

# PRODUCTIVITY GAMES

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**How Serious Games at Work can Increase Productivity, Save Money, and Engage Workers**

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# Work or Play?

## Level 1

*Life is a game in which the rules are constantly changing; nothing spoils a game more than those who take it seriously. – Quentin Crisp*

### Introduction

“Playing games at work” has a negative connotation. Whether it’s “playing political games”, “playing around on the job”, “playing games instead of working”, the idea of games in the workplace has never been viewed positively.

For the next several chapters, if not from here on in, would you suspend that notion, and consider the possibility that a class of games could exist that would align with work and actually improve productivity?

Productivity Games are a sub-category of Serious Games, and are typically video games that are designed to increase employee productivity and get real work done through the playing of a game.<sup>1</sup>

Humans begin life without the ability to discern work from play. Douglas McGregor’s Theory Y espouses that work is as natural as play. Children who build a fort or move rocks in the local stream do not question the subtleties of terminology. How about grade-schoolers arguing on the playground about their times tables or an infant trying to roll over for the first time?

*Play is elemental to being human. All of us, when tiny children, tossed colored balls around, or watched lights dance before our eyes, or marveled at the patterns on our mothers' skirts. All of us once threw a pebble, a stick or a ball; all of us, sooner or later, enjoyed playing with a sibling or a friend, hopscotching down a pavement, running along a dirt track.<sup>2</sup>*

Corporations must juggle numerous agendas these days. Global competition, the pressure of outsourcing, a distressed economy, and a less educated and seemingly

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<sup>1</sup> [http://en.wikipedia.org/wiki/Productivity\\_games](http://en.wikipedia.org/wiki/Productivity_games)

<sup>2</sup>

[http://www.time.com/time/specials/2007/article/0,28804,1815747\\_1815707\\_1815705,00.html](http://www.time.com/time/specials/2007/article/0,28804,1815747_1815707_1815705,00.html)



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less motivated workforce that combine to create a situation where businesses must perform well above their historic levels.

Middle managers who aspire to foster innovation face a daunting challenge. The public failures of well known financial institutions, the doubts of Main Street about Wall Street, and the 2008 evaporation of 401k balances have led most workers to be skeptical, if not downright distrustful, of any new initiative. The hope is that this book provides a set of idea-generating guidelines to show how the use of games can make progress and help lead organizations towards an era of increased creativity and innovation.



*Figure 1 - Games at Work – Scrabble benches at Bloomberg London*

Existing management techniques do not account for changes - in technology and generational differences in employees.

Harnessing the fundamentals of play by deploying games at work helps direct technology, management, and workers in ways that can draw upon the strengths of each.

*[Play] helps children developmental and motor skills; improves their creativity, logic, and problem-solving abilities; and even enhances self-esteem., says Professor Gordon Burghardt of the University of Tennessee in his book, The Genesis of Animal Play. But play isn't just for kids. It brings us all together and allows us to put the rest of the world on pause while encouraging us to laugh. We need that play*

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*ourselves. The typical adult now works nine more hours per week than our parents did – that's more than another full day on the job.*<sup>3</sup>

Historical victories sometimes lead to an arrogance that does not accommodate or acknowledge new methodologies, techniques, or practices. Productivity Games have the potential to be the 21<sup>st</sup> century equivalent of Six Sigma, Lean Manufacturing, TQM, or the assembly line – changing the way people get work done.

*“The next dominant communications medium in America is undeniably even more potent than TV. It presents our brains with beguiling tasks. It commandeers our circuitry. And we can actually issue commands back.*

*That's the promise and the terror of this new form. We can interact with its entertainments. We can summon new layers of noise and color. The American video game is enabling us to live out deeper escapist fantasies than TV ever has. Right now we're mainly using this new medium to imagine that we are space aliens and NFL quarterbacks and mercenaries with hearts of steel. But it doesn't have to be this way.”*<sup>4</sup>

The hope is that sometime during your reading of this book, you experience the “cognitive snap” about using games at work to improve productivity. David Perkins describes the process of “getting it”:

*The breakthrough comes rapidly, a kind of falling into place, a cognitive snap. Not much time separates the precipitating of the event from a solution, even if the details remain to be checked. This Archimedes' classic “Eureka!” The time might be a fraction of a second, several minutes, or sometimes more, but the time is characteristically short compared to the time leading up to the breakthrough. In contrast, working out the ramifications of the basic insight may take some time. The Wright brothers labored and argued for months on the technical problems of translating their propeller-as-wing insight into a well-engineered propeller.*<sup>5</sup>

### **TODO: new type of organization**

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<sup>3</sup> The Levity Effect, p 121.

<sup>4</sup> The Video Game Programmer Saving our 21<sup>st</sup> Century Souls, Jason Fagone, Esquire Magazine - <http://www.esquire.com/features/best-and-brightest-2008/future-of-video-game-design-1208>

<sup>5</sup> The Eureka Effect, David Perkins, p.9.

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The organization of the past is an oligarchy, if not a monarchy – and yet, with the democratization and increased speed of information that the internet and social networks facilitate, the “managed employees” are often better informed than the leaders in an organization. This shift has not yet been widely recognized and reflected in organizational structure. Today, leadership can be defined by who has the most followers on Twitter or the largest blog readership – as opposed to the hierarchical title-based control of the past.

This is definitely a much broader topic than productivity games, but the question remains – “how do organizations get ahead of the changes that are coming”? Traditional leaders will, or maybe have already, become irrelevant and the politics of an organization will only be necessary to sustain a paycheck – the real work will be done through an entirely different social network. Some would argue that it’s always been that way, and that might be true – but it’s even more pronounced now that information flows freely instead of being controlled through the hierarchy.

### **What is a Game?**

A game is a competitive activity with one or more “players”, competing by following a fixed set of rules. Sometimes, a single player may compete against herself, or against the environment. More commonly, two or more players compete against each other to win, based on a score. The game has rules, which govern play. The term “game” can conjure up a variety of images, depending on the audience and context. The phrase “games at work” usually has a negative connotation and describes politics, infighting, and deceitful players. To help address confusion, games used to get work done are referred to as “productivity games”. Productivity games are designed to add scoring and competitive game elements to tasks that need to be done at work. While many of the elements of political games, competition for promotions, etc. are similar to well-designed games of any kind, there is a major difference in productivity games, in that they are designed up front with specific rules and objectives, feedback mechanisms, scoring, and awareness for the culture of the work environment. Typical political games don’t have the same degree of premeditated rules and objectives.

### **Productivity Games as a Business Process**

A business process can be defined as “a collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers.”<sup>6</sup> Excellent business processes are typically measured by customer satisfaction, productivity, and quality. There are several other related components of successful business processes. Predictability, value added,

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<sup>6</sup> Wikipedia [http://en.wikipedia.org/wiki/Business\\_process](http://en.wikipedia.org/wiki/Business_process)

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lead time, delivery precision, employee satisfaction, and process flexibility. As we look at the characteristics surrounding the use of serious games at work, it becomes apparent that these games are really just another business process. While that might take the fun out of it for some people, for others it helps make the case for an increasing investment in games. In their August 2008 report, Forrester notes, *“the strongest ROI and ultimate adoption will be in serious games that help workers do real work. We are already seeing this with the use of games in product development and collective intelligence, but the real dynamic idea is to pull out the incentive structures and tools of games to boost productivity and employee morale.”*<sup>7</sup>

### **Productivity Games as On the Job Training**

There have been several successful, and several unsuccessful examples of the use of games as training and education tools. This book is not about training games, simulations, educational games or the use of games in school. This is about using games to encourage and motivate people to do real work. However, there is still a learning component involved with any repetitive activity. If I play Halo 3 for 14 hours a day, I will get better at it. My mental models will be comprehensive, my physical dexterity will improve, and my ability to understand the purpose and goals of my character will improve. The same thing will happen as people play productivity games because they will be doing the job more frequently, for longer periods of time. Productivity games are about motivating people at work – introducing an alternative incentive system that can go beyond the paycheck. If my job is to empty the trash every day at 5PM, I will be better at doing that after 6 months of daily visits to the dumpster than I will be on day number 2. While building a game around it doesn't necessarily increase my skills at emptying trash, it does keep me “playing” and by playing more often, I will get better at it and my skills will improve.

So productivity games provide a frame work for “on the job training” – the games motivate people to do work, and by doing work, their skills increase. As we've seen, complacency is a factor in the workplace. The same is true for performance in many domains. People are more than comfortable being an “average” skier or golfer, or “knowing how to play Chess”. Typically, most people are not driven to become experts in any endeavor. That's not to say, however, that they would not, or do not, enjoy being recognized as such. People love an audience's acknowledgement of their greatness. When a “score” is posted to an audience, individual players will work to ensure they are not shamed – or perhaps will work towards glory – but either way, they will work to accumulate a score, and that work offers to them the learning and skill development that comes with practice.

Productivity games, therefore, are types of “designed practice” that can help people develop their skills in a given area. The preparation, rehearsal, and development that comes with ongoing game play is quite similar to traditional training, with the

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<sup>7</sup> It's Time to take Games Seriously, Forrester, August 2008

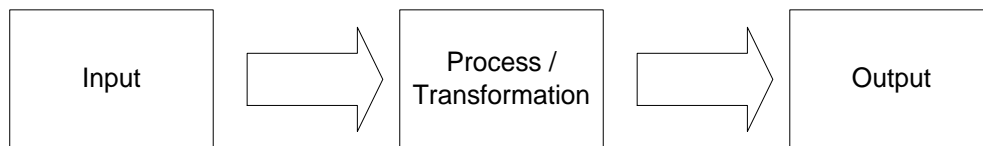
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important difference that it is typically not viewed as training – it’s viewed as competition, a challenge, or a game. The training is incidental (to the player).

*“Deliberate practice is therefore designed to improve specific aspects of performance in a manner that assures that attained changes can be successfully measured and integrated into representative performance.”<sup>8</sup>*

### What is Productivity

Productivity is a measure of how much output is produced relative to the inputs of labor, capital (or equipment), and technology. An increase in productivity implies that more output can be produced with the same (or fewer) inputs. Productivity can be measured at a number of different levels, from an individual task to a world economy. The focus of this book is on the productivity of an individual and the output of that individual over a defined period. Productivity is “...the ratio of valuable output to input, i.e., the efficiency and effectiveness with which resources – personnel, machines, materials, facilities, capital, time—are utilized to produce a valuable output”.<sup>9</sup> A systems approach to analyzing productivity breaks all meaningful activity into one of three areas: input, process, output.



*Figure 2 - Transformational Process*

The three steps of this systems view of the transformational process are a part of every task, and provide a structure with which to analyze tasks and activity in any organization and look for productivity improvements.

A closer look at tasks within an organization, related to a product or business cycle and enumerating the major tasks in the context of Input/Process/Output can help identify where to apply a productivity increasing effort, such as a game. While a traditional view of the productivity improvement process focuses on worker proficiency or process efficiency to increase output per unit of input. However, as we move forward and evaluate the system as a whole, making connections between the varying degrees of input and productive output gets easier. Knowing how, what, and

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<sup>8</sup> Experience and Deliberate Practice, The Cambridge Handbook of Expertise and Expert Performance, p.698

<sup>9</sup> Smith, Elizabeth, The Productivity Manual, p4

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when to measure to get an accurate view of productivity is something that comes with time and practice (or consultants ☺). An organization can understand the value of a standard set of output-measurement metrics. As standards are defined, it's easy to assess the value of the output, and then use these standards to identify productivity metrics. While this is still somewhat fuzzy, it is useful in measuring relative productivity. Knowing, for example, which tools and processes, which training and what proficiency levels produce the greatest output per unit of input for a particular task provides great insight into how and where to focus to improve productivity – and where the deployment of productivity games can have their greatest impact.

...where the demand environment is more mature, companies must perfect the art of raising productivity year after year--not as a one-time event--and exploit that growth for strategic gain. Although they also search for innovative next-generation products and services, they relentlessly identify and close gaps with industry best practices in process efficiency and pursue breakthrough productivity gains by investing in business innovations.<sup>10</sup>

### **Innovation**

Innovation is a elusive thing. The publicity, focus, and hype around innovation is unprecedented. Many corporations and small businesses who are struggling to compete, given the events enumerated above, have placed a tremendously high value on innovation as a savior. As a result, innovation is literally the most popular buzzword of the 21<sup>st</sup> century. However, despite the hype around being innovative, most companies are still mired in the management techniques and organizational structures of the 18<sup>th</sup> or 19<sup>th</sup> century. The era of the knowledge worker began and the late 20<sup>th</sup> century and flourishes today. However, despite increased education, communication tools and techniques, and a societal focus on technology, management has still yet to surrender decision-making authority to the lower, more agile and hands-on experienced ranks of their organizations.

### **Trust**

To unlock the innovation and creativity within an organization, leaders and managers must create an environment of trust. It starts with managers who can learn to trust others in the organization. An environment of trust is created through the actions of the leaders of the organization. The more emphasis placed on trust by the formal and informal leaders of the organization, the more rapidly a high trust organization can come to pass. Trust is situational. Actions that build trust for one person, in a given situation, may not work with others, or even for the same person in a different situation. Trust is affected by culture, values, and upbringing. Different cultures view actions differently, and what may increase trust in one country, might erode trust somewhere else. As an organization introduces games into the workplace,

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<sup>10</sup> “What High Tech can Learn from Low Tech”, McKinsey Quarterly, Sept. 2003

there is an obvious overlap or conflict with the existing compensation, reward, and performance evaluation system(s). If the environment is one of low trust, then the game will quickly be confused with the performance evaluation system and one of the two will fail. Therefore, trust is an important component of successful game deployment.

# Managers and The Managed

## Level 2

*I am sometimes told that mine is a counsel of perfection only to  
be realized AD the millennium, but we cannot take the first step  
until we have chosen our path.*

*Mary Parker Follett, 1918<sup>11</sup>*

Before we race into the future, we want to take a minute to consider the past. As this book progresses, we will reference historic ideas, data, successes and failures for what can be learned. In addition, we will make every attempt to break from the traditional context, definitions and frameworks of the past, and in doing so explain why what has been may not in fact be the best lens for us to view the future; of business, of management or of the managed.

In an attempt to offer a 'brief history' of management we need to acknowledge a bit of an oxymoron. To be thorough, one could go back to the builders of the pyramids of ancient Egypt or the practices of early Middle Eastern traders identifying management concepts such as planning, coordination and logistics. For centuries, history reflects the challenges and approaches used to motivate, exploit or influence those engaged to produce. In the 6th century BC, Chinese general Sun Tzu reflected on military strategy with management implications. In

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<sup>11</sup> <http://www.follettfoundation.org/mpf.htm>

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'The Art of War', he "recommends being aware of and acting on strengths and weaknesses of both a manager's organization and a foe's.<sup>12</sup>

Throughout the ages military and religious leaders, heads of state, philosophers and scholars explored concepts we generalize to the role of manager today. Planning, coordination, logistics, strategy, resource utilization and other management concepts were researched, subjected to experiment, developed and understood in their historical context. But...have times and circumstances changed? One could successfully argue that shifts in culture, society and politics, technology, along with the globalization of business and emerging economies necessitate a 'new' method or approach to managing in the 21st century.

Prior to the 20th century in the US and Europe, classical economic theory was explored building the foundation for management concepts utilized today including models for pricing, resource allocation and production practices. This period witnessed the innovative thinking of Adam Smith, John Stuart Mill, James Watt, Matthew Boulton and Eli Whitney. Their work explored elements we attribute to management including quality control, cost accounting, work planning and standardization. All these pre-date any real mass production or large workforce management. Given the more agrarian nature of work and workers in the pre-industrial age it is understandable that little purposeful management practice developed.

By the early 20th century, theory based in the science of management began to emerge. Students of this history will point to Follett, Taylor, Hawthorne, Weber, the Gilbreath's and others who explored work tasks, workers environment and their behavior. Their experiments are well documented, capturing early theory on 'scientific management' and worker behavior modification. It would be a fascinating exercise to interview them today. Given the dramatic changes in every aspect of the work experience one wonders if they would hold to their original theory, or embark on new bold experiments to explore the work environment, nature of work tasks, productivity, behavior, learning and the impact of technology.

As the 20th century evolved, we note Peter Drucker's work captured in one of the earliest books on applied management, *Concept of the Corporation*. While controversial in his waning years, Drucker became an insightful critic of what corporate life has become. "In a world of quick fixes and glib explanations, a world of fads and simplistic PowerPoint lessons, he understood that the job of leading people and institutions is filled with complexity. He taught generations of managers the importance of picking the best people, of focusing on opportunities and not problems, of getting on the same side of the desk as your customer, of the need to understand your competitive advantages and to continue to refine them. He believed that talented people were the essential ingredient of every successful enterprise".<sup>13</sup>

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<sup>12</sup> Gomez-Mejia, Luis R.; David B. Balkin and Robert L. Cardy (2008). *Management: People, Performance, Change, 3rd edition*. New York, New York USA: McGraw-Hill,

<sup>13</sup> The Man Who Invented Management, Business Week, November 28,2005



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H. Dodge, Fisher and Fry's work followed introducing statistical techniques into management-studies. Blackett combined statistical theories with microeconomic theory giving birth to the science of operations research, popularly known as management science. Separate and distinct from Taylors 'scientific management', the theory of operations research attempts to take a rigorous scientific approach to solving management problems, particularly in the areas of logistics and operations.

The 21<sup>st</sup> century student of management is still subject to 20th century research and theory. Their reference includes the notable Theory of Constraints, management by objectives, business process reengineering, lean systems, the learning organization and Six Sigma as well as IT focused theory including agile software development and group management approaches like Tuckman's Stages and Cog's Ladder. The behavioral sciences continue with a focus on organization development, organizational behavior approaches and the role of change agents. While this is not universally true, and we will endeavor to highlight the research and learning of business and management visionaries, the curriculum, programs and projects still leverage much of the past to teach students in the present, sending them out to be productive in the future.

When asked, students of U.S. business history will site the emergence of the national railroad system as instrumental to the development of the role of professional manager. Scheduling, logistics, pricing, planning, coordination both locally and regionally, operations skills and policy considerations are just a short list of the skills required to enable a national system of railroads. The ideas of hierarchy, divisions, structure and the 'org chart' as we know it today, all had their genesis in the development and growth of the railroads.

Fast forward over 100 years, from the early days of industrialization, an age of machines and engineers, to the 21st century and Web 2.0. No longer reliant on the iron horse, we experience business communications and transactions at the speed of light, in 'real time'. Social networking has replaced communications tools of the previous generations (when is the last time you got a memo, or asked your secretary to 'take a letter?'). While processes and tools have evolved, we hypothesize that there may in fact be a 'generation gap' operating between management and employees, that may be best described or understood through the communication styles, methods and tools used today by members of either cohort.

Modern management is the collaboration of people and machines to create value. While much has been researched about management, it may be less about theory and concepts and much more about approach and practice. History provides great context for how management theory, concepts and practices have emerged, but it is that very historical perspective that may fail the workplace today. The theory being taught, and applied by today's managers, is based on 'history' rather than today's reality.

The real issue is 'classic' management practices are still alive and well in workplaces with workers that are anything but classic or traditional. It begs the question often heard during Verizon wireless commercials, "can you hear me now". The workforce has a growing segment of tech savvy, highly educated talent, with Facebook or MySpace pages, who can text with their

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eyes closed. The obvious question begs to be asked, is today's manager and management theory/concepts/tools, out of touch with the managed?

The workforce of today includes at least three generations of workers. Baby boomers (1946-1964) who would like to retire, but a failing economy puts that gold ring further from their reach with each passing pay check. The "GenX" (1965-1979) workers who followed them wonder if retirement will ever be their reality. Third to the party and the latest to join the workforce, Gen Y workers (known as millennials born 1980 - 1994) bring a set of norms, expectations, skills, talents and expectations that have little in common with the previous generations they share tables with in the cafeteria.

This symphony of worker experience and skill, knowledge and talent looks for leadership that can span the 'cultural divide' of these generations and find meaningful ways to grow that talent, engage their passion and produce results in an economy with more hurdles and risks than potholes on a winter road.

While many would argue that each generation has always brought new norms, behaviors, expectations and challenges than those that preceded it, its safe to say that the current wave of GenY workers entering the workforce have come with data that would suggest otherwise.

This 'generation gap' of sorts, in our world of the worker, can be seen in the communication tools, entertainment and activities, social networking and experiences that define this generation. Let's consider what we are learning about GenY, and how they differ from the boomers.

Note Australian study on 'generation's'/McCrindle research;

	<b>Baby Boomers Born 1946-1964 Age: 40's &amp; 50's</b>	<b>Generation X Born 1965-1979 Age: late 20's &amp; 30's</b>	<b>Generation Y Born 1980-1994 Age: Teens and 20's</b>
Iconic Technology	TV 1956, Audio Cassette 1962 Color TV 1975	VCR 1976, Walkman 1979, IBM PC 1981	Web 2.0, CD/DVD, Play Station/X-Box/Wii
Music	Elvis, Beatles, Rolling Stones	INXS, Nirvana, Madonna	Eminem, Brittany Spears, Puff Daddy
TV & Movies	Easy Rider The Graduate Jaws	ET Hey Hey Its Saturday MTV	Titanic Pay TV Reality TV
Popular Culture	Flare Jeans Mini Skirts Barbie, Frisbee 1959	Rollerblades Hyper color Torn Jeans	Body Piercing Baseball caps Men's cosmetics
Social Markers/ Landmark Events	Decimal currency 1966; Neil Armstrong-Moon landing 1969; Vietnam War 1965-1973	Challenger explodes '86; Haley's Comet 1986; Stock Market crash 1987; Berlin Wall down 1989	Columbine shootings 1999; New Millennium 2000; 9/11/2001; Bali Bombing 2002
Influencers	Evidential Experts	Pragmatic Practitioners	Experiential Peers
Training focus	Technical Data/evidence	Practical Case studies/applications	Emotional Stories/participative

## Productivity Games

Learning format	Formal Structured	Relaxed Interactive	Spontaneous Multi-sensory
Learning environment	Classroom style Quiet atmosphere	Round-table style Relaxed ambience	Café Style Music and Multi-modal
Sales & Marketing	Mass/traditional media Above the Line	Direct/targeted media Below the line	Viral/electronic media Through the friends
Purchase influences	Brand-loyal Authorities	Brand-switchers Experts	No brand loyalty Friends
Financial values	Long-term needs Cash and credit	Medium-term goals Credit-savvy	Short-term wants Credit-dependent
Ideal Leaders	Command & Control Thinkers	Coordination & Cooperation Doers	Consensus & Collaborative Feelers

Generation Y are labeled for being peer oriented and seeking instant gratification. The rise of Facebook, MySpace, Twitter, YouTube, texting, IM as well as other instant communication technologies may explain millennials' reputation for being peer oriented and for seeking instant gratification. Millennials, like other generations, are shaped by the events, leaders, developments and trends of its time. They represent more than 70 million consumers in the United States. They earn a total annual income of about \$211 billion, spend approximately \$172 billion per year, and considerably influence many adult consumer buying choices. They also face a greater degree of direct corporate marketing than any other generation in history.

A 2008 survey by UK recruitment consultancy FreshMinds Talent in partnership with Management Today suggested that Generation Y are generally more ambitious, brand conscious and tend to move jobs more often than ever before. The survey of over 1,000 people, entitled Work 2.0, also suggests several possible misconceptions about Generation Y, including that they are as loyal as their predecessors and believe that their job says something about them as individuals.

In their recent book, Reynol Junco and Jeanna Mastrodicasa found that in a survey of 7,705 college students in the US:

- 97% own a computer
- 94% own a cell phone
- 76% use Instant Messaging and social networking sites.
- 15% of IM users are logged on 24 hours a day/7 days a week
- 34% use websites as their primary source of news
- 28% author a blog and 44% read blogs
- 97% have downloaded music and other media using peer-to-peer file sharing

## Productivity Games

- 49% regularly download music and other media using peer-to-peer file sharing
- 75% of college students have a Facebook account[16]
- 60% own some type of portable music and/or video device such as an iPod.

Note: data about boomers.....similarities/differences.

Issues of managers of today, using 'tools' of yesterday, and the real issues of the 'generation gap' in business

**Generation Gap – do managers 'hear' the managed? And vice versa.**

**Do managers understand a 'day in the life' of the managed?**

**Can they learn to play together?**

**Play for pay, or being paid to play??**

Culture of entitlement

# Productivity

## Level 3

*When I play tennis, I often open a can of tennis balls on the court. I feel strong obligation to throw away the metal top to the can I just opened, rather than leaving it to litter the court. So I do this. But I often leave behind several tops left by others, which I could easily pick up and throw away. My intuitive sense says that I am obliged not to make the situation worse, but I am not obliged to improve it.*

*(Baron, 1998, p. 10)*

## Introduction

Complacency and apathy can be significant factors in the productivity of an organization these days. As the pace of change in world economies, the speed in business is done, and depth of consumer information flow have all changed dramatically, businesses around the globe need to re-examine their practices in the light of this new world.

Historical victories and success often times lead to an arrogance that does not accommodate or acknowledge new methodologies, techniques, or practices. As Gary Hamel says in “Leading the Revolution”, “*Employees around the world have been through a never-ending gauntlet of efficiency programs - from downsizing to reengineering to postmerger cost-cutting to enterprise resource planning to supply chain rationalization and more. With eyes glazed, they have repeated the mantra: faster, better, cheaper. All too often, employees found themselves working harder and harder to achieve less and less. That's the reward for surviving the downsizing, outsourcing, and restructuring that have so dramatically thinned the ranks of industrial age companies. The late-twentieth-century version of progress made us cynical. We were promised relief from the tedium; we go the white-collar factory.*” For newer workers, they watched their parents go through the downsizing and adopt cynicism and mistrust. This abundance of complacency in the organization has led to acceptance of the status quo – for employees, “it’s just a job” – or for Gen X, it’s a McJob - do what you are told and the paycheck will come. Do more than your share, and your paycheck will be the same. This is not the entrepreneurial, wildly successful 80’s or 90’s – this is just a bummer. As Thomas J. Watson Jr,

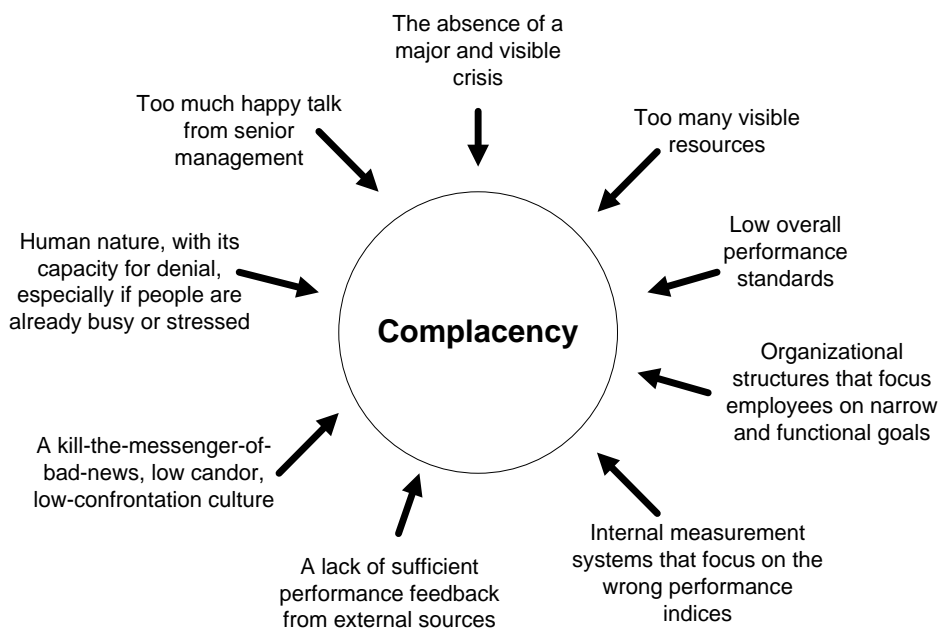
## Productivity Games

former CEO of IBM once said, “Whenever an individual or a business decides that success has been attained, progress stops.”<sup>14</sup>

When workers become too complacent, they no longer feel part of the success of a company.

**TODO: Explore this idea and why it matters to managers, leadership, millennials, and ‘why games’.....**

**Note: Introduce idea of boomers and their complacency (what/how/why...result), and what can be expected (tolerated or rejected) by those that follow them.**



*Figure 3 - Sources of Complacency*

The diagram above in Figure 3 is from *Leading Change*<sup>15</sup>, and identifies nine sources of complacency. In an organization where people are complacent, they do not talk about winning, but about “not losing as much as a competitor”, or about not having to fire as many folks, but never about the fact that they used to be a growing company, or that they used to aspire to be the world’s best. People see all the signs of impending failure, but the day to day work goes on without a sense of urgency. There are visible signs of success – corporate offices, a new car in the

<sup>14</sup> [http://en.wikipedia.org/wiki/Thomas\\_J.\\_Watson,\\_Jr.](http://en.wikipedia.org/wiki/Thomas_J._Watson,_Jr.)

<sup>15</sup> *Leading Change*, 1996, John Kotter, p40

## Productivity Games

lot - indications that things seem to be going well enough without any extra effort from me – and, if I do put in an extra effort, it probably won't be recognized and I won't get the benefit of my own hard work. I have enough to worry about with my mortgage, the price of gas, upcoming college tuition, and the weekly food bill. I don't have the time for extra effort, unless I know it will solve my problems.

Hippocrates – apathy

Sloth as a deadly sin

Belphegor – demon of sloth and procrastination

## Productivity and Effort

Productivity improvements allow an organization to save resource expense without jeopardizing the quality of the product or service, or perhaps the organization can use productivity gains to make schedule or quality improvements with the same amount of expense. Whatever the choice, these improvements can only be attained in one of three ways:

- Add resources and increase expenses
- Get more effort from existing resources - faster machine times, longer hours, etc.
- Improve efficiency – less waste, improve the output of each unit of input

Obviously, the least controversial option is to improve efficiency. Doing more with less is the high order bit – everybody wins when things are more efficient. Employees find their work easier, production rates increase, costs go down – a goal to create a more efficient organization makes everyone feel great. However, one might assert that after years and years of goodness around efficiency improvements – from JIT manufacturing, to Six Sigma, Lean Manufacturing, and off-shoring - the “improve efficiency” cupboard might be a little bare these days. There probably are parts of the organization that can benefit from efficiency improvements, but overall, the ROI is in the single digits, and people want and need more. That leaves two other choices. Given the economic pressure on business today, increasing expenses seems to be off the table, perhaps even ahead of efficiency improvements.

That leaves one option – get more effort from existing resources. With the increasing prevalence of Gen X and Gen Y workers and the perception of “slackers” and McJobs – that seems to be an impossible task.

That's where productivity games come in!

## Core, Unique, and Expanding Responsibilities<sup>16</sup>

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<sup>16</sup> Elizabeth A. Smith, The Core-Unique-Expanding model: career passport for performance, International Journal of Business Performance Management, Volume 1, Number 3, 1999

## Productivity Games

Job responsibilities can be divided into three categories – core, unique, and expanding tasks.

*“The Core-Unique-Expanding (C-U-E) representational model provides a framework and a method to identify, describe and group major work activities performed into three broad areas - Core (routine), Unique (prime area of competence), and Expanding (self actualizing) areas”.*

Employees spend most of their typical day in core tasks or using the skills that are well known to anyone who performs the job at hand. While the specifics may vary between employees, most people spend their time at work in “core” tasks. Unique responsibilities are those that require specialized training. It’s possible that several people in an organization all work on “unique” responsibilities – think of a team filled with cost accountants. Finally, expanding responsibilities are “aspire-to” skills and tasks. Being paid to spend time on expanding responsibilities is incredibly motivating to most people. It means that growth and personal development are encouraged on the job. These types of responsibilities are incredibly important to Gen X and Gen Y workers, and can often be more important than pay as a reason to stay on the job.



## Productivity Games

Type of Responsibility	Typical Tasks Performed	Difficulty Level	Importance	Implications for Motivation
Core	Routine, often manual operations. Example: typing, processing forms, or repetitive assembly line work	Low, but often meaningful or enjoyable in the proper work environment. Can be shared or rotated with others of similar abilities to expand knowledge of a wide range of core tasks.	Vital to overall goals of the organization and essential to staying in business	Rotate to minimize demotivational effects of routine. Crosstraining to allow for sharing or changing jobs. Reward and recognize good performance to maintain productivity. Can be delegated or taught.
	Specific to education, training, and/or experience, and depend on ability or skills. Example: medicine, accounting, fine motor coordination, verbal fluency	Moderate to high for all levels, but unique to profession or discipline.	Forms the major part of a job or profession. Provides the diverse skills and abilities organizations and businesses require.	Most training and development efforts are in area of expertise. Forms the nucleus of the job. Job analysis and description are based on this area. Gives job performer an identity - uniqueness.
Expanding	Relates to personal growth and development in profession or area of expertise. Example: create new products, use novel approaches, perform forefront research, generate creative ideas.	Demanding, but challenging. Can require near constant attention and effort to remain current.	Allows creativity and innovation, feelings of high level accomplishment, which are very motivating and extremely rewarding.	Highly motivational. Stretches personal and professional abilities. Fosters creativity and innovation - ie: self-actualization. Cannot be delegated or taught.

### In Role Behavior

In-role behavior is exactly what it sounds like – the tasks that someone performs as part of their regular job. In role responsibilities are more easily understood in contrast to their counterparts – “organizational citizenship behaviors” or “extra-role behaviors” – volunteer or altruistic activities done outside the job.

In- role job performance refers to activities that are related to employees’ formal role requirements (Borman & Motowidlo, 1997).

Every day, millions of people around the world show up at an employer to go to work. The majority of them appear because an employer offers them some type of compensation – usually a paycheck. While they are at work, they perform tasks necessary to sustain the organization. Some organizations are in business to make money, others are not. Sometimes the “boss” tells the workers what tasks to tackle, sometimes it’s obvious to people, and sometimes it could even be a customer telling them where to focus. In any case, the work that people do for the paycheck

## Productivity Games

each day is called “in-role” behavior or tasks. The role they are in – for which they are rewarded – requires certain things to be done.

### **Organizational Citizenship Behaviors**

Organizational Citizenship Behaviors or “OCB’s” are all the extra things that people do that are not part of their regular job - optional or voluntary behavior - “being a good corporate citizen”. These are the things people do in their day-to-day jobs that are not explicitly rewarded in the paycheck or performance evaluation system. The existence of OCB’s is a key quality of healthy organizations.

Over the last several years, it appears that the level of OCBs have declined in many organizations. Unfortunately, complacency seems to have taken the place of citizenship. Productivity games work well to encourage citizenship behaviors. Because games introduce a secondary reward and incentive framework, they align well around tasks and behavior where rewards and incentives already exist – that is, the in-role behaviors. OCB’s could be thought of as “going the extra mile”.

*Organizational Citizenship Behaviors (OCBs) are a special type of work behavior that are defined as individual behaviors that are beneficial to the organization and are discretionary, not directly or explicitly recognized by the formal reward system. These behaviors are rather a matter of personal choice, such that their omission is not generally understood as punishable. OCBs are thought to have an important impact on the effectiveness and efficiency of work teams and organizations, therefore contributing to the overall productivity of the organization.<sup>17</sup>*

There are five categories of OCB’s:

1. Altruism - helping a teammate
2. Courtesy – being mindful of how your actions affect another, alerting others of changes
3. Conscientiousness – doing work beyond the minimum requirements
4. Sportsmanship – willingness to tolerate without complaining
5. Civic virtue – helping “govern” the organization as a whole

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<sup>17</sup> [http://en.wikipedia.org/wiki/Organizational\\_citizenship\\_behavior](http://en.wikipedia.org/wiki/Organizational_citizenship_behavior)

## Productivity Games

All five of these categories offer tremendous opportunities for the use of productivity games. In some cases, finding a measurement or score might be difficult, but the behaviors align well with the use of productivity games.

*Organizational Citizenship Behaviors (OCBs) are a special type of work behavior that are defined as individual behaviors that are beneficial to the organization and are discretionary, not directly or explicitly recognized by the formal reward system. These behaviors are rather a matter of personal choice, such that their omission are not generally understood as punishable. OCBs are thought to have an important impact on the effectiveness and efficiency of work teams and organizations, therefore contributing to the overall productivity of the organization.*<sup>18</sup>

*Organizational Citizenship Behaviors (e.g., Organ, 1988) are workplace activities that exceed the formal job requirements and contribute to the effective functioning of the organization. OCB is also referred to as "contextual performance" or "prosocial organizational behavior" (e.g., Borman & Motowidlo, 1993,1997; Brief & Motowidlo, 1986) to emphasize the voluntary nature of the activity and to distinguish it from "task performance" or one's assigned duties. Most conceptualizations of OCB suggest that it comprises two major dimensions, distinguished by the intended target of the behavior (e.g., Organ & Ryan, 1995): OCBI or prosocial behaviors that are directed at specific individuals and/or groups within the organization and OCBO, behaviors that target the organization per se. Examples of each include assisting others with work-related problems (OCBI) and offering ideas to improve the functioning of the organization (OCBO).*<sup>19</sup>

## Job Performance, Responsibilities, and Behaviors

What is the difference between a core responsibility and an in-role behavior? A core responsibility is a routine task that requires no special or distinct training. Emptying trash or cleaning the coffee pot, or opening mail to pay bills might be examples of core responsibilities. To contrast these with “unique” versions of the same task – driving the garbage truck with the forklift for the dumpster, sterilizing the latte machine, or balancing the books online using the double-entry accounting package might require special training or unique skills.

If an employees regular job is to empty the garbage daily – regardless of whether that’s picking up the can or driving the truck, then it’s an in-role behavior. If the boss asks the last person to leave each day to take out the trash, then it’s likely a “citizenship behavior” – the person emptying the trash is not compensated as part of their “regular job”. If I’m taking a class on Saturday mornings on how to drive a garbage truck and use a fork lift, then it’s likely an “expanding” responsibility. The task is likely not a in-role part of my regular job, nor is it

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<sup>18</sup> [http://en.wikipedia.org/wiki/Organizational\\_citizenship\\_behavior](http://en.wikipedia.org/wiki/Organizational_citizenship_behavior)

<sup>19</sup> [http://findarticles.com/p/articles/mi\\_qa3852/is\\_200401/ai\\_n9374500/print?tag=artBody;col1](http://findarticles.com/p/articles/mi_qa3852/is_200401/ai_n9374500/print?tag=artBody;col1)

something I volunteer to do – it’s something I aspire too. Once I complete my class, the task will move to the “unique” classification for me, and I may volunteer to do it (as an organizational citizenship behavior) or it may become an in-role part of my job.



*Figure 4 – Relationship between Responsibilities and Behaviors*

#### **Four Components of Productivity**

Encarta defines productivity as “the rate at which a company produces goods or services, in relation to the amount of materials and number of employees needed” <sup>20</sup>

Looking deeper into the components that drive productivity

**Effectiveness.** the ability to produce a desired result

**Efficiency.** more useful output per unit of input – less waste

**Reliability.** the ability to repeat a task with the same result or goal

**Engagement** the willingness to apply effort towards a task

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<sup>20</sup> Microsoft® Encarta® 2009. © 1993-2008 Microsoft Corporation. All rights reserved.

## Productivity Games

These four components all play a role in the productivity of an individual and an organization. While different steps can be taken to address each component, all four can be positively influenced by productivity games.

### ***Effectiveness***

Effectiveness: the proximity of actual result to desired result; the accuracy of desired result.

effective suggesting the ability to produce the required result or the actual achievement of the result;

CORE MEANING: producing a result

effectual a more formal word than “efficient” suggesting the achievement of a desired result, especially when this has already taken place; efficacious a formal word, used especially to suggest that something has the power to achieve the desired result<sup>21</sup>

The effectiveness of an individual or an organization is a little harder to measure than efficiency or reliability. Effectiveness essentially means “doing the right thing”. Well designed productivity games are quite useful in raising the effectiveness of an organization or of a single player, as the scoring will manipulate player behavior towards the desired result. It’s important that the objective of the game, the desired result, is well understood, and the scoring for the game is designed around achievement of this result. Since players will play the games in order to achieve good scores, they are at the same time becoming more effective – achieving the desired result.

### ***Efficiency***

Amount of the resource it takes to complete a task

Number of tasks, or proportion of a large task, or various kinds that can be completed within a given time limit

Ratio between tasks that were completed versus not completed

Amount of dead time tester is waiting for an external event

**Efficient** suggesting that something or somebody is capable of achieving the desired result with the minimum use of resources, time and effort;

Efficiency within an organization or individual is often easy to measure. For a task or job that is repeated regularly, the speed or ease with which that task is completed is a measure of efficiency. Sometimes a new process or new tool can increase the efficiency of the resource striving to complete the task. An efficient organization or individual makes the assumption that the desired result is well know and achievable. Efficiency means “doing things right”, where the

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<sup>21</sup> Microsoft® Encarta® Reference Library 2008

## Productivity Games

“things” are well understood. A well designed productivity game will help drive efficiency in an organization because players will seek the easiest way to achieve the best score. Once again, it’s important to understand the game’s objective and to design scoring accurately in order to achieve the desired result. Poorly designed or mis-aligned productivity games can negatively influence efficiency, as players will take the most direct route for scores, regardless of the efficiency or effectiveness of the method relative to the game’s objective. Once again, games should continue for a short duration, allowing the game master and game designer to adjust scoring philosophies to align with effective techniques to complete the tasks.

*The products and services characteristic of our modern economy are far too complex for any one person to understand how they work. It is cognitively overwhelming. Therefore, organizations must have some mechanism for decomposing the whole system into sub-system and component parts, each "cognitively" small or simple enough for individual people to do meaningful work. However, decomposing the complex whole into simpler parts is only part of the challenge. The decomposition must occur in concert with complimentary mechanisms that reintegrate the parts into a meaningful, harmonious whole.<sup>22</sup>*

### **Reliability**

Ratio of successfully completed tasks to unsuccessful tasks

Amount of time spent recovering from errors

Number of errors

Reliable - able to be trusted to be accurate or correct or to provide a correct result

Productivity game play encourages reliability because players get instantaneous feedback on their performance, and are able to adjust their efforts to maximize their score. Once again, it’s important to design the game with care, and for scoring to be fair and accurate. The interesting element of productivity games with regard to reliability is that the score can not only reward reliable behavior, but punish errors and incomplete or unsuccessful attempts, giving very granular feedback to the players on reliable performance.

### **Engagement**

Engagement is the act of involving somebody, or to become involved: to involve somebody in an activity, or become involved or take part in an activity

An employee who is not engaged or committed cannot be as productive as one who is. When employees are involved and passionate about the work they are doing, they will be more productive.

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<sup>22</sup> How Toyota Turns Workers into Problem Solvers, HBS Working Knowledge, Nov 26, 2001

## Productivity Games

*Gallup research has shown that engaged employees are more productive, profitable, safer, create stronger customer relationships, and stay longer with their company than less engaged employees. This latest research indicates that workplace engagement is also a powerful factor in catalyzing "outside-the-box" thinking to improve management and business processes as well as customer service.*<sup>23</sup>

[http://www.govleaders.org/gallup\\_article\\_getting\\_personal.htm](http://www.govleaders.org/gallup_article_getting_personal.htm)

<http://gmj.gallup.com/content/24880/Gallup-Study-Engaged-Employees-Inspire-Company.aspx>

For the last several years, Gallup has done a survey on employee engagement. The study indicates that 59% of US employees are not engaged<sup>24</sup> Many of the things cited as reasons for the lack of engagement, complaints about not having the tools necessary to do their jobs, unsure of expectations, etc. are addressed by the use of productivity games in the workplace.

Gallup says actively disengaged workers cost employers \$292 billion to \$355 billion a year. Furthermore, Gallup concluded that disengaged workers miss more days of work and are less loyal to employers. However, deploying productivity games in an organization will help make the work more fun, and therefore help to re-engage the disengaged workers. The Great Places to Work Institute identifies and publishes the list of its 100 Best Companies to Work For each year. Google was number one, and in the article, "What Makes Google Great", they talk about the employees, who "also like to have a lot of fun during the work-day - to relieve stress, build camaraderie and fuel creative thinking - so there are lots of opportunities to have fun at work as well."<sup>25</sup> In "The Levity Effect", Scott Christopher and Adrian Gostick underscore the importance of having fun at work and the relationship between fun and engagement, productivity, and retention. "*KPMG's annualized employee turnover is at historic lows for the organization, which according to Business Week has the best three year retention rate for entry-level hires among the Big Four accounting firms. Like KPMG, companies that create the Levity Effect at work experience higher productivity, engagement, and retention.*"<sup>26</sup>

So why not use games?

24% of employees play games at work<sup>27</sup>

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<sup>23</sup> Gallup Study: Engaged Employees Inspire Company Innovation, Gallup Management Journal, Oct 2006

<sup>24</sup> <http://gmj.gallup.com/content/20770/Gallup-Study-Feeling-Good-Matters-in-the.aspx>

<sup>25</sup> [http://resources.greatplacetowork.com/article/pdf/why\\_google\\_is\\_no.\\_1.pdf](http://resources.greatplacetowork.com/article/pdf/why_google_is_no._1.pdf)

<sup>26</sup> The Levity Effect, Scott Chrisopher and Adrian Gostick, p. 132.

<sup>27</sup> <http://news.softpedia.com/news/Do-You-Play-Games-At-Work-64808.shtml>

# Generational Changes

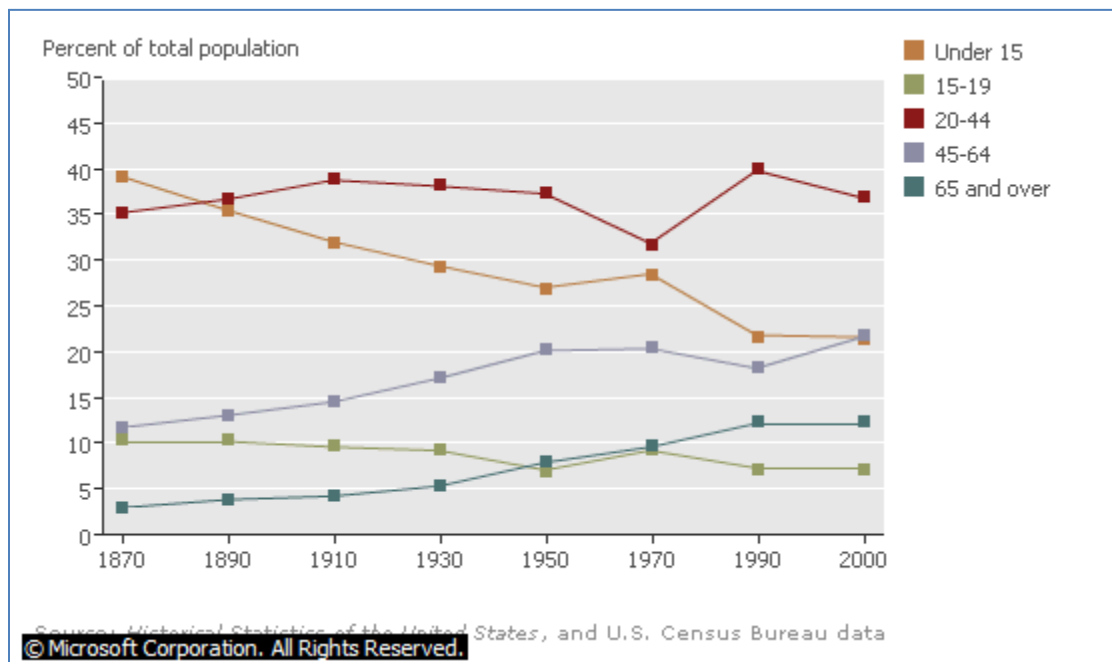
## Level 4

*I see no hope for the future of our people if they are dependent on the frivolous youth of today, for certainly all youth are reckless beyond words. When I was a boy, we were taught to be discrete and respectful of elders, but the present youth are exceedingly wise and impatient of restraint. – Hesiod, about 700 BC*

### Introduction

### Generational Changes

With improvements in healthcare, living conditions, and other scientific and social advances, the world population is living longer.





## Productivity Games

### U.S. Age Distribution

This chart shows changes in the percentage of the U.S. population in each age group between 1870 and 2000.

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### Baby Boomers

The baby boom generation is 70 million strong, and rapidly retiring from the workforce. What do we know about baby boomers and those in their shadow? As noted by the Population Reference Bureau, “The U.S. is getting bigger, older and more diverse.”<sup>28</sup> Major demographic trends that are affecting the workforce are:

- The labor force is growing more slowly. In 2010-2015 the rate of labor growth will slow to 1.0%. Between 2015-2025 the rate of labor growth will slow to 0.2%. By 2012, there will be a 6 million person gap between supply and demand of knowledge workers in the U.S.
- The labor force is growing older. The median age of the labor force in 2008 is 40.7—the oldest ever. The historical US workforce benchmark for 55 and older was 15%. The current US workforce benchmark is 18%.
- Baby Boomers will leave the workplace without an equal number of qualified workers to replace them. Every day, 7,918 people turn 60 years old.
- Workers age 25 to 34 shrank by almost 9% in the 10 years ending in 2006.
- In the U.S., colleges graduated only 198,000 students to replace 2,000,000 baby boomers that retired between 1998 and 2008.
- Increasing number of employees are retiring. Losing critical institutional knowledge can place the organization at risk. Transferring knowledge between generations is a critical capability in today’s organizations.
- The American workforce will become more diverse. Nearly one-half of all new U.S. workers during the past decade are foreign born.
- Three of five economic sectors are exposed to above average levels of age and retirement risks. These sectors are responsible for raw materials, intellectual activities and analytics, and decision making.
- More women are working today than in the past. 61.9% of women are participating in the labor force in 2008. Nearly 60% of bachelor’s and master’s degrees in the U.S. are awarded to women.
- Today 85% of jobs require education beyond high school, compared to 61% in 1991. In 2012, 14 million jobs will go to degree holders.

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<sup>28</sup> The Changing Demographic of the United States. Congressional Research Service. Library of Congress. May, 2006.

## Productivity Games

- 60% of future jobs will require training for skills that only 20% of the current workforce possesses.

The American Society for Training and Development (ASTD) released its 2008 State of the Industry Report suggesting notable trends for boomers and those following in their tracks:

- Many formats that were nonexistent just a few years ago have become widespread, such as simulations, instructional games, and social networking sites.
- \$134.39B was spent on employee learning and development in 2007.
- E-Learning increased from 30.3% of learning hours to 32.6% .

## Generation X

### Generation Y or “Millennials”

The millennial generation -- usually categorized as students and employees aged 14 to 27 expect to use their own technology and mobile devices for work says a new survey report from management consulting firm Accenture.

They are also increasingly selecting where they work based on how accommodating companies are to their personal technology and social computing preferences.

More intriguingly, at least 60 percent of millennials are either unaware of their companies' IT policies or are just not inclined to follow them.

The survey samples the responses of over than 400 North American students and employees within three age groups: 14-17 (youngest millennials), 18-22 (mid-millennials) and 23-27 (older millennials). The survey found a growing demand for mobile devices and social computing technology to connect with co-workers, peers, friends and family, in direct preference to face-to-face contact and communication.

The findings point to a clear disconnect between the technology that most organizations provide their workers today and how young workers both prefer and currently use technology to collaborate and communicate at work.

## Productivity Games

Exhibit 4 – There's a gap between how organizations enable employees to communicate with clients and customers and how younger employees would prefer to communicate with them

Organizational communication with clients/customers  
[Working Millennials]

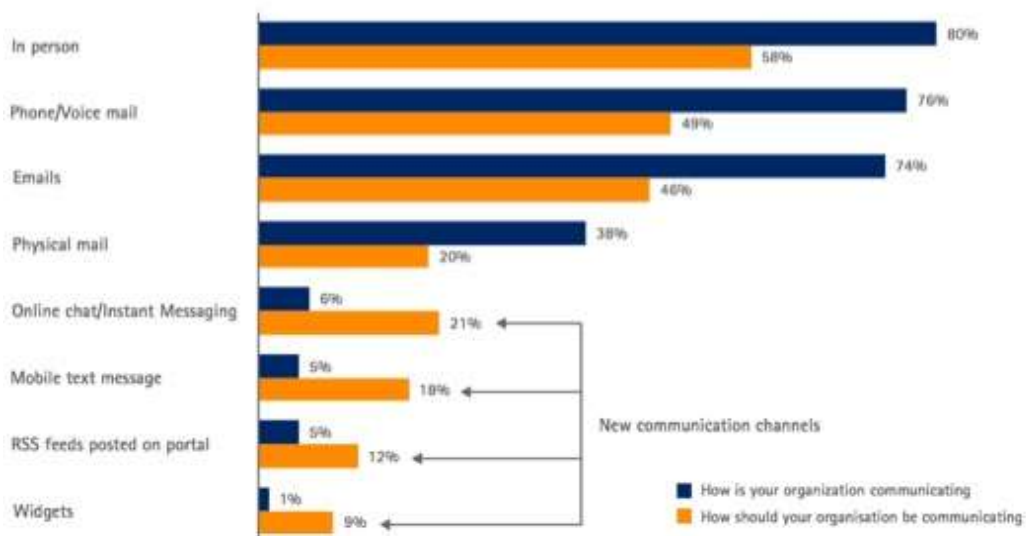


Figure 5- Millennials Prefer New Social Computing Channels

The survey's key findings highlight specific workplace implications for most of today's employers that not only affect corporate IT but the entire business environment:

1. Millennials prefer to choose their social computing technology. Millennials both in the workplace and in school say they expect to use their own technology and mobile devices for work rather than those supplied by their employer.
2. Do not seek corporate approval for social computing channels and technologies. When asked which technologies they currently use or access for work-related activities that are not supported by their employers, mid-Millennials reported mobile phones (selected by 39 percent), open source software (19 percent), instant messaging/text messaging (27 percent), online applications (12 percent) and social networking sites (28 percent). They also reported regularly downloading non-standard technology from free public websites such as open source communities including mashups and Web widgets.
3. Low levels of knowledge of corporate policy. Only 40 percent of all respondents said that their employers have published detailed policies related to posting work or client information on public websites. Nearly one-third of respondents said they don't know if their company has such policies.
4. Millennials are insisting on state-of-the-art technology at work. More than half of all Millennials surveyed said that state-of-the-art technology is an important consideration in selecting an employer. More than half (56 percent) of the mid-Millennials and two-thirds (67 percent) of the older Millennials still in college reported that whether or not an employer has a state-of-the-art social computing environment will be an important factor when choosing where to work.

## Productivity Games

5. Organizations will likely need to provide new communication and collaboration channels. Millennials expect employers to provide communication channels such as online chat, instant messaging, SMS/text messaging and RSS feeds to communicate with their customers and clients.

"The message from Millennials is clear: to lure them into the workplace, prospective employers must provide state-of-the-art technologies," said Gary Curtis, managing director of Accenture Technology Consulting. Curtis went on to say, "If their employers don't support their preferred technologies, Millennials will acquire and use them anyway. In order to acquire and retain the best talent, organizations must understand the technologies that the new workforce expects and then find a way to support their employees without compromising enterprise security."

### *Details of the Accenture Millennials Study*

This new survey attempted to understand how the network-centric culture of today's "Millennials" -- the incoming workforce -- would affect IT organizations' decisions in the future, Accenture conducted a quantitative online survey in over the summer of 2008 of more than 400 North American consumers between the ages of 14 to 27. All respondents aged 14-17 have completed at least middle school, and all respondents 18-27 years of age have completed at least high school. The respondents included in the analysis were in school, recently graduated, or were currently employed.

Generation Y (sometimes referred to as "Millennials" or "Echo Boomers") refers to a specific cohort of individuals born roughly, between 1980-94. The generation following Generation X, especially people born in the United States, Canada and other parts of the world from the early 1980s to the late 1990.

Generation Y are labeled for being peer oriented and seeking instant gratification. The rise of Facebook, MySpace, YouTube, texting, IM as well as other instant communication technologies may explain Millennials' reputation for being peer oriented and for seeking instant gratification. Millennials, like other generations, are shaped by the events, leaders, developments and trends of its time.

They represent more than 70 million consumers in the United States. They earn a total annual income of about \$211 billion, spend approximately \$172 billion per year, and considerably influence many adult consumer buying choices. They also face a greater degree of direct corporate marketing than any other generation in history.

A 2008 survey by UK recruitment consultancy FreshMinds Talent in partnership with Management Today suggested that Generation Y are generally more ambitious, brand conscious and tend to move jobs more often than ever before. The survey of over 1,000 people, entitled Work 2.0, also suggests several possible misconceptions about Generation Y, including that they are as loyal as their predecessors and believe that their job says something about them as individuals.

A 2007 episode of the American news magazine 60 Minutes entitled The Age Of The Millenials proposed that members of the generation are exceptionally tech-savvy, are especially tuned to

## Productivity Games

their own value in the job market, have limited loyalty to any particular employer, and insist on working in a stimulating job environment.

However, these are simply characteristics and attitudes that were previously attributed to Generation X in works such as in the 1999 article "The Hunter-Gatherers of the Knowledge Economy: The Anthropology of Today's Cyberforagers" by David Berreby, so these behaviors may be consequences of modern culture or of the modern economy rather than qualities of a particular generation.

The generation is sometimes defined as "Civics", characterized as wealth creators and nation builders. They are sometimes described as an "overachieving, overscheduled" generation."

In their recent book, Reynol Junco and Jeanna Mastrodicasa found that in a survey of 7,705 college students in the US:

97% own a computer

94% own a cell phone

76% use Instant Messaging and social networking sites.

15% of IM users are logged on 24 hours a day/7 days a week

34% use websites as their primary source of news

28% author a blog and 44% read blogs

97% have downloaded music and other media using peer-to-peer file sharing

49% regularly download music and other media using peer-to-peer file sharing

75% of college students have a Facebook account

60% own some type of portable music and/or video device such as an iPod.

### **What is a McJob?**

McJob is slang for a low-paying, low-prestige job that requires few skills and offers very little chance of intracompany advancement.<sup>29</sup>

## **Employee Engagement**

### **Technological Changes**

Internet

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<sup>29</sup> <http://en.wikipedia.org/wiki/McJob>

## Productivity Games

- 20% of regular internet users have visited social networks in the past 30 days
- Over 50% of My Space and Facebook users are over the age of 25
- 80% of active internet users will have a 'second life' by the end of 2011<sup>30</sup>

A study by the Pew Internet & American Life Project found that 53 percent of American adults play video games. A few interesting tidbits from the study<sup>31</sup>:

- 81 percent of those 18-29 years old play games.
- 23 percent of those over 65 years old play games.
- Men (55 percent) are more likely than women (50 percent) to play.
- People in urban areas (56 percent) are more likely than their rural counterparts (47 percent) to play.
- Younger people are more likely to be gamers. But older adults (the ones that actually play) tend to be more active gamers.

Over one-third (36 percent) of gamers 65 and older say they play games everyday or almost everyday, compared with 19 percent of adults aged 50-64, 20 percent of adults aged 30-49, and 20 percent of adults aged 18-29. Senior gamers may play more frequently because they have more time to play than younger gamers, as 77 percent of senior gamers reported being retired.

Social Networking (Blogs, Facebook, MySpace)  
Sharing – (Crowdsourcing, YouTube, other

Communication – (IM, Cell phones, Texting)

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<sup>30</sup> Gartner Symposium/ITExpo 2007

<sup>31</sup> Pew Internet Project, December 2008

# Change Happens

## Level 5

*“Be the change you want to see in the world” Mahatma Gandhi*

Change. **verb (used with object)**

- 1 to make the form, nature, content, future course, etc., of (something) different from what it is or from what it would be if left alone.

It is a fact....change is inevitable, nothing stays the same. Most of us would consider change a part of life.

David Garmin and Amy Edmondson of the Harvard Business School were recently interviewed to explore their new article, “Is Yours a Learning Organization?” In this interview, Garmin suggests (paraphrasing) if you (your organization) learn more rapidly than your competition you will get ahead and stay ahead. He goes on to note that *the rate at which an organization or individual learns may be the only sustainable competitive advantage a company has.*<sup>32</sup>

Many authors, journalists, academics and researchers can now be found sharing a similar and somewhat undeniable observation; that 20<sup>th</sup> century processes and practices are ill-suited and failing in the 21<sup>st</sup> century. In the global business environment of transactions at the speed of light and information at your finger tips, few will argue the merits of approaches to business that are have literally fallen behind the times.

These two professors go on to note that the rate of learning in an organization is an indication of the organizations ability or rate of change. The power in their perspective comes from their conclusion that suggests if your rate of learning isn't equal to or greater than the rate of change in your environment, you will fall behind. You will fail.

It has been noted that there is a very human tendency to resist change. An entire field of study and research has been devoted to exploring the fundamental nature of resistance to change in an organization. Organization theory, organizational behavior and organization development research have resulted in volumes being written.

This book challenges some of the more traditional definitions and views of organizations, management and employees from a generational influence perspective. We have formed a somewhat unconventional (yet arguably valid) view that embraces OCBs, approaches to work tasks, processes, learning, communication methods and tools. Finally, we point to the

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<sup>32</sup> Harvard Business Online <http://video.hbsp.com/?plid=307107&showID=731171>

## Productivity Games

emergence of millennial as the pivot point for a consideration of new ways to think about productivity, and the use of games in the workplace.

Productivity games, as a method or tool to enable work tasks – increasing efficiency, reducing error, improving quality, reducing costs and enabling the best of the talent pool – can clearly be seen as synonymous with change to the traditional (think 20<sup>th</sup> century) way ‘work’ is performed. It therefore begs the question, would there be resistance to this new way of working, and where would the resistance be experienced – with what consequences?

In today's economy, change is all-pervasive in organizations. It happens continuously, and often at rapid speed. Because change has become an everyday part of organizational dynamics, employees who resist change can actually cripple an organization. Traditional organizational behavior and psychology research notes resistance is an inevitable response to any major change. Individuals naturally rush to defend the status quo if they feel their security or status threatened.

However, as a challenge to the conventional research and findings (20<sup>th</sup> century) on resistance to change as a behavioral or psychological manifestation, in our 21<sup>st</sup> century environment, one wonders if this isn't really resistance to ‘learning’.

Alvin Zander (1950) an early researcher on the subject, defined resistance to change as "behavior which is intended to protect an individual from the effects of real or imagined change" (cited in Dent & Goldberg, 1999). Zaltman & Duncan (1977) define resistance as "any conduct that serves to maintain the status quo in the face of pressure to alter the status quo" (cited in Bradley, 2000, p. 76).<sup>33</sup>

A.J. Shuler documented a list of ten reasons (no we're not considering a late night comedy show format) why people resist change:

1. THE RISK OF CHANGE IS SEEN AS GREATER THAN THE RISK OF STANDING STILL
2. PEOPLE FEEL CONNECTED TO OTHER PEOPLE WHO ARE IDENTIFIED WITH THE OLD WAY
3. PEOPLE HAVE NO ROLE MODELS FOR THE NEW ACTIVITY
4. PEOPLE FEAR THEY LACK THE COMPETENCE TO CHANGE
5. PEOPLE FEEL OVERLOADED AND OVERWHELMED
6. PEOPLE HAVE A HEALTHY SKEPTICISM AND WANT TO BE SURE NEW IDEAS ARE SOUND
7. PEOPLE FEAR HIDDEN AGENDAS AMONG WOULD-BE REFORMERS

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<sup>33</sup> Employee Resistance to Organizational Change ©2002 Albert F. Bolognese, Ed. D.



8. PEOPLE FEEL THE PROPOSED CHANGE THREATENS THEIR NOTIONS OF THEMSELVES

9. PEOPLE ANTICIPATE A LOSS OF STATUS OR QUALITY OF LIFE

10. PEOPLE GENUINELY BELIEVE THAT THE PROPOSED CHANGE IS A BAD IDEA<sup>34</sup>

What we find particularly fascinating in reviewing the vast research into resistance to change in an organization, is that invariably, the subject resistors are the employees. Try as we might, we cannot locate significant contributions to the body of knowledge on resistance to change in organizations that considers leadership or management as the resistors, or takes a generational approach that considers technology, communication, tools and other elements that are distinct across the three generations in the workplace today. And no one, yet has considered that resistance to ‘change’ in an organization may in fact be more clearly stated as resisting learning (new communication tools, new methods or process, new ways to approach a task, new ‘learning’ in an organization, or in the world as we know it). And will that reluctance or resistance in fact be the very thing that can or will result in failure in the organization (revenue, profit, competition, etc).

Researchers take note. We hypothesize that the key attributes of resistance to change can easily be pegged to ‘the top’ when it comes to a thoughtful consideration of innovation and change in today’s organization. Further, we invite readers to consider this top ten as a list of attributes one could apply to leadership, executives and management who fail to embrace, support, allow, encourage or enable change within their organizations. We invite readers to consider the likely impacts of that style of management and leadership on any of a number of criteria (recruiting, training, retention, growth, morale, incentives, performance, productivity, creativity, profitability and innovation).

Why, you ask, is this important? And why bring it up in the context of an exploration on GenX and Gen Y, on millennials and their gadgets, and within a book focused on productivity games as an innovative way to engage your talent and maximize output.

The answer is our next hypothesis. We postulate that the employees who were the ‘resistors’ (subjects of the early research) to change in their organizations 30 years ago when the field of study had captured the attention of management scientists, behavioralists and organizational psychologists.....are now in fact the leaders of the current resistance. Did you just have a ‘light bulb moment’ or perhaps catch your breathe or utter an “ah ha...”?

Snap, you get it. We believe future research will show that the baby boomer bosses of today’s organizations are frozen in place, resistant to the very change they need to embrace in order to engage and lead the millennial masses they’ve recruited and are struggling to retain, or facilitate the learning their organizations need in order to survive in the 21<sup>st</sup> century. (note put some data here).

The other part of this is that the employees today all share common tools for communication that managers don’t – texting, blogging, Facebook, IM – and managers tend not to. **TODO: EXPAND THIS CONCEPT, add data**

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<sup>34</sup> Copyright (c) 2003 A. J. Schuler, Psy. D. www.SchulerSolutions.com

## Productivity Games

In many case there is not a disagreement with the benefits of a new process, but rather a fear of the unknown future and about ones ability to adapt to it. de Jager (2001) argues, 'Most people are reluctant to leave the familiar behind. We are all suspicious about the unfamiliar; we are naturally concerned about how we will get from the old to the new, especially if it involves learning something new and risking failure".

Low tolerance for change is defined as the fear that one will not be able to develop new skills and behaviors that are required in a new work setting. According to Kotter & Schlesinger (1979), if an employee has a low tolerance for change, the increased ambiguity that results as a result of having to perform their job differently would likely cause a resistance to the new way of doing things. An employee may understand that a change is needed, but may be emotionally unable to make the transition and resist for reasons they may not consciously understand. **Substitute 'manager' or executive leadership for employee....**

*"We shape our tools. And then our tools shape us."*<sup>35</sup> Marshall McLuhan

The year, 1964. The book, *Understanding Media: The Extensions of Man*. The author, Marshall McLuhan. McLuhan's theory was that a medium affects the society in which it plays a role not by the content delivered over the medium, but by the characteristics of the medium itself.

"the medium is the message".<sup>36</sup>

McLuhan theorizes that conventional pronouncements fail in studying media because they pay attention to and focus on the content, which blinds one to its actual character, the psychic and social effects. As an example, the electric light is usually not even regarded as a media (medium) because it has no content. However, the illumination from a light allows the use of a public place after dark.

McLuhan observed that any medium "amplifies or accelerates existing processes", introduces a "change of scale or pace or shape or pattern into human association, affairs, and action", resulting in "psychic, and social consequences". This is the real "meaning or message" brought by a medium, a social and psychic message, and it depends solely on the medium itself regardless of the 'content' emitted by it.

Could this insight be applied to any tool we use to facilitate tasks or business processes in the workplace?

Consider the definition of tool - an entity used to interface between two or more domains that facilitates more effective action of one domain upon the other<sup>37</sup>. Early tools included rock, flint,

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<sup>35</sup> *Understanding Media: The Extensions of Man*, Marshall McLuhan, 1964

<sup>36</sup> [http://en.wikipedia.org/wiki/Understanding\\_Media#cite\\_ref-p7\\_0-0](http://en.wikipedia.org/wiki/Understanding_Media#cite_ref-p7_0-0)

<sup>37</sup> <http://en.wikipedia.org/wiki/Tool>

## Productivity Games

tree limbs used as levers, fire and the wheel. As they were put into use, one wonders if anyone 'resisted' their use or argued their value.

The most basic tools are simple machines.

A telephone is a communication tool that interfaces between two people engaged in conversation. It is in the domain of media and communications technology that a counterintuitive aspect of our relationships with our tools first began to gain popular recognition. McLuhan was onto something over 40 years ago when referring to the fact that our social practices co-evolve with our use of new tools and the refinements we make to existing tools.

Insert stats on internet access/growth and penetration by populations globally  
<http://www.internetworldstats.com/stats.htm>

Fast forward, from the first tool in prehistoric time, through the Stone Age, Bronze and Iron Ages, to the age of the Internet. Throughout time, what has set us apart has been the ability to not only create tools, but make tools from tools. This is what separates us from other forms of life.

Consider our interfaces to information, and apply the definition of tool. Your keyboard, touch screen or mouse; PDA or iPod; cell phone or game console... (recall the earlier definition of tool; *an entity used to interface between two or more domains that facilitates more effective action of one domain upon the other*)

Each of these is a tool. And tools are what facilitate action.

From here, explore the use of games as a tool to accomplish a task; facilitate a process; reach a goal;

"Everything old is new again"

"The future of work is here; it's just disguised as a game," (Diego Rodriguez, Business Week, August 13, 2007)

Self-nominated teams in each office crafted their own chain reaction experience, each of which was triggered by another chain reaction experience sitting in another office. It all took place on one Friday morning...

Why? Because... just because. Because it is fun. Because it is there. Because cultures that **play on a routine basis** are more likely to be innovative routinely. Because the question "how can we be more innovative?" is better couched as "how can we be more comfortable acting in innovative ways?". It's about encouraging a behavior, not a thing. A verb, not a noun.

## Productivity Games

Since innovative behavior is about both the practitioner and the environment they live in, why not do something that buffs both?<sup>38</sup>

Metacool, October 29, 2008

"When you're making something of high quality, you have to polish it a certain number of times. This is actually a number of trial and errors. When you think about how much you can polish something in a four-year development period, you're talking about how many times you can do trial and error and then speed becomes the defining factor. When you all share that speed as a team, you can polish a car like never before. It's that simple, really."

- Kazutoshi Mizuno, Chief Vehicle Engineer, Nissan GT-R

I love this insight of Mizuno's, because it speaks to one of the fundamental aspects of design thinking as it relates to the process of innovation: iterate, iterate, iterate. I often relate "business by design" to "business as usual" by using a sporting analogy: business as usual is about efficiency and accuracy, about swimming as fast a race as one can. And there's a time and a place for that. ***Business by design, in contrast, would be a swim race where you were rewarded based on the number of laps you could get in within a certain amount of time. You want to do lap after lap, because with each stroke through the water, you gain the opportunity to learn something new, to try a different approach. The sum of all those small learnings and insights -- together with the occasional big leap -- is what ends up being called innovative behavior.***

quote source: [Gran Turismo TV](#), "The GT-R Legend Inside Story"

Nov 30, 2008

Note: psychological safety, the ability to ask questions, make mistakes and take risks. It is needed to learn.

A climate that tolerates mistakes, is one of learning. Think about how you learned to ride a bike, play dodge ball or play a musical instrument in band when you were young. You needed training wheels, then got some skill. After a few scraped knees and scratches on your fenders, the training wheels came off. With more skill, you started were willing to ride faster, or even let go of the handle bars raising your arms in a 'near flight' ride of jubilation.

Apply to the workplace.

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<sup>38</sup> <http://metacool.typepad.com/metacool/innovation/index.html> posted October 29, 2008

Think about the necessity for a place of work that is willing to respond to change, and to act; to work 'with' ideas, acquire knowledge, modify behaviors.....and show how the use of games at work is just that.

# Economics of Productivity

## Level 6

*“Economic depression cannot be cured by legislative action or executive pronouncement.*

*Economic wounds must be healed by the action of the cells of the economic body - the producers and consumers themselves.”*

*Herbert Hoover, American President*

The United States, followed by nearly every major economy around the world, has officially been in a recession since December 2007. Every possible economic indicator paints the picture. When framed with continued trending of lost jobs, the impact of outsourcing, failure of major financial institutions, collapsing industry sectors and historically tight credit, one wonders how and when recovery might occur. The order of magnitude could not be overstated. The life of the worker may be forever changed.

The latest data from the Bureau of Labor Statistics noted a monthly decrease for nonfarm payroll of 533,000 positions for the month of November, 2008. This decline followed declines of 403,000 in September and 320,000 for October. Job losses were large and widespread across the major industry sectors.

The Bureau of Labor Statistics (U.S. Department of Labor) reported revised productivity data—as measured by output per hour of all persons—for the third quarter of 2008. The seasonally adjusted annual rates of productivity growth in the third quarter were: 1.5 percent in the business sector and 1.3 percent in the nonfarm business sector. In both sectors, hours were revised down more than output, leading to productivity increases which are 0.2 percentage point higher than in preliminary estimates published November 6.

In manufacturing, revised productivity changes in the third quarter were: -2.7 percent in manufacturing, 2.9 percent in durable goods manufacturing, and -10.2 percent in nondurable goods manufacturing.

## Productivity Games

The average hourly compensation of all manufacturing workers rose 4.7 percent in the third quarter of 2008, and increased more in the durable goods sector, 6.1 percent, than in the nondurable goods sector, 2.6 percent. Real hourly compensation for all manufacturing workers declined 1.9 percent in the third quarter, following declines of 0.5 percent and 2.7 percent in the first and second quarters of 2008.

Both the decrease in productivity and the increase in hourly compensation contributed to a 7.6 percent increase in unit labor costs in manufacturing during the third quarter—much higher than the 4.0 percent increase over the last four quarters and the 0.3 percent rate from 2000 to 2007.

Unit labor costs increased 3.1 percent in durable goods industries and 14.3 percent in nondurable goods industries during the third quarter.

Why focus on this data? Because the data tells a story. The trending does not lie. History once more is our teacher, as we look to the past for some insight into our present. However, one might argue that this data is telling a story unlike anything we've experienced in the past, and begs the question of a new way of thinking about productivity going forward.

Rebecca Blank, an economist at the Brookings Institute in Washington, said she expects manufacturing jobs to keep vanishing steadily from the U.S. economy, including in the auto industry. "It's been a downward trend since the late 1970s," she said. "They are not coming back by and large."

Industries with some of the steepest job losses include construction, financial services, retail and manufacturing. There are some good data noted in the fields of health care, professional services, utilities/energy, mining and surprisingly transportation.

With the bad, comes the good. Many are calling a bottom to the extraordinary market conditions by Q3 2009, and with the inauguration of a new president in January 2009, many look for far reaching programs to create jobs and continued efforts to stimulate the economy.

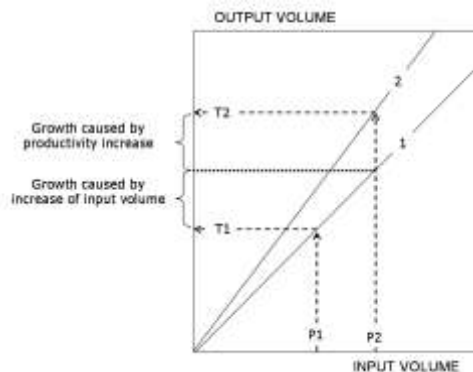
Productivity and economic growth (and decline) go hand in hand. If readers can excuse our momentary lapse into Econ 101, we need to briefly explore the two. Production is a process of combining various immaterial and material inputs of production so as to produce tools for

## Productivity Games

consumption. The way of combining the inputs of production in the process of making output is called technology.

Technology can be depicted mathematically by the production function which describes the function between input and output. The production function depicts production performance and productivity is the measure of it.

With the help of the production function, it is possible to describe simply the mechanism of economic growth. Economic growth is a production increase achieved by an economic community. It is usually expressed as an annual growth percentage depicting (real) growth of the national product. Economic growth is created by two factors so that it is appropriate to talk about the components of growth. These components are an increase in production input and an increase in productivity. (Genesca & Grifell 1992, Saari 2006)



*Figure 6 - Economic Growth Process*

The figure presents an economic growth process. By way of illustration, the proportions shown in the figure are exaggerated. Reviewing the process in subsequent years (periods), one and two, it becomes evident that production has increased from Value T1 to Value T2. Both years can be described by a graph of production functions, each function being named after the respective number of the year, i.e., one and two. Two components are distinguishable in the output increase: the growth caused by an increase in production input and the growth caused by an increase in productivity.

Characteristic of the growth effected by an input increase is that the relation between output and input remains unchanged. The output growth corresponding to a shift of the production function is generated by the increase in productivity.

## Productivity Games

Accordingly, an increase in productivity is characterized by a shift of the production function and a consequent change to the output/input relation. The formula of total productivity is normally written as follows:

$$\textit{Total productivity} = \textit{Output quantity} / \textit{Input quantity}$$

According to this formula, changes in input and output have to be measured inclusive of both quantitative and qualitative changes. (Jorgenson and Griliches 1967). In practice quantitative and qualitative changes take place when relative quantities and relative prices of different input and output factors alter. In order to accentuate qualitative changes in output and input, the formula of total productivity shall be written as follows:

$$\textit{Total productivity} = \textit{Output quality and quantity} / \textit{Input quality and quantity}$$

No, there won't be a pop quiz. But it is fair to say if we are going to recover our economy it will be through growth in productivity. The question is how.

Perhaps there is a new equation for productivity that factors trust, morale, creativity, the uniqueness of a new generation of workers and a different perspective of quality.

Note: what does that equation measure/look like??

The state of the global economy is not rocket science. And while models have been built to either illustrate how we got here, or forecast when we'll escape, it is safe to say that we are in a world unlike any we've seen. And history may not in fact be the best predictor of the future.

Research into economic equations and forecast models finds they may not include the impact of morale. Models do not help us understand how to value creativity or innovation or predict their impact on productivity. It was recently suggested that while it took an engineer to build an iPod, it took someone creative to come up with the idea.



## Productivity Games

The future economics of productivity in the 21st century has no traditional basis. Economists' models are good at predicting trends after the fact. They tend to leverage what has already happened in order to explain it much later. Much as hindsight is 20/20, economic models do a pretty good job of illustrating things that have already occurred.

We are dealing with extraordinary circumstances, and can learn from them. Lost jobs may not be filled, but the original employee still needs employment. Workers of all demographics are likely to find themselves in a relearning and retooling mode, much as employers are likely to find that recruiting and training need to be considered in light of where we are going rather than where we've been.

When we look at the data on lost jobs, and available talent, it begs the question of how to engage the resource as part of what will likely be the most incredible business recovery in historic or modern times. Just as the 'economics' of this recession are unprecedented, so too will be the recovery.

Enter the question of 'how'. How will we put all this talent back to work? How will we recover, and how will a global economy emerge from this recession?

Our hypothesis suggests that serious games will be a significant tool for recovery. The breadth of function and process from recruiting and hiring, through training and skill building can be materially impacted through the use of games geared to productivity.

(examples, data, scenarios.....by industry, by process/function, and ROI)

# What do Historically Successful Games Teach Us?

## Level 7

*"If life doesn't offer a game worth playing, then invent a new one."*

— Anthony J. D'Angelo

## Introduction

### Game Theory

Game theory is a rich and fascinating topic that is beyond the scope of this book. However, using the principles of game theory in game design, and particularly in the design of productivity games, is highly recommended. The value that an understanding of game theory can provide is to help with motivating people to play. The logic and problem solving inherent in game theory help with the design of scoring, understanding where game design can go wrong, and improving the ability to attract players. Because games at work introduce a secondary reward system, it's important to understand the motivational aspects of game play and treat them carefully. The application of game theory can help with that.

**game theory** *A mathematical theory, developed by J. von Neumann ( 1903-57) and O. Morgenstern ( 1902-77) in 1944, concerned with predicting the outcome of games of strategy (rather than games of chance) in which the participants have incomplete information about the others' intentions. Under perfect competition there is no scope for game theory, as individual actions are assumed not to influence others significantly; under oligopoly, however, this is not the case. Game theory has been increasingly applied to economics in recent years, particularly in the theory of industrial organizations.*<sup>39</sup>

The children's game of Rock-Paper-Scissors is a great example of a simple game that benefits from the science and mathematics behind game theory.

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<sup>39</sup> A Dictionary of Finance and Banking, 1997

*THE WORLD RPS SOCIETY - OFFICIAL ABRIDGED RULES OF PLAY<sup>40</sup>*

*1.0 The Game is played where the players substitute the three elements of Rock, Paper and Scissors with representative hand signals.*

*2.0 These hand signals are delivered simultaneously by the players*

*3.0 The Outcome of play is determined by the following*

*Rock wins against Scissors,*

*Scissors wins against Paper*

*Paper wins against Rock*

A simple example of using game theory at work can be quite helpful: Let us suppose that it is performance evaluation time, and your boss can promote one person on your team of three. You would like that person to be you. You can choose one of three areas to work, and you get first choice. Task A is easy, and has 100% chance of completion. Task B is harder with 75% chance, but greater kudos. And Task C is difficult but highly valued. Your teammates are quite vicious and have conspired to sabotage one of the tasks to ensure failure. You think that they believe you will choose Task A because it's the easiest. But on second thought, they would probably assume you would come to that conclusion, so perhaps they sabotage Task B instead. What choice should you make? This is the essence of game theory.

A great example of “Game Theory at Work” is the ESP Game. Developed by Luis Von Ahn at Carnegie-Mellon, this competition joins two random, unknown players in a classic “prisoner’s dilemma” with a clear reward for cooperation over defection.

ESP Game link <http://www.gwap.com/espgame-o/start.html>

There are many dimensions of game theory that align to theories of motivation and behavioral sciences. The typical user interface to a productivity game probably shields the user from any scientific underpinnings, and therefore makes them susceptible to the motivating capabilities of a productivity game. The ESP game is a terrific example. The players are so blindsided by their own motivation to “match” terms with their partner, that they immediately lose site of the fact that they are volunteering work for the sole benefit of the game master.

### **Why do People Play Games?**

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<sup>40</sup> [http://www.worldrps.com/index.php?option=com\\_content&task=view&id=14&Itemid=31](http://www.worldrps.com/index.php?option=com_content&task=view&id=14&Itemid=31)

Games are fundamental to human existence. There are records of games that date back thousands of years to the early humans. Children like to play, and the appeal and attraction of games is typically associated with young children. Why?

*We must reach not thousands but millions of years into the past to find the earliest games, for games predate not just history but all of mankind. They are not a human invention. Fortunately, direct recourse to paleontology is unnecessary. A trip to the zoo will suffice. There we find two lion cubs wrestling near their mother. ...these cubs do indeed appear to be playing a kind of game. ... These games are deadly serious business. They are studying the skills of hunting, the skills of survival. They are learning how to approach their prey without being seen, how to pounce, and how to grapple with and dispatch prey without being injured. They are learning by doing, but in a safe way.* <sup>41</sup>

In other words, games are a tool for learning. While there are many reasons people may choose to play games, there is an elemental role of games in skill establishment and mastery. The makeup, nature, and competition that's often inherent in the game is a distraction away from the teaching, practice, or learning that's taking place. The more a game is played, the better the player becomes. Similarly, the more a given work task, or skill exercise is practiced, the better the performer or employee becomes.

*“If a man insisted on being serious, and never allowed himself a bit of fun and relaxation, he would go mad or become unstable without knowing it.”*<sup>42</sup>

People play games for entertainment, for the challenge, to demonstrate their prowess, to stand up to a competitor, and many other reasons. However, one fundamental component of games that shared across all genres is the ability of the player to learn something new by playing. Whether that game is checkers or the latest video game, the skill enhancement is part of the attraction of the game.

## How do People Learn?

**TODO: Research MSharritt work on Cues and learning styles.**

There are thousands of experts, who've studied this topic for generations, and so the details are outside of the scope of this book, but the point here is that game design can improve from a designer's understanding of how people learn. Games are a form

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<sup>41</sup> The Art of Computer Game Design, Chris Crawford

<sup>42</sup> Herodotus, Greek Historian, 484BC-409BC

of practice, and understanding how to reach people to encourage them and fulfill their need for feedback will help tremendously.

<http://www.funderstanding.com/content/about-learning>

**TODO: reword**

Driscoll (1994) suggested that many learning theories do share some basic assumptions about learning:

- Learning is a persisting change in human performance or performance potential.
- To be considered learning, a change in performance must come about as a result of the learner's interaction with the environment. Learning requires experience. How these experiences are presumed to bring about learning distinguishes different learning theories.<sup>43</sup>

## **Behaviorism**

Behaviorism theory suggests that learning results in observable behavioral changes. Behaviorism ignores the thinking aspect of learning and assumes that the changes in behavior.

### **Ivan Pavlov**

Perhaps the most famous Behaviorist was Ivan Pavlov. Pavlov believed that animals could be trained to respond to a distinct stimulus. Pavlov's work with salivating dogs was part of the research that earned him the Nobel Prize in 1904.

As he studied the digestive system, he noticed that when a dog encounters food, he starts to salivate, in order to make the food easier to swallow and digest. However, he noticed that sometimes the dogs drooled with no food in sight. It turns out that the scientists who served the food wore lab coats, and each time a scientist showed up with a lab coat, the dog started to salivate in preparation for a meal. Pavlov went on to do a number of experiments, the most famous of which was ringing a bell at meal time. Over time, the dogs reacted to the sound of the bell by salivating.

### ***Pavlov's Dog Game***

On the Nobel Prize site, there is a simple game called Pavlov's Dog. In the game, the player tries to train a dog to drool on command.

[http://nobelprize.org/educational\\_games/medicine/pavlov/](http://nobelprize.org/educational_games/medicine/pavlov/)

B.F. Skinner is another big name in the world of Behaviorism. Skinner worked extensively to test the theories of John B. Watson, who developed Pavlov's ideas.

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<sup>43</sup> [http://tlt.its.psu.edu/suggestions/research/How\\_People\\_Learn.shtml](http://tlt.its.psu.edu/suggestions/research/How_People_Learn.shtml)

Skinner believed that people respond to their environment, but they may also manipulate the environment to produce certain outcomes. Skinner's theory of "operant conditioning," proposes that people behave in a certain way because similar behavior in the past has produced certain outcomes. For example, if a game player defeats a monster using a certain combination of moves, he will likely use that same sequence of moves next time he encounters that same monster, expecting the same reward or result. Behaviorists believe that the reinforcements of the outcome determine the behavior, and that neither thinking or feeling play any role in influencing the behavior.

## **Cognitivism**

TODO: rewrite

Cognitivism is a view of learning that suggests that people's structure of knowledge can change when they experience events in their environment. As they think and perceive what's happening, the way that look at things in the future is formed or changes.

"Learning is a relatively permanent change in a person's knowledge or behavior due to experience. This definition has three components: (1) the duration of the change is long-term rather than short-term; (2) the locus of the change is the content and structure of knowledge in memory or the behavior of the learner; (3) the cause of the change is the learner's experience in the environment rather than fatigue, motivation, drugs, physical condition, or physiological intervention." (Mayer, 1982, p. 1040).

"Learning is a process that takes place inside a person's head." This process "enables organisms to modify their behavior fairly rapidly in a more or less permanent way." (Gagne & Driscoll, 1988).

## **Constructivism**

Constructivism is based on the belief that people build their own reality to learn. A person's knowledge is built from a combination of experience, beliefs, and cognitive structure or mental models that applied to a learning situation.

*"Perhaps the most common misconception of constructivism is the inference that we each therefore construct a unique reality, that reality is only in the mind of the knower, which will doubtlessly lead to intellectual anarchy."*<sup>44</sup>

#### The Assumptions of Constructivism<sup>45</sup>

- knowledge is constructed from experience
- learning is a personal interpretation of the world
- learning is an active process in which meaning is developed on the basis of experience
- conceptual growth comes from the negotiation of meaning, the sharing of multiple perspectives and the changing of our internal representations through collaborative learning
- learning should be situated in realistic settings; testing should be integrated with the task and not a separate activity

<http://www.learningandteaching.info/learning/constructivism.htm>

TODO: rewrite

Jonassen (1994) proposed that there are eight characteristics that differentiate constructivist learning environments: <sup>46</sup>

1. Constructivist learning environments provide multiple representations of reality.
2. Multiple representations avoid oversimplification and represent the complexity of the real world.
3. Constructivist learning environments emphasize knowledge construction inserted of knowledge reproduction.
4. Constructivist learning environments emphasize authentic tasks in a meaningful context rather than abstract instruction out of context.
5. Constructivist learning environments provide learning environments such as real-world settings or case-based learning instead of predetermined sequences of instruction.

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<sup>44</sup> Thinking Technology: Toward a Constructivist Design Model, Jonassen

<sup>45</sup> Merrill, M.D. (1991). in Constructivism and the Technology of Instruction, p 102. Duffy, Jonassen, 1992.

<sup>46</sup> <http://viking.coe.uh.edu/~ichen/ebook/et-it/constr.htm>

6. Constructivist learning environments encourage thoughtful reflection on experience.
7. Constructivist learning environments "enable context- and content- dependent knowledge construction."
8. Constructivist learning environments support "collaborative construction of knowledge through social negotiation, not competition among learners for recognition."

Jonassen's eight characteristics would be supported by both social and cognitive constructivists. There is, however, a difference in the emphasis these two strands on constructivism place on each of those characteristics.

- [http://tlt.its.psu.edu/suggestions/research/How\\_People\\_Learn.shtml](http://tlt.its.psu.edu/suggestions/research/How_People_Learn.shtml)

Piaget's Developmental Theory

Neuroscience

Brain-Based Learning

Learning Styles

Multiple Intelligences

Right Brain/Left Brain Thinking

Communities of Practice

Control Theory

Observational Learning

Vygotsky and Social Cognition

**TODO: re-word this section**

### ***Principles of human learning***<sup>47</sup>

1. Students cannot recall and apply knowledge unless they practice retrieval and use.
2. Better learning (more easily recalled and applied) results when we vary the conditions of learning

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<sup>47</sup> [http://tlt.its.psu.edu/suggestions/research/How\\_People\\_Learn.shtml](http://tlt.its.psu.edu/suggestions/research/How_People_Learn.shtml)



3. When learners integrate knowledge from both verbal and visual representations, they can recall it and apply it with greater ease.
4. Prior knowledge or belief determines what students will learn.
5. What instructors and learners believe about knowledge acquisition (epistemology) influences what will be learned.
6. Experience is a poor teacher because corrective feedback is rare.
7. Lectures fail to promote understanding because understanding is an interpretive process in which students must be mentally involved.
8. Remembering is a creative process that influences what learners will and will not be able to recall and apply.
9. In learning, less is more. Trying to cover large amounts of material and information reduces understanding and recall. If we teach toward future use, we should focus on in-depth understanding of principles.
10. What learners do in a course will determine what they will learn, how well they can recall it, and the conditions under which they can use it.

## Productivity Games in History

<http://www.nationmaster.com/encyclopedia/Prizes-named-after-people>

<http://www.nationmaster.com/encyclopedia/List-of-prizes>

[http://images.businessweek.com/ss/08/06/0602\\_innovation\\_history/index\\_01.htm](http://images.businessweek.com/ss/08/06/0602_innovation_history/index_01.htm)

## Benjamin Franklin: Using Chess to learn Italian

*"The Game of Chess is not merely an idle amusement several very valuable qualities of the mind, useful in the course of human life, are to be acquired and strengthened by it, so as to become habits ready on all occasions for life is a kind of Chess, in which we have points to gain, and competition or adversaries to contend with, and in which there is a vast variety of good and ill events, that are, in some degree, the effect of prudence, or want of it. By playing at Chess then, we may learn:*

*First, Foresight...*

*Second, Circumspection...*

*Third, Caution...*

*And lastly, We learn by Chess the habit of not being discouraged by present bad appearances in the state of our affairs the habit of hoping for a favorable chance,*

*and that of persevering in the secrets of resources.”* - Benjamin Franklin, The Morals of Chess.

That final paragraph is inspiring to read, even 300 years later.

Benjamin Franklin was born on January 17<sup>th</sup>, 1706. Today is his 303<sup>rd</sup> birthday. He grew up in Boston. He was the youngest son, and had nine brothers and seven sisters. He loved to learn – to read and write. He liked the game of chess and a game called “Magic Squares”<sup>48</sup>

He trained to be a printer, traveling to England for two years as a teenager to learn the trade.

In 1750, Benjamin Franklin wrote “The Morals of Chess” about the game he had been playing for decades.

*The game of Chess is not merely an idle amusement. Several very valuable qualities of the mind, useful in the course of human life, are to be acquired or strengthened by it, so as to become habits, ready on all occasions. For life is a kind of chess, in which we have often points to gain, and competitors or adversaries to contend with, and in which there is a vast variety of good and ill events, that are, in some degree, the effects of prudence or the want of it.*

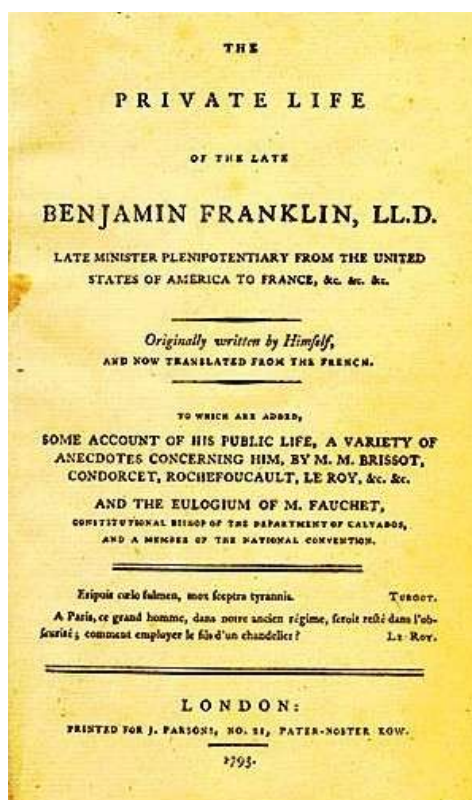


Figure 7 - Franklin Autobiography <sup>49</sup> ml

Most importantly, though, from a productivity games perspective, is that in 1733, as he was learning languages, he had finished with French and was learning Italian. He found a friend who was also learning Italian, and enjoyed chess. As with the video gamer today who plays Halo late into the night at the expense of homework, Franklin realized that the time he spent playing chess was taking away from his progress on learning Italian. He and his friend decided that they would use the game as a way to drive their linguistics progress:

*”I had begun in 1733 to study languages. I soon made myself so much a master of the French as to be able to read the Books with ease. I then undertook the Italian. An acquaintance who was also learning it, used often to tempt me to play Chess with him.*

*Finding this took up too much of the Time I had to spare for study, I at length refused to play any more, unless on this condition, that the victor in every Game, should have the Right to impose a Task, either in parts of the Grammar to be got by heart, or in Translation, &c, which task the vanquish'd was to perform upon honor before our next Meeting. As we played pretty equally we thus beat one another into that Language.” (1, p.30)*

Franklin’s use of chess to drive him to learn the Italian language shares many of the characteristics of successful productivity games. Italian was a volunteer or “citizenship” behavior for Franklin – he was a printer, and learning the language was a way to EXPAND his skills, not part of his regular job. The game appealed to both player vs. player (he and his chess partner), player vs. self (the present Franklin vs. his future “fluent-in-Italian” self) – and player vs. environment (Franklin vs. the challenging language). The games were short in duration – each game of chess resulted in the loser performing a lesson, and then a new game would commence. Just as with productivity games, the goal was to keep playing (keep the chess games going as a way to motivate the Italian studies. The game was a diversion to keep him diligent in the task of learning a challenging language. Franklin’s use of chess to learn Italian in the late 18<sup>th</sup> century shares many of the characteristics of successful productivity game deployment today.

*And whoever considers, what in chess he often sees instances of, that particular pieces of success are apt to produce presumption, and its consequent, inattention, by which more is afterwards lost than was gained by the preceding advantage; while misfortunes produce more care and attention, by which the loss may be recovered, will learn not to be too much discouraged by the present success of his adversary, nor to despair of final good fortune, upon every little check he receives in the pursuit of it. – The Morals of Chess.*

Games like chess can not only teach great life lessons, but can be incorporated in deliberate, planned, and consistent work towards goals, whether in the workplace or in life.

### **Games of the Ge people of Brazilian Highlands**

*The Suyá have two principal directions: east (kaikwa kradi) and west (kaikwa (s)indaw). The plaza may have two men's houses, one located in the east, the other in the west (or a single one with two distinct halves). These are associated with the moieties. The moiety in the eastern men's house carries the lower part of the burity palm trunk in log races (kradi) while the western moiety carries the upper part (sindaw). At certain moments the men sing the first part of their akia (kradi) in front of the eastern men's house (or eastern side of the single men's house) (kaikwa kradi) following which they sing the second part (sindaw) in front of the western men's house (kaikwa (s)indaw). The nomenclature of songs and certain features of*

*their performance is thus congruent with a number of the other dual organization features of Suyu society.*<sup>49</sup>

The log run is a team-based competition where men's and women's teams carry logs, sometimes weighing over 200 pounds, for several miles. The race emphasizes teamwork and cooperation. The larger roads were used for a favorite game of Ge peoples—relay racing with heavy logs, in which the two moieties competed against each other. Each contestant sprinted with a heavy log on his shoulder until he was worn out, then passed it on to a teammate.

William Cook, a Protestant missionary in 1909 witnessed an interesting variation, where teams cut down small banana plants, called mano. They floated them down the river, and then to get them from the river to the village, they had a race, in which two teams lashed together the stalks into a role or wheel.

*"The two divisions on the day that Cook witnessed the mano race threw down their bundles at the same time, and all were acclaimed by the entire village . the men quickly went to a large communal hut for a big feast, while the women and children tore up the wheels to use the mano stalks in small bundles for pillows. What Cook saw proved the Bororo capable of a planned community-wide endeavor that was physically taxing and required a high degree of cooperation and intensity. Winning the race was apparently not as important as the act of competing. Cook suggests that it was simply a large scale production of the Bororo's acute ability to imitate nature. "*<sup>50</sup>

### **Incan Messengers**

[http://www.amazon.com/gp/reader/0313316007/ref=sib\\_dp\\_srch\\_pop?v=search-inside&keywords=Incan%20messengers#](http://www.amazon.com/gp/reader/0313316007/ref=sib_dp_srch_pop?v=search-inside&keywords=Incan%20messengers#)

### **Tarahumara ball racers**

Hunting by running – “Tarahumara running is based on endurance not speed. This fact is exemplified by their hunting practices. In order to catch such wild animals as deer, wild turkeys, and rabbits, the Tarahumara simply chase after the animal until the animal drops from exhaustion. Their hunting practices are widely known in Mexico and ranchers have been known to hire the indians to chase down wild horses .

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<sup>49</sup> EthnoMusicology, 1914, p.

[http://www.archive.org/stream/ethnomusicology017335mbp/ethnomusicology017335mbp\\_djvu.txt](http://www.archive.org/stream/ethnomusicology017335mbp/ethnomusicology017335mbp_djvu.txt)

<sup>50</sup> Sports and Games of the Ancients (Sports and Games Through History), Steve Craig p.135

The Tarahumara method of fishing is very unusual. They throw sticks of dynamite into the water to stun the fish and then dive down to collect them. If they are hunting small game, they chase after it and then throw rocks at it. The Tarahumara is very accurate throwers and practice from childhood. These extreme eating habits seem to contribute to lower pulse rates and blood pressure. These factors may allow them to cope with oxygen debt at high altitudes, such as a mile and a half above sea level. “ - <http://www.lehigh.edu/~dmd1/art.html>

Training while herding cows and livestock - [http://www.amazon.com/gp/reader/0313316007/ref=sib\\_dp\\_srch\\_pop?v=search-inside&keywords=tarahumara](http://www.amazon.com/gp/reader/0313316007/ref=sib_dp_srch_pop?v=search-inside&keywords=tarahumara)

*Running is very important to the Tarahumara culture, although there is no formal training. Quite the opposite, the Tarahumara smoke and drink before each race. While even the children participate, it is not something taught to them. The Tarahumara call themselves "raramuri" which means fleet foot or foot runner.(Lutz 33) They take great pride in their running abilities and the best runners receive great status in society. They center the entire society around their running. Says anthropologist John Kennedy, "Running is more than a game to the Tarahumara. Though obviously a pleasant diversion, it is also an economic activity, a force for social cohesion, and a channel of aggression....If this institution were removed from Tarahumara life, the total cultural imbalance resulting would be greater than if some sporting activity were dropped from our own complex culture".(Severance 74)*

*The Tarahumara culture involves two very significant features that deal with running, the rarajipari and the dowerami, which are races in which people of the same sex compete. The rarajipari is for men and is the more competitive of the two. It is a race run between two teams each of three to ten men. The intriguing thing about the race is that men on the teams kick along a wooden, baseball-shaped ball as they run. Each man takes his turn dribbling the ball in a style similar to soccer and the total distance run may be up to one hundred and fifty miles. The races take place over very rugged terrain. The courses are either not marked or marked with rocks and sticks. The races are very competitive because they are run between neighboring villages and much pride is involved. Much betting goes on and cheating often takes place. There is also a lot of ritual and superstition involved during the race and in pre-race competition. Each team has their own medicine*

*man who is responsible for conjuring up special potions to help the runners and to cast bad luck on the opposing team. Runners smoke and drink right until the day of the race. They ritualistically drink tesguino, an alcohol made of corn the night before the race. Runners often smoke a combination of tobacco and dried bats' blood to help them run faster and keep away the other team's spirits. The medicine man also digs up a dead person's shin bone, crushes it into a powder and spreads it over the race course. The man's spirit supposedly casts bad luck on the runners from the other team. Runners are very superstitious and drop out of races from fear, but never from exhaustion. Team members also avoid contact with women for several days before the race.(Lutz 21)*

*The women also run a similar race called the dowerami. The difference between the two races is that women throw and catch interconnected loops while they run. Most rules still apply but the women's race is less important to their society. Both types of races are major social events and are very fun to the Tarahumara. Everyone comes out to watch and offers food to runners.(Lutz 21) <sup>51</sup>*

## **Games to Build the Pyramids**

### **Burn the Ships!**

In 1519, Spanish Conquistador Hernando Cortez set out in pursuit of treasures in Mexico. He brought eleven ships and hundreds of men to seize the treasure of the great Aztec empire. Cortez used principles of game theory and the words of Sun Tzu to inspire his men to fight and win. When they landed in the Yucatan, Cortez removed the option of defection by burning the ships. The commitment to cooperate was now greater than ever, since there was no other option. Many of the men were loyal to Diego Velazquez, who was another Spanish Conquistador and founded Cuba, and Cortez worried that he would not have the full commitment of the men if they had the option to defect and travel to Cuba.

#### ***Burn the Ships – Steven Curtis Chapman***<sup>52</sup>

*In the spring of 1519 a Spanish fleet set sail  
Cortez told his sailors this mission must not fail  
On the eastern shore of Mexico they landed with great dreams  
But the hardships of the new world make them restless and weak  
Quietly they whispered, "Let's sail back to the life we knew"  
But the one who led them there was saying*

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<sup>51</sup>

<sup>52</sup> [http://www.actionext.com/names\\_s/steven\\_curtis\\_chapman\\_lyrics/burn\\_the\\_ships.html](http://www.actionext.com/names_s/steven_curtis_chapman_lyrics/burn_the_ships.html)

*CHORUS*

*Burn the ships, we're here to stay  
There's no way we could go back  
Now that we've come this far by faith  
Burn the ships, we've passed the point of no return  
Our life is here  
So let the ships burn*

*In the spring of new beginnings a searching heart set sail  
Looking for a new life and a love that would not fail  
On the shores of grace and mercy we landed with great joy  
But an enemy was waiting to steal, kill, and destroy  
Quietly he whispers, "Go back to the life you know"  
But the one who led us here is saying*

*(Chorus)*

*BRIDGE*

*Nobody said it would be easy  
But the one who brought us here  
Is never gonna leave us alone*

*(Chorus)*

**Sun Tzu's Art of War**

Sun Tzu was a Chinese military general in about 500 BC. He wrote a famous military piece called, "The Art of War". In this text, over 2500 years old, Sun Tzu describes the use of a variety of game theory principles in his approach to conflict and engagement with an enemy. The book, with 13 chapters, covers a wide variety of military strategy. While there are many fascinating aspects to this great work, there are several examples of a fundamental understanding and application of game theory.

Cortez, in burning his ships, followed Sun Tzu's advice.

*Throw your soldiers into positions whence there is no escape, and they will prefer death to flight. If they will face death, there is nothing they may not achieve.<sup>53</sup>*

Sun Tzu was well aware of the elements of competition and cooperation that are commonplace in game theory and

*Now the general who wins a battle makes many calculations in his temple ere the battle is fought. The general who loses a battle makes but few calculations beforehand. Thus do many calculations lead to victory, and few calculations to defeat: how much more no calculation at all! It is by attention to this point that I can foresee who is likely to win or lose.*

*Warfare is the Way of deception.*

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<sup>53</sup> Sun Tzu, The Art of War, Chapter 11: Nine Grounds



*Therefore, if able, appear unable,  
if active, appear not active,  
if near, appear far,  
if far, appear near.  
If they have advantage, entice them;  
if they are confused, take them,  
if they are substantial, prepare for them,  
if they are strong, avoid them,  
if they are angry, disturb them,  
if they are humble, make them haughty,  
if they are relaxed, toil them,  
if they are united, separate them.  
Attack where they are not prepared, go out to where they do not expect.* <sup>54</sup>

This text describes, in game theory terms, the minimax theorem

*For every two-person, zero-sum game with finite strategies, there exists a value  $V$  and a mixed strategy for each player, such that (a) Given player 2's strategy, the best payoff possible for player 1 is  $V$ , and (b) Given player 1's strategy, the best payoff possible for player 2 is  $-V$ .*<sup>55</sup>

### **The Nobel Prize**

While many people have heard of the Nobel Prize, awarded annually in a variety of disciplines, few know the man or the story behind the award. Alfred Nobel (1833-1896) was a Swedish scientist, chemist, and inventor, who holds over 350 patents, the most famous of which being the patent for dynamite. <sup>56</sup>

When he passed away in 1896, Nobel left behind a sizeable fortune amassed from the profitable production of explosives in 20 countries around the world. His will surprised many by calling for the annual distribution of prizes in the fields of chemistry, literature, physics, medicine and peace.

*"The whole of my remaining realizable estate ...shall be annually distributed in the form of prizes to those who, during the preceding year, shall have conferred the greatest benefit on mankind. The said interest shall be divided into five equal parts,*

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<sup>54</sup> Sun Tzu, The Art of War, Chapter 1: Calculations

<sup>55</sup> <http://en.wikipedia.org/wiki/Minimax>

<sup>56</sup> [http://nobelprize.org/alfred\\_nobel/biographical/articles/life-work/index.html](http://nobelprize.org/alfred_nobel/biographical/articles/life-work/index.html)



*which shall be apportioned as follows: one part to the person who shall have made the most important discovery or invention within the field of physics; one part to the person who shall have made the most important chemical discovery or improvement; one part to the person who shall have made the most important discovery within the domain of physiology or medicine; one part to the person who shall have produced in the field of literature the most outstanding work in an ideal direction; and one part to the person who shall have done the most or the best work for fraternity between nations, for the abolition or reduction of standing armies and for the holding and promotion of peace congresses. “*

And with that last will and testament, a legacy of competition was established.

*“In the back of nearly every scientist's mind is The Prize. Just one significant insight, one major discovery can propel a researcher into history. It's not an open race for the Nobel; it's more an atmosphere. But it certainly drives many researchers to compete, to work long hours, to be the first to solve some central question of biology or even a cure disease.*

*In science, credit goes to the first discoverer. So does the Nobel Prize. It is the quintessential trophy in one of the most competitive of human activities.”<sup>57</sup>*

The competition for the Nobel Prize, regardless of field, is fierce. While there is criticism and disagreement over the winners, there is no doubt that the prize increases effort and productivity. Even as far back as 1972, Time Magazine acknowledges the increase in effort, and even questionable practices, amongst scientists to “win”:

*The increasing number of scientists involved in research projects has helped to ensure a hot, often ungentlemanly competition for the Nobel Prize and the other honors that follow in its wake. This is apparent in the pell-mell rush to publish results of experiments—some of them later proved faulty—in scientific journals just to establish priority of discovery. In his unusually candid book *The Double Helix*, Nobel Prizewinner James Watson confessed to another questionable practice. Determined to unravel the complex structure of the DNA molecule before Caltech's famed chemist Linus Pauling got to it, Watson and one of his co-winners, Francis Crick, deliberately withheld information from Pauling that might have helped their rival in the race for the Nobel.<sup>58</sup>*

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<sup>57</sup> “An Undercurrent of Competition for the Noble Prize”, Washington Post, January 13, 1987

<sup>58</sup> “The Prize”, Time Magazine, July 3, 1972

Nobel Games – See [http://nobelprize.org/educational\\_games/](http://nobelprize.org/educational_games/)

### **Longitude Act of 1714**

In October 1707, four British warships were returning home and ran aground near Sicily. Almost 2000 men perished, and the tragedy highlighted an inability to navigate that had existed for centuries. In 1714, the British Parliament passed an act that set aside money for prizes for navigational excellence.

*The 1707 incident, so close to the shipping centers of England, catapulted the longitude question into the forefront of national affairs. the sudden loss of so many lives, and so much honor all at once, on top of centuries of previous pivation, underscored the folly of ocean navigation without a means for finding longitude.*

*The souls of Sir Cloudisley's lost sailors - another two thousand martyrs to the cause - precipitated the famed Longitude Act of 1714, in which Parliment promised a prize of £20,000 for a solution to the longitude problem.<sup>59</sup>*

The prize, equivalent to over \$12 million in 2009, was to be awarded for finding a way to track longitude to within 30 miles after a six week voyage to the West Indies. There were also smaller awards for related discoveries.

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<sup>59</sup> Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time, Dava Sobel, p. 16.

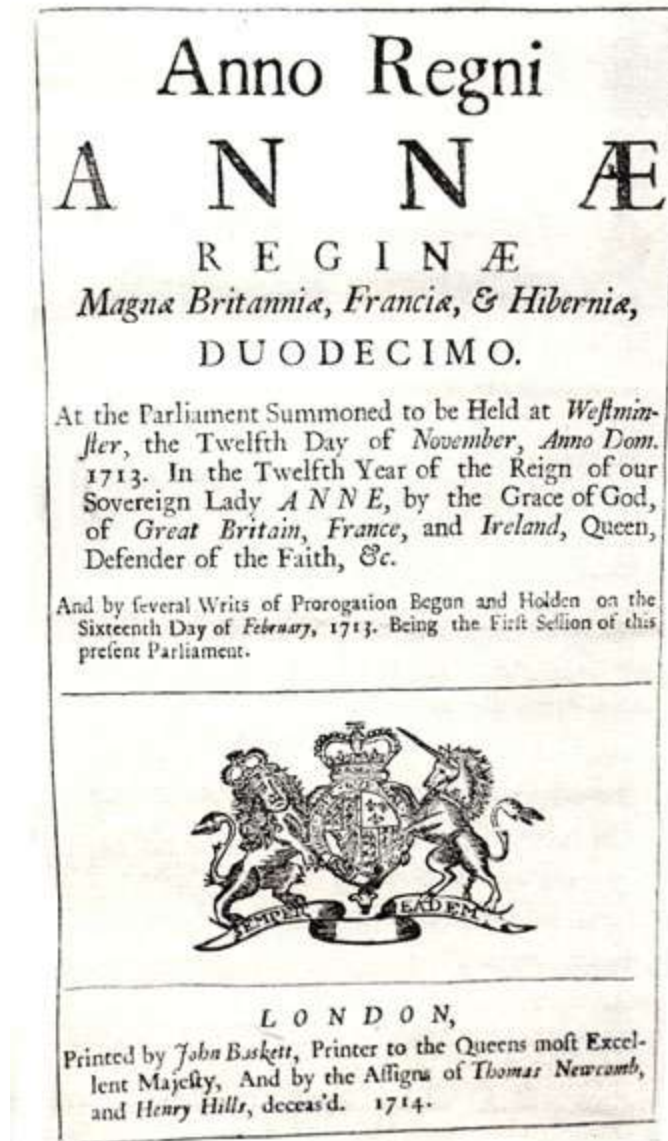


Figure 8 - The Longitude Act of 1714

[http://www.royalnavalmuseum.org/info\\_sheets\\_john\\_harrison.htm](http://www.royalnavalmuseum.org/info_sheets_john_harrison.htm)

### Alkali Prize - Soda Production from King Louis XVI

In 1783, King Louis XVI of France and the French Academy of Sciences offered an engineering prize of 100,000 francs (2400 livre at the time) for the production of soda (alkali) from seawater (sea salt / sodium chloride). Nicolas Leblanc was the winner when he patented a solution and began producing 320 tons per year. He was denied his prize money because of the French Revolution.

## The Moynton Prizes

In 1820, the French Royal Academy of Sciences began offering large prizes for solutions to specific medical challenges. Between 1825 and 1842, the academy handed out a combined 283,000 francs in prizes, according to a research paper written by Benjamin Krohmal for Knowledge Ecology International. In 1860, the Academy gave a Moynton prize to a young researcher named Louis Pasteur for his work in physiology. Those funds subsidized much of his subsequent groundbreaking research.

## Customer Loyalty Programs

<http://www.frequentflier.com/ffp-005.htm>

<http://answers.google.com/answers/threadview?id=63749>

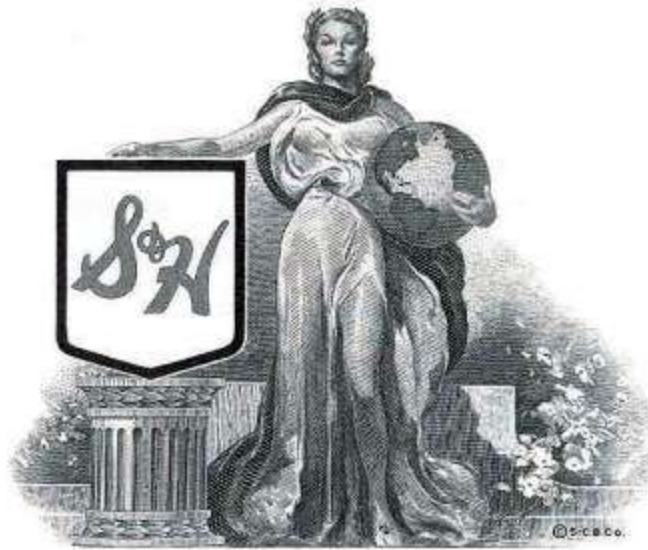
Customer loyalty programs award points, coupons, stamps, or cash back for frequent purchases. They are included here because they are a rough approximation of a score and rudimentary game techniques used by businesses for over a century. University of Southern California professor Joseph C. Nunes says “some consumers get excited about amassing points even if the points have no currency value. Yahoo! Answers, a question-and-answer site run by Yahoo, gives points to users who answer questions and rate the questions and answers of others, he says. "You can't exchange these points for real-world goods and services, yet people still spend enormous amounts of time accumulating them just to beat others in a list of top point-getters, or simply to compete with themselves.”<sup>60</sup>

The first major customer loyalty or reward program was offered in the 1930's by the Sperry & Hutchinson Company, founded in 1896. S&H “green stamps”. Customers making purchases at participating retailers were awarded stamps, which were saved in books, and redeemed for prizes from a catalog. (S&H Greenpoints still exist [here](#)). Usually grocery stores and gas stations distributed the stamps with purchases.

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<sup>60</sup> The Lowdown on Customer Loyalty Programs, Forbes Magazine,

[http://www.forbes.com/entrepreneurs/2007/01/02/frequent-flyer-miles-ent-sales-cx\\_kw\\_0102whartonloyalty.html](http://www.forbes.com/entrepreneurs/2007/01/02/frequent-flyer-miles-ent-sales-cx_kw_0102whartonloyalty.html)



*Figure 9 - Sperry & Hutchinson Green Stamps*

S&H made their money by selling the stamps to retailers, and then printing a catalog and distributing redemption prizes. During the 1960's, S&H green stamps were issued at rates higher than the US Postal Service.

With the success of green stamps, particularly in the 1930's through the 1960's, many other companies began loyalty programs and coupons. Raleigh Cigarette coupons, Betty Crocker points, and then breakfast cereal companies began programs that would allow customers to mail in box tops, cut outs and coupons for merchandise.

The Discover card was the first credit card company to offer a customer loyalty program in the 1970's.

In 1981, American Airlines launched the first large scale program for frequent flyers. American, still a leader in frequent flyer business, wanted to leverage it's 150,000 person database to reward repeat customers for revenue contribution. Delta Airlines and TWA followed with their own programs shortly after American Airlines. Today, there are over 70 different airline frequent flyer programs with over 100 million members.

## **Performance Evaluations and Stack Ranks**

From <http://www.xprize.org/about/the-x-prize-heritage>

### 1900's: Breakthroughs In Aviation

In 1919, the \$25,000 Orteig Prize for the first non-stop flight between New York and Paris was won with spectacular results.

Between 1905 and 1935, hundreds of aviation prizes stimulated the advancement of aircraft technology.

One of the best-known prizes was the Orteig Prize, a \$25,000 purse offered by hotel magnate Raymond Orteig to the first person to fly non-stop between New York and Paris. In 1927, with the whole world watching, Charles Lindbergh won the prize and became a global celebrity.

Where no government filled the need and no immediate profit could pay the bill, the Orteig Prize stimulated not one, but nine different attempts to cross the Atlantic. These nine teams cumulatively spent \$400,000 to win the \$25,000 purse - and spawned today's \$250 billion aviation industry.

By taking a smaller, faster approach to aviation, Lindbergh and the Spirit of St. Louis Organization showed that a small professional team could outperform large, government-style efforts. Prior to his flight, the press of the day characterized him as a daredevil and an amateur - "the flying fool." But Lindbergh's meticulously planned single-engine/single-pilot strategy was a radical departure from the conventional thinking of the day, and his innovative thinking and careful preparation won the full support of the Spirit of St. Louis Organization.

A quarter of all Americans personally saw Lindbergh and the Spirit of St. Louis within a year of his flight - and the world changed with their excitement:

- Applications for pilot's licenses in the U.S. increased by 300% in 1927.
- The number of licensed aircraft in the U.S. increased by 400% in 1927.
- Most notably, U.S. Airline passengers increased from 5,782 in 1926 to 173,405 in 1929 - a 30-fold increase!

The cause of the tremendous growth in aviation experienced after 1927 was not due to a technology breakthrough. Lindbergh employed technology that was available years earlier. The growth was a direct result of a monumental change in the public's expectation about flight. Lindbergh's flight created the expectation that anyone could fly.

## Popular Games in History (Chess, Backgammon, etc)

### Popular Board Games

#### Nintendo Wii

Readers would expect a book on games to have a section on Nintendo's popular Wii game system. However, the Wii is not mentioned here because it's a game system. Instead, the Wii is covered here because it added the element of fun and levity to differentiate itself from its competitors, and for the innovative Wii-Fit games.

As Stephen Fry puts it, "*Nintendo's recrudescence is yet further proof that the market (ie the population) wants machines that don't frighten, but befriend. The snarling roars of the feral Xbox and the brutal PlayStation are impressive, but Nintendo understands that while play does involve competition, territoriality and rehearsal for war, it also involves silliness, laughter and fun*".<sup>61</sup>

Nintendo redeployed their efforts away from the escalating war of graphics, realism, processor power, machine robustness and applied it to innovative remote devices, quirky games, and whimsical graphics. As a result, the general population absolutely loves the Wii. While hardcore gamers still defer to the Xbox 360 or Playstation platforms, they are intrigued by this new entry, and probably end up purchasing anyway.

According to VGChartz.com, the Wii has sold about as many units as Xbox 360 and Playstation combined.<sup>62</sup> In fact, the Wii will be the first console system to make a home in the White House, as Barrack Obama's two daughters bring their Wii system with them.

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<sup>61</sup> [www.psfk.com/2008/09/stephen-fry-on-the-wiis-popularity.html](http://www.psfk.com/2008/09/stephen-fry-on-the-wiis-popularity.html)

<sup>62</sup> <http://www.vgchartz.com/?w=8m>

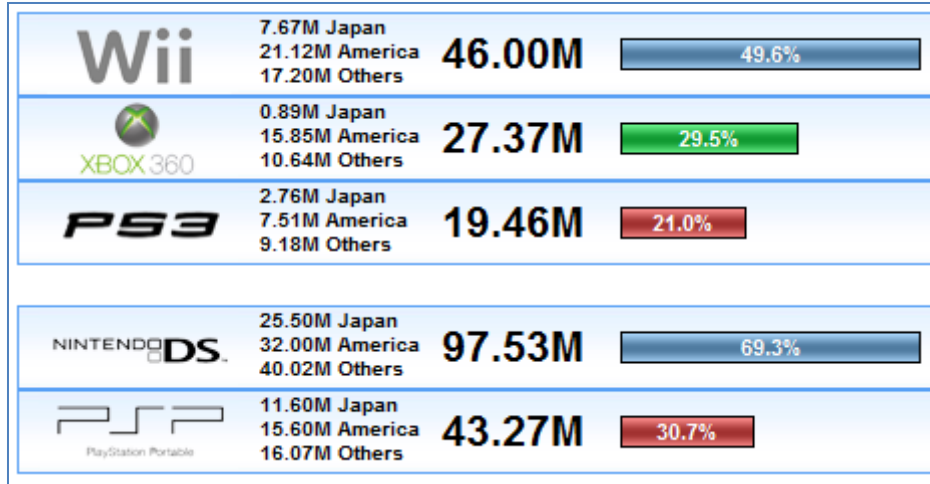


Figure 10 - Game Console Units Sold as of Jan 2008

*“In a twist worthy of a Zen proverb, it was exactly when Nintendo decided to stop competing with Sony and Microsoft that it began to trounce them. Since launch, Wii has constantly outsold the PlayStation 3 and Xbox 360.”<sup>63</sup>*

**TODO: More here**

### Wii-Fit

Wii-Fit is not a “productivity game” per se, unless you happen to be a personal trainer or someone paid to get in shape. Wii Fit is a series of fitness games for the Wii. The Wii Balance board and accompanying games provide players an opportunity for Yoga, Balance training, Aerobics, and Strength Training. There are several athletes who’ve endorsed the Wii programs as a viable alternative to traditional training, and many schools and children’s organizations are promoting the Wii Fit as a helpful mechanism to combat childhood obesity.

**TODO: More here**

### Hilton Garden Inn’s PSP Game

<sup>63</sup> <http://www.wired.com/gaming/hardware/news/2007/06/wii?currentPage=2>





*Figure 11 - Hilton Gardens Training Game on PSP<sup>64</sup>*

### **TV Game Shows**

### **Video Games**

### **AdverGames**

### **Why do TV competitions work so well?**

Why are Dancing with Stars, American Idol, Lost, Survivor, NFL, etc. so popular?  
Comparison with the ancient Greek games

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<sup>64</sup> <http://elianealhadeff.blogspot.com/>

# The Gamer Generation goes to Work

## Level 8

*Hi Ho Hi Ho , Its Off To Work We Go!!*

### Introduction

There are over 100 million people in the “Gamer Generation”, who have played games since they were young. The popular Reader Rabbit series, which used games to teach language skills, is over 23 years old now. If you were a 5 year old in 1986, learning to read using this new PC game, you are likely now in the workforce, perhaps as a manager. What did Reader Rabbit teach you that you apply in the workplace? The specifics of what any given individual might learn or internalize as a result of playing games as a child may vary dramatically, so this list is by no means inclusive, or perhaps even widely applicable. It’s just hard to tell. However, extensive gaming does deliver opportunities to emphasize certain behaviors and attributes that might not be as prevalent in non-gaming activity.

While none of these are all that interesting in isolation – or in any given circumstance - they do become interesting if you assume that there are millions of people who share some of these attributes, and that most jobs are not designed with these characteristics in mind.

### Heroism

Every child, in every generation, grows up with heroes. What young boy hasn’t thrown the winning pass in the Super Bowl or hit a World Series winning home run in his backyard? What young girl hasn’t been the Hollywood star or the first woman president? What boomer-generation kid hasn’t played with a G.I. Joe or Barbie? Heroic aspirations are not new for kids - the hero has played an important role in societies back to the ancients - and presumably back to the dawn of civilization. Ancient Greeks treated their heroes as gods – or perhaps believed they *were* gods. Heroes were objects of worship in almost every ancient civilization. In the Epic of Gilgamesh, written in Ancient Mesopotamia, thousands of years before Christ, we get some insight into how readers in the might view a hero

*"So come on now, you heroic bearer of a sceptre of wide-ranging power! Noble glory of the gods, angry bull standing ready for a fight! Your mother knew well how to bear sons, and your nurse knew well how to nourish children on the breast! Don't be afraid, rest your hand on the ground!"<sup>65</sup>*

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<sup>65</sup> The Epic of Gilgamesh, <http://etcsl.orinst.ox.ac.uk/cgi-bin/etcsl.cgi?text=t.1.8.1.5#>

## Productivity Games

But when they heard these words, it was still their imagination that put them in the hero's skin. They didn't see or hear things from the hero's perspective. Similarly, in ancient Greece, Pericles wrote,

*“The whole earth is the tomb of heroic men and their story is not given only on stone over their clay but abides everywhere without visible symbol woven into the stuff of other men's lives.”*<sup>66</sup>

So, in one sense, there is absolutely nothing new in the gamer generation's “hero worship” – the deification of heroes has been going on for thousands of years.

But what games have provided to this generation is a sensory-rich upbringing of actually **being the hero**. This is not about being a backyard hero in your imagination or hearing a story.. This is about having images and sounds put in front of your face that have you defeating villains, hitting home runs, leaping and escaping, killing, or whatever hero role you desire. Games provide the player a choice of genres in which to perform their heroic acts. This is quite unlike any society or generation prior – the gamer generation has lived the life of a hero for perhaps a dozen years before they enter the workforce.

The player **is** the hero. Every successful game is designed with the player as the protagonist. One needs look no further than a game with “hero” right in the title. Guitar Hero is all the rage, with the latest version selling 1.4 million copies in its first six weeks.<sup>67</sup>

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<sup>66</sup> Pericles, Greek Statesman,

<sup>67</sup> <http://blog.wired.com/games/2007/11/guitar-hero-iii.html>



Figure 12 - Guitar Hero III by Activision

So it's likely that for 10 years prior to entering the workforce, this generation has experienced the feelings with being a hero. This manifests itself in different ways. For example, the sense that others may be counting on them. If you are a leader in a multiplayer game, then you have lived with that sense of responsibility and empathy, before ever being exposed to that in "real life". In pretending to throw a backyard touchdown pass, you don't get the sense of letting down your teammates with poor execution the way a failure in World of Warcraft leaves other players vulnerable. Joseph Campbell, author of "A Hero's Journey", suggested that "*a hero is someone who has given his or her life to something bigger than oneself.*" Gamers realize that much earlier, and in much more intense environments, than any generation in history. In the past, you had to BE a hero to experience the emotions with heroism, but games put the player in the driver's seat – in the hero's role – and therefore players learn those feelings and behaviors without ever being a hero.

*Assigned to rescue the embattled squad you've fought with for the past 10 hours, you fail miserably. You have nothing to show save for a torn piece of clothing, bloody at the edges. As the soundtrack reaches its crescendo and the words "Game Over" materialize over the mists of Planet X, it's not frustration you feel, but regret, sadness, even, for those brave soldiers you left behind.<sup>68</sup>*

What game players learn in the role of the hero, of the leader, or of the one that everyone is counting on - supersedes almost everything else that is learned during a lifetime of playing games. Because game characters are typically "first person", the player is in the role, experiencing virtual life first hand.

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<sup>68</sup> Bringing Emotions to video games, Tom Loftus <http://www.msnbc.msn.com/id/4038606/>

## Productivity Games

*It is not the critic who counts; not the man who points out how the strong man stumbles, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, who comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who neither know victory nor defeat.<sup>69</sup>*

Now, do Roosevelt's words apply to games and virtual arenas? Some may call that heresy, but do the feelings that gamers feel equate, at least in part, to those who are "really" in the arena? The point here is that games provide a framework for players to feel the emotions, to share the camaraderie, to understand the pressure of responsibility, and to witness the glory of being the hero in a sensory-abundant medium that has never been available to previous generations.

Many cultures have rituals or rites of passage for the young to enter adulthood.<sup>70</sup> These rituals, and the preparation that goes into them, train the youth in the ways of the community. Whether the business world wants to admit it or not, games are training players in positive and healthy perspectives about how to work in teams, how to lead, how to be responsible, and how an individual matters in a group. Unfortunately, corporations hear the words "game" or "gamer" and immediately think negative thoughts, but it's likely that this generation is better prepared for life in the business world than any generation before them. They have years of experience as leaders, movers and shakers, saviors, teammates, and heroes before they get their first job. They are learning lessons through games that cannot be learned as thoroughly any other way.

### **How could the thinking NOT be impacted by playing games?**

#### **Optimism**

Games absolutely must provide the player an optimistic view of the world (of the game). If not, people won't play. When a player begins a new game, she is optimistic about her ability to progress, to learn, to excel, and probably even "win". If during game play, the game teaches that hope to achieve and accomplish inside the is fruitless, the player will simple put the game away and play a different game that

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<sup>69</sup> Theodore Roosevelt, "The Man In The Arena, April 23, 1910

<sup>70</sup> <http://www.menstuff.org/books/byissue/ritual-initiation.html>

## Productivity Games

offers hope for achievement. Once again, spending significant time in this environment will teach players that there always is a bright side – because a “way out” is fundamental to solid game design.

In addition, look at some of the demographics around the gamer generation. Many know their grandparents, who survived the depression and subsequently raised children who were the epitome of 1980's greed. The greed gave way to downsizing. The gamer generation were latch-key kids, coming home from school without mom there with a snack, whose lives were probably touched by divorce. Games were a way to be the hero, to keep your world under your own control.

Some interesting statistics about Milenials: (from [here](#) in 2003, **TODO: Update these and is this the right chapter?**)

- Violent crime by 12 to 17-year-olds is down by over 50 percent from its 1992-1993 peak (US Bureau of Justice Statistics).
- Despite media reports of casual sex "hookups" among college students, the late 1990s saw overall teen sexual activity decline and virginity rise (Centers for Disease Control & Prevention, US).
- School shootings were down by more than half in the late 1990s (less than 15 per year) compared to the early 1990s (over 40 per year).
- Smoking, drinking and drug use among 8th, 10th and 12th graders fell simultaneously in 2002 for the first time (University of Michigan's Institute for Social Research).
- According to Gallup more than 90 percent of teens report being very close to their parents; in 1974, more than 40 percent of baby boomers said they'd be better off without their parents.
- Suicide rates for teens have fallen significantly since their 1988 to 1994 peak (National Center for Health Statistics, US).
- Today's kids are more apt to trust parents (86 percent), teachers (86 percent) and the police (83 percent) than music celebrities (35 percent) and athletes (30 percent) (Applied Research & Consulting LLC).
- Volunteerism is up. A University of California (UCLA) survey of college freshmen from fall 2001 showed an all-time high of 86.2 percent of students who reportedly engaged in volunteer work, compared to 66 percent in 1989.
- Teens now form the most religious age bracket in the US. Participation in church groups among teens rose from 17 percent to 28 percent between 1995 and 2001 (Roper). In 2002, the UC Berkeley Survey Research Center PACES project reported that 67 percent of teens supported federal aid to religious organizations -- versus 40 percent of adults ages 27 to 59.
- Teen marriages rose steadily after a low around 1990 -- a trend running counter to older US generations, which are getting married later (US Census).

Gen X is known for a lack of optimism about the future. However, they were raised in the 80's era of “greed is good”, and then watched it all come crumbling down. Now,

## Productivity Games

these folks are caught in dead end jobs with no security offered by corporations. Of course, they are not optimistic about work and career, but that doesn't mean they aren't optimistic at all. Playing games has taught them that there is always a way – and if corporations are not offering it to them, than family, or the pursuit of non-work fulfillment can, and do. Gen X “works to live” because the life of the managed employee is much different now than it was for baby boomers at the same age.

*From kickboxers to musicians to knowledge workers, more often than not the idea of forging a new path wasn't born out of either a false sense of creative purity or single-minded greed, but rather a combination of desire and necessity. Indeed, rarely was "forging a new path" even the goal. It was simply a matter of doing something enjoyable and seeing what happened next. The trade-off between that and getting a "real job" had become negligible enough to entice a whole lot of people off the traditional career path.<sup>71</sup>*

The optimism is not gone – in fact, the gamer generation is probably more optimistic than most other generations because of the rise of technology, the democratization of knowledge brought about by the Internet, and the globalization of the economy. They've had to scrap and fill in the gaps and holes left by the baby-boomer filled corporations.

### **Competition**

There are elements of competition that are naturally embedded in humans from birth. The ability to fight for food or for a mother's attention is present from birth. However, much of what adults know about how to compete is gained from experience. How to be a good winner or how not to be a sore loser are lessons learned through childhood. Games help teach all of us how to compete, how to cooperate, and how to grow. Since the gamer generation typically spends more time playing games, then it is probably safe to assume they have developed an even deeper understanding of how to compete. In addition, since the majority of work-related communication is now “virtual”, using email, instant messaging, conference calls, and wikis/blogs, the skills developed in virtual worlds are even more valuable. Gamers understand inherently that everything is part of a large competition, and that successful competition sometimes requires finding allies and cooperating with other players, but ultimately rests on their own personal obligation to compete.

### **Cooperation**

The importance of cooperation is not a new phenomenon. From fairy tales - where Hansel and Gretel work together to save themselves – to the ancient Native American legend about how Coyote brought Fire to the world<sup>72</sup>. Many different

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<sup>71</sup> Slackonomics, Generation X in the Age of Creative Destruction, Lisa Chamberlain p.44

<sup>72</sup> [http://www.firstpeople.us/FP-Html-Legends/How\\_Coyote\\_Stole\\_Fire-Shasta.html](http://www.firstpeople.us/FP-Html-Legends/How_Coyote_Stole_Fire-Shasta.html)



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nations tell a version of the story that talks about cooperation among the animals to bring fire to man.

A child of previous generations would hear these stories, and, no doubt, be impacted by the power of cooperation, particularly as it relates to the story. But, if I'm playing a MMORPG (massively multiplayer online role-playing game), I learn about cooperation first hand.

Here's a sample response from "Trust, Cooperation, and Reputation in Massively Multiplayer Online Games" by Tony Tulathimutte<sup>73</sup>

### ***How often and in what cases do you cooperate with people you've met in-game and have never met face-to-face?***

*All the time. Pick up groups require at least 5 people—I have only been in a group of 5 people I know from RL twice maybe. Meanwhile, any sort of end game raid (40 people) definitely requires cooperation with people I do not know face to face. Essentially every time I sign on there is some cooperation required with people I do not know from real life.*

### ***How often and in what cases do you cooperate with people only once or for brief spans of time?***

*Mostly for 5 man instances, it is possible to cooperate with somebody only once. While there is no guarantee that the cooperation will only occur once, there is no assumption of further interaction in many cases. For the brief span of time one it is either when someone asks for help "briefly", if we notice we are working towards the same simple quest, or if the group sucks and it falls apart.*

If I am playing Madden 2009 with my buddy, and I am the quarterback and throw the ball to my star wide receiver, controlled by my friend, then I have a *much* different view of cooperation. If the two of us are working together in a fantasy game to find clues and unlock tools or a new level, I have a much different feeling about relying on my neighbor than I would ever get from a story. For example, I can see the look of disappointment on my teammate's face – or I might even watch her die in the game – if I don't cooperate at the level of her expectations. That puts a level of pressure on me and probably evokes feelings that I could NEVER get from a story, because a story is about someone else, not me. A hardcore gamer might spend hours a day in this environment for years before entering the workforce, and will most likely go into an organization with a much different view of cooperation than someone who learns from a story and from using their imagination.

### **How could my thinking NOT be impacted by playing games?**

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<sup>73</sup> <http://game-research.com/index.php/articles/trust-cooperation-and-reputation-in-massively-multiplayer-online-games/>



## Peer Recognition

The gamer generation was the first generation in modern times to get home from school without Mom there to offer snacks and a hug. By most accounts, almost half were touched by divorce. The gamer generation was left to go it alone. Authority figures were not a big part of home life, and, from Bill Clinton to the rise of Geraldo, authorities were vilified on television. So the gamer generation looks to their peers for validation.

As work styles move to “self-managed teams”, and the speed of communication in an organization moves from hierarchical to network-based with the rise of IM, texting, wikis and blogs – then validation from one’s peers becomes even more important than ever before. Whether we want to admit it or not, opinions from our peer group have a bearing on our motivation levels at work.

*“So how do companies get their goals off the headquarters entrance way plaque and into the workplace? Leveraging social networking theories (workers are more likely to look upon colleagues for direction than management) they rely upon the observations and/or direct experiences of co-workers to reinforce desired behavior. The interchange reinforces core values in a context that’s relevant to everyday job experiences.*

*Peer-peer programs are especially important tools during times of change. Online postings not only recognize colleagues who went the extra mile to help a coworker or customer, they can also reinforce the value of the new work tool or job procedure. Many firms will actually include links to training and other educational devices that also reinforce a new process thus promoting acceptance and utilization of change.”<sup>74</sup>*

In this new era of rapid communication, full disclosure, and the melding of work and non-work lifestyles, how can a manager possibly know as much as a team about who is contributing and who is not. If trust is not pervasive in the organization (see above), then the manager is likely to make the wrong choices when it comes to recognition programs. Gamers have grown up without parents and authority figures, and have come to rely on “the community” of their peers for validation. It’s likely that the manager’s words mean very little, particularly when compared to the value of the respect of their peers.

There are two important components and lessons to be applied when understanding the impact of the peer recognition element of game play:

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<sup>74</sup> [http://www.conduitblog.com/conduit/peerpeer\\_recognition/](http://www.conduitblog.com/conduit/peerpeer_recognition/)

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First, it's critical to create an environment where recognizing a peer does not come at the peer's own expense. Many performance evaluation systems are zero-sum games. There are three promotions available for a team of ten, or the top 10% of the performers get the big bonuses. If this is the case, the challenge to create an environment of formal peer recognition is more difficult, if not impossible. Instead, the peer recognition will go underground, and most likely in a negative way. "Can you believe that guy got promoted? – he's such a bozo". So it's important to evaluate the goals of the rewards and recognition programs, and how organizational values are represented in those programs, **in the context of the fundamental beliefs of the gamer generation.**

The second important component of peer recognition is trust and respect. In many baby-boomer-laced organizations, trust and respect are position-based – and both parties know that. To fully leverage the value of peer recognition, position-based respect must be eradicated. While position is certainly advantageous to the manager in getting started in earning respect, it's not enough. Just as we've seen with Generation X and their separation of "work to live" and "live to work", gamers (and perhaps every employee from every generation) are able to readily distinguish between a manager and a leader. A manager is someone who's in a position to impact salary, employment, vacation time, nature of tasks, etc., and a leader is someone to follow. People respect a leader. If the respect is there, then peer recognition works, because people will truly value, from a humanistic, this-is-who-I-am, perspective, not just from a "can I get a good raise" perspective. There is a huge difference between the two. Feedback from peers can influence reputation, and people value and will protect their reputation.

### **Self Awareness**

People know their role – they know who they are in games – their avatars are designed with their best (and worst) traits in mind – the gamer generation is well aware of themselves – their strengths and weaknesses – and how to leverage them both.

When games are designed around work, it is important to understand the difference between core, unique, and expanding skills. The organization has identified – or expects – each employee to provide some unique skills to the job. Employees tend to establish a work identity that roughly aligns with what the company values in them – why they get a paycheck.

In entertainment games, people create avatars that emphasize traits that are important to them. At work, employees tend to do the same thing. It's rare for a person to be exactly the same at work as they are outside of work. From dress to behavior, the traits and uniqueness that's valued at work is different than those valued by peer groups or family. A ruthless CEO can be a ball of putty in the hands of a teenager, or a disciplinarian at home can be a laid back let's-all-love-another manager at work. It's a challenge for anyone, because the incentive and reward frameworks differ between the two, or three, or four different situations.

## Productivity Games

Most importantly, though, is that people know that, at least subconsciously, and productivity games can give them a platform to experiment and grow. Games provide immediate feedback on what works, and can offer a space for people to expand outside their roles and workplace identities in a safe environment. If an employee aspires to be a top-notch design person, and tries their luck at design in the context of a “game”, it’s not debilitating – to them or their career – if they finish last. Contrast that with the aspiring designer who takes a formal internship and fails miserably. The design career is over, and likely the pre-design career – in that firm – is over as well. A game offers some latitude and levity that supports experimentation and gives people an excuse if things don’t go as planned.

*A baby’s awareness of the responses of other people contributes to a dawning sense of individuality. In the second year, toddlers become capable of self-recognition in a mirror and begin to adopt others’ evaluations of them when feeling proud or guilty (for example, “Me big!” after a mother has applauded her child’s success at using a spoon). In these and other ways, close relationships help very young children begin to understand who they are<sup>75</sup>.*

### **Reputation**

While most people grow into an awareness of reputation, stemming from a growing increase in self awareness, there’s likelihood that game players are far more aware of their reputation – their online reputation – than non players. This awareness results from the time spend in online communities and the importance of, and accountability to, other members of the community.

TODO

### **Logic and Reason**

Games are fair – people do not play a game that is unfair – and games have well understood rules.

### **Loyalty and Commitment**

The importance of peer recognition and self awareness lead people to be true to themselves and their image. As virtual world team players, others come to count on them to be consistent, and those online loyalties are critical. Similarly, sites like Facebook enable the community to call BS when someone varies from their true self.

### **Earned Engagement**

The reset button plays a huge role in shaping the hearts and minds of the players. By the same token, a well designed quest will keep players engaged for every waking hour. Those lessons, underscored through the formative years of those in the gamer generation, result in an interesting dichotomy. Gamers will hit reset quickly when the

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<sup>75</sup> Microsoft ® Encarta ® 2009. © 1993-2008 Microsoft Corporation. All rights reserved.

## Productivity Games

outlook is grim. And they will play forever to achieve a worthy goal. When it comes to work, if the prospects are disingenuous, then the job quickly becomes a “McJob”.

Unlike the Baby Boomers, there is no blind faith from the gamer generation. If the prospects are legitimate, and management is honest and trustworthy, then it's likely that no one will work harder than the gamer generation. Think of those 17 yr olds playing Halo until the wee hours. But, if the “game” is bogus, they will hit reset quickly – and it becomes a McJob.

### Feedback

Gamers pay attention to the score. The score is what drives them. Whether it's reputation on EBay, bling on their Avatar, or salary, the gamer generation pays attention to feedback.

### Improving Productivity with Chemistry

In his book, *Primal Management*, author Paul Herr talks about nature's reward system, and the importance of the brain's use of the chemical dopamine to reinforce workplace behaviors. Dopamine is a hormone-like neurotransmitter or messenger in the brain. As Herr puts it, *“Dopamine's reward is intense, but short lived. When we win a race or get an attaboy or attagrill from the boss, we are rewarded with a brief dopamine-induced euphoria that fades over a period of minutes to hours.”*<sup>76</sup>

So the goal, according to Herr, is to create a dopamine-rich work environment, where people can play, achieve, win, and be recognized.

*Dopamine is commonly associated with the pleasure system of the brain, providing feelings of enjoyment and reinforcement to motivate a person proactively to perform certain activities. Dopamine is released (particularly in areas such as the nucleus accumbens and prefrontal cortex) by naturally rewarding experiences such as food, sex, drugs, and neutral stimuli that become associated with them. This theory is often discussed in terms of drugs such as cocaine, nicotine, and amphetamines, which seem to directly or indirectly lead to an increase of dopamine in these areas, and in relation to neurobiological theories of chemical addiction, arguing that these dopamine pathways are pathologically altered in addicted persons.*<sup>77</sup>

The use of well-designed productivity games that offer fair and short lived competition and achievement will stimulate dopamine production in the players as they earn a score. People can come to value the achievements they earn in a game as much, or perhaps more than the rewards in the workplace. Obviously a paycheck is

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<sup>76</sup> *Primal Management*, Paul Herr, p. 146

<sup>77</sup> Wikipedia

## Productivity Games

important, but often the motivational value (or dopamine-producing ability) of the paycheck gets lost over time. A productivity game, particularly one of short duration, enables the player to achieve and stimulate brain activity associated with success or a “win” more frequently than the annual performance evaluation process. It also allows all players to achieve at some level. Even if the day-to-day job is unrewarding, a simple productivity game, in an area where organizational citizenship behavior and activity can have an impact, can make a difference in the brain chemistry of the players. This, in turn, has a positive impact on morale, retention, expertise, and yes, productivity!

“I believe that all companies should structure the workplace as an intricate game of skill, like golf”<sup>78</sup>

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<sup>78</sup> Primal Management, Paul Herr, p. 152

# Examples of Productivity Games

## Level 9

*blahdifficult to plan, more doubtful of success nor  
more*

## Introduction

**TODO: Should this be merged with Ch5?**

See also “Productivity Games in History”, Chapter 4

## Sales Contests

Sales contests and other types of competition, offered to salespeople to improve their performance, have been around for years. Annual spending on sales contests is in the billions, and many firms offer perks to sales folks who meet their numbers.

*“Short-term incentives, such as spot awards and contests, can serve as important motivational tools. Moreover, games can invigorate not only top performers but also average sales reps—who may develop into high performers with proper motivation. Short-term reward systems also offer a tangible reminder of organizational and individual goals.”<sup>79</sup>*

*“If there isn’t a contest going on, it’s quiet on the floor—people are just going through the motions. When a contest is going on, the noise level is higher; you can tell people are more motivated.”<sup>80</sup>*

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<sup>79</sup> Nemerov, Donald S. “Motivating and Creating Harmony in the Call Center.” Telemarketing (February 1993).

<sup>80</sup> Thad DeHart, sales manager for apparel distributor Witness Wear, from Lambeth Hochwald, “Hold the Phone!” Sales and Marketing Management (May 1997): 74.

### **R.R Donnelly**

*In the Northeastern Division of RR Donnelley & Sons, a large commercial printer, the company implemented a unit incentive plan that has proved successful. The plan is based on "small games," meaning an initiative focused on immediate improvement in a given work area, unit, or work team. (A plan based on an entire department would be a large game.)*

*Each game has a starting point, a set of rules, a goal, and a team reward for those who win. The rewards typically include items such as \$50 gift certificates, catered lunches, or days off with pay. The more enduring reward for game players is to have met the challenge of setting a goal and finding a way to achieve it, while learning more about teamwork and business management along the way.*

*For the company, returns from sponsoring games come in the form of gains in productivity, cost reductions, or profits that result directly from the program. It also gets the intangible benefit of a more engaged and educated work force.*

*One game created by Donnelley employees called NASCAR '98 illustrates the company's small game program. Rather than being developed and handed down by management, the game was devised by a Donnelley press operator in collaboration with his frontline peers, all stock car racing fans.*

*For the game, a "racing crew" consists of the eighteen- to twenty-person team working on an offset press. The game's purpose: to reduce materials waste. Game goals for the first half of 1998 were set as improvements on year-end 1997 performance; goals for the second half were tied to improving on first-half 1998 performance. The overarching goal was to give press crews a better understanding of how their efforts to cut waste in the four identified areas contributed to the overall financial performance of the business. "Pit crews," consisting of one machinist and an electrician, are assigned to individual presses to ensure that the machines are running in top condition. Pit crews share in any payout the team receives at the game's end.*

*Each press crew chooses a real NASCAR driver and a Matchbox car to represent it on a large racetrack scoreboard posted on the wall in the press area. Velcro on the cars attaches them to the Velcro track. Cars are positioned on the track based on*

## Productivity Games

*how the press they represent is doing that month against its own waste-reduction goals. Self-competition is a guiding principle, because Donnelley wants to guard against pitting employees against one another.*

*Crews can gain or lose laps based on their press's performance for the month. Laps might be taken away for documented customer complaints, because one of the guidelines is to maintain a high level of service to customers through the course of the game. Conversely, if there is a documented cost saving, the crew would advance an additional lap.*

*A pace car on the scoreboard represents how the department as a whole is doing against its goals. For any month when the four departmental waste reduction and speed goals are all met, the whole group is treated to a celebratory catered meal or dinner out.*

*There is a winner each month--the press that performs best against its own goals determined by number of laps run. Each winner receives an authentic NASCAR checkered flag, which many proud press operators hang from the front of their presses, and the winning team is featured in the Gallery of Winners photo display next to the scoreboard for the entire year. These monthly winners also receive \$40 individual gift certificates that each team member can use at a local shopping mall. If other press crews beat all of their goals in a given month, but aren't the overall department winner, each crew member receives a \$20 gift certificate to the mall.*

*Playing the games has taught the work force about Donnelley's business in ways classroom training never could. Not only do the games increase awareness of strategic business goals, but they're also much more fun and engaging than classroom training.*

*As is often the case with incentive programs, the games at Donnelley are more about communication and the value of teamwork than about the size of rewards. These programs show that managers can bring out the best in employees by*



## Productivity Games

encouraging collaboration. And the rewards will benefit both the employees and the company alike.<sup>81</sup>

### H.J. Heinz's Ethics and Compliance "Millionaire" Game



Figure 13 - Heinz Corporate Ethics "Millionaire" Game<sup>82</sup>

### Johnson Controls Solutions Creation Game

Also <http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/11-08-2005/0004211520&EDATE=>

*"The head of Market Research at Johnson Controls created a needs-analysis game board that sales reps present to prospective customers. These game boards allow prospective customers to indicate the importance of and their organizations' ability to address 40 to 45 market segment-specific needs. After customers rate their needs, the other side of the board asks them to rate the value of and their current*

<sup>81</sup> <http://www.glennparker.com/Freebees/article-full-team-ahead.html>

<sup>82</sup> H. J. Heinz Company; Compliance and Ethics Leadership Council research.

## Productivity Games

need for 30 to 40 solutions available from Johnson Controls. The solutions navigation game board allows Johnson Controls sales reps to conduct complex, multivariant needs analysis on-site, ensuring that they offer the most appropriate sales mix to each prospective customer.

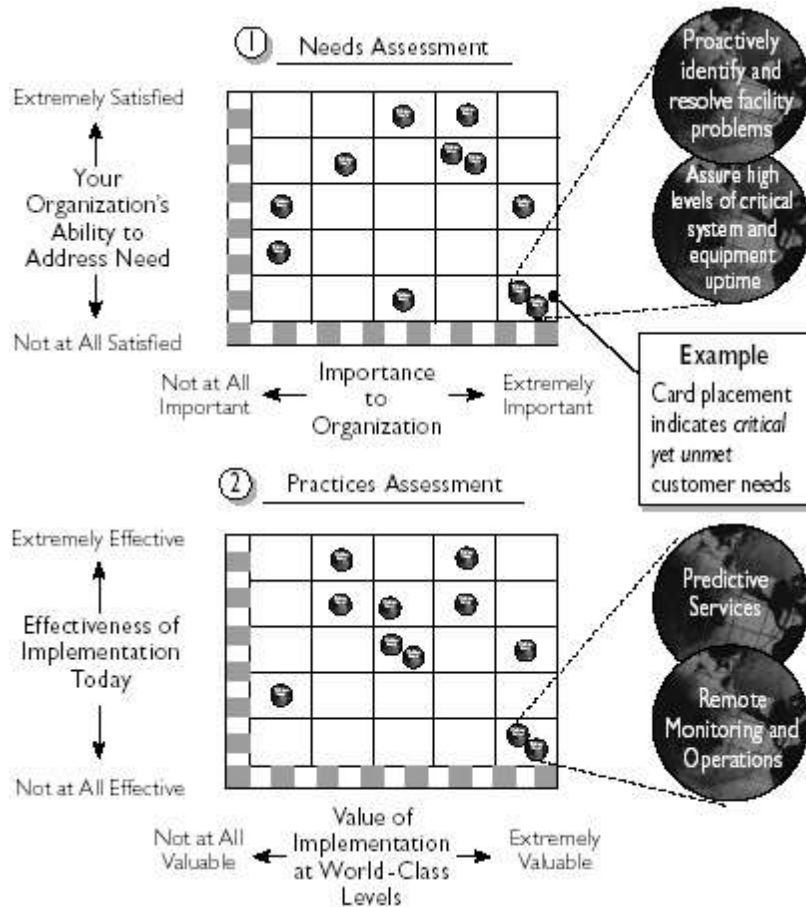


Figure 14 - Johnson Controls' Solutions Creation Game Board

Johnson Controls increased the number of ideation workshops conducted by four times and significantly increased the productivity of each session as well. The average solutions deal size increased by five times, and its average sales cycle time decreased by 30%. The game board allowed Johnson Controls to further engage customers, understand complex customer needs, reach more customers for feedback, and help their own business at the same time. JCI customers positively reviewed the game board process for evaluating their current performance and accurately identifying their needs. Working through the game board forced

## Productivity Games

*internal employees at JCI's customer companies to agree, which previously took months of back and forth communication".<sup>83</sup>*

### Solutions Navigator



*Figure 15 - Johnson Controls Solution Navigator Game*

[http://www.johnsoncontrols.com/publish/etc/medialib/jci/be/commercial/capabilities/innovation\\_services.Par.59673.File.tmp/Sustainability%20Overview.pdf](http://www.johnsoncontrols.com/publish/etc/medialib/jci/be/commercial/capabilities/innovation_services.Par.59673.File.tmp/Sustainability%20Overview.pdf)



*Figure 16 - Playing the Johnson Controls Solution Navigator Game*

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<sup>83</sup> Using Engagement Strategies to Increase Research Participation – Market Research

Executive Board [www.mreb.executiveboard.com](http://www.mreb.executiveboard.com)

## Productivity Games

*Solutions Navigator is a specially designed "game-board" assessment tool that provides a structured, interactive process for facility owners, real estate managers and other key stakeholders to quickly assess and prioritize common facility related needs and practices.<sup>84</sup>*

## Construction Accident-Free Days



*Figure 17 - Accident Free Days Sign*

## Windows Vista Beta Games

During the development of the Windows Vista operating system, the Microsoft product team developed and hosted a number of different games to drive productivity. The size of the project and corresponding length of the development cycle led to a repetitive set of activities, and as the team entered the beta phases, the use of games was successful in injecting new energy into the development effort. In some cases, there were productivity gains of as much as 400 percent using competition as a basis for encouraging task completion.

There were multiple levels of prizes and random drawings, and players could earn wristbands based on participation. In some cases, the wristband became a symbol at meetings and in hallways that spurred competition. These games culminated in a

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<sup>84</sup> <http://www.yenra.com/real-estate/tool.html>

## Productivity Games

release game that was distributed company-wide. Prizes were based on random drawings for those who completed installation and certain test activities.



DILBERT: © Scott Adams/Dist. By United Feature Syndicate, Inc.

### Windows International Game

The Loc Game, as it's known, was a productivity game run by the Windows International Test Team to help with localization quality.

### ESP Game

The ESP Game, now part of the Google Image Labeler, is a great example of a productivity game. It's also a great example of applying traditional game theory to game design to encourage play.

The objective of the ESP game is to encourage player to accurately type text describing an image. The game is a classic prisoner's dilemma. Two players, who don't know each other, type descriptions of an image and when the text matches (cooperation in prisoner's dilemma terms), they earn points. More importantly, from a productivity perspective, is that the images end up with labels.

ESP Game link <http://www.gwap.com/espgame-o/start.html>

### Re-Captcha

The word CAPTCHA is an acronym for "Completely Automated Public Turing test to tell Computers and Humans Apart."<sup>85</sup>

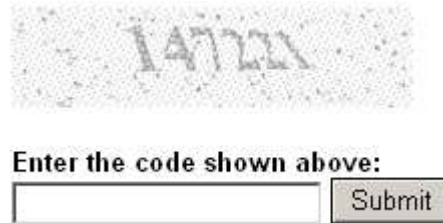
The original CAPTCHA project was to devise a test that could tell humans from machines on the Internet - something that humans could do that computers could not. The goal of CAPTCHA is to keep spammers from using automatic tools to create email accounts to send spam. The CAPTCHA test became quite popular on sites to

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<sup>85</sup> [www.captcha.org](http://www.captcha.org)

## Productivity Games

create new email accounts, post comments on message boards or purchase tickets online. They were so successful at rejecting machine entries that spammers and ticket scalpers resorted to creating “CAPTCHA sweat shops” – hiring humans to enter codes by the hour. The most creative attempt to circumvent involved the redirection of CAPTCHA images to “unlock” illicit images on the Internet, thereby employing viewers to enter the codes.



*Figure 18 - CAPTCHA entry screen*

However, in 2008, CAPTCHA was so popular

*About 200 million CAPTCHAs are solved by humans around the world every day. In each case, roughly ten seconds of human time are being spent. Individually, that's not a lot of time, but in aggregate these little puzzles consume more than 150,000 hours of work each day. What if we could make positive use of this human effort? reCAPTCHA does exactly that by channeling the effort spent solving CAPTCHAs online into "reading" books.<sup>86</sup>*

### **Netflix Challenge**

In early October, 2006, online movie rental firm Netflix offered a \$1 million dollar prize for improvements to their movie recommendation algorithm. The grand prize winner will be the individual or team who can improve the recommendation service by 10% by the year 2011. From the Netflix site, here is the introduction to the rules and Terms and Conditions web page.

*We're quite curious, really. To the tune of one million dollars.*

*Netflix is all about connecting people to the movies they love. To help customers find those movies, we've developed our world-class movie*

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<sup>86</sup> <http://recaptcha.net/learnmore.html>

## Productivity Games

*recommendation system: Cinematch<sup>SM</sup>. Its job is to predict whether someone will enjoy a movie based on how much they liked or disliked other movies. We use those predictions to make personal movie recommendations based on each customer's unique tastes. And while Cinematch is doing pretty well, it can always be made better.*

*Now there are a lot of interesting alternative approaches to how Cinematch works that we haven't tried. Some are described in the literature, some aren't. We're curious whether any of these can beat Cinematch by making better predictions. Because, frankly, if there is a much better approach it could make a big difference to our customers and our business.*

*So, we thought we'd make a contest out of finding the answer. It's "easy" really. We provide you with a lot of anonymous rating data, and a prediction accuracy bar that is 10% better than what Cinematch can do on the same training data set. (Accuracy is a measurement of how closely predicted ratings of movies match subsequent actual ratings.) If you develop a system that we judge most beats that bar on the qualifying test set we provide, you get serious money and the bragging rights. But (and you knew there would be a catch, right?) only if you share your method with us and describe to the world how you did it and why it works.*

*Serious money demands a serious bar. We suspect the 10% improvement is pretty tough, but we also think there is a good chance it can be achieved. It may take months; it might take years. So to keep things interesting, in addition to the Grand Prize, we're also offering a \$50,000 Progress Prize each year the contest runs. It*



## Productivity Games

*goes to the team whose system we judge shows the most improvement over the previous year's best accuracy bar on the same qualifying test set. No improvement, no prize. And like the Grand Prize, to win you'll need to share your method with us and describe it for the world.*

There is no cost to enter, no purchase required, and you need not be a Netflix subscriber. So if you know (or want to learn) something about machine learning and recommendation systems, give it a shot. We could make it really worth your while.<sup>87</sup>

Netflix also has a leader board on their site -  
<http://www.netflixprize.com/leaderboard>

See <http://www.netflixprize.com/>

### **SearchVote.com**

SearchVote is a web site that allows side-by-side comparison of search results between two search engines. While there are not really any game play elements to it, it's included here because when users "vote", they are helping to produce search engine relevancy feedback. Many users make SearchVote their homepage to improve their search effectiveness – employee two search engines at once – and the instrumentation and voting data provides valuable feedback to the search teams. The evolution of SearchVote is almost the antithesis of Re-Captcha, the SearchVote site started with the objective of gathering comparative search engine feedback and then evolved to also provide something valuable to users, whereas Re-CAPTCHA started as something valuable for users – to verify humans where at the keyboard – and evolved to also collect feedback on the accuracy of OCR-scanned text.

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<sup>87</sup> <http://www.netflixprize.com/rules>



## Productivity Games

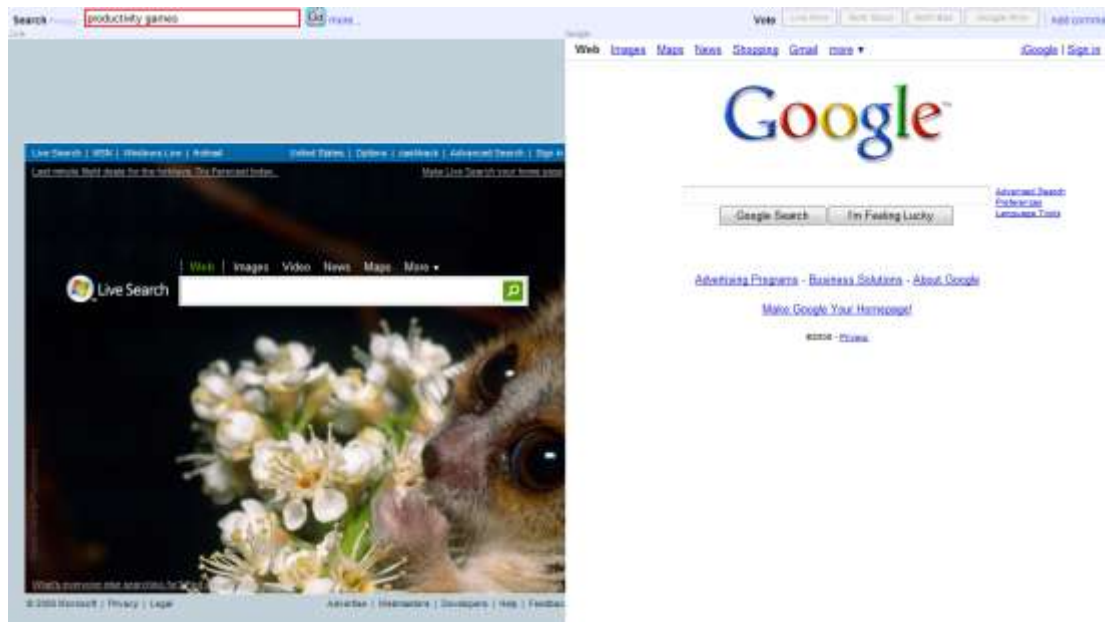


Figure 19 - SearchVote.com

### Test Olympiad

The Test Olympiad was an alternate reality game deployed by the Windows Security Trust Platform Team. “An alternate reality game (ARG) is an interactive narrative that uses the real world as a platform, often involving multiple media and game elements, to tell a story that may be affected by participants' ideas or actions.”<sup>88</sup>

In this game, the players (employees) formed virtual “teams” of runners and coaches to compete in a mix of in-role and citizenship behaviors. Coaches focus on in-role behavior and runners work on OCB's. Scoring comprises both facets of the work. The theme of the game continued for a few weeks, but was concentrated in a 5 day “sprint”. The runners were to pick test automation code development tasks within their area of expertise, or new to them. The coaches helped select the development tasks, as well as exhibit leadership skills and take the responsibility of doing the “regular work” during the race. They also helped coach the runners in areas of expertise.

There were a few interesting results and discoveries from the Test Olympiad.

- Team-building and morale improvements
- Skill development and mastery

<sup>88</sup> [http://en.wikipedia.org/wiki/Alternate\\_reality\\_game](http://en.wikipedia.org/wiki/Alternate_reality_game)

## Productivity Games

- Exploration and experimentation
- Successful project-related accomplishments –

**TODO: Help from Rashmi and Olympiad Survey results to quantify**

## **X Prize Foundation**

<http://www.xprize.org/>

[http://www.businessweek.com/magazine/content/08\\_48/b4110054165858.htm](http://www.businessweek.com/magazine/content/08_48/b4110054165858.htm)

# Designing Productivity Games

## Level 10

### Games at Work are slightly Different

*"You have to learn the rules of the game. And then you have to play better than anyone else." – Einstein*

#### Introduction

Productivity games have a different goal than games designed for entertainment, learning, advertising, or raising awareness. The most notable difference is that productivity games are built to attract players, and keep them playing. They are similar to advertising games, which also seek to attract players. However, advertising games want players to come, play for a bit, and then go explore – or purchase - the product itself. The ultimate goal of the game is to sell. Games for education are more closely related since they also seek to get people playing. If students are playing the game, they are trying to learn, so keeping an educational game interesting enough to attract and retain players is a goal of the game designer.

This chapter contains a lot of overview material covering significant work in game theory, human resources, motivational theory, and incentives. Each of these areas can provide tremendous perspective and aid in the design of successful productivity games. There is far more here than meets the eye. Productivity games are different than entertainment games, and the design and introduction/deployment of these types of games requires far more care, thought, and preparation than a traditional entertainment game.

#### Principles of Productivity Game Design

The principles of good game design don't vary much across genres. The main difference between the design of productivity games and other types of games relate to the goals and objectives. The goal of productivity games is to attract players to do work to accomplish a set objective. Actual game design for productivity games can be of lower quality or investment than their entertainment counterparts because people are literally getting paid to play productivity games.

#### Alternative Incentives

The most important element of productivity game design to study and understand is the introduction of an alternative incentive scheme. Introducing productivity games in to an established organization or work environment, where rewards and incentives

## Productivity Games

already exist, creates a conflict for the players. Employees will think “should I play the game or should I do the job I was being paid for before these games came along?”

Well designed games will attract players who are motivated by playing the game, winning, beating their co-workers, or any number of other reasons. However, those incentives and rewards are different than a paycheck, and people can get confused if the game designers are not careful. (See also DYFJ Syndrome.) The introduction of a new reward system can be easily overlooked. A simple game can be easily created and deployed and have immediate and tremendous success. However, because the player can be confused about the relationship between the game rewards and their normal paycheck or bonus, the long term ramifications can be far more insidious. Players will not bring this up, but make some assumptions about how in-game rewards map to traditional rewards and the game designers must take this into account.

## Types of Monetary Incentives

*Individual monetary schemes:* Staff can receive a monetary reward at the end of determined periods based upon their individual performance.

- *Team based monetary schemes:* Team members regularly receive monetary rewards which are determined

by the performance of the whole team.

- *Branch monetary based based:* Branch staff members can regularly receive monetary rewards, based upon the performance of the branch.

- *ESOPs (Employee Stock Ownership Programs):* Employees' compensation is tied to the share price of the organization. This is either through direct ownership in shares of the company, or indirectly, through another mechanism such as a trust fund that invests in the company.<sup>5</sup>

- *Gainsharing:* Under gainsharing plans, employees are entitled to a certain bonus depending on improvements in the performance of the institution.

- *Profit sharing:* Employees receive a certain percentage of the annual (or semi-annual) profit. The profit pool allocated to the employees is then distributed equally between all staff members, or according to some form

of allocation criteria (base salary, individual performance, etc.)

- *Monetary tournaments/competitions:* Based upon certain criteria, individuals or teams are ranked relative to

each other and monetary rewards are given to staff who achieve the highest ranks.

- *Non-monetary tournaments/competitions:* Individuals or teams are ranked relative to each other and nonmonetary

rewards (e.g. publication of their names in newsletters) are given to staff members who achieve the highest ranks, based upon certain criteria.

- *Merit pay scheme:* Based upon scheduled performance appraisals, staff can increase their regular salary.<sup>89</sup>

## Linear vs. Non-Linear Incentive Schemes

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<sup>89</sup> Staff Incentive Schemes in Practice: Findings from a Global Survey of Microfinance

Institutions

## Productivity Games

Companies use incentives to hire, and subsequently motivate employees to work. The types of incentives vary dramatically, from employee stock ownership to a simple employee of the month parking place. While it is possible to increase employee productivity through incentives, it must be done carefully, as different people are motivated in different ways, and productivity increases often require increased mental or physical effort on the part of the employee. For example, risk-averse employees prefer regular compensation that they can count on, while others may enjoy the spirit of competition and the opportunity to increase their pay.

Linear incentive schemes provide rewards or compensation incrementally. Piecewise linear incentive schemes offer a “kink” in the reward graph – these are used frequently, and will provide incremental pay, and then offer a bonus when certain objectives are achieved. Non-linear incentive schemes offer a periodic, often annual, merit raise or bonus. There may or may not be a direct relationship between the non-linear scheme and production levels. Obviously, there is a relationship between all types of incentive schemes and performance or productivity. Each of these classes of incentive schemes also face the prospect of introducing “moral hazard” into the equation. Moral hazard is best characterized as a situation where people behave recklessly because they know they will be saved if things go wrong.

*Moral hazard is the prospect that a party insulated from risk may behave differently from the way it would behave if it were fully exposed to the risk. Moral hazard arises because an individual or institution does not bear the full consequences of its actions, and therefore has a tendency to act less carefully than it otherwise would, leaving another party to bear some responsibility for the consequences of those actions.<sup>90</sup>*

So, for example, if an incentive program is established to reward team performance, the moral hazard - people acting recklessly knowing they will be saved - introduces a “volunteer’s dilemma”

*The volunteer's dilemma game models a situation in which each of  $N$  players faces the decision of either making a small sacrifice from which all will benefit, or free-riding/slacking.*

*William Poundstone presented the game using a scenario in which the electricity has gone out for an entire neighborhood. All inhabitants know that the electricity company will fix the problem as long as at least one person calls to notify them, at some cost. If no one volunteers, the worst possible outcome is obtained for all participants. If any one person elects to volunteer, the rest benefit by not doing so.<sup>91</sup>*

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<sup>90</sup> [http://en.wikipedia.org/wiki/Moral\\_hazard](http://en.wikipedia.org/wiki/Moral_hazard)

<sup>91</sup> [http://en.wikipedia.org/wiki/Volunteer's\\_dilemma](http://en.wikipedia.org/wiki/Volunteer's_dilemma)

### **Productivity Games and Entertainment: Similarities and Differences**

There are a number of similarities between productivity games and games that are played for entertainment. Game developers building games for either genre want people to play. They want players to feel a sense of accomplishment, satisfaction, enjoyment or competitiveness. The biggest difference between the two is that the design of productivity games is focused on a slightly different goal - to keep people playing. While both types of games want to attract more players, the reason is very different, and productivity game designers want to keep those people playing, rather than just attracting players and selling units.

One of the biggest differences between productivity games and games for entertainment is that in most cases, people are being paid to play productivity games. While an entertainment game must be appealing enough to attract players from a variety of other activities, the bar is much lower for productivity games. The alternative is their regular job, and so, at least at this stage of the productivity game industry, the game design, graphics, and game play components of a productivity game can be a small fraction of their entertainment game counterparts.

### **Job Analysis**

The most important part of productivity game design is getting the “productivity” part right. An accurate definition of what the game should accomplish and how is critical to success. Poorly designed games can quickly turn counter-productive, and cause bad feelings and angst in an organization. Management and game designers often take for granted how particular tasks are completed, and can design inaccurate scoring mechanisms, or even worse, objectives that are off-course. The first step is to analyze the way in which people complete tasks.

In his 1979 publication, *Personnel Management*, William F. Glueck<sup>92</sup>

proposed seven major job analysis methods:

1. Examine and compare previous job analyses or job descriptions of similar jobs
2. Observe the employee on the job
3. Interview the employee and/or supervisor
4. Have the employee answer specific structured or open-ended questions about the job
5. Check the log, diary, or records kept by the employee

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<sup>92</sup> Glueck, WF, *Personnel Management: A Diagnostic Approach*, 1979

## Productivity Games

6. Record job activities – audio, video or other means if consistent with company or federal guidelines
7. Analyze equipment design information from blueprints or design data relevant to the job

This process is particularly important if the game is designed to attract other players to this work. If two employees each perform the same, or similar, tasks that are to be opened up as part of a productivity game, it's critical to understand the techniques each uses to accomplish the task, and design the scoring to accommodate that. There's nothing more harmful to an employee than to overlay a poorly designed game on top of a task they are already performing (see DYFJ syndrome), and particularly if two or more employees are responsible for the same task. Simple observation and in-depth understanding of the objectives, the task, and the techniques will help make for a much better, and much more successful productivity game.

### **Player vs. Player Competition**

Player versus player, or PvP, is definite as two live players competing against one another. At work, many performance evaluation and reward systems employ a PvP framework.

<http://www.adamcon.org/17/gamebalance-theory.pdf>

[http://terranova.blogs.com/terra\\_nova/2007/08/player-vs-playe.html](http://terranova.blogs.com/terra_nova/2007/08/player-vs-playe.html)

On August 4, 2005, the Chinese government announced a ban on all "violent" MMORPG play for minors (under 18). Chinese officials defined "violent" as any game that involves player vs. player combat. This new policy is part of a crackdown on pornographic, violent, gambling and superstitious content on the internet and mobile phone networks in an effort to create a so-called "healthy online environment".<sup>[1]</sup>

### **Player vs. Environment**

[http://en.wikipedia.org/wiki/Player\\_vs\\_environment](http://en.wikipedia.org/wiki/Player_vs_environment)

Player versus environment (PVE) is played alone or with other players (human or computer) against the computer or opponents controlled by the computer.

### **Player vs. Self**

Player versus self is another type of competition, and one that really motivates many people. While some are inspired to compete against others, many people have no

interest in formal competition, but become incredibly driven when challenged to beat their own high score. An aspiring basketball foul shooter trying to beat their personal “best out of 10” – or a knitter striving for 25 perfect stitches in a row – are examples of “players” competing against themselves.

### ***Past Self and Future Self***

There are two interesting variations of player versus self (PvS) competitions - player vs. “past self” and player versus “future self”. Player versus past self is best illustrated in the examples above – beat your previous high score. A well designed game that pits the player against his or her previous self will continue to engage players who are motivated to beat their own previous high scores. A great example of “Player versus future self” is the reality TV show “Life: The Game” or “The Biggest Loser”<sup>93</sup> in which contestants work to lose weight. The future self they envision is the svelte “winner” and the future they are competing against is the self image of the overweight “loser” – punishment for failing to lose weight.

*“The struggle to lose weight (or to save more money) is a game of one’s current self (who takes a long run viewpoint and wants to improve health or wealth) against a future short-run self (who is tempted to overeat and overspend). The current self’s resolution constitutes a commitment to behave better. But this commitment must be irreversible; the future self should be denied the possibility of renegeing”<sup>94</sup>*

### **Player vs. Monster**

Player versus monster (PVM) is self explanatory – the player opposes another character or monster. Sometimes, there are elements of PVM that are similar or overlap with player vs. environment or player vs. player, where one player has taken on super powers.

### **Glory and Shame**

Multiplayer productivity games are similar to multiplayer online games with regard to the power of glory and shame in influencing players. Glory and shame are not well understood components of game design, and yet each can play a powerful role. Deploying a productivity game in an organization can evoke feelings of glory or shame. Glory and shame each exist only in forums where there is an audience – which would be co-workers within an organization, and where that audience is familiar enough with one another to judge one another.

Glory is a great motivator for people. People love the opportunity to demonstrate their prowess and expertise to others. Glory requires an audience, and many people

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<sup>93</sup> [http://www.nbc.com/The\\_Biggest\\_Loser/](http://www.nbc.com/The_Biggest_Loser/)

<sup>94</sup> The Art of Strategy, Dixit and Nalebuff, p.174.



## Productivity Games

will work hard to “win”. Productivity games should be designed to attract players and keep them playing, which means sharing the glory across everyone.

The glory-for-everyone approach aligns well with the “Trophy Kids” concept, espoused by author Ron Alsop in “The Trophy Kids Grow Up”, *“Millennials are trophy kids in a couple of ways. First, they often received trophies and other praise just for participating and not necessarily for excelling in sports and academics. They were rewarded whether or not they made the grade or the home run to avoid damaging their self-esteem. They are also trophy kids because many proud, protective parents view their accomplished children as their prized possessions. As a result, trophy kids feel confident and accomplished, but the coddling has led them to feel entitled and to have great and often unrealistic expectations about their jobs and life in general.”*

People enjoy games that allow them to be acknowledged and recognized. They have an identity at work, a desire to uphold and remain consistent with that identity, and attract positive attention and acknowledgement, while avoiding negative attention or shame.

Shame is a powerful motivational instrument as well, particularly in certain cultures.

*“Shame is so powerful an emotion that entire societies have been held together by it. Many still are today, Japan being an excellent example. Echoes of shame's once prime importance in our society exist in a variety of figures of speech (“Shameless”, “Have you no shame?”, “You should be ashamed of yourself”, and so on). Japanese warriors, when shamed, would beg not just for death, but for the right to kill themselves in rather horrible ways”.*<sup>95</sup>

Interestingly, in our experiments with games during Windows Vista, powerful feelings of or concern for avoiding shame drove significant behavioral change, particularly for managers. The culture of the organization dictated that managers were leaders in participating in certain voluntary or citizenship behaviors. When a leader board was published, every manager felt compelled to do the work required to appear on the list, or else face shame, ridicule, and humiliation from the organization.

## Types of Games<sup>96</sup>

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<sup>95</sup> Glory and Shame: Powerful Psychology in Multiplayer Online Games, Gamasutra  
[http://www.gamasutra.com/features/19991110/Baron\\_01.htm](http://www.gamasutra.com/features/19991110/Baron_01.htm)

<sup>96</sup> The Practical Guide to Defect Prevention, p 86.

## Productivity Games

Following is a general categorization of the types of games that exist:

**Noncooperative** Players work independently without concern for the other players. These are typically the best type of games for work-related competitions.

**Cooperative** Players may cooperate with one another. This can lead to tricky issues when used as a motivator for defect prevention activity.

**Zero Sum** The sum of all rewards for all players is zero. Zero-sum games are not recommended for defect prevention competition because people can do work, perform tasks, and lose ground.

**Constant Sum** The sum of all rewards for all players is constant. However, a variable reward is a more exciting and motivational incentive for defect prevention work.

**Aligned Games** Productivity games that are played to help achieve the goals of the task at hand are called aligned games. For example, a janitor may see how many garbage cans can be emptied in an hour. NCAA tournament picks that are awarded as a result of doing a task in line with company goals can be considered aligned games.

**Incidental Games** Incidental games are played during the course of work and do not contribute or directly affect the outcome or accomplishment of the task. Incidental games probably will help improve morale, will keep people from straying too far off task, and may foster community. However, they do not directly relate to the goals of the job. An example might be a hotel maid who lines up pillows in certain patterns from room to room, or a truck driver who waves to Volvo wagons for the fun of it. These incidental games keep people thinking and keep their minds working but do not necessarily improve output. NCAA tournament watching—as it is done today—is a great example of an incidental game.

**Mini Games** **TODO: This section needs work** A mini-game (MG), or subgame, is a game within a game. A mini game can have the characteristics of other categories (aligned, zero sum, etc.) and can be either competitive or cooperative. Typically, the results of a mini-game have no bearing on the main or overall game. The difference between an incidental game and a mini-game is that an incidental game has nothing to do with the objective of the productivity game – whether it is a “full” game or just a small diversion (mini game). Aligned games and Incidental games are opposites. Mini Games and full productivity games are mutually exclusive – they can co-exist, but they are opposites, as are aligned vs. incidental games.

## Player Identity

## Productivity Games

In theater, the term “fourth wall” refers to the imaginary barrier between the actors and the audience. Video games break through this barrier. “Game fictions are not delineated by a 'fourth wall' as they are in film or literature.”<sup>97</sup>

[http://en.wikipedia.org/wiki/Fourth\\_wall](http://en.wikipedia.org/wiki/Fourth_wall)

[http://videogames.suite101.com/article.cfm/breaking\\_the\\_fourth\\_wall](http://videogames.suite101.com/article.cfm/breaking_the_fourth_wall)

TODO: Add Matthew Sharrit / Gee stuff on Identity

[http://gamecareerguide.com/features/652/press\\_the\\_action\\_button\\_snake\\_.php?page=1](http://gamecareerguide.com/features/652/press_the_action_button_snake_.php?page=1)

[http://gamecareerguide.com/features/20040709/adams\\_pfv.htm](http://gamecareerguide.com/features/20040709/adams_pfv.htm)

### **The Role of the Game Master**

*“A Gamemaster or Game Master (often abbreviated as GM) is a player in a multiplayer game who acts as organizer, arbitrator, and officiant in rules situations.”*<sup>98</sup>

Deploying a productivity game in an organization is a little bit different than distributing a game for entertainment or education. Productivity games are typically deployed to accomplish a deliberate objective, usually involving players who do work towards that goal. To keep the game moving forward and players engaged, the organization should create a role called a game master. In role playing games, such as Dungeons and Dragons, the game master is a character who leads others through the adventure. In productivity games, the Game Master role is similar, but involves more game management tasks. The Game Master will ensure that scoring is accurate, that competition is close, and that score and prize distribution is fair. Again, productivity games want to attract players, and if the scoring is widely distributed or unfair, people will stop playing and work will cease.

The use of serious games at work can be viewed as a radical or controversial idea, and it's very important for the game master to manage perceptions throughout the organizations. Executives will be skeptical, managers will be worried about the game stealing employee's time, and the players will be worried about whether the scoring is

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<sup>97</sup> Rune Klevjer -

[http://gamecareerguide.com/features/652/press\\_the\\_action\\_button\\_snake\\_.php](http://gamecareerguide.com/features/652/press_the_action_button_snake_.php)

<sup>98</sup> WikiPedia, [http://en.wikipedia.org/wiki/Game\\_master](http://en.wikipedia.org/wiki/Game_master)

fair. If any of these things go unmanaged, then the whole idea of “games at work” will get a bad name.

### **The Role of the Game Designer**

#### **Deciding on an Objective**

Productivity games are another business or process improvement technique – no different than Six Sigma, TQM, business process reengineering, Poka Yoke, etc. Any business deploying one of those techniques will spend a significant effort to identify their goals and objectives before deploying such a program. Productivity games fall into the exact same category of business process improvement techniques, and should be treated the same way. Before a game is designed, or any preliminary investments are made in game design, ask a simple question

*What do we want to accomplish?*

A well designed game will attract players – perhaps in numbers beyond your wildest dreams. Have you ever tried to interrupt a group playing Halo or Rock Band? Games are hypnotic, and if you build a good game, they will come – and if they do come, what will you have them do? If the game design proceeds without a clear answer to this question, it will likely fail. A game that is focused on a specific objective is far more likely to succeed.

#### **DYFJ Syndrome**

DYFJ is an abbreviation for “**Do Your F... Job**” – and relates closely to in-role behaviors, unique responsibilities and many of the other productivity related topics discussed in earlier chapters. It’s best described with an example. If you, the reader, are named Maddy, for example, and your organization decides to deploy a game that looks a lot like a “Do Maddy’s Job” game (to you and others) – and after playing for two weeks, you come in fourth place, then you will likely experience emotions that are known as the DYFJ syndrome.

If the game is encouraging players to perform tasks that are part of your in-role behavior, then it’s introducing a reward and incentive system that overlaps your paycheck. If you are not a runaway winner, then people, including you, might ask why not. However, it’s quite likely that when the game is introduced, you will be confused by the duplication of reward systems. You are already getting paid for these tasks, why should you do more of them to earn points in a game. Or, perhaps you do these tasks so often that you are a runaway winner, without modifying anything you do. Either way, the game is a failure.

Another great example is the NetFlix Challenge, outlined in Chapter 6. The challenge awards a \$1 million to anyone who can improve accuracy of the NetFlix recommendation algorithm by 10%. It’s probably safe to speculate that someone in NetFlix collects a paycheck for the in-role behavior of developing the recommendation algorithm. It’s also probably fair to speculate that they are not

## Productivity Games

eligible for the prize – and that they probably have some “feelings” around their job being crowdsourced. Those feelings are what’s called the DYFJ syndrome.

### **Beating DYFJ**

How does a game get around DYFJ? Not every organization has a litany of “volunteer” behaviors. And even if such a list exist, items on that list may not outrank existing work – so driving people to volunteer for these OCB’s may not be the highest priority work or a good use of time.

A great example of a game that solves the problem of DYFJ with games for in-role behaviors is the “Test Olympiad”, in Chapter 6. Essentially, the game design includes team play, rather than individual play. So, using the example above, if we create the “Do Maddy’s Job” game, but it’s designed for team play, and Maddy is on a team with Emma, Clara, and Roo – and they play against other teams – then the emotions are not quite so strong for Maddy if she loses – or for others if she wins – because the field is normalized by the addition of other players. The Test Olympiad game takes it one step further by including both in-role behaviors and OCBs in the scoring.

### **Core vs. Unique vs. Expanding**

How do these classifications play into game design? For most games, the focus should typically be on Core tasks – those tasks that can be done by virtually anyone. Since game play can teach players, there are interesting opportunities to create games around unique or expanding responsibilities. Personal development and growth is a huge motivational factor for people, and a well designed game can take the focus away from the learning, as well as provide immediate feedback as players learn a new skill. The most important consideration at game design time is to understand the type of responsibilities and behaviors the game encourages and rewards. A poorly designed game will not only fail to deliver work results, but will sour the organization on the use of games at work.

### **Game Duration**

People are smart. It’s very unlikely that anyone designing a game, particularly a game that will be deployed to a large audience, will understand the nuances, skills, motivation, and desires of every player. Smart players will find holes in the scoring and manipulate those holes to their own advantage. Perhaps not even in a devious or illicit sense, but different players perform at different levels, and it’s impossible to pre-determine every angle. Once again, the goals of a productivity game differ in that they want to attract players and keep them playing. The more play that occurs, the more work gets done.

In addition, keeping games short also leverages the “games as practice” component. People performing at high levels can only concentrate for short bursts. *“Consistent with the mental demands of problem solving and other types of complex learning, deliberate practice requires concentration that can only be maintained for limited periods of time. Although the detailed nature of deliberate practice will differ across*

*domains and as a function of attained skill, there appear to be limits on the daily duration of deliberate practice, and this limit seems to generalize across domains of expertise.”<sup>99</sup>*

### **Creating a SMART Productivity Game**

Chapter 7 of “The Practical Guide to Defect Prevention” discusses effective measurement and metrics. In particular, the section on creating SMART goals applies directly to the initial phase of productivity game design.

SMART goals are **S**pecific, **M**easurable, **A**chievable, **R**esults oriented, and **T**ime-bound.

**Specific** - Does the game address a real business problem? Is it exact? Is it mapped to a business strategy? Is it scoped appropriately? The scope of the game should be defined by the boundaries of the business opportunity. Does the game respect the boundaries, the starting and ending steps of a process, of the initiative? What parts of the business are included in the scoring? What parts of the business are not included? What, if anything, is outside the boundaries of the game? Will players understand the scope?

**Measurable** Are you able to measure the problem, establish a baseline, and set targets for improvements the game may bring? How do you know whether the game is making progress towards completing the goal successfully? How do you know the game is accomplishing its objectives successfully? Have you identified in-process and result metrics while the game is in progress?

**Achievable** Have you scoped your goals for the game to be challenging but not unrealistic? Can the game actually complete what you have defined? Is this goal in the control of the game – or does it belong to the organization, team, or individual? What are the dependencies of the game? How much control do game designers have over the dependencies? Ensure that you are not setting up the game for failure by setting a goal it has no realistic ability to meet as a result of forces beyond control.

**Results-oriented** Have you outlined the behavioral changes you expect the game to achieve (and success metrics for your deliverables). The game should have a tangible outcome that everyone can appreciate.

**Time-bound** Have you identified milestones, checkpoints, and a completion date?

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<sup>99</sup> The Influence of Experience and Deliberate Practice on the Development of Superior Expert Performance, K. Anders Ericsson, The Cambridge Handbook of Expertise and Expert Performance, p. 699.

## Productivity Games

This step often is omitted initially because this information is unknown and then, unfortunately, forgotten about. It is critical to ensure that you actually achieve your goals when they still matter. Shorter duration games are typically more successful.

### **Target Audience**

The target audience may vary depending on the game objective, but typically, the target audience for a productivity game is employees.

As the initial discussions about the game begin, it's important to understand the nature and makeup of the audience of players. If a game is targeted at a single team, then members of that team will share cultural similarities that can be integrated into the game. For example, knowledge that a competitive team will be playing the game may lead to a design that incorporates "smack talk" or customer leader boards, where a less-competitive, more collaborative team would enjoy and respond better to a game that allows players to work together towards a goal.

### ***People have different risk levels***

Assessing an individual's comfort with levels of risk is a challenging task. Risk is best defined as the probability of an event with regard to the significance, importance, or impact of that event. The best proxy for individual risk assessment is the financial industry. While somewhat ironic in these days of government bailouts, the financial industry does do a good job of educating individuals on the relative risks of a variety of investment strategies. The point here, however, is that everyone has a uniquely personal level of comfort in situations of uncertainty and risk. A game that incorporates an understanding of the risk comfort levels of its players will be more popular than one that's not. For example, if my comfort level for using or even wasting my free time is high, but I'm nervous about my paycheck, then I might play a game for hours on my own time, but would quite wary of my boss seeing that I put a lot of time into the game – for my fear of paycheck impact would be debilitating. Providing a "player vs. self" game, where I can play all I want against my own high score, without fear of my boss lecturing me, or even finding out, would target my risk level much better than one where the boss handed out certificates every Friday.

### ***Some people are social, some are not***

Myers-Briggs have developed a great measure of personality types based on the work of C.G. Jung.

*Jung "applied the words extravert and introvert in a different manner than they are most often used in today's world. As they are popularly used, the term extraverted is understood to mean sociable or outgoing, while the term introverted is understood to mean shy or withdrawn. Jung, however, originally intended the words to have an entirely different meaning. He used the words to describe the preferred focus of one's energy on either the outer or the inner world. Extraverts*

## Productivity Games

*orient their energy to the outer world, while Introverts orient their energy to the inner world.*<sup>100</sup>

Incorporating an understanding of the target audience's social preferences – whether it's the inner world or the outer world, both, or either – can help make the game more successful.

***People learn differently and at different rates***

***People have different values***

***People view conflicts differently***

***People value different rewards***

### **Designing for Core, Unique, Expanding Responsibilities and Citizenship vs In Role Behaviors**

One of the most important components of productivity game design is the understanding the objective of the game. There are some dangerous emotional pitfalls that can dramatically impact the success of a game that encourages the wrong type of task.

Doug Engelbart, widely credited and renowned for his early work on human computer interaction, and the mouse, identified four areas in which human capabilities could be augmented. While Engelbart was referring to the use of computers, the same categories would apply to the application of productivity games:

- *Artifacts -- physical objects designed to provide for human comfort, for the manipulation of things or materials, and for the manipulation of symbols.*
- *Language -- the way in which the individual parcels out the picture of his world into the concepts that his mind uses to model that world, and the symbols that he attaches to those concepts and uses in consciously manipulating the concepts ("thinking").*
- *Methodology -- the methods, procedures, strategies, etc., with which an individual organizes his goal-centered (problem-solving) activity.*
- *Training -- the conditioning needed by the human being to bring his skills in using Means 1, 2, and 3 to the point where they are operationally effective.*<sup>101</sup>

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<sup>100</sup> <http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/extravert-and-introvert.asp>

<sup>101</sup> <http://www.1962paper.org/web.html>



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Basically, this means that a productivity game designer, in understanding where a game could make a difference, should look at these four areas. As most readers are probably well aware, the use of games for training have been well known for years.

Overlaying the artifacts, language, and methodologies used by employees in-role or citizenship behaviors, whether they apply core, unique, or expanding skills will help the productivity game designer create games with the highest return on investment.

## Gameplay Description

### Scoring

The score is the most critical element of a productivity game. Game play, competition, player vs. player, duration, and tasks are meaningless if the scoring is wrong, inaccurate, or unfair. Because games provide critical, instantaneous feedback about work and employee performance, typically far more frequently than the formal “performance evaluation”, it’s imperative that the scoring be fair and accurate. It’s also unlikely, for most jobs, that managers or game designers have the ability to “get it right” in one shot. Therefore, it’s important to deploy pilot and trial runs, tests, surveys and interviews. If the score is wrong, the feedback is wrong, and players will be discouraged and stop playing, even if the game itself is compelling.

Scoring should be based on data that’s already sitting in an organization’s databases. If the score requires fundamentally new data to be collected, then it’s worth a hard look at the game’s objective, because it’s likely going to fail. A successful productivity game is most likely designed around behaviors upon which data is already being collected by the organization.

There are many philosophies around developing scoring systems in games, but with productivity game design, the most important thing to remember is that the score is the way employees get instantaneous feedback on their performance on the task.

An option to consider is that of the “endowed progress” effect, espoused by Nunes and Dreze. This hypothesis suggests that people work harder towards a goal once they’ve started, and will work hard for points, regardless of worth. (See also “Customer Loyalty Programs” above)

*As people perceive that they are progressing towards their goal, their effort will increase, and thus completion time will decrease. Endowed progress, which provides artificial advancement towards the goal, will exacerbate this effect.*<sup>102</sup>

### **Leader Boards**

A leader board will publicly illustrate relative standing. In competitive environments and teams, the players may want to know who are the very best performers in a category or overall. When people are motivated by player-vs-player games, a leader board is a great tool. Depending on the performance evaluation system that already exists in a given work environment, a leader board may not be a big change. However, in some environments, it can be very controversial and a generally bad idea.

Again, the goal of productivity games is to encourage more players to play more often. Exposing the current status of the player scores can help or hurt, and extreme care must be taken, and extensive testing must be done, before displaying a public leader board. If the decision is to go ahead with a leader board, it's important to offer multiple views – overall, team-by-team, daily, etc. Also, allow custom or filter-able views, showing a single team, or allowing a player to easily create her own, filtering out the noise and enabling local competition – again, with the goal of keeping players playing.

Figure 20 shows a leader board from the 1980's game Robotron (my fave ☺) – that shows an overall or all-time list of high scores, and then the current day's list.

The objective of displaying a leader board is that players not on the list will work to get on the list, and players on the list will work to retain or improve their position. If those objectives are not within range (see “endowed progress” example above), then the leader board is likely to do more harm than good.

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<sup>102</sup> The Endowed Progress Effect, Nunes and Dreze, p. 6.

**ROBOTRON HEROES**

1> DAJ	52127	6> MLG	31
2> LED	50218	7> SSA	28
3> EPJ	41255	8> UNA	28
4> JEA	41250	9> JAS	29
5> KID	31920	10> CJM	24

**ALL TIME HEROES**

1> STEPH OWNS THIS GAME 5016325

2> STF	3299550	14> STP	2366025	26> SJS
3> SJS	3182625	15> STX	2362775	27> STE
4> SJS	3039825	16> STY	2343550	28> STX
5> SAM	2899425	17> STY	2243900	29> STD
6> SAM	2894275	18> STY	2193500	30> STB
7> STF	2887900	19> STF	2191650	31> SAM
8> STY	2738775			32> STB

Figure 20 - Robotron Heroes

**Windows Vista Test Game** Install Windows Vista Beta 2, try some things, run some tests, and earn colored wristbands!

**This Week's Leaders** 1-50 of 2040

Rank	Email	High	Blue	Gold	Silver	Bronze	Best % change
1	dan	35167	28	1	1	1	234%
2	mark	30652	29	0	0	1	602%
3	bob	106424	27	1	1	1	1101%
4	ross	58584	28	0	0	1	569%
5	lori	168673	28	0	0	1	434%
6	page	35916	28	0	0	1	280%
7	joshua	97598	27	1	0	1	212%
8	james	19327	26	0	3	1	454%
9	anon_42	29069	26	2	0	1	358%
10	homer	28778	26	1	1	1	932%
11	alice	25726	26	1	1	1	799%
12	dylan	48776	26	1	1	1	687%
13	anon_7	19602	24	3	2	1	287%
14	harry	59468	27	0	0	1	305%

**Install Beta2**  
Running is a snap, just click here and follow the directions. (Click here)

**Run tests!**  
Start running and keep track of your contribution on the leaderboard. (Click here)

**Your Game Stats**

Week	Stress Minutes	Target	% of Target	Wristband
10/30 to 11/6	1272	720	176%	bronze
11/6 to 11/13	1560	1272	122%	silver

Figure 21 - Windows Vista Beta Game Leader Board

### The Danger of Leader Boards

As mentioned above, the objective of displaying a public leader board is encourage people on the list to retain or improve their position, and challenge those not on the list to try harder. However, if the scoring is not fair, a public leader board is a huge billboard to display the errors. Here are some representative comments:

*I mentioned this in another thread, but it bears repeating. Leaderboards don't work.*

## Productivity Games

*Even if you get past the Timmies and the cheaters, the people at the top of the boards are just the ones who have the most time on the game. If you didn't get [the game] on launch day and you aren't willing to spend 40 hours a week online, you won't ever be at the top of the board.*

*I wish they'd get over the whole ranked/unranked thing and just let us play the game.*<sup>103</sup>

Harriet Klausner is currently number one on the Amazon leader board for helpful reviews. People question whether she really exists, because

*Klausner is apparently trying to game the system so she keeps her position. In a world where building social tools like this is becoming more common every day, Klausner is diluting the value of her reviews just for personal gain.. Klausner seems to be going for quantity over quality.*<sup>104</sup>

And therein lies the danger of leader boards. If others are questioning the validity of the leader's position, then they are questioning the fairness of the scoring, which is evident in the Harriet Klausner blog post above, and leads to fewer players. While fewer players, or fewer reviews, may not be debilitating for Amazon, it is a direct loss for productivity games. If the scoring and leader board display discourages play that would have otherwise occurred, it is debilitating. Therefore, extreme care, and validation, must take place in the design of the scoring, and in the display of a leader board.

### **Development**

This is not a book about game development. While it is likely that productivity games are digital or software-based, they do not have to be. For software-based games, there are several methodologies and approaches for successful development.

### **Testing**

### **Feedback**

### **Maintenance**

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[http://www.2old2play.com/News/Problems\\_and\\_Cheaters\\_Curb\\_Stomp\\_Emergence\\_Day#7058](http://www.2old2play.com/News/Problems_and_Cheaters_Curb_Stomp_Emergence_Day#7058)

<sup>104</sup> <http://bokardo.com/archives/is-harriet-klausner-for-real/>

## Sidebar: Joseph Campbell's Monomyth and OCBs

In 1949, Joseph Campbell ([www.jcf.org](http://www.jcf.org)) wrote "The Hero with A Thousand Faces", and although he did not coin the term monomyth, he made extensive use of it to characterize his thesis that stories through the ages shared fundamental elements that made them successful.

Many successful Hollywood projects have either deliberately or unintentionally followed the Campbell formula to create blockbuster hits. Star Wars, Thelma and Louise, Northern Exposure, and Raiders of the Lost Ark are a few of the many familiar film and television hits that drew upon the principles of the monomyth.

Over the last several years, video game designers have been evaluating these same principles as a foundation for successful storytelling in games. As we think about the use of games at work, and how to design effective productivity games, these same principles are worth considering.

Campbell's monomyth is based upon the idea of a hero.

*A hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man.<sup>[1]</sup>*

Presumably, the hero in a productivity game is the employee. I would assert that most employees would not describe additional work as a "region of supernatural wonder" – but perhaps "the world of common day" does apply. Therefore, the game design must draw the employee out of their regular work into the "region of supernatural wonder".

This definition aligns perfectly with "organizational citizenship behaviors" – OCB's – (Wikipedia [link](#)) – which are work-related, but "are discretionary, not directly or explicitly recognized by the formal reward system." Therefore, since these behaviors are not recognized by the formal reward system, a well-designed game can provide an informal or secondary reward system. As Dennis Organ asks of managers in his book Organizational Citizenship Behavior ([link](#)), "*What are the things you'd like your employees to do more of, but can't really **make** them do, and for which you can't guarantee any definite rewards, other than your appreciation?*"

Combining the "region of supernatural wonder" of Campbell with the definitive goals of citizenship behaviors provides tremendous opportunities for productivity games. The goal of productivity games is to attract and retain players. The more players, and the more frequently people play the game, then more work gets done. Building upon

## Productivity Games

the structure of Campbell's "Hero's Journey" is a tremendous way to engage players, and draw upon those fundamental elements of the monomyth to challenge the hero.

The successful deployment of the monomyth in Hollywood keeps movie-goers from leaving the Star Wars showing as Luke faces the atonement of the father with Darth Vader, or Clarice recites the story of the lamb in Silence of the Lambs, or in Titanic, when Rose has her doubts about marrying Cal despite her mother's concerns with money and status. These examples of the monomyth work well for Hollywood, so it's safe to assume that a well designed story could keep the hero at work engaged in the "region of supernatural wonder".

# Measuring the Results

## Level 11

*"My work is a game,  
a very serious game."*

— *M.C. Escher*

### Overview

When deploying productivity games, it's critical to measure the productivity impact. As we've seen, there is likely to be a generational bias towards or against games. Older employees likely view "games" as child's play, and not really important at work, so it's important to keep close track of productivity measures. No matter what the industry, productivity is critical to the success of a business or organization, and games are a tool to help improve productivity.

Productivity metrics will vary by industry and organization, but it's important to study factors that influence productivity, and how they might influence the measurement. It's likely that this work is done prior to the use of games, but in certain areas where games make sense, perhaps productivity measures have not been used.

The first step in measuring results is to know what defines success. See Level 7 on SMART goals for a productivity game. If those goals are set correctly and accurately, measuring success is much easier. Many times, particularly when it comes to games, the goals are vague. People tend to put too much value in "morale" and "fun", without looking hard at the ROI, and are unable to determine if the game achieved its goals or had any impact at all.

#### **TODO: expand this list**

- direct cost savings
- inventory savings
- discretionary or capital expenditure avoidance
- capacity / asset utilization
- schedule actualization
- product availability
- customer quality measures

## Productivity Games

- soft benefits
- salaried employee efficiency
- freeing up existing resources to spend on higher value activities
- increased throughput

### **Making the Case for Games**

Again, the primary measure for the success of a productivity game is the work itself. Traditional metrics should tell the story of a successful game. However, there are a few other measures to monitor to help understand whether or not games are the right technique to achieve the productivity goals.

In the era of the knowledge worker, there are a few key measures that help assess the success of games as a technique to improve productivity.

#### **Game Content- Progress against goals**

The most obvious measure of game success is progress against goals. Productivity games are designed and deployed to accomplish a goal – typically through increased productivity. Therefore, the top measure of success will obviously be related to how well the game players progressed against the goal of the game. If the game was built to reduce forms processing time, then average processing time per form is a great measure of success. Perhaps there are additional comparative measures that can help tell a great story for games as a technique, but that is secondary. The top goal to watch is progress against the stated objectives.

#### **Participation**

##### **Number of Players**

Since players are defined as “people doing work”, the number of players and average score per player are important game related metrics to watch. A well designed game will attract larger numbers of players for longer periods of time (work), which means monitoring the number of players is a great proxy for game success.

##### **Average Gameplay**

When it comes to productivity games, play equals work, so if players play longer, more work is being done. Therefore, if it’s possible to monitor the amount of time that players are playing, this measure is key in understanding the success of the game. Particularly, if it’s possible to capture the amount of time an employee spent on the task before the game was deployed and compare it with a post-deployment “score”, the results could show clearly the impact of a game.



## **Player Skills**

Many players will play a game for the score. In 1976, the arcade game Sea Wolf was the first arcade game to store a high score. Three years later, Star Fir<sup>105</sup> became the first game to allow high score players to enter their initials. Providing a score, and in particular a high score, allows players to track their progress. Since the players are workers, the score is a performance evaluation system. As people play (work), feedback on their performance can help them attune their skills.

## **Organizational Health**

### **Employee Retention**

Employees belonging to the gamer population would much rather work in an organization that uses games to get work done than elsewhere. Since the players will play (work) more often in an organization that emphasizes games as work, their scores – and hence, their productivity – will improve. It's no secret that "practice makes perfect" – and that gamers who play more often and/or for longer periods of time, develop skills far above a novice, so keeping people around – particularly good "players" will result in higher employee retention rates, and higher productivity.

### **Recruiting and Hiring**

The baby boomer population is leaving the workforce. Those replacing them were raised on video games. Even non-players are familiar with games as commonplace in their culture. As these new employees evaluation potential employers, the best and the brightest will recognize teams that employ games as part of the work.

A few other measures can be used to assess whether or not a game was an appropriate technique to achieve the goal:

## **Surveys**

## **Interviews**

## **Roundtable "debrief" discussions**

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<sup>105</sup> [http://en.wikipedia.org/wiki/Star\\_Fire](http://en.wikipedia.org/wiki/Star_Fire)

**Observation**

# How to Design and Deploy a Successful Productivity Game

## Level 11

*"I never did a day's work in my life - it was all fun."*

— *Thomas Edison*

### Introduction

The goal of productivity games is to get and keep people playing. When they are playing, work is being done. You don't need winners, just players.

### Objective

Have a well defined objective for the behavior you want the game to drive - because people will play, and if your objective is wrong, it can get bad

### Data

Understand your data sources - most likely, the org is already collecting metrics you can use for scoring – just plug in to existing data

### Scoring

Scoring is the feedback mechanism, design carefully and account for different types of "players" – some will be better than others – see bullet 1

### Duration

Keep Game Duration short - (for when you get the previous bullet wrong :-)

### Prizes

Don't use prizes to start - leader boards or puzzle games work fine - a well designed game will attract players - especially at work

### Game Activity

## Productivity Games

Stay away from games that align with in-role behavior - look for games to drive citizenship behaviors-

[http://en.wikipedia.org/wiki/Organizational\\_citizenship\\_behavior](http://en.wikipedia.org/wiki/Organizational_citizenship_behavior)

## Game Management

Identify a "game master" to manage deployment, feedback, and adjustments to game play

## Applied Research

## Lessons Learned

## Real data/results

# Patriot Points

## Level 13



*"We make a living by what we  
get, but we make a life by what we give.*

"

— *Winston Churchill*

## Overview

Hopefully, by this point in the book, readers have come to understand how well people respond to rewards, competition, and incentives.

From Aristotle and B.F. Skinner to Abraham Maslow, sales contests, and the Xbox 360, centuries of experimentation and research have only scratched the surface on how to motivate and engage people. Humans are driven by four motivational needs<sup>106</sup>

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<sup>106</sup> Employee Motivation, Nohria, Groysberg, Lee Harvard Business Review; Jul-Aug2008,

## Productivity Games

- To acquire (obtain scarce goods, including intangibles such as social status)
- To bond (form connections with individuals and groups)
- To comprehend (satisfy our curiosity and master the world around us)
- To defend (protect against external threats and promote justice)

After reviewing the success of productivity games in changing employee behavior, it's logical to ask, "how broadly can gaming elements be applied?" This chapter introduces a proposal for a national achievement system. The "Patriot Points" system is modeled after the leader boards and Xbox 360 achievement system, but with a goal of driving *national* citizenship behavior. At the time of this writing, early 2009, the United States has a new president who is encouraging citizens to volunteer at unprecedented levels.

*"Your own story and the American story are not separate -- they are shared. And they will both be enriched if we stand up together, and answer a new call to service to meet the challenges of our new century ... I won't just ask for your vote as a candidate; I will ask for your service and your active citizenship when I am president of the United States. This will not be a call issued in one speech or program; this will be a cause of my presidency."*<sup>107</sup>

And in the Inaugural Address, President Obama talked about the infrastructure investments. These investments would modernize the country and bring it into the 21<sup>st</sup> century.

*"We will build the roads and bridges, the electric grids and digital lines that feed our commerce and bind us together. We'll restore science to its rightful place, and wield technology's wonders to raise health care's quality and lower its cost. We will harness the sun and the winds and the soil to fuel our cars and run our factories. And we will transform our schools and colleges and universities to meet the demands of a new age."*<sup>108</sup>

This chapter proposes that an infrastructure investment be made in a national achievement or points system, known here as "Patriot Points". The current White House site lists a number of items on the Service agenda that would be greatly facilitated by the introduction of a national point system.<sup>109</sup>

### *Enable All Americans to Serve to Meet the Nation's Challenges*

- **Expand Corporation for National and Community Service**
- **Engage Retiring Americans in Service on a Large Scale**
- **Expand the Peace Corps**

---

<sup>107</sup> Barack Obama, Speech in Mt. Vernon, IA December 5, 2007

<sup>108</sup> Barack Obama – Presidential Inaugural Address -

[http://www.whitehouse.gov/the\\_press\\_office/President\\_Barack\\_Obamas\\_Inaugural\\_Address/](http://www.whitehouse.gov/the_press_office/President_Barack_Obamas_Inaugural_Address/)

<sup>109</sup> <http://www.whitehouse.gov/agenda/service/>

## Productivity Games

- Show the World the Best Face of America

### *Integrate Service into Learning*

- Expand Service-Learning in Our Nation's Schools
- Expand Youth Programs
- Require 100 Hours of Service in College
- Promote College Serve-Study

### *Invest in the Nonprofit Sector*

- Create a Social Investment Fund Network
- Social Entrepreneurship Agency for Nonprofits

Each of these areas could benefit by an incentive system that reconciles patriotism and national service, with conscription or financial reward.

## Achievement System Benefits

An achievement system, or “player points” can provide a variety of benefits to a game or game ecosystem. The Xbox 360 achievements, for example, help build a community around the system. These community members come from everywhere. The achievements encourage players to compete, compare scores, demonstrate pride, and talk smack to motivate others. The achievements encourage games to be played many times, in different ways to unlock the achievement points – in other words, the system drives people to change the way they do things, and provides a way to recognize those skills.

### **Building a Community**

A national points or achievement system will help building communities of people. Patriot points will provide a common language and taxonomy across all types of citizenship behavior. For example, the goal to “Engage Retiring Americans in Service on a Large Scale” could be greatly aided by a common taxonomy that acknowledges, showcases, and identifies effort and enables retiring Americans to engage in new and inspired ways.

### **Connecting Diverse People**

A well designed achievement system will reward effort. People come in many shapes, sizes, and colors – and by focusing on the similarities in a community makes it easier to see past the differences. For example, public transportation advocates can earn points for riding a bus to work and gather in targeted forums to share best practices. Reputation and credibility can be easily illustrated through a *player's* level and scoring. Commuters who “walk the walk”, so to speak ☺ - can talk the talk and be viewed as credible.

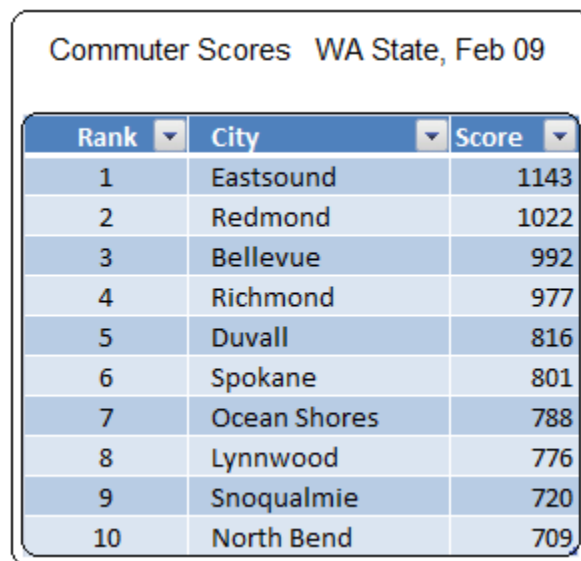
As University of Wisconsin-Madison education professor Constance Steinkuehler comments on players in World of Warcraft:

*Players "hang out and engage with one another in informal social ways," she said. "Most people go for the game and stay for the people." Interacting with people from all over and of all backgrounds exposes players to far more diversity than they get from their immediate*

social circle of friends and family, she said. "I grew up in a small town in Missouri," Steinkuehler said. "Kids today are growing up in thoroughly networked global spaces." Learning how to navigate that diversity is "in the big scheme of life" about citizenship, she said.<sup>110</sup>

### Competition and Pride

Leader boards and other gaming elements can help foster community pride and healthy competition. In addition, the threat of public embarrassment is also powerful motivator. In the example below, point scores are tabulated for commuting for the month of Feb by commuter home residence.



The image shows a screenshot of a web-based table titled "Commuter Scores WA State, Feb 09". The table has three columns: "Rank", "City", and "Score". The data is as follows:

Rank	City	Score
1	Eastsound	1143
2	Redmond	1022
3	Bellevue	992
4	Richmond	977
5	Duvall	816
6	Spokane	801
7	Ocean Shores	788
8	Lynnwood	776
9	Snoqualmie	720
10	North Bend	709

Figure 22 - Sample Commuting Points - Feb 2009

Patriot points would help join existing commute initiatives that are typically initiated by cities or corporations. See <https://www.gortrip.com/home/home.aspx> as an example. As individual scores are aggregated into affinity group, a variety of competitive leader boards can help motivate players and groups of players.

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<sup>110</sup> Online games like World of Warcraft can create better citizens

<http://www.madison.com/tct/news/stories/437876>

**Commuter Scores - Organization, Feb 09**

Rank	Organization	Score
1	Microsoft	1052
2	Boeing	940
3	Amazon	913
4	Seattle City Light	899
5	Safeco	751
6	Nintendo	737
7	Wells Fargo	725
8	Paccar	714
9	Issaquah QFC Market	662
10	Sea-Tac Airport	652

*Figure 23 - Sample Commuting by Organization*

Leader boards can be created for individuals, for neighborhoods, Toyota Prius owners, etc. Just as with Productivity Games, the goal is to attract players, not find the winners, so the more ways the system can foster competition, the better.

In addition, beyond commuter savings, points for service activities encouraged by the White House, such as “Prepare a care package for a soldier, read to a child or fix up a local basketball court”<sup>111</sup> or conservation or citizenship behaviors. Energy savings, helping the elderly or homeless, tutoring. Existing organizations can help sponsor and reward these activities with points. (See “How do Patriot points work” below for information)

### **Sharing Best Practices**

A competition among homeowners to lower energy consumption would identify the families that are most successful. These people could then identify the “winning” practices and share them with the community and across the country.

### **Recognizing Skills**

A leader board is a way to show a ranking. Assuming that the nuances of awarding points can be rationalized, a list of leaders will help identify those with the greatest skills and those who’ve put forth the greatest effort. Again, just as with productivity games, care must be taken in assuring that awards are fair and justified. The glory of being on the leader board and it’s recognition of the skills of the players will motivate many. If the leader boards come in many flavors, then people can monitor the lists that motivate them, and ignore others. An achievement system will reward and recognize people who have the desire and skills to put forth an effort to serve.

<sup>111</sup> <http://thehill.com/leading-the-news/obama-tapes-nba-message-2009-02-14.html>



## Financial Rewards

The Patriot Points system is not directly tied to money. Attaching money (ie: a tax credit) to points will induce cheating or influence the value of points relative to the value structure of money. Perhaps the system could allow 501(c)(3) organizations and cities/states the ability to exchange points for federal funds, but that is unhealthy (for the competition and the game itself) to allow individual players to do. If points have a direct financial value, players will start to value and treat them differently. There has been evidence of this in the productivity games we've run.

Perhaps points could be accepted by colleges/universities for continuing education, but if there's too much money involved, player motivation can change for the worse. Allowing a player to earn points to get an advanced college degree by volunteering at a soup kitchen is a good thing. The school can use the points to get federal money to offset the discount the player can receive. It's essentially the same as federal money going to soup kitchens, but it's no longer an upfront expense – it's paid after the work has been done. There is risk in attaching financial value to a point system, and that must be understood ahead of time and monitored carefully.

## Achievement Levels

A “player” can reach a new level by donating his/her points – so for example, if I'm a “bronze” level with 1000 points, then I need to donate them somewhere to advance my status to silver – I donate them to my local homeless shelter, my account is reset to zero, but I'm now at the silver level. The homeless shelter adds my points to their pool and can use them to give away to others to attract volunteers.

## How do Patriot Points work?

Every citizen who has a social security number gets an annual allotment of Patriot Points. These points may be “ordered” online and received in a variety of different forms:

- Gift cards
- Text messages
- Email

This allows the recipient to distribute the points to others in different ways. Elderly folks who need help shoveling snow can “pay” a willing neighbor using gift cards. These cards will have a point value, and an online verification number that the recipient must enter to receive the points credited to their account.



Figure 24 - Patriot Points Card

In addition to individuals, communities, non-profit organizations, and companies can receive or purchase Patriot Points to distribute.

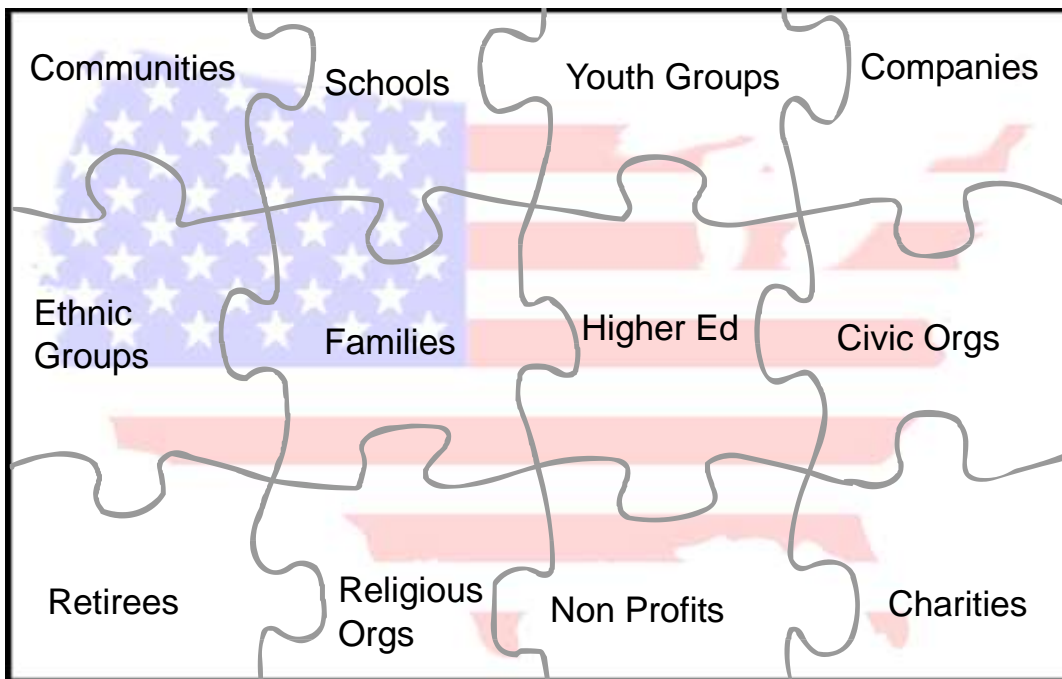


Figure 25 - Patriot Point users

While individuals can receive an annual allocation or points, or earn them through service activities, organizations who want to pay out points can receive them in a couple different ways.

## Productivity Games

They may receive an allocation from the government, they may receive individual or corporate donations (or points or funds to buy points), or they may purchase them directly.

When players advance through a certain level, they can donate their points to the organization, charity, or group of their choice, and in return, advance to the next level.

### Accessing Account Online

Members can login to [www.patriotpoints.com](http://www.patriotpoints.com) or an equivalent, and check the balance of their account, view their service event history, register or find new events, or log points from a Patriot Points card.



*Figure 26 - Patriot Points Web Site*

## Unanswered Questions

The Patriot point economy will have to find a market balance for value, and trained economists should help here. Is a 50 point reward sufficient for an hour's volunteer work? Should it be 500 points?

How do individuals transfer points to others? Or is that even possible? Should an individual be allowed to "spend" points for goods or services? How does that impact the intrinsic value? Should an individual be allowed to volunteer at a child care facility for a day and exchange those points for a 10% discount on groceries? A free meal at a neighborhood restaurant?

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