

# Knowledge Transfer: Benefits of Playing MMORPGS towards Enhancing IT Managerial Skills

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## ABSTRACT

This study is concerned with the positive effects, learnability and real-life skill knowledge transfer of commercial off-the-shelf video games. While extensive studies being carried out in exploring skill transfer from virtual world to real world in domains such as education and healthcare, it is felt that further study is needed to explore if these skills can be applied towards enhancing IT managerial skills. The focus of this study is on Massively Multiplayer Online Role Playing Games (MMORPGs). MMORPGs are 3D online virtual worlds that allow players to interact with millions of other players through avatars. On the other hand, IT managerial skills definitions are determined by referencing the Skills Framework for Information Age (SFIA), a comprehensive ICT competency framework of nearly 100 IT professional skills. Thus this study is framed around answering the following question: What are the perceptions on the benefits of playing MMORPGs towards enhancing IT managerial skills?

**Keywords:** MMORPG, SFIA Framework, Transferable Skills, IT Managerial Skills, Guilds, Leadership

## I. INTRODUCTION

Research from leading psychologists and neuroscientists has revealed significant benefits of playing video games ranging from cognitive to social and emotional. Organizations across the world – from small enterprises to large blue chip corporations are trying to utilize the positive effects of video games to enhance employee performance. This study is concerned with the positive effects, learnability and real-life skill transfer of commercial off-the-shelf (COTS) video games. COTS are the mainstream games designed primarily for fun and entertainment. Ritzhaupt et al. (2010) explore the use of commercial video games in formal education and attempt to determine the benefits of a setup that integrates video games with teaching and learning. Their results indicate several benefits such as “developing cognitive skills, teaching

complex problem-solving, accepting and learning from mistakes, and learning by doing.” Bavelier and Green (2011) have demonstrated that playing action video games can improve certain aspects of cognition. They found that players of first-person shooter game “Unreal Tournament” showed improved perceptual and attention skills. Gentile et al. (2011) found in experimental studies across US, Japan and Singapore that playing “pro-social” games led to higher “helping behavior”.

Review of existing literature reveals extensive studies being carried out in exploring skill transfer with regards to major behavioural skills (leadership, communication, team-building etc.) and their applicability in some domains such as education or healthcare. However, it is felt that further study is needed to explore if skills and benefits commonly associated with video games can be applied in the IT context. Hence, it is both interesting and useful to determine whether the benefits attained from video games can be applied towards IT managerial and professional skill enhancement and improved performance in the IT workplace.

The focus and scope of this study: video games and IT management skills. As for video games, the focus is games that fall under the massively multiplayer online role playing game (MMORPG) genre. MMORPGs are three-dimensional online virtual environments that are complex, highly evolved and feature huge worlds that allow millions of players to explore and interact. According to Yee (2006), “MMORPGs are the only existing naturalistic setting where millions of users voluntarily immerse themselves in a graphical virtual environment and interact with each other through avatars on a daily basis. The opportunity to study what people actually do when they choose to be in a virtual environment with thousands of other people cannot be overstated”. For the scope -- managerial skills, all types of professional skills practiced by IT managers across all functions and industries are considered. Perhaps the most comprehensive framework and thus the most appropriate to this study is the Skills Framework for Information Age (SFIA). SFIA provides by far the most widely accepted and comprehensive description of

IT skills in the world by covering nearly 100 professional skill definitions (SFIA Foundation 2011).

## II. LITERATURE REVIEW

### A. Massively Multiplayer Online Games (MMORPGs)

MMORPG is a subgenre of the Role Playing Game (RPG) genre where players create and control characters (called avatars) and explore virtual worlds. MMORPGs differ from normal RPGs due to the massive scale and size of the virtual world, the huge number of participants that can range in millions (hence the massively multiplayer moniker), and due to the persistent nature of the virtual world. This means that unlike single or normal multi-player RPGs the world continues to exist and grow even in the player's absence. Almost all modern MMORPGs share many common features. Individuals control their avatars and interact with their environments and other players. Players can join groups and communities. Most games are based on fantasy themes and have their own in-game culture and universe, inspired by games like D&D, comic books or fantasy novels like Lord of the Rings. Players can grow and customize their characters extensively, trade with other players, go on battles and missions, and engage in strategy-making and social interaction. Games also feature living economies, based on a currency such as gold, and players engage in buying and selling items just like the real world.

### B. SFIA: ICT Competency Framework for the 21<sup>st</sup> Century

Skills Framework for the Information Age (SFIA) is a comprehensive ICT competency framework. SFIA contains nearly 100 IT professional skill descriptions in fields such as information management, IT governance and project management. SFIA is a vendor, products, standards independent framework, enabling interoperability and reusability across domains and technologies. Some of the major benefits and uses of SFIA include carrying out skill audit, setting standards for recruitment, creation of staff development and training programs, standardization of job titles and functions, and resource allocation (Skills Framework for Information Age 2011). Skills in SFIA are grouped into categories and sub-categories. Six main category areas are defined, namely: Strategy and architecture; Business change; Solution development and implementation; Service management; Procurement and management

support and Client interface. Each category divided into sub-categories (Skills Framework for Information Age 2011). Besides the category dimension, there is another dimension defined by SFIA: *level of responsibility*. Seven levels are defined starting from *Follow* (lowest) to *Set strategy, inspire and mobilize* (highest). The responsibility levels can be mapped to professional and organizational roles based on their generic definitions. Levels 3 to 7 correspond to seniority or managerial roles within an organization (see Figure 2): Team member, Experienced team member, Team leader, First line management, and Senior management (Computing.co.uk 2007; QA Limited 2012). Thus each skill is tagged by a category (and sub-category) and a level of responsibility that completes the skill definition.

## III. METHODOLOGY

Since the problem is not well-defined, a research method that is basic and exploratory in nature is the most suitable. According to Jaeger and Halliday (1998) exploratory research can be used to generate novel hypothesis that can be later tested using confirmatory research methods. Thus the end goal of exploratory research is to develop and gain new insights. The method of exploratory research that is employed is qualitative. Qualitative research is suitable for this study because of the nature and area of research. One of the major strengths of this approach is its ability to provide detailed textual descriptions of how people experience an issue through the use of open-ended questions.

The respondents fell into one of the following three categories: 1) IT managers with little to no MMORPG gaming experience; 2) Experienced MMORPG gamers practicing a variety of IT professional and managerial skills; and 3) Experienced MMORPG gamers who are IT managers. Since the goal of the research does not involve generalizing results to a population, a representative sample is not necessary. Rather a sampling technique suggested by several researchers known as *purposive sampling* (or *judgment sampling*) is used. This is perhaps the most commonly used sampling technique in qualitative research (Marshall 1996). As far as sample size is concerned, review of literature suggests that there is no general agreement or consensus about sample size in qualitative research.

Three methods were used for data collection:

1. In-depth semi-structured online interviews with experienced MMORPG players who actively impart IT managerial duties.
2. Online survey of novice MMORPG players who actively impart IT managerial duties.
3. Non-participatory observation of MMORPG communities, forums, blogs and wikis in order to gather any data that indicates development of IT professional skills.

Online interview is more structured than a personal interview since it allows the interviewee time required to respond, and allows instant backup. This method reduces costs in terms of time, travel and data transcription (O'Connor and Madge 2001). Additionally it also enables "access to distant participants or to those whose availability is reduced," (Benny and Kamel 2009). Interviewees were emailed a set of open-ended questions. Based on response, some follow-up questions were also asked, allowing in-depth exploration of important issues. Observation enables researchers to gather data across perspectives, time and in natural setting (Patton 2002). Data is gathered from its naturally occurring context; i.e. gaming communities, forums and blogs. In online observations, the observational data are equivalent to the recorded data, since the social interaction and behaviours exist in a written form.

Qualitative data is analysed using the simple 5-step process outlined by Powell and Renner (2003). Their methodology is adapted to this study resulting in the following step-wise procedure: Step One: Collected data is studied thoroughly in order to understand and develop general impressions on its quality. Meaningful and valuable responses are kept while the rest are discarded. Step Two: All data from respondents is gathered and analyzed by questions and by groups - experienced players / IT practitioners, novice players / IT practitioners, experienced players / demonstrable IT skills. Step Three: Information is categorized by themes defined by skills such as leadership, communication, information management and project management. Step Four: Information is divided into two major categories - professional/managerial IT skills and behavioral/personal skills. Step Five: Data is interpreted in light of SFIA framework and existing literature on the subject.

#### IV. RESULTS

##### A. Summary of Findings

Demographic data and information about job roles and profiles were collected in the initial part of the interview and survey. Respondents included people from varied professional skills, domains and levels of responsibility. Respondents were asked to identify key skills required to be successful at their jobs and grow in their line of work. Key themes that emerged included: teamwork, communication, problem-solving, time and resource management, and patience.

##### B. Skill Development Findings

###### 1. Leadership, Organization and Resource Management

Perhaps the most critical and frequently report skill by players. Leadership is exemplified by almost every way by the MMORPG guild. Many behaviours and patterns found among members in real-life organizations can be found in a guild. Thus a leader (Guild Master) needs to possess a wide range of people, resource management, risk management and organizational skills. The Guild Master designs hierarchical organizational or leadership structure based on his leadership style and guild philosophy. Guild leaders and officers develop and enforce mission, vision, code of conduct, quality assurance and performance appraisal programs. Guild leaders need to be experts in areas such as inspiration, conflict resolution, mediation and motivation. Guild leaders create apprenticeship programs for new recruits and promote and demote members based on conformance criteria. Guild officers conduct through risk assessments before and after-action reviews and post-mortems following a quest or mission. Many aspects of guild leadership are captured by below statement from players,

- Important leadership lessons,

*I was a raid leader for two years in WoW and I was able to learn a lot about group dynamics and people and team management. My biggest lesson: humans can be selfish in stressful situations, especially when the reward is minimal.*

- Conflict resolution, motivation, resource management,

*Leading a successful guild requires intense management skills. People who do this regularly come out with better understanding on how to motivate people, resolve conflicts, and handle limited resources (like raid slots and loot drops). All helpful skills in a professional environment.*

- Real life leadership skill development,

*I consider "I run a successful guild in WoW" a plus on a resume, provided it's backed up in interview that it's a serious guild. I believe it demonstrates management skills, patience, and determination, and ability to socialize. All extremely valuable qualities.*

- Initiative, inspiration, taking a firm stance,

*People show initiative and step up as leaders, and adapt to the needs of the situation, such as a leadership vacuum. Once I was told by the Guild master of an MMORPG, that being officer, I should be more vocal. This criticism encouraged me to communicate better and put my thoughts out there. Now when I encounter a similar situation in real life, I am able to take a firm stance and say what needs to be said.*

## **2. Strategic Thinking, Problem Solving and Decision-Making**

Many players believe that at the core level, games are nothing but a set of problems to solve. The process involved in solving a real-life problem is replicated inside a game almost all the time. Besides problem-solving, players also need to possess long-term, medium-term and short-term planning and strategizing. Quick and decisive action and decision-making is necessary in the heat of battle. Commentators report the following,

*Problem solving is a great skill I have learnt. In many games, you are presented with a problem or set of problems; in MMORPGs, it could be a monster guarding an entrance you need to, and you only have limited resources to beat it...you need to be creative and figure out how to overcome. You have to be efficient...*

## **3. Teamwork and Collaboration**

This was perhaps the third most quoted skill after leadership and communication. Players report how MMORPGs foster, encourage and reward collaboration. Being highly social and interactive environments, teamwork is absolutely necessary for success. Playing solo limits progress in the game beyond a certain point. Difficult quests and bosses require highly level of cooperation and teamwork to defeat. Sharing is also important where items or loot dropped by defeated bosses are shared in an equitable manner between team members. Players also learn to put their personal goals aside for the benefit of the team. Some character classes/types such as tanks shield the team from damage while absorbing all the damage themselves. Healers heal team members and put the well-being of the group above their own safety. A combination of people with various

skills is much more effective, as reported by several commentators:

*Most powerful part is the cooperation. Cooperation is rewarded. Productivity of each member increases by being part of a group of people with different skills. Overlapping expertise increases efficiency. The group has instant feedback amongst them, and can be treated as a single entity through group instructions and critique.*

## **4. Communication, Interpersonal and Cross-Cultural Skills**

The most cited skill after leadership and teamwork development. Players report improvement in both written and spoken (done through group VoIP software such as TeamSpeak or Ventrilo) communication skills. Players believe there is distinct advantage for non-native English language speakers participating in North American servers, for instance. Many different aspects of communication and interpersonal skill development were reported by some players:

*Firstly, you need to be open to being exposed to other players. Meaning, you must take a ridicule/comment/flaming and still continue playing. If you are the type of person that gets tensed as soon as someone calls you something, then MMORPGs are not for you. [V.N, Team Leader, Solution Development & Implementation]*

*And after playing games like Ragnarok online, WoW and Luvinia where a player just loiters around with people from a lot of countries and zones, I can say that I've acquired the common knowledge of speaking to people from various places. This particular skill is helping me a lot nowadays. [V.N, Team Leader, Solution Development & Implementation]*

# **V. DISCUSSIONS AND CONCLUSIONS**

## **A. Discussions**

### **1. Guilds as IT Organizational Units**

Guilds can be thought of as real life organizational units. Their structure and hierarchy is analogous to a real-life IT Department within a corporation. Leadership structures vary from game to game and from guild to guild. Below figure illustrates a generic leadership structure and how it is parallel to an IT department structure. The major point of comparison is the *guild rank* which is equivalent to *level of responsibility* within an organizational unit:

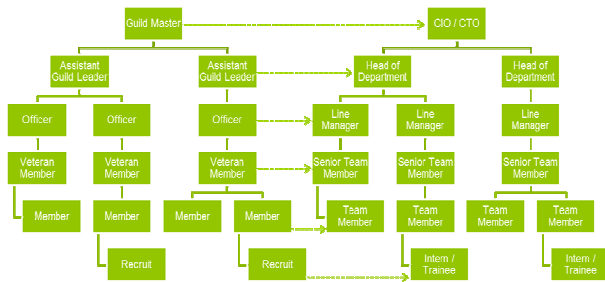


Figure 1. MMORPGs as IT Organizational Units

## 2. MMORPG Skills to IT Managerial Skills

Similarly, *guild roles* are equivalent to real-life *job roles*. Both have their unique set of functional responsibilities defined by a set of requisite skills. MMORPG skills can be developed both by playing solo and by being part of a guild. Of course, the latter method is much more powerful. By using the SFIA framework as a reference, a mapping can be developed between IT professional skills and some common guild officer roles or supporting skillset. The following set of tables illustrates this mapping. All six categories of SFIA framework are covered, and related skills are occasionally combined. Some examples are in the following tables.

Table 1: Information Management Skill Mapping

Professional Skill(s)	Skill Category / Subcategory	Brief Skill Description	Parallel Guild Officer Roles or Solo MMORPG Skillset
Information Management, Information Analysis	Strategy & Architecture / Information Strategy	Management of the use of all types of information to support decision-making and business processes. Involves development of strategies covering design of information structures, maintenance of data content, and development of policies to promote compliance with legislation.	Guild Information Officers and Asset Officers managing organizational resources and up-to-date profiles on all players. Profiling is done to record player game data. Data is analyzed to ensure conformance with rules.

Table 2: Information Content Publishing Skill Mapping

Professional Skill(s)	Skill Category / Subcategory	Brief Skill Description	Parallel Guild Officer Roles or Solo MMORPG Skillset
Information Content Publishing	Strategy & Architecture / Information Strategy	The management of the processes that collect, assemble and publish information, for delivery to the user. Those practicing this skill take responsibility for publishing strategy, including, for example, overall information structure and graphical style for high-profile web sites.	Guild Communication Officers control both internal communication and external communication. Internal communication includes publishing notifications, updates, reports, and sometimes warnings to guild members. External communication involves marketing and PR campaigns for guild promotion and recruitment.

## B. Implications

There is no reason why MMORPGs cannot also be used as formal teaching tools. A strong case for

this statement can be made on the basis of this research. A practical example of this corroborates this hypothesis: the online computer game, *Second Life*. While not an MMORPG in the strictest sense, it draws many parallels with the MMORPG genre – including people controlling avatars in a 3D virtual world and interacting with millions of players across the world. *Second Life* is already being used as a platform for learning by universities and institutes across the world. Highly evolved MMORPGs such as *World of Warcraft* and *EVE Online* could also be used in the same way, enabling transfer of skills from the virtual world to the real world through a series of training exercises that model real-world events and situations.

At the individual level IT professionals (and other professionals) could use years of MMORPG guild leadership to convince hiring managers that they have developed valuable real-world transferable skills. As discussion on the topic has shown, many parallels and connections exist between the virtual and real world (see Figure 2 below).

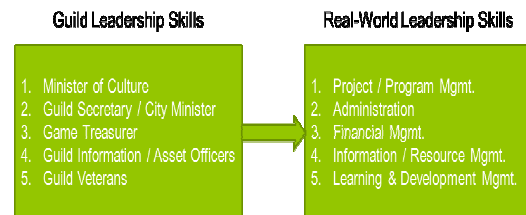


Figure 2: Mapping of Guild Leadership to Real-World Leadership Skills

## C. Conclusions

MMORPGs are dynamic large-scale virtual worlds that encourage players to carry out tasks and experience situations that mirror their real-world counterparts. Perhaps the most captivating feature of MMORPGs is the high degree of social interaction, collaboration and sharing involved – an aspect captured through teams known as guilds. On basis of literature reviewed and research conducted skills there seems to be strong evidence to that suggest that skills developed by playing MMORPGs can be applied towards enhancing IT managerial skills. Perhaps with further research the business community will begin to accept and recognize that games like *Guild Wars* and *World of Warcraft* have the power to teach real-world skills that are necessary for a productive 21<sup>st</sup> century workforce.

## REFERENCES

- Abrams, S. (2010). Sampling 'Hard to Reach Populations in Qualitative Research: The Case of Incarcerated Youth,

- Qualitative Social Work*, 9 (4), pp536-550. Retrieved from <http://qsw.sagepub.com/content/9/4/536>
- Bavelier, D, Green, C, Hyun Han, D, Renshaw, P, Merzenich, M & Gentile, D. (2011). Brains on video games, *Nature Reviews Neuroscience*, 12, pp 763-768.
- Claire, A 2010, 'Presenting and Evaluating Qualitative Research', *American Journal of Pharmaceutical Education*, 74 (8). Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2987281/>
- Edelhauser, K. (2007). *Video games at work?* Retrieved from <http://www.entrepreneur.com/article/179274>
- Entertainment Software Association. (2011). Retrieved from [http://www.theesa.com/games-improving-what-matters/ESA\\_FS\\_Workplace\\_2011.pdf](http://www.theesa.com/games-improving-what-matters/ESA_FS_Workplace_2011.pdf)
- Granek, J.A., Gorbet, D. J. & Sergio, L. E. (2010). Extensive video-game experience alters cortical networks for complex visuomotor transformations, *Cortex*, 46 (9).
- Greitemeyer, T, Osswald, S. (2009). Prosocial video games reduce aggressive cognitions, *Journal of Experimental Social Psychology*, 45(4), pp 896-900.
- Hamalainen,R, Manninen, T, Jarvela, S & Hakkinen, P. (2006). Learning to collaborate: Designing collaboration in a 3-D game environment, *The Internet and Higher Education*, 9( 1), pp 47-61.
- Holisky, A. (2012). *World of Warcraft subscriber number dip 100,000 to 10.2 million.* Retrieved from <http://wow.joystiq.com/2012/02/09/world-of-warcraft-subscriber-numbers/>
- Hope, D. (2012). *A History of MMORPG: The Dungeons & Dragons Legacy.* Retrieved from <http://mmorpg-service-review.toptenreviews.com/a-history-of-mmorpg-the-dungeons-dragons-legacy.html>
- IBM (2012). *IBM INNOV8: CityOne.* Retrieved from <http://www.ibm.com/software/solutions/soa/innov8/cityone/index.html>
- IBM (2012). *IBM INNOV8: 2.* Retrieved from <http://www-01.ibm.com/software/solutions/soa/innov8/index.html>
- Jaeger, RG, Halliday, TR. (1998). On confirmatory versus exploratory research, *Herpetologica*, 54, pp S64-S66.
- Mack, N., C. Woodson, K. MacQueen, G. Guest, and E. Namey. (2005). *Qualitative Research Methods: A Data Collector's Field Guide.* Research Triangle Park, NC: Family Health International.
- Margarete, S. (2007). Sample size in qualitative research, *Research in Nursing & Health*, 18 (2). Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/nur.4770180211/abstract>
- Mark, M. (2010). Sample Size and Saturation in PhD Studies Using Qualitative Interviews, *FQS*, 11 (3). Retrieved from
- Whitbourne, S. K. (2011). Playing video games helps older adults feel sharper: *Proceedings of the 2011 119th Annual Convention of the American Psychological Association*, Washington, DC, 4-7August, 2011.
- Williams, J, Hendricks, S & Winkler, W. (2006). *Gaming As Culture: Essays on Reality, Identity And Experience in Fantasy Games*, McFarland.
- Wright, K. (2006). Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services, *Journal of Computer-Mediated Communication*, 3 (10). Retrieved from [http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.2005.tb00259.x/full?utm\\_source=twitterfeed&utm\\_medium=twitter](http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.2005.tb00259.x/full?utm_source=twitterfeed&utm_medium=twitter)
- Wu, J. (2010). *Global MMORPG Market to hit \$8 billion in 2014.* Retrieved from <http://www.strategyanalytics.com/default.aspx?mod=PressReleaseViewer&a0=4937>
- <http://www.qualitative-research.net/index.php/fqs/article/view/1428/3027>
- Marshall, M. (1996). Sampling for qualitative research, *Family Practice*, 13 (6), pp522-525. Retrieved from <http://spa.hust.edu.cn/2008/uploadfile/2009-9/20090916221539453.pdf>
- Martins, H. F. (2010). The Experience of an Online Management Simulation Game to Foster Collaboration and Teamwork', in Y. Baek (ed.), *Gaming for Classroom-Based Learning: Digital Role Playing as a Motivator of Study*, IGI Global, Lisbon Polytechnic Institute, Portugal pp 159-175.
- Melissa, F. (2011). Lok'tar Ogar! Leadership in the World of Warcraft, *Experiential Learning in Virtual Worlds*, Prague, Czech Republic, 20-22 March 2011. Retrieved from <http://www.inter-disciplinary.net/wp-content/uploads/2011/04/FarrarLokTarOgar.pdf>
- Methods: A Data Collector's Field Guide, Family Health International, North Carolina, Retrieved from [http://www.fhi360.org/en/RH/Pubs/booksReports/QRM\\_datacol1.htm](http://www.fhi360.org/en/RH/Pubs/booksReports/QRM_datacol1.htm)
- Michael, P. (2002). *Qualitative Research and Evaluation Methods*, Sage Publications, London
- QA (2012). *SFIA competency framework*, Retrieved from <http://www.qa.com/solutions/training-needs-consultancy/sfia/>
- Rigaux, B & Leila, K. (2009). Online qualitative research and metaverses, *CyberSociety Congress*, Online, 12-29 November 2009. Retrieved from <http://www.cibersociedad.net/congres2009/en/coms/online-qualitative-research-and-metaverses/482/>
- Ritzhaupt, A, Erin, G, Greg, J. (2010). Survey of Commercial off-the-shelf Video Games: Benefits and Barriers in Formal Educational Settings, *International Journal of Instructional Technology and Distance Learning*. Retrieved from [http://www.itdl.org/Journal/May\\_10/article04.htm](http://www.itdl.org/Journal/May_10/article04.htm)
- Rosser Jr., J. C., Lynch, P. J., Cuddihy, L., Gentile, D. A., Klonsky, J., & Merrell, R. (2007). The Impact of Video Games on Training Surgeons in the 21st Century, *Archives of Surgery*, 142 (2), pp 181-186.
- Safko, L. (2012). *The Social Media Bible: Tactics, Tools, and Strategies for Business Success*, 3rd ed, Wiley.
- SFIA Foundation (2012). Retrieved from <http://www.sfia.org.uk/>
- Sladjana, N & Morten, R. (2011). Observation of Online Communities: A Discussion of Online and Offline Observer Roles in Studying Development, Cooperation and Coordination in an Open Source Software Environment, *FQS*, 12 (3). Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/1567/3225>
- Terdiman, D. (2009). *Shooting the boss (and getting paid for it)* Retrieved from [http://news.cnet.com/8301-10797\\_3-10308711-235.html](http://news.cnet.com/8301-10797_3-10308711-235.html)