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**Using Motivation Theory to Improve
Gamification**

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Gerry Ledford

*Senior Research Scientist
Center for Effective Organizations
Marshall School of Business
University of Southern California*

Ed Lawler

*Professor and Director,
Center for Effective Organizations
Marshall School of Business
University of Southern California*

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Using Motivation Theory to Improve Gamification

Games have always been part of human societies. Traditionally, games were reserved mostly for leisure, not work or commerce, even though some people have managed to turn work into play. Today, the purposeful use of games in work settings is growing rapidly. Organizations are rapidly embracing the systematic use of “gamification,” which brings game-like elements to core managerial processes. Gamification is changing the way that companies do their work and conduct their business.

This article explores the nature of games and gamification, the importance of gamification, and explanations for why gamification is compelling to game players. We then review motivation theory and consider how it can be used to understand gamification and make it more effective. We next examine some data from a field experiment that support the predictions of motivation theory. Finally, we identify some limits to gamification that are often overlooked.

The Ubiquity of Games and Gaming

Humans of all ages, in all societies, play games. One can find children on every corner of the globe intently playing games using nothing more than a soccer ball and an open field. Sports, games of chance, board games, and contests of all types have been human preoccupations throughout recorded history.

Games are big business. Some impressive statistics:

- U.S. sports markets generated \$60 billion in revenue in 2014 (Statistica.com)
- Casino gaming generated \$69 billion in revenue in 2014 (Statistica.com)
- Four of the top ten television shows of 2013-4 were sports or contest shows such as *Dancing with the Stars* (Rice, 2014)
- In 2010, digital games posted sales of \$25 billion, and social networks such as Facebook (which typically employ game elements) were used by 70% of the U.S. population (Anderson & Rainie, 2012)

- By 2008, nearly every teen 12-17 (97%) played electronic games, and half had played the previous day (Pew Research Center, 2008).

Clearly, games and gaming are ubiquitous. Businesses are attempting to capitalize on the popularity of games by incorporating gamification into a very wide range of activities. We next define gamification and look more closely at why it matters to companies.

What Is Gamification?

Gamification is the use of game characteristics and techniques for activities that are not primarily recreational. Sometimes the games used by organizations are termed “serious games” (Kapp, 2012) to distinguish them from recreational games. The key characteristics of games include the following.

1. **Competition:** Most games involve competition and, therefore it is possible to win or lose at the game. Competition can be between individuals or teams, or it can pit either individuals or teams against each other or against their own prior performance. Electronic media now enable competition over the Internet among tens of thousands of players at once, who may compete as individuals or teams, as in Massive Multiplayer Online Games (MOOGs) such as World of Warcraft.
2. **Challenge and strategy:** Games typically involve solving one or more problems or making choices in order to win the game. Completing a crossword puzzle, defeating an opponent at chess, or betting effectively in a poker game are illustrations. Winning involves using strategies that are within the rules of the game. The strategies used to meet the challenges of the game can be simple (checkers) or extremely complex (chess). Very complex games may take years of study and practice to master.
3. **Levels of difficulty:** Most games involve different levels of challenge or difficulty. Levels usually are specified to the players and linked to proficiency standards. Players typically progress through the levels by becoming better at the game.

4. **Scoring and feedback:** Games use scoring and feedback mechanisms that permit players to know how well they are doing in real time. Feedback is critical because it permits players to adjust their behavior and strategies to perform better. Even games that are not overtly competitive (such as simulation games like SimCity) provide scoring and feedback that make it possible for performers to determine how well or poorly they are doing. Game feedback is typically much better than in work settings, where performance feedback often is slow, ambiguous, and difficult to access.
5. **Practice without risk:** Games typically permit players to practice difficult skills in a low-risk or completely risk-free environment. A video game player may die many times in virtual battles before mastering the game. Similarly, pilots learn to fly aircraft in flight simulators and soldiers learn new skills in battle simulators without risk.
6. **Rewards:** Some games provide significant rewards that have monetary value (for example, a gambling jackpot or a share in a team's Super Bowl winnings). Often, however, the rewards have little or monetary value, and instead have recognition and symbolic value. Such "low power incentives" (Baumann and Stieglitz, 2014) are especially prevalent in work-related gamification. Rewards often include achievements, point levels, badges, or progress bars, for higher attaining proficiency or completing specific actions, status indicators such as friend counts or leaderboards, or token tangible rewards of nominal value. Sometimes intangible or virtual rewards can be exchanged for something of value. A common ploy of "free" online games is to offer the basic game for free but to offer many add-ons that players can purchase, that give them additional levels, skills, or powers. Sometimes points or other rewards also can be exchanged for these, so that more accomplished players are rewarded with the ability to be more successful in the future.

The combination of competition, challenge and strategy, feedback, and rewards makes games extremely addictive for many people. Playing a game can provide considerable excitement and ongoing reinforcement. The immediacy and intensity of the game experience often leads to persistent effort by players, and can crowd out real world activities that are less exciting, compelling, and enjoyable.

Why Does Gamification Matter To Organizations?

Games are becoming pervasive in companies as they embrace gamification to increase the intensity and persistence of organizational activities by employees, customers, and others. Gartner (2013) predicts that the majority of all user-facing software applications will include elements of gamification. Some uses of gamification focus on employees; others focus on customers and others outside the organization. Some prominent uses of gamification include the following.

Learning. Perhaps the most established area for gamification is in training and development. The American Society for Training and Development found that 25% of companies use gamification to a “high extent” or “great extent” in their training programs, and almost half of those not using gamification were considering it for the coming year (ASTD, 2014). Simulations have been used for decades to train airline pilots, police officers, and nuclear power plant operators, allowing them to practice responses to dangerous situations in safety. Today, the use of gamification is deeper and far more widespread, and many forms of gamification are incorporated into training programs of all kinds. It is used to convey information and to make learning and even testing more fun and interactive. The rapid ongoing movement of training programs from the classroom to the Internet facilitates automated gamification.

Enterprise Social Media. Organizations are adopting Enterprise Social Media (ESM) for internal communication, knowledge management, and collaboration. Gartner (2013) predicts that by 2016, 50 percent of large organizations will have internal Facebook-like social networks, and that 30 percent of these will be considered as essential as email and telephones are today. Major

ESM platforms include IBM Connections, Jive, Yammer (Microsoft), Jam (SAP), and Chatter (Salesforce). These platforms are extremely versatile and feature rich, but it is not always easy to entice employees to use them. Indeed, Gartner (2013) predicts that 80 percent of social business implementations will fail to achieve their intended benefits. Gamification is one way to address the shortcomings of ESM, by encouraging familiarity with the platform and its uses. For example, gamification may reward different levels of expertise with the ESM and different kinds of uses, including navigation of the platform, contributing to or commenting on blogs and wikis, joining groups that use the ESM for communication, and using the ESM for project communication and document sharing.

Innovation. Innovation in products, services, and delivery methods is the wellspring of future revenue. Gartner (2011) predicted that by 2015, more than 50 percent of organizations that manage innovation processes will gamify those processes. Companies increasingly use gamification as part of a strategy that uses social media to create innovation. Social media may be used in all phases of the innovation process, from idea generation to vetting, decision making, testing, implementation, and follow-up. Gamification, usually combined with crowdsourcing, is often part of the process. Social media can be used both internally (with employees) and externally (with customers and others). Internal social media attempt to make innovation everyone's job by encouraging the submission of new ideas and managing the submission, development, and approval process. Companies that have used this approach include GE, International Paper, Avery Dennison, Lockheed Martin, HP, and Bayer. They have used software from vendors such as BrightIdea and Spigot. The use of social media with outsiders is very much a trend, and the "open innovation" movement has captured considerable attention. Companies including P&G, GE, Dell, Starbucks, Clorox, Johnson & Johnson, and Visa have attempted to capitalize on outsiders' ideas with open innovation platforms. A particular advantage of ideas from outsiders is that they tend to be more

radical than those proposed by insiders, who have more preconceived notions about what will and will not work.

An interesting example of the use of gamification for innovation was its use by University of Washington researchers who were studying the structures of proteins (NPR, 2011). The researchers used an online game called Foldit, named for the folded structure of proteins, to generate crowd-sourced discovery of the complex 3D structure proteins. One game involved the structure of a key enzyme used by the HIV virus. The game attracted 46,000 participants, most of whom had no training in biochemistry. A team of players solved a problem in 10 days that had eluded the researchers for 15 years. The game is being used to discover the structure of other proteins and to design new types of drugs that capitalize on the structure of proteins.

Onboarding. Onboarding is important because organizations want new hires to move up the learning curve as quickly as possible, and to remain with the organization. Employee turnover is expensive, and research has established that employees are most likely to quit during their first year on the job (Lawler, 2008). Gamification can help to engage employees quickly by taking them step-by-step through an immersion in the organization, and helping them become familiar with coworkers, leaders, values of the organization, and ways of operating. For example, new employees may have “quests” to discover social media addresses of 25 coworkers or to meet key executives in their department. A survey by the Aberdeen Group (2013) found that 17% of organizations used gamification for onboarding, and that gamification helped increase engagement and reduce turnover. Companies that use gamification for onboarding include Deloitte, Yahoo!, and SAP.

Companies are using gamification for many other purposes, including marketing, selling, recruiting, employee recognition, career development and wellness. Gamification also has been used for a very wide range of non-commercial purposes, including improving traffic safety, increasing citizen access to government, education, and even getting school children to their vegetables.

Gamification Theory And Practice

Gamification designers typically are not psychologists, and there have been few attempts to apply psychological theory and research in gamification. Traditionally, game designers have been those who enjoy playing the games. More recently, multidisciplinary teams of artists, writers, engineers, and programmers have designed electronic games and gamification. There is little evidence that such design teams use social science research in the design process.

The literature on gamification is vast and extremely diverse, representing almost every imaginable discipline. However, few articles about gamification show more than a casual appreciation for psychological theory and research on motivation. Many authors argue that motivation and rewards are central to gamification. For example, Gartner's (2012) "gamification best practices" report indicates that gamification requires "a keen focus on understanding what drives human behavior", and that "Poor game design can be demotivating." Similarly, Bunchball, a leading gamification vendor, indicates: "Gamification is a strategy for influencing and motivating the behavior of people . . . Because it targets key human traits and desires, the audience for gamification is virtually anyone you want to engage repeatedly in order to elicit a particular behavior" (Bunchball, 2012). However, most analyses of gamification contain no detailed grounding in theory and research on motivation and rewards.

We found only a few articles in which game experts attempted to summarize and use motivation theory or in which motivation researchers have studied gamification (for example, Baumann & Stiglitz, 2014; Chen, 2014; Jones et al., 2014). The limited use of motivation theory is somewhat surprising because issues of motivation and participant engagement are so central to the effectiveness of gamification. At the core, these are psychological issues.

Motivation Theory

Motivation theory seeks to explain the psychological processes that affect the direction, intensity, and persistence of action. There are many theories of employee motivation. The

prominent theories of motivation today are well established and are based on decades of theory and research. Different motivation theories focus on different parts of the phenomenon. Some focus on personality determinants of motivation; others focus on self-regulation and goal setting as determinants of behavior; and still others focus on the process of making choices among competing courses of action.

Expectancy theory is one of the most widely researched theories of motivation. Nagengast et al. (2011) characterized expectancy theory as “a dominant theory of human motivation”, while Steers, Mowday, and Shapiro (2004) rank expectancy theory as “perhaps the best known of the cognitive theories” of work motivation. Expectancy theory is prominent in many areas of psychology, including organizational, developmental, and educational psychology. In work settings, expectancy theory has been used to understand a wide range of phenomena, including compensation and incentive pay, work design, supervisor behavior, careers, and control systems, and such outcomes as job performance, turnover, and organizational citizenship behavior. Despite its prominence in motivation research, it has received no attention in the gamification literature.

Expectancy Theory: Key Components. Expectancy theory is a process theory of motivation that explains how people go about making choices among competing courses of action. Expectancy theory assumes that people make conscious choices based on actions that will maximize their rewards and minimize negative consequences. The classic formulation of this theory was by Vroom (1964), and later formulations (notably, Porter and Lawler, 1968) have elaborated and refined the theory. Expectancy theory has been used to understand many different features of organizations, including compensation and incentive systems, work design, supervisory and leadership style, the employee’s choice of jobs, organizational control systems, strategic decision making, and employee attitudes and behaviors.

Expectancy theory seeks to explain motivational force, defined as the probability that the individual will choose a given course of action. The theory is expressed by the formula:

Expectancies X Value of Rewards = Motivational Force

Expectancies are subjective judgments (expectations) about two probabilities. These are (a) the probability that a given level of effort will result in a given level of performance, and (b) the probability that a given level of performance will result in a given outcome or set of outcomes. These are the Effort → Performance Expectancy and the Performance → Reward Expectancy. Note that expectancies that govern motivation are perceptual, that is, they represent subjective beliefs, not necessarily objective reality. Expectancies are strong if employees see a strong relationship between their effort and their performance, as well as a strong relationship between their performance and outcomes that matter to them.

Goals are important in understanding and creating expectancies. Goal setting is a prominent theory of motivation in its own right (see Locke and Latham, 2002), and several lessons from goal setting research are applicable here. Research shows that setting specific goals better motivates performance than general exhortations to “do your best.” Research also shows that more difficult goals are more motivating as long as the individuals believe that they have the ability to achieve them and accept the goals. This may appear to violate expectancy theory because difficult goals may have a lower expectancy value than easier goals. However, the principles of expectancy theory have been upheld in research showing both that within goals (that is, considering each goal individually), expectancy theory prediction hold, and that more challenging goals lead to higher performance.

Findings from goal setting research suggest encouraging goal setting, especially of difficult goals, can enhance that gamification. One gamification experiment actually resulted in higher consumption of fruits and vegetables by children (Jones et al., 2014), using school-wide goals based on increasing consumption to the 60th percentile of consumption over the prior ten days. Over a period of 13 school days, fruit consumption increased by 66% and vegetable consumption by 44% above baseline levels, an increase many parents would find astonishing.

The Value of Rewards component is the person's subjective assessment of the relative attractiveness of a given outcome. Outcomes can be positive (for example, money, promotion, or feeling of satisfaction) or negative (for example, stress or fatigue). Expectancy theory is based on the subjective estimate of the attractiveness of the reward, not its objective value. For example, if a person believes that money is a highly attractive reward, they will be more motivated to attain it. It does not matter from the standpoint of motivation if the person later discovers that the money does not bring the happiness that the person expected (although in the future this may make money a less attractive reward).

Expectancy theory is concerned with the attractiveness of the specific rewards offered in a given context. Gamification writers often use a logic that says, for example, most people want recognition, therefore gamification recognition rewards are attractive generally. Leaving aside the individual differences issue, that no reward is attractive to everyone, it is not enough to work from general categories. Rather, game designers must investigate whether the specific recognition awards offered in a gamification effort (points, badges, leaderboards, etc.) are attractive, not whether recognition in general is attractive. Similarly, it is not enough to say that almost all employees value money, and therefore rewards of \$50 will be attractive to all. Some people may not consider a reward of that magnitude attractive, while others may find it highly attractive.

Extrinsic and intrinsic rewards are treated equally by Expectancy Theory. Extrinsic rewards are provided by the organization, including monetary incentives, promotions, and recognition. Intrinsic rewards are positive feelings that come from performing the work, such as a feeling of accomplishment or sense of personal growth. Again, it is important to note that the value a person places on rewards is subjective. Some employees value any given type of reward much more than others. For example, not all employees are interested in intrinsic rewards, and higher monetary rewards may be more valuable only up to a point for some employees. A person may value rewards that have lesser objective monetary value more than those with greater objective

monetary value. This has important implications for gamification because most games offer rewards that have low monetary value. In general, people almost universally value monetary rewards, although not necessarily in a linear fashion (that is, more money is not necessarily better beyond a certain point).

Expectancy theory indicates that both types of expectancies as well as valued rewards are necessary for motivation. If any of these elements are lacking, the employee will not be motivated. For gamification, this suggests that it is important to think through the ways in which the game reinforces strong connections between effort exerted to play the game and achievements within the game as well as connections between game performance and rewards that people value.

Enabling Factors. Expectancy theory indicates that multiple factors are important influences on motivation. These include skills and abilities, role perceptions, good feedback about performance and rewards, and speed in providing rewards. Skills and ability are important because they affect the strength of the Effort → Performance expectancy. Training or, in some cases, selection may be needed so that employees have the skills to perform at the level required to achieve rewards. In gamification, this is usually accomplished through a step-by-step skill building process within the game that builds from simple to complex skills. Role perceptions involve an understanding of what performance is required in the job and what behaviors are appropriate. A perception that games and play are inappropriate in the workplace, for example, would have a negative effect on the success of gamification; good communication of management's support for gamification may be needed. Furthermore, good feedback about performance and rewards earned is fundamental to establishing strong expectancies. Finally, equity in rewards is important in employee acceptance of the value of the rewards. For example, an employee may feel that a given level of performance is worth a higher level of reward than the organization provides, and this may have a negative effect on motivation because the reward received is of low value to the employee.

Implications of Expectancy Theory

There are several important implications of Expectancy Theory for gamification. Here we discuss these implications. In addition, for each set of implications, we offer some testable hypotheses for future research on gamification.

1. **Expectancies.** It is important for gamification to reinforce the expectancies for effort to performance and performance to valued rewards. This motivates users because gamification makes clear the behaviors and performance that lead to specific rewards, and then provides immediate rewards when the behaviors are shown or performance is attained. However, some gamification implementations are more successful than others in establishing expectancies. One example: Long delays between performance and rewards can weaken the Performance → Outcome expectancy. Another example: Electronic gamification offers the possibility of the dynamic management of expectancies. That is, the game can automatically adjust the probability that the user will achieve performance levels to optimize the balance between user challenge and frustration, using data from the dynamics of gameplay to make these adjustments (Whitson and Simon, 2014). These points suggests some testable propositions:

- A. The effectiveness of gamification will be related to the extent that game designers carefully specify the behaviors, skills, and performance levels they desire for users.
- B. The effectiveness of gamification in motivating users will be related to the degree that game designs establish clear, consistent user expectancies that connect user effort to performance and user performance to rewards.
- C. Gamification will be more effective in creating strong expectancies, and in turn motivating employees, to the extent that gamification involves the development of specific and challenging performance goals.
- D. Delays and uncertainty in providing rewards for performance will reduce expectancies, while frequent, immediate, and consistent rewards will increase expectancies. Contests

with more distant payoffs, or rewards that depend on subjective managerial assessment of performance after the fact, will be less effective in creating strong expectancies.

E. The dynamic management of expectancies based on game play can enhance motivation by optimizing the balance of challenge and frustration for the user.

2. **Types of rewards offered.** Most gamification efforts do not offer monetary rewards, in order to control costs and to offer rewards of a magnitude appropriate to what is achieved in the game, even though money is the most widely desired type of reward. Gamification usually depends on intrinsic rewards and “low power” rewards such as recognition and status within the game or prizes with minimal monetary value. Although HR vendors sometimes breathlessly tout the degree to which employees crave nonmonetary rewards such as recognition, not all employees value recognition rewards highly, and especially in the forms of recognition used in gamification. One important type of reward for gamification is fun: game designers hope that users will play the game because it is enjoyable to play (an intrinsic reward), not just because of extrinsic rewards.

Considerable experimentation may be needed to discover what types of rewards are most attractive to different types of users, and many of the findings will not be obvious. For example, Chen (2014) found that lower ability children preferred social competition to self-competition, whereas medium ability and high ability children equally preferred social competition and self-competition. Finally, most games do not offer players a choice of rewards, even though it is relatively easy to offer choices in electronic games. This might involve creative reward designs that fit the specific interest of different users. As Gartner (2011) indicates: “Different people will find different rewards and incentives meaningful, but many will value opportunities to help charities through donations, lose weight, master a specific skill or achieve a significant task.”

These points suggest some testable propositions:

- F. Users will vary considerably in the degree to which they value gamification rewards.
- G. A higher percentage of users will value monetary rewards than other rewards, and the variance will be greater than for nonmonetary rewards than for monetary rewards.
- H. There will be no simple, linear relationship between the external value of rewards offered (for example, monetary value) and the subjective value of rewards for gamification users.
- I. Users will value both extrinsic rewards of gamification (such as badges or prizes) and intrinsic rewards of gamification (fun, feelings of accomplishment, self-esteem); moreover, the most gamification efforts with the greatest motivational force will include both intrinsic and extrinsic rewards.
- J. Permitting employees to choose the rewards that they can obtain will increase the attractiveness of rewards that users obtain and the motivational power of gamification.

3. **Expectancies versus rewards.** Gamification offers an interesting avenue for exploring an important question in the motivation literature. The basic expectancy theory formula assumes that expectancies and rewards have equal importance in determining motivation. This may not be so, however. Prior research has found that there is no direct relationship between the magnitude of the reward and the power of the reward to motivate performance; even relatively small monetary incentives (say, 3% of salary) can have large effects on performance (see review by Bucklin, 2001), and larger monetary rewards do not necessarily have greater effects on performance. There are two possible explanations for these findings. One is consistent with traditional formulations of expectancy theory: people may simply value money differently beyond a certain threshold. A second explanation is that expectancies may be more important than the value of rewards in creating motivation. That is, if the expectancies are strong, rewards of relatively modest value may be highly motivational, while if expectancies are weak,

even rewards of great value will not be motivational. It is not difficult to do controlled field experiments to investigate these alternatives.

K. Strong expectancies will be more important in motivating users than rewards of high value; this means that weak expectancies and rewards of high value will have low motivational power, while strong expectancies and rewards of low value will have high motivational power.

4. **Enabling factors.** Strong expectancies depend on enabling conditions: an adequate level of skill, appropriate role expectations, performance feedback, and a feeling that rewards are equitably distributed in the gamification effort. Many but not all gamification efforts do a good job at managing these enabling conditions. Users often build complex skills in a step-by-step fashion, exhibiting complex behaviors that would have been impossible prior to playing the game. In computerized combat games, for example, users learn new weapons one at a time until they are able to switch quickly and effectively between five or more weapons at a time, while also selecting from a repertoire of movements. Also, games tend to provide frequent performance feedback, and sometimes this feedback is continual and real-time. Gamification efforts are more likely to vary in how well they create appropriate role expectations and in whether they attempt to establish the equity of rewards.

L. When completing the game involves complex skills and behaviors, gamification will be more motivating to the extent that it systematically builds upon simple skills and behaviors, and permits user rehearsal of new skills and behaviors.

M. Creating strong expectancies in complex gamification efforts will require considerable communication and training to help users understand the behaviors required to play the game, the standards of performance in the game, and the outcomes associated with different levels of performance.

- N. Expectancies will be stronger when leaders convey the appropriateness and importance of gamification to the organization.
- O. The effectiveness of gamification in creating strong expectancies will be related to the degree that game designs provide frequent, clear information on behavior, performance, and rewards achieved.
- P. User perceptions of the equity of gamification rewards will be related to the degree that users value the rewards offered; rewards that are considered inequitable will be valued less.

Case Study: Gamification and Motivation

The Center for Effective Organizations has collected some preliminary data about gamification as part of a set of eight case studies of the use of social media for innovation in a large media company. One of the cases involved the use of gamification for as part of an ongoing initiative in the Information Technology department. The program, which we call INNOVATE here, was a game that used a structured process to obtain innovation proposals from five-person employee teams. The program was in place for slightly less than two years at the time of the research, and it continues today.

The INNOVATE program was preceded by a somewhat similar program in the department. The earlier program used a crowd-sourced innovation model in two to three week events held several times in 2011-2012. The original process used BrightIdea, a social media innovation tool. Leadership posed a specific challenge and employees responded with ideas for innovations that addressed the question. For example, the challenge for the first event was, “How can IT best leverage social networking and mobile tools to improve IT effectiveness and efficiency?” After vetting and further development online, employees voted on the winning ideas. Ideas receiving the most votes were sent to IT leaders for final selection.

Innovation was treated as a game to create excitement, and management offered recognition and rewards, including a small stuffed animal based on a character in the company's television commercials for all participants; iPod Nanos for the three participants whose ideas attracted the most crowd-sourced votes; and an iPad for the winner of each event. There was a fairly high level of participation in the program (about 40% of IT employees participated) and there was an excellent ROI for the program, but management was dissatisfied with the results in some respects. In particular, leadership was concerned that the process did not generate the kind of disruptive innovation that they hoped to see, and they saw a greater need for program infrastructure to better channel employee energy.

The INNOVATE Program. The INNOVATE program was the next-generation effort to address concerns about the initial program. INNOVATE was implemented in 2013. Like the earlier program, INNOVATE used a crowd-sourced innovation model and used social media software (in this case Jive, which had become the company's social media standard by that time). The program devoted far more effort than its predecessor to understanding why employees did or did not contribute innovative ideas. IT leaders were inspired by a [Harvard Business Review](#) article (Edmondson, 2011), which indicated that fear of failure was a major impediment to innovation. In addition, the executive sponsor of the effort believed that innovation is a set of skills that employees can be taught, that it is part of the job for all employees, and that management must invest considerable time, effort, and resources for the project to succeed.

Gamification and social media are integral to the program. The INNOVATE game is a tournament. Executives from the department select the ten best submissions each year to make formal "pitches" in a game show-type contest modeled on ABC's popular show, [Shark Tank](#). The executives select the two best proposals for further development. Winning team members received time off from their regular duties to develop their proposal, at which point a final review and determination of whether to implement the proposal is made. For example, one of the winners in

2014 was a new onboarding program (itself a game) that was adopted after further development. The other winner permitted natural language queries for business intelligence analytics, greatly increasing the usability of that process; it is still being developed but will be implemented in 2015.

Gamification techniques evolved over time. In the first year, participants were rewarded for a variety of achievements with recognition in the form of points and badges, replacing the tangible gifts of the first program. The emphasis shifted to badges (although points continued) in the second year. There were approximately 100 different badges, each associated with a learning point about innovation and the INNOVATE program, and the program had a leaderboard. The largest prize went to the two winning teams: they received time off from normal duties to further develop their innovation concept.

Executives used social media and gamification to make learning fun and engaging rather than pedantic, and to appeal especially to younger employees. The INNOVATE program received its own site on the company's Jive platform for enterprise social media, and executives used it heavily to publicize the program in a variety of communications (program descriptions, blogs, FAQs, announcements, videos, etc.) that were crafted to be crisp and entertaining. Participation in the program was relatively strong. In 2014, over 60% of IT employees played the game during the first two weeks, collaboration within the department on the enterprise social media site tripled, participants submitted over 50 innovation proposals to management, and a sentiment metric that tracked engagement found the highest level of engagement ever during that time (97% positive).

Data. The research team collected extensive archival data about the program and reviewed material that was posted on the social media website, interviewed program leaders and participants, and collected survey data from program participants. We collected survey data in 2014, 21 months after the start of the program and about eight months after the most intensive period of activity in the INNOVATE program for 2014. The survey focused on the social media software used in the INNOVATE program, and included a section on gamification. Given this

purpose, only employees who had used the social media platform for the INNOVATE program and were not participating in a different survey administered at the same time were invited to participate in the survey. We received completed surveys from 23 of the 68 employees who were eligible to participate (34% response rate). The response rate was several times higher than was typical for other surveys in this company, such as the periodic employee opinion survey. The small sample that does not permit sophisticated statistical analysis, but it offers the opportunity for interesting exploratory analysis.

Findings: Understanding of Gamification. The survey used a standard list of gamification rewards that we intended to use in multiple studies, and asked respondents which forms of gamification awards were used as part of INNOVATE, as well as which rewards they had personally received for contributions to the INNOVATE program. The responses suggest that respondents were not clear about the types of rewards offered or even the types of rewards they had received as part of the program. At least 26% of the sample responded “don’t know” about whether any given reward was offered in the program; about half (48-52%) were uncertain about whether small gifts with a value of \$100 or less, large gifts with a value of over \$100, small cash awards of \$100 or less, and larger cash awards of over \$100 were part of the program. In fact, neither gifts nor cash were used in the program.

For rewards that were part of the program, more than half (57%) of respondents correctly reported that points and badges were rewards of the program, while smaller percentages identified leaderboards (39%), achievement levels (35%), and time off from normal duties (30%) as program rewards. Almost exactly the same percentages of respondents reported actually receiving these rewards. Apparently, employees learned about the rewards by receiving them. On the other hand, small percentages of respondents incorrectly reported that certain rewards were part of the INNOVATE program, including small gifts with a value of \$100 or less (13%), large gifts with a value of over \$100 (9%), small cash awards of \$100 or less (13%), and larger cash awards of over \$100

(9%). The percentage of employees who reported receiving these rewards through the program was almost identical to those who reported being eligible for them.

The research team was surprised by these findings because of the extensive actions that the leaders in the IT department had taken to communicate the program to employees. They included a dedicated web site, blogs, memoranda, FAQs, and other means. The researchers reviewed the communications and considered them to be engaging and well done. Clearly, however, employees learned more about the program from personal experience than words. This is supported by the strong correlation (.60) between rewards received and understanding of the program.

Why might some employees have mistakenly believed that certain rewards, specifically gifts and cash awards, were part of the program when they were not? It is quite possible that some employees did not distinguish between the original innovation program in IT, which used small and large gifts, and the INNOVATE program. Both programs were run as events during a defined time frame, and the INNOVATE program began in the year after the original program ended. Although neither program offered cash awards, it is possible that some employees received recognition awards, raises, or bonuses through normal company processes and believed that their achievements in the INNOVATE program were partly responsible for these rewards.

These findings indicate that it is important to diagnose the level of employee understanding of the program to assess its motivational effectiveness, even when there has been extensive communication about the program and its mechanics. Expectancy theory clearly predicts that there will not be strong motivational effects if people do not understand the links between their behavior, performance, and rewards.

Motivational Effectiveness of Gamification. Table 1 summarizes the frequencies for survey items relevant to motivation and gamification. Several conclusions are warranted. First, a surprisingly high percentage of respondents were unclear about the gamification effort. Just over a third of respondents indicated that they understood the standards for gamification awards or that

they knew what to do to receive awards. Even fewer indicated that they had the ability to earn gamification awards. Note that most respondents were not negative on these items; they were simply neutral. Given the major management effort to communicate the program, including gamification aspects, these results were unexpected and they suggest that basic conditions for motivation via gamification were met for only a minority of respondents.

Insert Table 1 About Here

Given the low percentage of employees who understood gamification, it is not surprising that only a minority of respondents reported positive expectancies between performance and rewards or that the rewards offered in the gamification effort were attractive to them. Again, respondents were far more likely to be neutral on these items than negative.

The overall distribution of responses is clear. Around a third of respondents were consistently positive on the gamification measures. Does this represent failure or success in the gamification effort? If gamification increased participation in the INNOVATE program and helped many employees better understand the behaviors required of them, as executives believe, it could be considered successful. However, gamification clearly did not motivate most employees who participated in the game.

Why might only a minority of employees understand gamification and see a connection between the performance and rewards in the program? First, the program was relatively new; it had been in place for less than two years and most activity in the program was limited to a few weeks per year. (As we have seen, however, some respondents may have confused INNOVATE with an earlier program.) Second, respondents may have forgotten what they once knew about the program; the period of intense activity in 2014 had taken place about eight months prior to the survey. Finally, it may be that employees simply did not absorb the lessons of gamification, despite the considerable effort that executives put into program design and implementation. This may

suggest that gamification is not as natural and intuitive as is often assumed, and that extraordinary effort may be needed to communicate how gamification programs work.

An interesting finding is that only a minority of respondents indicated that cash prizes are important gamification rewards. Apparently, cash is not always king. Just over one-third report that people exert more effort to win cash prizes than to win social recognition awards and only 46% indicated that programs offering large cash prizes were more successful. In other words, for most in this population, cash prizes were not necessary for gamification to be effective, although cash did matter more for a large percentage of respondents.

Gamification and Program Variables. Table 2 displays descriptive statistics for key survey measures and correlations between a number of measures and three key variables relevant to motivation: the number of gamification awards received, the performance to reward expectancy, and the value of gamification rewards to respondents. In these data, we use a measure of the receipt of all rewards that the respondent believed were part of the program. The rationale for this is that motivation is based on beliefs, not necessarily objective reality. As a check, we correlated rewards received that were actually part of the INNOVATE program and the other variables; the correlations were lower in all cases but similar in direction and significance for almost all.

There are some extremely high correlations on the table. The strongest relationships are between expectancy and understanding of gamification, the perception that the respondent has the ability to obtain gamification rewards, and a sense that gamification awards are fairly allocated based on performance. Indeed, expectancy and equity are almost perfectly correlated. All three motivation variables are also strongly correlated to satisfaction with the software used for INNOVATE, ratings of the success of INNOVATE in increasing innovation, at ratings of success in increasing efficiency. Interestingly, while only a minority of respondents believed that monetary rewards were critical to the success of gamification, the belief that monetary rewards are important

for gamification was strongly related to the number of awards actually earned, expectancy, and the attractiveness of program awards.

Insert Table 2 About Here

One may suspect that perhaps there is simply a problem in the data that is common in survey research, namely halo. That is, perhaps people respond to all items in a similar way, regardless of content, artificially inflating correlations. This is not the case. Although the three motivation variables were strongly related to many variables, they were not significantly related to most of the measures in the survey. Table 2 shows that the low correlation with the level of use of the software tool for INNOVATE and feelings of personal competence at using this tool. Other variables not shown for which the correlations are not significant include job satisfaction, a belief that innovation is important to the company, personal use of new technology, and a feeling that technology is personally threatening.

The case study suggests that it is important for organization leaders and game designers to have a realistic understanding of the effectiveness of gamification. One could argue that motivating about a third of a given population through gamification is a very successful result in this case, and it represents important incremental improvement in the degree to which employees are exercising desired behaviors (in this case, innovation). Gamification is not being sold on the basis of limited benefits, however, and those selling gamification may be creating unrealistic expectations about the degree to which employees will be engaged in gamification and willing to change longstanding behaviors. There is an urgent need for benchmark data to inform designers about the kinds of effects that they are likely to experience, as well as data that identifies and demonstrates the value of best practices in gamification design.

The case study indicates that an employee survey that uses expectancy theory concepts can offer new diagnostic insights into the success of gamification. In addition, the data readily suggest action steps that the organization can take to enhance the future effectiveness of gamification.

Conclusion: The Future of Gamification from the Perspective of Motivation Theory

We conclude by looking to the future, looking at the promise of gamification and the implications for much wider use of gamification tools in the future. It appears that the trend toward gamification is an unstoppable force in software applications, and market research clearly indicates that gamification will be commonplace in the future. Anderson & Rainie (2012), in their study of a panel of technology experts and stakeholders, concluded: "Tech stakeholders and analysts generally believe the use of game mechanics, feedback loops, and rewards will become more embedded in daily life by 2020". However, if widespread use of gamification is inevitable, is that a positive development?

Both motivation theory and our case example indicate why it is very difficult to implement gamification well. Extensive behavioral analysis and experimentation is needed to design effective gamification programs, and even efforts that have deep leadership support and significant investment of resources can experience limited success. Effective gamification design is difficult and somewhat uncertain. Software developers increasingly feel compelled to offer gamification features in software applications of all kinds, but there is little guidance in the literature and limited tribal knowledge about how to do so in a way that creates a high level of employee motivation. Although we are optimistic that gamification done well can greatly increase the success of programs that use it, we suspect that there will be more and more poor implementations of gamification in the coming years.

A new problem may arise as gamification becomes commonplace. Will even sound implementations of gamification fail because people are exposed to so much bad gamification that they will tune all of it out? As more people experience more and more ineffective, slapdash, overtly

manipulative gamification attempts, will they tire of all such activities, or will the best implementations stand out? It is difficult to predict what will happen. We suspect that the human love of games and gaming will create a tolerance for poor implementations and an appreciation of good ones. However, in the language of motivation theory, people may come to expect that gamification wastes their time and produces no outcomes that truly matter to them. If this happens, gamification may acquire an unpleasant stigma, and it may be increasingly difficult to enlist leadership support to build or buy gamification features in software applications.

It is clear to us that considerable research on gamification is needed to offer better guidance to software designers and purchasers about what works. To this end, we have outlined a framework for understanding motivational issues in gamification, and have outlined a number of hypotheses about gamification that can be tested. One possibility is that software-as-a-service (SaaS) vendors will take the lead in sponsoring such research. SaaS vendors are often the leaders in providing gamification features as part of their software, and they often have enormous databases that can help increase understanding of how gamification affects the motivation and behavior of users. They also have unique opportunities to create field experiments in new software implementations that permit testing of new approaches.

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Table 1

Motivational Effectiveness of Gamification: The INNOVATE Case

Measures and Sample Items	% Negative	% Neutral	% Positive
Performance to Reward Expectancy (5 items)			
1. How much in gamification awards I receive depends almost entirely on how much I contribute to the INNOVATE program.	9%	36%	55%
2. How likely is it that you will receive gamification awards if you do the things that are encouraged by INNOVATE.	22%	17%	61%
3. Gamification awards in INNOVATE depend on how you perform in the program.	14%	46%	41%
Attractiveness of Gamification Rewards (5 items)			
1. I greatly value the kinds of gamification awards that are possible under INNOVATE.	27%	36%	36%
2. The opportunity to receive gamification awards makes INNOVATE fun for me.	23%	46%	32%
3. How important to you are the opportunities for gamification awards in INNOVATE?	39%	13%	48%
Cash is Critical for Gamification Rewards (2 items)			
1. People exert much more effort to obtain cash prizes than they do for social recognition awards in programs such as INNOVATE.	18%	46%	36%
2. Programs like INNOVATE are much more successful when they offer large cash prizes as rewards for innovation.	18%	36%	46%
Understanding of Gamification (3 items)			
1. The standards for gamification awards that are available in INNOVATE are clear.	27%	32%	41%
2. I know what I need to do to receive awards in INNOVATE.	23%	41%	36%
3. I have a real understanding of the basis for gamification awards in INNOVATE.	23%	41%	36%
Ability (2 items)			
1. I have been quite able to exert the effort needed to win gamification awards under INNOVATE.	14%	55%	32%
2. How difficult is it for you to do the things that lead to gamification awards in INNOVATE.	36%	36%	27%
Equity of Gamification Rewards (4 items)			
1. Considering the effort I have put into INNOVATE, I am happy with the awards I have received.	23%	36%	41%
2. The gamification awards I have received in INNOVATE are fair considering what other people have received.	9%	55%	36%

Table 2
Gamification and Program Variables

Variable	# of Items	Mean	S.D.	Correlations with:		
				# of Gamification Awards	Expectancy	Attractiveness of Rewards
1. # of Gamification Awards	9	2.35	2.44	-	.72***	.41*
2. Expectancies	5	4.55	1.23	.72***	-	.70***
3. Attractiveness of Rewards	5	4.14	1.48	.41*	.70***	-
4. Level of Use of INNOVATE Software	1	4.30	1.97	.34	.16	.25
5. Competence with INNOVATE Software	1	4.83	1.88	.20	.10	.27
6. Satisfaction with INNOVATE Software	9	4.59	1.47	.47*	.52**	.59**
7. INNOVATE Effectiveness: Innovation	9	3.97	1.31	.59**	.65***	.73***
8. INNOVATE Effectiveness: Efficiency	4	3.96	1.20	.56**	.68***	.78***
9. Cash Rewards are Critical	2	4.41	1.31	.44*	.69***	.67***
10. Understanding of Gamification	3	4.23	1.52	.60**	.82***	.79***
11. Ability	2	4.02	1.35	.56**	.83***	.61***
12. Equity of Gamification Awards	4	4.45	1.47	.66***	.89***	.77**

Significance of correlations (1-tailed): *p ≤ .05, ** p≤ .01, *** p ≤ .001