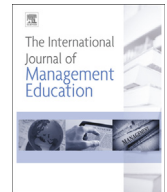


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Research notes

Enhancing workplace motivation through gamification: Transferrable lessons from pedagogy



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ABSTRACT

Gamification is a term that has gained currency over the last few years. Gamification refers to the application of characteristics from digital games into non-gaming contexts. The concept under other names has attracted the interest of scholars for more than twenty years, due to its possible value in motivating students to learn. However few scholars have investigated ways in which the concept can be applied to building intrinsic motivation in employees. This is a particularly important area for research, as new generations who have been brought up with computer games become the dominant cohort within the workforce. This paper summarises the literature on game playing as a motivator, and outlines a variety of studied motivational responses to gamified systems as evoked from different categories of users, including students, consumers and employees. The paper goes on to discuss how the concept of gamification may interact with various theories of motivation, including Four-Drive Theory and Self-Determination Theory, and makes recommendations as to which gamification elements are relevant to the 21st century workplace, and may be effectively implemented in such a way that they can help to achieve personal and organisational objectives.

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1. Introduction

This paper explores the potential benefits of game application for improving workplace motivation. The scope of this article covers gamification research in relation to workplace outcomes and, in particular, its influence on intrinsic motivation. The term gamification was coined in 2002 by UK-based game designer Nick Pelling, who used the term to refer to the application of game-like accelerated user interface design to make electronic transactions more enjoyable and faster ([Mobile Content, 2011](#)). Since then, the term has acquired a broader meaning, and is now generally considered to refer to the application of characteristics and design techniques from games into non-gaming contexts ([Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011](#)). Gamification concepts and techniques are now used primarily to engage and motivate their 'players' to behave in a particular way, and have developed a history of successful implementation in the pedagogical context through 'serious games' ([Sawyer & Smith, 2008](#)), experiential learning theory ([Kolb, Boyatzis, & Mainemelis, 2001](#)) and more recently through

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Gamified Learning Theory (Landers & Landers, 2015). From a pedagogical perspective, a learner helps construct their learning from decisions and successes or failures in the game; further iterations allow practice and improvements to embed learning through practice (Narang & Hota, 2015; Squire, 2005). Games can be extended to include others throughout these processes. Games have also been found to be useful as motivators in contexts other than education. For example, Nintendo's Wii and Konami's Dance Dance Revolution have been widely used to motivate sedentary people to be more physically active (Yim & Graham, 2007). Nonetheless, gamification has detractors (such as those who feel this area is a fad or gimmick) as well as advocates.

Despite the spike in theoretical interest surrounding gamification (Harman, Koohang, & Paliszkievicz, 2014), literature support for applying the motivational properties underpinning an individual's desire to play games to the workplace context is somewhat sparse. Thus it appears that advocates of gamification have to some extent 'jumped the gun' in making recommendations without due consideration of the differing personalities and psychological mechanisms, which alter the subjective experience of games and gamification phenomena (Mekler, Brühlmann, Tuch, & Opwis, 2015). A number of earlier gamification studies were methodologically flawed by investigating the impact of multiple game elements at once, obscuring the extent to which individual elements exerted their effects on motivation and resultant performance (Hamari, Koivisto, & Sarsa, 2014). As a consequence, more recent studies have tended to pick-and-choose a small number of isolated gamification principles (e.g. team competitions, leader-boards, point systems, badges) and gauge employees' motivational responses to them (e.g. Meder, Plumbaum, & Hopfgartner, 2013), but have detected a disconnect between gamification principles, and motivational and performance outcomes. Nonetheless, understanding and harnessing the unparalleled motivational force that drives people to immerse themselves in games for hours on end could, as Nelson (2012) points out, give a tremendous boost to productivity, as gamification has already demonstrated success in motivating particular consumer behaviours, such as survey completion (Mavletova, 2015), the accessing of new websites (Hsu, Chang, & Lee, 2013), and mobile 'app' use (Hamari & Koivisto, 2015).

Despite that detractors maintain gamification is merely a gimmick or fad; preliminary findings clearly suggest that games and gamified systems have motivational potential for workplaces. To explore how gamification strategies can benefit workplace motivation, this paper first discusses the complex motivational processes underpinning gameplay, and how elements of gamification are transferable to task fulfilment at work. The paper then reviews the past research on gamification principles to present a balanced account of motivation, and how it interacts with work and play. The paper then explores some of the most frequently implemented gamification elements and draws parallels between these and the workplace. This leads to a discussion on how gamification can be extended to improve productivity. This discussion includes recommendations as to how gamification principles may be employed more holistically in 21st century organisations. Prior to the summary, we detail the ramifications of these recommendations for practitioners and theoreticians, the limitations of this paper, and discuss challenges for consideration in future research.

2. Motivation in gameplay and work

2.1. Intrinsic and extrinsic motivation

Hamari and Koivisto (2015) explain gamification as the use of technologies to simulate game characteristics with the potential to motivate 'players'. Motivation exists when a person is energised or moved to perform a task or behave in a particular way (Ryan & Deci, 2000). Motivation can vary in its level, intensity, or orientation. Motivation theories including early need theories (Herzberg, Mausner, & Snyderman, 1959; Maslow, 1943; McClelland, 1961), more contemporary theories such as Expectancy theory (Vroom, 1964), Four-Drives theory (Lawrence & Nohria, 2002), Equity theory (Adams, 1963), and many other theories and models (e.g. Goal Setting theory, Locke & Latham, 2002; Self-Determination theory, Ryan & Deci, 2000) will be familiar to scholars in the area. In some respects, these theories have competing and overlapping dimensions that may or may not apply in different circumstances. However, a basic and important distinction in any setting involves differentiating between intrinsic and extrinsic motivation. Intrinsic motivation occurs when a task is inherently interesting or enjoyable, whereas extrinsic motivation occurs when performing the task is a means to attain a desirable outcome (Ryan & Deci, 2000). Extrinsic motivators, by their nature, tend to be effective only until the desirable outcome has been achieved. For example, if a person is motivated to work hard at a particular task by the expectation of a promotion, as soon as that promotion has been achieved, there is no longer the motivation to work hard. On the other hand an intrinsic motivator – such as inherent interest in an activity – will continue to motivate a worker to work hard indefinitely.

In terms of gamification, this presents two avenues for motivational influence, as players can be awarded an extrinsic prize or benefit, or can satisfy an intrinsic want or need – such as the desire to succeed – as a result of game elements. Intrinsic motivators tend to be a function of the design of the job, and the values or interests of the worker, whereas extrinsic motivators tend to have little to do with job design. Engaging intrinsic motivation has benefits to the work setting because these motivators are more stable over time and require less management intervention, whereas extrinsic motivators require closer management scrutiny as affective motivational content escalates over time (Stock, Oliveira, & von Hippel, 2015). This appears in relation to salary increases; while the promise of a salary increase may be a motivator, the reality of a pay rise rarely is, as the worker adjusts their expectations and quickly sees their new salary as the norm.

This distinction between extrinsic and intrinsic motivation basically characterises the distinction between work and play. Work is typically perceived as being externally regulated and motivated by extrinsic incentives such as those described,

whereas intrinsic motivation triggers playful actions and the consumption of entertainment such as games (Hartmann & Klimmt, 2012). There is well-documented evidence to suggest that extrinsic and intrinsic motivation are not additive (e.g. deCharms, 1968; Ma, Jin, Meng, & Shen, 2014), as the promise of extrinsic reward can dampen pre-existing intrinsic motivation through what Osterloh and Frey (2000) call the ‘crowding-out effect’. Therefore, organisations trying to illicit behaviours from employees that are typically intrinsically motivated (e.g. creativity, knowledge transfer), or are simply looking to increase productivity through means other than the allocation of pay or bonuses, need alternative strategies.

We referred earlier to the plethora of motivation theories. These theories interact with gamification elements. Take as an example, the Four-Drives theory of motivation (Lawrence & Nohria, 2002), which suggests that all humans are subject to four basic drives; to acquire, to defend, to bond, and to comprehend (Lawrence, 2011). The drive to acquire propels people to obtain physical goods such as food and shelter, intangible things such as travel and entertainment, and social things of value such as status. The drive to defend is rooted in the basic fight-or-flight response, but manifests in the need for financial and job security, resistance to change, and a sense of vulnerability in uncertain times. The drive to bond motivates people to build and retain family and kinship ties, it promotes a sense of belonging to and pride in one’s work, and is fulfilled through membership to networks, clubs and associations. The drive to comprehend encompasses the need to understand and make sense of the world around us, the desire to make meaningful contributions, and the desire to grow, be challenged and learn. This theory encapsulates many elements recognisable from other theories, for example, achievement, affiliation, growth and security to name a few.

Further evidence of motivational links can be found in various other literatures. The anthropology and sociology literature, for example, suggest games have long been an important aspect of learning for peoples from many backgrounds, and interactive learning has long been recognised as an important component of instructional design (Winn, 2002). The increasing use of computer games over the last two decades has sparked interest into their use as educational tools (Rieber, 1996).

While it is acknowledged that the primary purpose of game playing is entertainment, the basis of any game involves working within a set of rules to achieve an objective; this involves engagement, learning and problem solving. Consequently, there is much in common between playing a game and accomplishing a work related task. Perhaps the only difference is that the former is usually seen as ‘fun’, whereas the latter is often seen as ‘work’, the implication being that the two are mutually exclusive. While Prensky (2002) argues that younger generations no longer accept the separation of fun and learning, it is likely this expectation goes beyond this age group given the strong uptake of digital technologies, particularly in workplaces.

2.2. The motivation behind gameplay

Games, despite their absence of a clear practical purpose, have powerful intrinsically motivating properties (Sellers, 2012), properties that motivational theorists are still attempting to understand. While there are a number of competing theories attempting to explain the motivations behind gameplay – such as Yee’s (2006) motivations for online play and Sherry, Lucas, Greenberg and Lachlan’s (2006) Six video game uses and gratifications – Self-Determination Theory (SDT) and its sub theory, cognitive evaluation theory (CET, Deci & Ryan, 1985), have emerged as having the most explanatory power whilst remaining compatible with a number of more recent complementary models (such as Mood Management theory). CET emphasises that there are three necessary but not sufficient preconditions that facilitate the existence of intrinsic motivation: *autonomy*, the experience of acting willingly in congruence with one’s goals and needs; *competence*, one’s belief in their ability to control the environment around them; and *relatedness*, the existence of the functional, supportive relationships needed for goal attainment. Both SDT and CET underpin recent Mood Management theory literature on gameplay motivation. In particular, Mood Management theory postulates that individuals adjust their exposure to external stimuli (in this case games) to maximise gratification and minimise aversion (Zillmann, 1988) and to do so requires the preconditions outlined by CET.

Mood Management theory suggests that individuals are hedonically motivated to seek out relaxing forms of entertainment when they are physiologically and affectively over-stimulated, and conversely, they seek exciting entertainment when under-stimulated, or bored (Zillmann, 1988). In order to produce these desired physiological and affective states, designers embed games with mechanics, which when combined, evoke reactions from players within different timeframes. At the most instantaneous level, players react positively to bright colours, flashes, moving images and rhythms, while in the long term, players are motivated by their own self-selected goals, satisfying the needs and drives specified by Players’ Experience of Need Satisfaction (PENS, Przybylski, Rigby, & Ryan, 2010).

While mood management theory suggests that exposure to games and entertainment is understood in terms of how it helps regulate arousal/satisfy hedonic needs (for example, how it restores a deficit like boredom), PENS provides new insights by suggesting that people continually seek need satisfaction and thus do not just consume entertainment in order to restore hedonic deficits, but also in the unending pursuit of need satisfaction. The CET, which encompasses the above three motivational conditions, dictates Players’ Experience of Need Satisfaction (PENS) and thus game selection and ongoing play (Deterding, 2015).

3. Gamification elements

There are a dearth of empirical studies tying gamification principles to improvements in motivation and subsequent performance in the workplace. An extensive literature search was undertaken using the key terms ‘gamification’ and ‘work’

with a focus on peer-reviewed papers. There is an abundance of non-scientific articles (such as magazine articles) in the area of gamification but these papers often lack the rigor afforded to peer-review articles. Of the peer-review articles, many suffer from concerns not uncommon to new research areas (such as small sample sizes, measures with poor psychometric properties, and most are descriptive studies). Despite this, a meta-analytic study has been conducted in this area by Hamari et al. (2014). These researchers found that, based on 24 empirical studies directly in the area of gamification, the effectiveness of gamified interventions largely depended on the context of their application and intended users. They found that studies conducted in education/learning contexts indicated primarily positive outcomes as a result of gamification, while the studies in an intra-organisational setting (for example, IBM's Beehive social networking service, Farzan, DiMicco, Millen, Dugan, Geyer & Brownholtz, 2008) revealed positive effects that were typically short-term. Additionally, a number of studies have detected weak or negative directional links between gamification principles and motivation. Overall, these findings raise a number of questions about the real utility of gamification in the workplace. Nonetheless, managers are already embedding gamification into their workplaces through both the holistic inclusion of *game-based learning* and individual gamification elements.

The terms game-based learning (GBL) and serious games are often used interchangeably in the literature (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012). Whereas the GBL focus is to facilitate learning, serious games apply more broadly to utilitarian games focused on behaviour change that can assist in remediating outcomes in business and industry, marketing, and healthcare, as well as education (Sawyer & Smith, 2008). For example, virtual simulations have long been an effective strategy to teach people how to react in various situations and give the opportunity to rehearse and practice without associated costs and risks; many trainee pilots now use flight simulator games to review their performance after a flight (Perryer, Scott-Ladd, & Leighton, 2012), while surgery simulators are used to train medical professionals. The game technology allows trainees to set up similar conditions and to view the cause and effect of a range of different simulated responses (whether it is an aircraft or surgical procedure) from a number of angles. Another example is taken from military and police training, where shooting simulations aid in the development of skill and accuracy (Saus et al., 2006).

A number of scholars in tertiary institutions embed gamification in teaching units in the hope of strengthening student and personnel engagement with course content and assignments (e.g. Coccoli, Iacono, & Vercelli, 2015). Landers and Landers (2015) found that the use of leader-boards increased the amount of time students of an organisational psychology unit spent interacting with their group assignment: the creation of an online wiki page. Similarly, the use of a scoreboard and the framing of a task as a 'hunt for clues' increased students' intrinsic motivation to perform in a System Engineering class (Banfield & Wilkerson, 2014). However, conflicting findings were observed in a study by Hanus and Fox (2015), who found that the inclusion of a "gamified curriculum" which included leader-boards and badges resulted in reduced satisfaction, empowerment and motivation when compared to the non-gamified class. In addition, intrinsic motivation was also shown to mediate the relationship between course type (gamified or not) and students' final exam scores, which on average were lower in the gamified class. Nonetheless, games offer the opportunity to practice ...

"... problem identification, hypothesis testing, interpretative analysis, and strategic thinking – [skills that] more closely align with the new economy than does the 'factory' model of curriculum that privileges following directions, mastering pre-defined objectives, performance on highly structured tasks, and intellectual obedience"

(Squire, 2005, p. 5).

This makes for an interesting conflict, because on the one hand, gamification aids the development of usable skills, but the inclusion of extrinsic motivators (such as leaderboards and badges) may well 'crowd out' intrinsic motivators and interfere with the desired outcomes.

Serious games and gamification also serve as effective tools for engaging consumers. The video game America's Army, released in 2002, was branded as a strategic marketing tool, designed to allow young Americans to virtually explore the aspects of the army (Nieborg, 2004). Further, Flatla, Gutwin, Nacke, Bateman, and Mandryk (2011) found that turning the tedious process of calibrating interactive systems (such as the ratio of controller to cursor movement on a screen) into a game, made the task more enjoyable for users. Gamification elements are also being embedded in other consumer-focused, non-game contexts. Mobile fitness apps such as Fitocracy have engaged users via point systems, motivating users to do more repetitions and run more miles in order to receive more points (Hamari & Koivisto, 2015). Virtual badges have increased user knowledge sharing via social media websites such as Stack Overflow (Anderson, Huttenlocher, Kleinberg, & Leskovec, 2013), and idea generation competitions have flourished through the embedding of point exchange systems (Scheiner, 2015). Additionally, the Romanian affiliate marketing network, 2Parale increased affiliate and advertisers' engagement to generate more leads and increase sales through a series of monthly 'challenges' involving avatars, leader-boards, points and quests (Salcu & Acatrinei, 2013).

Despite the increasing rollout and enthusiasm surrounding gamification principles for organisations and consumers, studies have detected a number of issues associated with their effects. For example, players interacting with a gamified system constituting a single, isolated task, generally experience little or no increase in intrinsic motivation and only a marginal improvement in performance (Mekler, Brühlmann, Tuch, & Opwis, 2015). Additionally, a number of the cases described, especially in the intra-organisational context (Farzan et al., 2008), found that the benefits of gamification were often short-lived, except for a small number of competitively inclined employees. An example of this intra-organisational context was the 'opt-in' social networking IBM website called Beehive. A point-system, levels and leader-board were used to increase users' frequency of content creation to maintain personal and professional relationships (Farzan et al., 2008). An

evaluation of this program found that employees who were not on the top-ten leader-board frequently lessened their interaction with the system after attaining the status of 'Busy Bee', while those who were on the leader-board engaged with the system with the primary motivation of maximising their accrual of points (Farzan et al., 2008) suggesting that how a program is implemented is fundamental to its long-term success, and that there are as yet unresolved problems for the practical take-up and motivational engagement of gamification in workplaces.

3.1. *Non-voluntary, forced fun and cynicism*

One problem is that imposing 'play' on workers runs contrary to the spontaneity and self-determination underpinning play. Unlike spontaneous 'bottom-up' games, such as the optional involvement in a fantasy football league, gamification is imposed from the 'top-down' as a means to reinforce managerial goals. Thus, management decide which game dynamics employees will perceive as fun and introduces these, usually without employee consent (Mollick & Rothbard, 2014). Consent is not agreement to engage in a game (as the game, being synonymous with the 'work', is mandatory), but constitutes workers' active cooperation with managerial goals, as opposed to passive acceptance or resistance in an activity (Burawoy, 1979; Mollick & Rothbard, 2014). Indeed, laboratory and field studies found that worker consent produced a significant increase in positive affect, whereas non-consent decreased positive affect and marginally decreased job performance (Mollick & Rothbard, 2014). Hence, participating in a game for extrinsic reasons, like maintaining job or pay security, is less likely to gain productivity improvements than outcomes stemming from intrinsic motivation.

Mekler, Brühlmann, Tuch, & Opwis (2015) conducted a study on the effect that adding points, levels and leader-boards would have on the quality and quantity of participants' responses to an image-tagging task. Although these elements increased the quantity of tags produced, they did not reflect participants' reported intrinsic motivation, need satisfaction or tag quality, suggesting they functioned merely as extrinsic incentives. Mekler, Brühlmann, Tuch, & Opwis (2015) questioned whether this occurred because the activity was framed as a "task" rather than a game, a problem also identified by Lieberoth (2015), or was due to the task's absence of 'juicy' (exciting) feedback. Overall, this questions whether some positive findings have been the result of a novelty effect and are short term, and whether gamification serves as a sustainable means of enhancing intrinsic motivation.

On the other hand, a noteworthy example of how game theory can be used for skill development comes from the IT literature, in which Narang and Hota (2015) describe how learning can be enhanced through team members battling one another, to gain an advantage in securing or threatening a network: a scenario in which some participants play the role of malicious actors. The unpredictability of tactics and responses develops both the defenders' and attackers' ability to respond or find new pathways, subsequently enhancing knowledge, enriching the understanding of potential risks and helping participants to develop responses.

3.2. *'Player' differences*

As highlighted previously in the section on motivation, individual differences also have a bearing. Recent studies suggest that differences in the perceived legitimacy of games, as well as employees' perceptions surrounding the role of gamification itself, play a part in determining the effectiveness of gamified systems (Karl, Peluchette, Hall-Indiana, & Harland, 2005). Some employees may in fact feel disengaged if employers start to gamify many aspects of work. In Meder, Plumbaum and Hopfgartner's (2013) study of perceptions surrounding gamification, they found that employees who believed that a gamified bookmarking system would serve as intrinsically motivating interacted more frequently with that system, while the large majority who were not convinced that a gamified system would be intrinsically motivating interacted with the system infrequently, indicating a relationship between the perceived and actual role of gamification and further highlighting the importance of individual differences. Similarly in the studies by Mollick and Rothbard (2014) previously discussed, it was found that the extent to which employees embraced games in their lives outside of work was predictive of their consent to gamification, as these employees were more likely to view gamified work as cognitively legitimate, and have transferrable skills facilitating their understanding of rules and game dynamics.

The foundation for peoples' motivation (or lack of) to play a particular game is a combination of two things: general action tendencies (which include tendencies such as competitive, achievement, challenge, risk) and self-efficacy (Hartmann & Klimmt, 2012). Prior studies indicate that the effect of competition introduced to work through gamified elements such as leader-boards may influence populations differently depending on their achievement orientation (Harackiewicz & Sansone, 1991). While it was found that players of an exercise game (exergame) with high-achievement motivation performed more effectively in a competitive setting, players with low-achievement motivation experienced a more negative mood, evaluated the exergame more negatively, were less intrinsically motivated (as indicated by both psychological and behavioural measures), and were less self-efficacious (Song, Kim, Tenzek, & Lee, 2013). In addition, gamification has also attracted criticism from some, who suggest that introducing competition unnecessarily, will not only fail to engage non-competitive personalities (as was found in the case of IBM employees' use of Beehive), but will undermine the cooperation required for knowledge workers to solve complex business problems (Spencer, 2013).

On the one hand, scholars have proposed a number of industry-specific gamification recommendations that are yet to be implemented in real organisations, such as the gamification of manual production tasks through digital user interfaces reminiscent of the classic game Tetris (Korn, 2012), and cybersecurity skills training, where employees play as avatars with

different motivations to infiltrate digital security systems. These technology-based activities are particularly suited to gamification, but this may not be the case for other types of organisational tasks. Overall, the synthesis of gamification research suggests that employees' responses to gamification vary considerably depending on their attitudes towards gamification, the purpose and relevance of the game, the type of game and individual motivations and drivers. Despite a theoretical overlap, the gamification and game-based learning literatures have grown apart (Landers, 2014), but analysing the intersection should provide insights into ways gamification principles may be applied in the workplace to motivate behaviour.

3.3. Integrating the gamification literature and motivation theory

Based on the acknowledged challenges and the insights afforded to us by the studies previously explored and previously discussed, we offer an integrated view of these findings, connected to motivational theories and with an inclusion of situational factors that may be useful to managers looking to implement gamification in their workplaces.

Gamification elements that encompass a social element are generally experienced by users as more enjoyable and engaging than 'single-player' elements (Hamari & Koivisto, 2015; Scheiner, 2015). These social elements are likely to be experienced as even more motivating when players are able to compare themselves to contextually relevant others (Ruhi, 2015), as this aids them in satisfying their need for relatedness, and in making more accurate self-evaluations.

Gamification that promotes cooperation may be more effective than that which emphasises competition. Gamification with the intention of motivating one-on-one competition can be experienced as unengaging and even demotivating by some, presenting the subsequent risk of reduced performance and engagement (Farzan et al., 2008; Song et al., 2013). Where competition is emphasised, localised, team-based competitions that unite players against a common opponent, are likely to be more effective, as working within a team generates healthy competition and social connection amongst the work group. Additionally, individuals generally do not want to be a weak link within their workplace, so this also stretches employees to compete and contribute.

There is benefit in gamification that allows for the satisfaction of multiple needs via a single game. Most workplaces now make extensive use of teams. Apart from the practical advantages of covering absences, and the synergies that can be gained by people bringing diverse experience and skill sets to a job, teams provide a social dimension to work. Continuing on from the previous point, utilising team-based competition assists players in satisfying their drive to bond with their teammates, which enhances an organisation's culture, while simultaneously satisfying players' drives to defend. This has the added advantage of appealing to players with varying achievement orientations.

Managers can also satisfy employees' drive to defend through the performance-management and resource-allocation process levers, ensuring fairness and transparency in the workplace (Dickey, 2006; Garris, Ahlers, & Driskell, 2002; Perryer, Scott-Ladd & Leighton, 2012). Games subject all organisational 'players' to the same systems and rules, with similar outcomes for similar inputs. Gamification concepts can be used to increase the range and nature of outcomes available to employees. For example, it is not uncommon for the budget of a manager or section to be varied based on performance. A reward system lever appeals to employees' drive to acquire and can be gamified through elements such as points, awards, leader-boards levels or badges. Using information technology, this can be done immediately, or perhaps weekly, rather than annually, through the allocation of credits or points, rather than through a budget allocation. The awarding, spending and exchanging of points or credits gained through completion of tasks and the quality of task completion is a game element that is available to business now, but to the best knowledge of the authors is rarely, if ever utilised. Such elements are critical, as they allow employees to know where they are in comparison to others in the workplace. They also aid in goal setting by providing clear objectives with milestones (e.g. the goal of getting to the 'next level'), while at the same time providing feedback on performance.

Gamified systems should align with the already existing tasks and objectives in the organisation. They should have elements that stretch participants' knowledge, skills and abilities, but should avoid too high a learning curve that could lead to demotivation. Adding gamified tasks to employees' responsibilities, while at the same time expecting them to invest significant time in learning a game is unlikely to enhance intrinsic motivation (Hanus & Fox, 2015; Mekler, Brühlmann, Tuch, & Opwis, 2015), but likely to evoke cynicism and resentment, particularly if the participants don't see the value of the game and are in that sense 'non-consenting' (Mollick & Rothbard, 2014). Extrinsic incentives such as points and badges should serve less as rewards themselves, but be recognised as symbols of rewards that run parallel to already existing tasks and goals that have intrinsic value. This way, points and badges serve as indicative reminders of past goal achievement, meaning there is less chance employees will try to cheat the system, engage in behaviours that maximise points for minimal or selective contributions, or emphasise quantity over quality in their work. An example of how this already occurs in some workplaces is the Six-sigma levels or belts (Perryer, Scott-Ladd & Leighton, 2012). Badges, whether real or virtual, acknowledge the expertise of the participant, and serve to inform other players of that level of expertise. Similarly, leader-boards act as reward and recognition tools, as employees seek to strengthen their position relative to their peers.

Opt for gamification strategies that will achieve long-term organisational goals, as well as employees' long-term, self-selected goals. Gamification strategies and outcomes that extend beyond a single task allow for more than just instantaneous affective and physiological gratification. Self-selected, personally relevant goals, create a more long-term and subjectively derived source of meaning for a player, rooted in cognitive, emotional, and social outcomes (Oprescu, Jones, & Katsikitis, 2014; Vorderer, Bryant, Pieper, & Weber, 2012). Long-term goals can be satisfied in more than one way, allowing players multiple means to achieve their self-selected, but organisationally desirable objectives. This aids in the achievement of strategic

objectives, without stifling an employee's sense of autonomy, bolstering intrinsic motivation and having ramifications for the overall job design.

Holistic and immersive environments with 'juicy' feedback are generally more effective than motionless, in-browser content. Regular feedback and checking mechanisms should be inbuilt in gamified systems. The Job Characteristics Model proposed by Hackman and Oldham (1980) stresses the importance of feedback as a means of making jobs more meaningful for employees and 'Real-time' feedback, built into a job through instantaneous visual and aural indicators can serve as a powerful perceptual hook for players (Vorderer, Bryant, Pieper & Weber, 2012). For example, recent studies have emphasised the importance of feedback that is 'juicy' (Deterding, 2015; Mekler, Brühlmann, Tuch, & Opwis, 2015; Schell, 2014), i.e., feedback that "... does not simply communicate information ... but also gives the player an immediate, pleasurable experience ... enhancing the experience of feeling competent, or clever when playing a game" (Juul, 2012, p. 45). Real-time feedback is more immediate than that provided through performance review or monthly sales information, and also serves to either positively reinforce appropriate behaviour, or facilitate learning and adjustment when behaviour is negative (Machin, 1999; Perryer, 2004; Rouiller & Goldstein, 1993; Tracey, Tannenbaum, & Kavanagh, 1995).

4. Discussion

At the core of gamification strategies is the assumption that if organisations make the completion of a task synonymous with the playing of a game, employees can be intrinsically motivated by the challenge to invest a sustained effort in their work, similar to as they would when playing a challenging game. However, discussions on workplace gamification have frequently overlooked the fact that people will not hesitate to toss aside a game that frustrates or bores them. Frustration and boredom can happen in the short-term if a game is misaligned with a person's level of physiological arousal (i.e. the game is too stimulating or boring), and over the longer-term if a game is not perceived to be meaningful, or does not satisfy deficient needs. Therefore, just as individuals vary in their satisfaction of needs, they also vary in their drives to seek out these needs. The preferred choice of game and willingness to persist with a game thus depends on how well the game elements and game mechanics satisfy these vastly different needs.

An exciting project that has integrated a number of the discussion points and recommendations provided is a workplace game called Taskville, which has already received positive reactions from early users (Nikkila, Linn, Sundaram, & Kelliher, 2011). The game is a visual representation of a work unit's completed tasks in the form of a growing virtual city displayed on a public screen. Given that players can log any completed task via the game's web interface, employees can achieve their self-selected cooperative or competitive objectives, (e.g. expanding the city, becoming mayor by contributing the most hours of work, becoming bigger than the cities of other work units), through whatever tasks they have available to complete and choose to work on at any given time. The game allows for the satisfaction of cooperative drives, as the completion of collaborative tasks results in specific structures being parachuted down into the game world (e.g. parks and bowling alleys), each varying in size depending on the number of collaborators involved in the project.

From a practical perspective however, organisations need to recognise that employees are not avatars who respond according to script. Engaging in game playing runs the risk of disassociation that contributes to a raft of problems. At the less extreme end, gamification may contribute to time wasting, or raised expectations from those who develop a higher level of competence that others struggle to emulate. At the more extreme end of the continuum, it may lead to learning outcomes that are totally unrelated to the reality of the work. In addition, gamification may not suit some learning styles, so it needs to be combined with other learning strategies – such as providing the time for reflection, experimentation and practice – in ways that allow individuals to develop and build their skills and understanding (Kolb & Kolb, 2009).

In summary, there are a variety of game elements that are already being implemented in non-game contexts with the aim of improving employee motivation to achieve organisational objectives. However, in light of a number of recent studies detecting little or no connection between gamification elements and motivation (and in some instances, a *demotivating* effect), a number of scholars have contended that littering organisations with gamification components is no substitute for thoughtful, meaningful game design and an organic 'pool' of intrinsic motivation within the workplace. More research is required to determine whether gamified work is still effective when employees' escapist tendencies and self-efficacy are examined as potential moderating variables. It is abundantly clear that some play games for escapist reasons or due to low self-efficacy in other aspects of their life, as play helps to instil a sense of mastery that is lacking elsewhere. Given that gamification has the potential to increase motivation by providing employees with experiences that satisfy universal psychological needs, there would be value in examining its effects on the performance and need satisfaction of the less self-efficacious.

There is starting to emerge some evidence that gamification has the potential to increase motivation by providing employees with experiences that satisfy universal psychological needs. However the way that games are introduced and implemented into the workplace appears critical to their acceptance and success. Computer games can make a significant contribution to transparency and fairness in the workplace. They can provide greater innovation in problem solving and facilitate and improve mastery and recall. However to achieve this, they need to be designed and implemented in alignment with long-term strategic objectives, they need to accommodate different learning styles and allow mastery at an individual's pace and any skill development should recognise the importance of performance.

5. Conclusion

A number of scholars have predicted the growth of a billion-dollar market in workplace gamification, and that implementing gamification principles will one day constitute a change in how work is conceptualised (Burke & Hiltbrand, 2011; Smith-Robbins, 2011). While there is now a degree of evidence to support the implementation of game mechanics to motivate employees to complete their normal, day-to-day jobs, it is clear from the literature review that gamification is not suited to every context and situation, but does have tremendous potential where it can be implemented in a strategically aligned way that engages employee motivation. Thus, taking a more holistic and longer-term view to understand the motivations underpinning gameplay offers the potential for productivity and job satisfaction. A major limitation in the current literature surrounding the implementation of gamification is the heavy reliance on learning strategies and the educational literature, where the success of gamification is well established. As our review of the literature identifies, this does not always translate into practical applications in work environments that have a different outcome focus, namely productivity. While our comments draw on practical and theoretical application, combining gamification with motivational techniques requires further research from theoreticians and greater adaptation and innovation among organisations.

These needs are best illustrated by comparing workplace gamification with the challenge of designing a subscription-based online game: there is a need to create "... a play experience that is novel and appealing, it must be one that retains its attractive quality over a period of months or years rather than the tens of hours typically considered for a game experience" (Sellers, 2012, p. 17). This also requires an understanding of how individual-level psychological and motivational differences influence the effectiveness of gamified interventions. Gamification can accommodate different learning styles and pace, and allow individuals to achieve mastery at their own pace, but the organisation's task is to ensure the game design, elements and goals move beyond basic information to achieve innovation, through motivating individuals to problem-solve and achieve strategic outcomes. The question for managers is essentially the same as that raised by Garris, Ahlers & Driskell (2002): Which characteristics of games are relevant to the workplace? Three characteristics immediately come to mind; namely learning, rewards, and individual and group performance, as well as that which motivates employees to achieve these.

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