). In addition to working through texts and translation, and drawing on my own background in Jewish studies, the team consulted with a number of scholars. We worked with Phillip Ackerman-Lieberman on material culture representation ranging from architecture to garments to coinage, recommending a number of secondary sources. Phil worked with us to find reference images that would be period-accurate, and we checked with him on meanings of more obscure legal rulings. Because we knew we were building a modular system and intend to build out an Islamic law module, we also consulted with Islamic law scholars Muhammad Shafiq and Tarek Elgawhary.

Win-States, Objectives, and Meaning-Making

The team faced significant challenges regarding the design of win-states because of the many and varied constraints that our design problem presented. We were determined to develop a game that was both competitive and cooperative in order to model the different tensions in the law. Schreiber pointed out the how the law addressed the tragedy of the commons. More recently, Schreiber articulated the idea in this way: “These laws often inconvenience individuals, but to the benefit of greater society” (I. Schreiber, personal communication, July 2017). At the same time, I pointed out that the laws also go to great lengths to protect individuals from situations such as undue burden. One example of the import of avoiding undue burden is evidenced in Maimonides’ (1180) position on abandoned property, in which he includes neglect of the owner. In *Gezela Va’Aveda*, halacha 11:11, Maimonides considers a cow that is left in a barn without a door and that is not tied down is to be considered abandoned.ⁱⁱⁱ People faced with being a part of the community and following the law would have not only motivations to care for their own family, but wider responsibilities to the community. The law not only encourages

goal itself.

The round-table design meetings between Schreiber, the graduate students, and myself addressed possible solutions. We considered “goodwill” points that could be distributed by players to others, but found that they would be gamed and that we were faced with similar problems to *Cosmic Encounter’s* (1977/2008) fast-forming and fast-dissolving alliances. Could we emulate multiple games played in succession in some way, such that players’ decisions in game one would affect later games? We arrived at ideas of what “winning” might mean in the sense of the broader intention of the law and articulated a notion of “living a good life.” Graduate student Alex Lobl crystalized, augmented, and refined these discussions in an internal white paper for the team entitled, “So, What is Winning?”

“So if the question was “how does this mean you win”? How can I show that I’ve “lived a good life?” This discussion actually starts with a thought grounded in *Cosmic Encounter*. Examining the formation and collapse of alliances, the question looks at how it’s possible to create alliances that aren’t broken immediately upon a change in “fortune winds.” In Purple [the codename for Lost & Found], how do we even form “alliances?” (Lobl 2015, 1)

Lobl went on to propose a mechanic he calls “Acts of Meaning” and the use of secret missions, each of which is an Act of Meaning that the player must work to achieve and that is revealed at the end of play. “At the end, the Acts are revealed and whether or not a person managed to correctly complete them.” He also proposes a communal goal that requires everyone to work together to solve, and described this as one of the “Acts of Meaning.” Soon thereafter, another graduate student, Bruno Rocha advanced this idea into “Responsibilities” – two kinds of achievements that had to be won to move into win-state. There could be family responsibilities (for individual player’s characters) and communal responsibilities and both were required

to win. Here I brought in the two sections of Talmud cited above that we could use to create these kinds of responsibilities.

Ian Schreiber led us on the work on the mechanic regarding how to execute a set of various win-states while combining the ideas of responsibilities and structures to maintain suspense in the game along the way. We arrived at the system of minimum fulfillment of a set of communal responsibilities. Without the whole group fulfilling the communal goals, no player could win. But to be one of the winners, by end of the events, a player would also have to have achieved at least three family goals. This would then require a means by which the game could account for chance elements when a player either broke the law to achieve goals or when a player took risks for neighbors by going “above and beyond the law.” Schreiber devised a chance system by which there was a probability that a thief could be caught and lose family responsibility achievements, or perhaps having helped out a neighbor earlier in the game might afford an additional chance at winning. I suggested this would be the “Heshbon” deck (the Hebrew for “accounting” but also used in the spiritual practice of Heshbon HaNefesh, or a self-reflective accounting of the soul).

Through continued play-testing we had arrived at a stable win-state design that allowed us to align player objectives with the key elements of the legal system that we were working to model. This was one of a number of parallel design processes that intertwined as we worked towards our release candidate. Another central design process revolved around the game’s resource management systems and their relative importance in play compared with the game’s “events.”

Vying the Center: Resources vs. Events

Hobby games and Eurogame genres often center on resource management, whether the generation, cultivation, gathering, or distribution of a variety of game resources. For example, in *Settlers of Catan* (1996), readers may recognize the resources: grain, wool, lumber, ore, and brick. These resources are then used for various building actions such as roads and buildings. In *7 Wonders* (2010), players gather and mix resources to create civic structures, scientific structures, military, and other categories. Fullerton (2014) writes about resources in games: “Resources are, by definition, items made valuable by their scarcity and utility. In the real world, and in game worlds, resources can be used to further our aims; they can be combined to make new products or items; and they can be bought and sold in various types of markets” (34). It was this aspect of scarcity, value, and utility that made for such a strong connection between essential elements of gameplay and the subject matter of lost and found objects.

In our earliest prototypes, we found that it is easy to become deeply engrossed in complex resource management procedures, which pulled playtime away from the core mechanic we knew needed to be central. For example, some of the *Mishneh Torah* laws concern animals such as cows, which were of great value. Our initial resource management systems modelled processes of transport with oxen to bring crops to market and the gathering of resources from cattle, such as milk and cheese for sale at the market. Similar systems appear in complex tabletop games such as *Agricola* (2007), which, for example, requires players to plow fields, plant grain, harvest it, and build an oven before baking bread. Animals also breed every few turns in *Agricola*.

When Ian Schreiber joined us, he helped us quickly downscale this level of specificity

in resource management in order to re-focus on the events. The events that we had been working on instantiated a moment each turn which confronted players with cases revolving around the laws of lost and found objects. Some examples of events were coming across an animal that appears to be abandoned, finding coins in a riverbed, and deciding whether to empty the contents of one's own transport vessels to help a neighbor catch honey from one of the neighbor's vessels. The complexity of the resource management systems had caused too much play-time spent in resource management, pulling time from our key trade-off decisions having to do with the law. We simplified the structure and focused on an event-driven turn.

We found during the many iterations that followed^{vi} this tension remained, and as we worked for fidelity in the game's representational system, we consistently had to pull back from resource management depth back to trade-offs and events (Gottlieb and Schreiber forthc.). These two key areas, the determination of win-states that could support the theme of the prosocial behaviors encouraged by the legal system and a consistent centering on events and trade-offs, allowed us to move towards a release candidate and away from one of the shortcomings often seen in Eurogames.

Woods (2012) notes that regarding the Eurogame genre:

"... the designers are generally far less concerned with the relationship between theme and mechanics in terms of modeling the behavior of referent system" (85) ... "a number of the games analyzed are overlaid with a theme that has no coherent relationship with the game's mechanics, and thus no thematic goal is presented. In these cases, the theme does simply serve as "gift wrapping," and the game system itself bears a largely arbitrary relationship to the suggested theme." (109)

While we were not consciously trying to fight the genre of the Eurogame, our learning goals, including the trade-off actions and developing a player-cognizance of

the historical and cultural milieu, required us to not permit such a theme/mechanic disconnection to happen. Rachel Wagner, who, after the development of the tabletop game (2017a), served as a consultant on the digital prototype of *Lost & Found* (2017b), has recently discussed *Lost & Found's* move towards congruence between mechanics and theme as a shift away from the more typical Eurogame in her paper at the Middle Ages in the Modern World Conference (Wagner 2017).

Finding the Future: Different Systems for Different Patterns of Play

In our early research studies outside of the design reviews, we noted that the kinds of discussions of complex trade-offs required a particular kind of curricular support. This appears to be due to the level of abstraction required to model complex system in a short playtime (Gottlieb and Schreiber forthc.). This spurred Ian Schreiber and I to see whether we could generate discussions about the meaning of the laws themselves among players with very little prompting. While this too would require curriculum, it would require a different kind of learner scaffolding, and we theorized it could be used with the first game for different yet related goals in a learning environment. This has led to a second game, *Lost & Found: Order in the Court – The Party Game* (2017). In order to move directly to discussion of the laws and the reasoning behind them, the game presents a law from the *Mishneh Torah*, then players draw Story cards with various terms from the *Mishneh Torah* and compete to tell the best story of how the law came about. The judge of which story is best moves from player to player, and if the players ask, the actual reasoning is revealed at the end of the storytelling and judging when the judge reveals the back of the law card. Initially players got extra points towards winning if they were close to the actual reasoning. We removed that requirement and found in internal design reviews and play at RIT's Crashtest Games playtesting and design club that players began asking

for the reason. We are at early stages of research with *Order in the Court* and will be conducting future research on this game as well as *Lost & Found*.

As the *Lost & Found* team moves into work on a new module on Islamic laws of the period and expanding research with the games, we hope that other designer-researchers will find these explorations of use. I believe that the future of much of religious textual study must incorporate games and game design. The printing press moved manuscripts into the form of the Vilna Shas style layout of the Talmud – with multiple texts, commentaries and glosses side by side, textually hyperlinked (see Rosen 2001). This form is now considered a quintessential “Jewish” way to look at texts. Today’s technologies and the ascendancy of game systems (video games sales now out-gross cinema and music combined (Nath 2016) and most cities have board game cafes) mean there are important opportunities for delving into texts through new forms such as game mechanics and themes. Whether through history games, legal games, or games yet to be considered, new forms await our design exploration.

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ⁱ From my recent research, it appears that Maimonides (1180) may have been influenced in this choice by Averroes' work, a subject which I will be investigating further.

ⁱⁱ We did not include "circumcision," one of the obligations from Talmud, in the game because we were neither claiming to be completionist, nor did we wish to distract from the primary themes.

ⁱⁱⁱ Touger (1997, the translator of Maimonides 1180) notes that the Tur (The Arbah Turim by Jacob ben Asher, 13th—14th Century Cologne/Toledo) and commentary by the Ramah (Moses Isserles, 16th century Poland) provide opinions that disagree with Maimonides, namely that placing in a barn is enough to disprove abandonment (337).

^{iv} During the process of working on this article, thanks to one of the anonymous peer reviewers, I became aware of a game by some colleagues interested in similar tensions between collaboration and cooperation. Phelps et al. (2016) explore choices of sacrifice in *Troubled Lands*. Comparison between the systems in the future may provide an interesting study of games with related goals.

^v In later stages, a consulting team member, Scott Nicholson pointed us to "Legacy" games such as *Risk Legacy* (2012) and *Pandemic Legacy* (2015), in which the game system is irrevocably changed each time that you play, such that decisions made in earlier games, alter the board and shift play in later games.

^{vi} While the semester was in session, we typically prototyped and tested *Lost & Found* at least one iteration a week from January 2015 until locking in December of 2015.