How Play and Games Transform the Culture of Work
An Interview with Ross Smith

Over the last two decades, Ross Smith—Director of Test for Microsoft Corporation—developed software for mainframe systems, PCs, and hand-held devices. As a long-time member of Microsoft's Test Architect's Group, he helped create nearly every version of the company's Windows and Office products that appeared after 1995. A recipient of the *Harvard Business Review*/McKinsey M-Prize for Management Innovation, Smith holds five patents and is coauthor of *The Practical Guide to Defect Prevention.* He also devises games and social-networking tools to train managers, and he writes a weekly newsletter for Microsoft employees worldwide. The Management Lab (MLab) at the London School of Business has published a case study of his "42Projects," a corporate initiative involving productivity games. In this interview, Smith describes how play and productivity games have altered the relationship of workers to work and of work to management at Microsoft and the dividends that these approaches can yield in trust, productivity, and satisfaction. **Key words:** 42Projects; employee training; management innovations; Microsoft; play and productivity games; risk taking at work; trust in the workplace

***A**merican Journal of Play:* Mr. Smith, what in your background and experience led you to Microsoft?

Ross Smith: I studied decision making and computer science at Rider University, and after graduating, I worked in county government for a while and then for a hand-held computer distributor. I joined Microsoft in 1991 from a small hand-held computer start-up. I began at Microsoft in Charlotte, North Carolina, working on a product called Works for DOS. About six months later, after the release of Windows 3.1, I moved to a testing and quality-assurance position for linking and embedding objects in Windows NT. I moved to the Office-software team just before the release of Office 95. I remained there until 2003 then went back to Windows for Vista and Windows 7. I am now back in Office working on a product called Microsoft Office Lync, which is

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an audio-video chat and conferencing set of applications.

AJP: What does testing entail?

Smith: Our job is to assess and improve the quality of our products, includ-ing testing across multiple devices and platforms—Windows, Mac, iPad, iPhone, Windows Phone, and Android. Doing that, and ensuring that a product will deliver a high-quality experience across such a diverse set of end points, requires a talented and engaged test team and a sustained, broad, and diverse set of testing techniques. My role as a Director of Test is to help with the overall strategy to ensure quality, to recruit engineers for our team, and to help keep the team engaged.

AJP: What is the 42Projects initiative and how did it come about?

Smith: In 2004 we had a small, research-like team called the Defect Prevention Team charged with improving software quality. This is where much of our thinking around the use of games started to take shape and from that we eventually wrote *The Practical Guide to Defect Prevention*. At the start of Windows 7, I became the Director of Test for the Windows Security team and was responsible for roughly eighty-five people charged with assessing the quality of the software.

As I began meeting with members of the team, it became obvious that the level of talent we were hiring in testing had increased significantly, and the type of skills that people brought to the workplace differed from when I started. We wanted to explore how we might change our processes to better accommodate these new skills and how we might apply them to security testing. We explored ideas like 15 or 20 percent time, out-of-the-box week, sprint runs, and other creative attempts to give people freedom to experiment. Fifteen or 20 percent time is a practice in which several com-panies, most notably 3M and Google, allow time each week for employees to choose their projects. Out-of-the-box week and sprint runs are similar, as they declare a period of time free of assigned work and allow employees freedom to choose what they want to pursue. One of the challenges we had in our project was that the ebb and flow of the project cycle impacted every individual differently, so it was very difficult to find an initiative that worked for everyone.

As we were doing this, we ran into a paper on trust from a couple of researchers at the University of British Columbia—John F. Helliwell and Haifang Huang. Their paper, "Well-being and Trust in the Workplace," equated the level of job satisfaction to the level of organizational trust,

suggesting that a 10 percent increase in trust felt the same as a 36 percent pay raise as measured by job satisfaction. It dawned on us that the culture we were trying to create and the behaviors we were trying to reinforce were all rooted in trust. Freedom to experiment, empowerment, freedom to fail, opportunity to suggest new ideas, collaboration, ability to suggest new and different ways of doing things—all require a strong foundation of organizational trust. We all agreed that a high-trust organization would bring value, but we had no idea how to create one.

AJP: Where did you start?

Smith: We decided simply to ask the team. We got people together in a conference room with yellow sticky notes and asked them to write down behaviors they felt would influence trust—positively or negatively. Once we had the list, we wanted to order and prioritize it, and we developed a simple pairwise voting game that would allow *players* to choose between two alternatives and help us stack rank the list. We realized quickly that prioritizing the list wasn't really that helpful, however. Because trust is situational and relationship based, we then moved the behaviors into a wiki-based *playbook* that could offer a reference for team members as we aspired to modify our collective behavior.

AJP: The wiki format enabled all to contribute?

Smith: Yes. The bulk of the effort came from a few individuals, but everyone on the team had the opportunity to contribute examples and findings. We also realized that while trust could have a significant influence on our team capabilities and that what we call productivity games could have a significant impact on our work, we would need to continually innovate in the way we manage to better accommodate the skills of the incoming workforce. So we decided to wrap these three pillars—productivity games, trust, and management innovation—into a single, quirky initiative we called "42Projects."

AJP: Why the name 42Projects?

Smith: The number forty-two references the magic number in Douglas Adams's *The Hitchhiker's Guide to the Galaxy* novels. His hugely powerful Deep Thought computer posited forty-two as the ultimate answer to the ultimate question of "life, the universe, and everything." Finding out the ultimate question, though, proved to be the tricky part—and we are still looking for ultimate questions in our design of productivity games, our quest for trust, and our continuing interest in management innovation. In addi-

tion, forty-two is represented as 10101010 in binary, is Jackie Robinson's number in Major League Baseball, and is the angle at which a viewer of light deflected from water will see a rainbow.

AJP: Did your own early play experiences affect your present work at Microsoft?

Smith: Absolutely. I grew up an avid gamer, not just video games, but also board games like Risk and Monopoly. I have a particular affinity for—perhaps addiction to—*Robotron 2084*, the 1980s game to save the last human family from robots. I think the attraction is that the game looks impossible at first glance, but after a significant investment in tuition—one quarter at a time—player dexterity improves, and the game becomes playable. I also spent a lot of time around pinball machines as a teenager, and I enjoy cartoons and cartooning. However, I didn't really make the connection between game play and work until after we started seeing the success of games in the workplace on the Windows Defect Prevention team. I was not trained as a game designer or a game programmer, but as I started to read more on good game design and motivational psychology, it seemed obvious to me that using games in the workplace was a natural extension of the human affinity for play, games, and gaming.

AJP: Are workplace productivity-boosting games a new idea?

Smith: Using games to get work done is not a new idea. Mary Poppins is famous for singing, "In every job that must be done, there is an element of fun. You find the fun, and snap! The job's a game!" Also, there are plenty of stories of back-room competition at used-car dealers, where leader boards track sales. A leader board is perhaps the most common game mechanic, and, of course, they are used in golf as well. In colonial times, playing games during harvest time was commonplace. My favorite story, though, is about the work gangs that built the great pyramids.

AJP: How did games figure into pyramid work gangs?

Smith: According to what I've read, ancient Egyptian pyramid builders organized and subdivided workers into teams or gangs, some of which identified themselves with names such as Friends of Khufu, Drunkards (or celebrants) of Menkaure, Endurance, Perfection, and so on. Apparently, these teams competed with one another to carve and haul the massive stones to build the pyramids. In certain monuments, you can find the name of one gang on one side of the pyramid and the name of another gang—I assume the competing gang—on the other side. It's as though these gangs were pitted against each other. According to some Egypotologists, the gangs, or *phyles*

competed for beer and bread to see who could do the job faster. Carving their team names in to the stones helped them keep score.

AJP: How do you see that ancient example applying to today's workers?

Smith: While the twenty-first-century worker has a lot more freedom, most of us still don't go to work because we want to. We show up each day and do our best work in order to earn a paycheck. In a very abstract sense, most of us share the condition that the motivation to perform work is extrinsic. And that's where games and play apply in both societies. Games and play offer alternative or additional extrinsic rewards to make things more fun—whether you're being directed to haul a huge stone up a ramp to build a pyramid or to haul a huge budget request upstairs to an angry finance director. The respective workers might not choose to do either task, but sprinkling in gaming elements and rewards can make the job more satisfying.

AJP: Where else did you find inspiration for productivity games in particular?

Smith: In several publications. The 1977 classic novel *Ender's Game*, by Orson Scott Card—where Ender Wiggins plays a series of games then ascends to Battle School to play more games that, unbeknownst to Ender, prepare him for fighting for real in the Third Invasion—is a great illustration of the potential use of games.

Byron Reeves and J. Leighton Read, in their book *Total Engagement: Using Games and Virtual Worlds to Change the Way People Work and Businesses Compete*, suggest that "successful businesses in the future will redesign work from the gamer's point of view. Businesses will create a workplace that accommodates employees ('players') who want to know the rules, advance frequently, partner quickly, and nurture reputations in a narrative that aligns their own objectives with those of the organization that pays their salary" (p. 8).

At IBM, Li-Te Chang, Phaedra Boindois, and Osamuyimen T. Stewart have done great work on the use of games at work. And the 2008 book, *Changing the Game: How Video Games Are Transforming the Future of Business*, by David Edery and Ethan Mollick, shows how such ideas have become commonplace.

Our productivity games at Microsoft build on these earlier works. We have the advantage of working in software—a malleable medium—and this gives us a lot of flexibility in allowing the work to become the game, as it did for Ender Wiggins.

AJP: Can you draw some parallels between elements of good game design and elements of motivational psychology?

Smith: Yes. I see similarities in structured goal setting, rewards, and positive reinforcement. A review of Abraham Maslow's *Hierarchy of Needs*, for example, illustrates how game mechanics can support the top three levels—Love/Belonging (team-based play), Esteem (leader board), and Self-Actualization (avatars, level achievements, helping others). Motivational concepts include reward and reinforcement, as well as negative reinforcement, punishment, and coercion. Simple game mechanics, such as a leader board, provide a structured alternate reality playground where these needs can be addressed. Just as easily as games can attract effort by using rewards, they can also use the threat or the shame of not being on the leader board as a way to coerce players to participate.

There are also differences. Games tune the environment and employ design elements like accidental success to reengage or keep players moving towards a goal. Games educate the player and offer an alternative point of view more effectively than real life. And games offer structured multiple-choice options, the chance to undo, and practice modes with real-time assessment that in certain situations even help address Maslow's safety level in real life.

AJP: How can games build trust and inspire innovation?

Smith: The ability to innovate is a key component of successful companies; innovation requires experimentation and risk taking; and creating a culture of risk taking is difficult. It is insufficient to encourage or command employees to take risks. Organizational culture must support employees who experiment. Many organizations claim they want employees to take risks, but performance-evaluation systems reward only success—or even worse—penalize and punish employees who experiment, fail, and learn. Risk taking and other behaviors that support innovation—freedom to fail, willingness to collaborate, and experimentation—all require significant organizational trust.

AJP: So game play is key to building trust, and trust is key to inspiring innovation?

Smith: Yes. In his classic work *Homo Ludens: A Study of the Play-Element in Culture*, Johan Huizinga calls play "a free activity standing quite consciously outside 'ordinary' life as being 'not serious', but at the same time absorbing the player intensively and utterly" (p. 38). Using productivity games and

play in the workplace is a successful technique to build organizational trust and, by extension, create a culture of innovation. Game play can provide structure and rules to support experimentation, risk taking, and failure. It's hard to fail at work, but it's culturally acceptable to lose the game. In *Man, Play, and Games*, Roger Caillois says that "play is essentially a separate occupation, carefully isolated from the rest of life, and generally is engaged within precise limits of time and place. There is a place for play: as needs dictate, the space for hopscotch, the board for checkers or chess, the stadium, the racetrack, the list, the ring, the stage, the arena, etc. Nothing that takes place outside this ideal frontier is relevant" (p. 6).

The "place for play"—or magic circle as some people call it—for members of an organization is a place to learn trust-building behaviors. Experimenting with new ways of working is acceptable within a game—in a place for play. If things don't go well, the game is, as Huizinga suggests, outside ordinary life and not serious. Games offer a framework to support risk taking and experimentation, and in a game, someone can learn new skills by trying them out on their own. If they fail, well . . . OK, they lost the game, but there was no long-term impact, no risk to their careers. They just played a game. If I'm a computer programmer, I probably won't ask my manager for permission to take a class in marketing, even if that's my passion. I might spend hours in my spare time making marketing videos and showing them to no one, or posting them anonymously on YouTube. However, if you put together a game for the best ad campaign submission, I might be the top contributor.

AJP: What are the costs of a low-trust work environment?

Smith: I'll answer in terms of our team's work on software testing. In software testing, it gets progressively harder and harder to find defects. If we run the same test or use the same technique over and over, the effort becomes less effective each time we do it, because we find only the easy-to-find bugs. The software is *trained* to pass the test. However, operating the way we do, with risk taking and variations, guarantees against what we call *regressions*—bugs that recur or slip back in to the product. To put it another way, the cost of the low-trust work environment for us is that we run the chance of missing bugs because we do the same thing over and over. Conversely, in a high-trust environment, people will experiment with new types of testing, and as they do, they will uncover new bugs.

AJP: Do low-trust environments also discourage innovation?

Smith: Yes, that's true mainly because a low-trust environment discourages independent decision making, collaboration, empowerment, and process improvements. People stick to the status quo, thereby reducing or eliminating the chance to apply new and creative thinking to existing business challenges.

AJP: Can you give us other instances where games are better than other means for using employee skills?

Smith: Yes, there are two workplace scenarios where games are, in my opinion, better than other techniques. The first is in areas where employees can develop or expand skills that help with regular work. The second is in areas such as organizational citizenship where new skills might help the team but are not part of the regular job. By adding games and game elements, we can make both types of training more attractive and more rewarding, thereby encouraging and attracting effort.

AJP: So games teach?

Smith: Yes. There are many success stories about games in education. Microsoft Research is partnering with the Rochester Institute of Technology to do fascinating work to gamify elements of the overall educational experience. The school's *Just Press Play* game integrates game mechanics with desired student behaviors to encourage participation and thus tie together academic and social experiences in ways that enhance both. Also, there are some great studies on the VGALT [Video Games as Learning Tools] website showing that games are an effective way to teach. In particular, a piece on learning through the *Dance Dance Revolution* video game offers some interesting lessons around the role of identity and engagement. As I mentioned earlier with regard to motivational psychology, games can provide an alternative playground where players act differently. Of course, it's only natural to extend these findings to employees as well as students.

AJP: What evidence is there that game-driven training or testing beats traditional methods?

Smith: The notion of playing at work is an oxymoron to some. For them, work is work, and using games to get *real work* done is a gimmicky idea. Naysayers propose that a paycheck is sufficient motivation, and games are a distraction. Why would we need games when we already have a reward system in place? *Gamification*—as a term—has a bit of a reputation as a cheap way to attract attention. The criticism from game-design professionals is that while adding a leader board might provide a short-term boost, sustained effort

requires deep thinking around game design and motivation. We've heard all those criticisms, so we are very meticulous and scientific in collecting our supporting data. We instrument every aspect of game play so that we have real data to support our investment. Software testing benefits from the diversity of users, and so the more diverse our beta-user population, the more likely we are to deliver quality products. If we can get marketing managers, executives, engineers, and human-resources professionals to use our software and walk through the same scenario, their collective feedback proves paramount. The problem becomes how to motivate each of them to do a little extra work for us—to try something new and to spend time giving us their feedback. That's where games work great.

AJP: Are there other ways in which games solve problems better or more efficiently than traditional management methods?

Smith: Games are excellent at attracting volunteer effort—encouraging organizational-citizenship behaviors (OCBs). OCBs are best thought of as going above and beyond the call of duty—things individuals can do to help the organization be a better place. A simple example is cleaning the coffee pot before people leave for the day. It's a task that helps the organization—makes a better workplace—but requires some effort from someone. From a game-theory perspective, there's a condition known as the *volunteer's dilemma*—where any single individual can offer personal time to solve a problem or anyone can take a free ride. Everyone benefits from anyone's willingness to volunteer, so using game mechanics to invite participation solves the issue and improves the quality of life in the organization while—most importantly—making everyone feel good about it. Games and game mechanics motivate players to make an effort towards a goal, and the organization benefits.

As I mentioned earlier, we have learned that games are also incredibly successful at encouraging risk taking. The rules of the game are different from the rules of the organization. The stakes in a game are much lower than those in the workplace. Games are by definition voluntary, so whether players decide to take risks in the game or not doesn't matter in the context of work. People are less fearful of losing (or not winning) a game than they are of failing at work.

AJP: Can games encourage collaboration in the workplace?

Smith: Yes. Team-based games help people collaborate. We have two great examples. In the Windows Security team, we wanted to get some additional

work done to meet stretch goals—goals above and beyond our required deliverables. We didn't need the entire team to change and do something different. We only needed about 20 percent of the members to participate, but we also needed the remaining team members to pick up some of the work of that 20 percent to keep things moving. One member of our group designed an Olympics-themed game with multiple teams and with a team make-up of coaches and runners. The coaches became the 80 percent who picked up the extra work of the runners who were doing the stretch-goal work. Points were awarded for continuing the regular work, and judges assessed the stretch work. The scoring was team based, so each team could decide which players they needed in which roles. The game play took place over about a one-week period and was supported by a couple of parties and food fests. As a team, we were able to maintain the regular work through the extra effort of the coaches and achieve some of the stretch work through the extra effort of the runners.

AJP: Can you give us another example?

Smith: Here's one from our prerelease testing of Microsoft Lync, a product that replaces the phone and adds instant messaging, online meetings, and video calls. To make sure we could ship a better product to our high-usage customers, we needed to execute a large-scale beta program inside Microsoft with tens of thousands of employees. In trying to do this, we faced three problems. The first addressed how to ensure that our beta users would come away with a positive impression of our product, even if they found bugs. The second concerned how to get users to pair up to try different scenarios. If we wanted someone to try a video-calling feature, for example, how would we find someone willing to be on the other end? The third was how to motivate the users to take the extra time to write up and send us their feedback. It's hard enough to get users to take the time to learn about any new features; getting them to take even more time and write up their impressions is even more difficult.

AJP: So what kind of game did your team design to solve these problems?

Smith: It was a game we called *Communicate Hope—A Benefit for Disaster Relief*. Our users chose to join a team representing one of five real disaster relief charities. All their work for us earned points for their team—the agency they selected. We had team captains, videos, and related charity materials, and as the users performed tasks with our product and gave us feedback, they earned points for their team. At the conclusion of the game,

we donated money to the agencies in proportion to the number of points earned for that charity. We saw tremendous results in the volume of feedback and in the responses of gamers versus nongamers. In fact, in many situations, those on a team representing a charity gave as much as sixteen times more feedback than nongamers.

AJP: What impact do games have at work—for example, do they create greater uniformity, or do they expand creativity?

Smith: I believe they expand creativity. Just as play helps kids pretend, experiment, and learn skills they will use later in life, games in the workplace help build a culture that is ripe for creativity and innovation. Again, I think it comes down to risk taking and a freedom to fail, which games and play facilitate. In 1996 about six years after he published his famous book on flow, Hungarian psychology professor Mihaly Csikszentmihalyi wrote a book on creativity. In it, he talks about the influence of environment on creative capacities and how many cultures—from the Chinese sages to the Hindu Brahmins to the Christian monks—sought out places of natural beauty in which to create. He goes on to talk about the influence of the macroenvironment—the broader context in which people work—ancient Athens, the Arab cities of the tenth century, Florence in the Renaissance, Venice in the fifteenth century, and so on. Obviously, we don't operate at that level, but I'd like to believe that the spirit of freedom, fun, and whimsy surrounding our application of productivity games contributes to a creative atmosphere.

AJP: You said earlier that low-trust work environments discourage risk taking and innovation. Are there similar costs in a play-deprived environment?

Smith: The costs of a play-deprived environment are challenging to identify. We have data on cost savings resulting from introducing games and play into some of our business processes, but I don't know if we could assume our experience would transfer to all environments. There are certain areas where games work well, and so depriving those areas of play and games could result in missed savings. An area that's easy to quantify is employee morale and retention. On teams that encourage play and games, people generally enjoy their work more. Csikszentmihalyi's concept of flow—a state where people move so deeply into their task that nothing else seems to matter—is more likely when play is present. People do better work when they are happy, engaged, and motivated, and play and games can increase the likelihood that people enjoy their work.

AJP: Can games go so far as to combat workplace alienation and disengagement?

Smith: I believe they can. Well-designed productivity games can bring people on teams together or invite friendly competition that paves the way for people to work better together. Not everyone is motivated exactly the same way, and so traditional employee morale improvement efforts—bowling nights, trips to the movies, team dinners—are hard to tailor to unique preferences. Game play, however, can be tuned to appeal to those who respond to leader boards, those who respond to puzzles, those who want to collaborate, and those who want to beat their own high score. Games leave room for ties to certain affinities such as sports teams, hobbies, and charity work, and a well-designed game can adapt to the individual user's competency, interest level, and engagement. In his *The Anatomy of Melancholy*, the seventeenth-century English scholar Robert Burton quotes Spanish humanist Juan Luis Vives as saying that "mirth purgeth the blood, confirms health, causeth a fresh, pleasing, and fine colour." Then Burton adds that mirth also "prorogues life, whets the wit, makes the body young, lively, and fit for any manner of employment" (p. 119). I agree. Using games in the workplace brings an element of fun, whimsy, and color. They help coworkers find common interests, and they present a foundation for mirth. This combats alienation and disengagement.

AJP: So, then, you equate the play-averse workplace with the risk-averse workplace?

Smith: For two reasons, yes. First, since play is typically unstructured and optional, a workplace willing to entertain the idea of play is, by default, willing to take risks. Just being open to the introduction of play at work implies a tolerance for risk. Second, and most importantly, play can provide a loose structure for experimentation and risk taking, so an organization that is averse to play, games, or fun does not offer the flexibility of outcome or tolerance for imperfect results. An organization that is amenable to play is likely to be a high-trust organization willing to show tolerance for experimentation and for provisional and imperfect results and, therefore, have creative behavior and innovative breakthroughs.

AJP: Are you suggesting that game strategies can ease tensions between management and workers?

Smith: Yes. Because games require agreement on rules and scoring, they essentially force management and worker interests to coincide. Imagine a manager describing a task or assignment to an employee with the same degree

of detail that a game offers. "Please sweep that section of floor with this broom in that direction resulting in that dust being cleaned in one hour, and I will pay you five tokens as you progress through the assignment. I may even give you a bonus of additional tokens, but I won't tell you my decision about that until you finish." The level of effort that must go in to good game design forces agreement on goals in a way that's not normally done. However, everything is done in the context of fun, and so the work doesn't seem as meticulous or arduous.

AJP: So, have you found that games are generally more effective than traditional management methods—for example, salaries, bonuses, and time off—of providing worker incentives?

Smith: No, not exactly. For the right tasks, game mechanics can be more effective, but only as a supplement to traditional rewards. People do their jobs—the in-role portions of their work—for their salaries, bonuses, and other regular benefits. Our work with productivity games attempts to motivate people to apply part of their discretionary time to citizenship behaviors that help the organization in other ways, and our experiments have shown that expensive prizes do not work well in these situations. We try to tap into intrinsic motivations. Perhaps an elaborately designed framework that incorporates traditional rewards and incentives with game mechanics could work, but our experience has been focused on OCBs, which makes a direct comparison to traditional rewards hard.

AJP: Do productivity games work well under all types of managers, for example, hands-on managers as opposed to more hands-off managers?

Smith: Productivity games will work with both styles. The flexibility and self-monitoring capabilities of games is another important dimension of games as a business process. They help lead or direct in a very adaptive, flexible, and responsive way. Employees who respond well to certain management styles find direction in games—through their method of play—even if the manager does not operate in that fashion. Games are flexible and willing to change their style, and so they have a capacity to adapt to the actions of the player better than a human can. Employees who perform best under an autocratic leader and employees who look for a more democratic or laissez faire–style manager can both find what they need in a well-designed game.

AJP: How do you convince bottom line–oriented, quality managers that work-place games are not just for playing around?

Smith: We found that skeptical managers who doubted the potential of games

and labeled them gimmicky needed solid facts—objective and subjective data—before they could concede that games help. As a result, we have taken an academic approach to data collection. We have gathered a ton of data over the years. My advice to those who might be thinking about bringing games into their own organization is to measure everything, collect as much data as possible, and follow up and interview everyone. The importance of data—both objective and subjective—cannot be overemphasized. The answer to your question is, quite simply data, data, data. It is not fair or reasonable to expect anyone to react or change for anything other than hard facts.

AJP: How would you respond to critics who might charge that gamelike work processes reward workers psychologically but cheat them financially?

Smith: Jane McGonigal has a great comment relative to this in her book *Reality Is Broken: Why Games Make Us Better and How They Change the World.* She says that compared with games, reality is pointless and unrewarding, and when we play games, we feel more rewarded for putting forth our best efforts. I agree. Productivity games are designed to offer an alternative—to help an organization recapture discretionary time in the workplace for the good of the group, not to change a fundamental work process or offer an alternative reward system. There are too many factors outside our influence to be able to redesign entire work processes. Our work so far has been to give people a forum where simple incentives, such as solving a puzzle, are available to reward them. Success means that once in a while, people eat lunch at their desk and play one of our games to help the organization. Again, our experience has been that applying game mechanics to get people to work more at their regular job does not work for exactly the reasons you note—people feel as if the game in those situations is trying to take advantage of them and their desire to play. Remember that play is a voluntary activity.

AJP: Are you usually pleased with the results you get in encouraging organizational citizenship behaviors?

Smith: Yes. Most of our games are very simple. We don't have a dedicated development team or production budget, so we rely on a lot of volunteer development effort. Our typical game may have some product instrumentation, a website, and a database. Our *Communicate Hope* game was probably the largest effort so far, as we needed to coordinate charity donations and secure a budget to donate. Our expectations for that game were pretty

high, but we were unsure how the disaster-relief theme would influence game players. We had several areas where game participation exceeded our expectations. The volume and quality of feedback, player satisfaction with the experience, and engagement with the set of active players also exceeded expectations. On the other hand, we were expecting more team-based play than we saw, and the absolute number of players was a little lower than we expected.

AJP: Are there any workplace outcomes that lie beyond the reach of games? What limits are there to the usefulness of games?

Smith: Yes, there are definitely limits. We have seen some games fail miserably when used to try to increase productivity in people's core, in-role tasks that they do as part of their regular job. If I am a grocery check-out bagger, then bagging groceries and carrying them to a car are in-role tasks, and helping my coworker fill out information on the benefits website probably is not. If a game is produced and deployed to get me to do more of my regular job, I might get confused. How do points relate to my paycheck? If I win points or the game, do I get a promotion? If I lose, am I in trouble with my manager? Also, there may not be many players who can do my job, so the amount of additional work that gets done might be minimal. People can get very emotional when they feel that game mechanics are put in place to trick them into doing more work. And that has a negative impact on trust. Games should not be used to motivate people to apply core skills to do more of their in-role tasks. Use the paycheck and traditional compensation-reward-evaluation system for that.

AJP: And this is because play is usually voluntary?

Smith: Yes, exactly! As I said before, play is by definition a voluntary activity. Games and play are more fun when we can choose to participate or not. A game that has me doing more of my job is not voluntary; therefore, it's not really even a game. We have learned from experience that using game mechanics to attract effort to core work is not received well and usually does more harm than good.

AJP: When you employ game mechanics at Microsoft, how many people can play the games?

Smith: We have had thousands of players for some of our more broadly deployed games. Our *Language Quality* game had over forty-five hundred players. However, we tailor portions of our games to specific groups. We respect the notion that people are motivated by different things, and we try to account

for that in our games. Take a leader board versus a puzzle, for example. Some people want the world to see them at the top of the leader board. Others don't care about being at the top but might be embarrassed by not showing up at all. Others scoff at the whole notion of public competition but are motivated every week to finish the crossword puzzle in the Sunday *New York Times*. Some people don't care what the world thinks. They just want to know that they beat their personal best. It goes back to the motivational psychology aspect. Some people are motivated by achievement or arousal, some by humanistic tendencies (pride in country, for example), some by stress (I earned enough points so everyone will see that my boss is two spots beneath me). It's different for each person, and we want to build games that appeal to or motivate, in some way, everyone. We have also themed some of our games to target a specific audience—college basketball fans, for example.

AJP: Microsoft is an international corporation. Do you try to account for differing cultural assumptions about play in other areas of the world?

Smith: We haven't had to look too closely at that, because our games are predominantly used inside Microsoft, and the culture of the company is very similar across regions. The biggest area where we've tried to understand and respect different cultures is the use of leader boards. Many cultures value teamwork and collaboration over individual or personal recognition and therefore do not advocate or respond to a public tally of achievement. In some cultures, these competitions are very popular and motivating, and in others, they are not. We've also seen some differences in how managers perceive their employees playing our game in different cultures. In some, managers encourage employees to participate, and in others, they discourage participation. This often has to do with an individual manager, but we have seen some trends across geographies. In the future, I believe it will be important for game design to account for cultural diversity and a global player population.

AJP: How does your *Language Quality* game relate to such diversity?

Smith: The *Language Quality* game was built to enroll native-language speakers in helping us assess the linguistic quality of Windows translations. The linguistic quality looks at the accuracy of the translations across languages. The geopolitical ramifications of translation errors can be significant, so accuracy, broad acceptance, acknowledgement, and review are important aspects of the pursuit of high quality. We didn't do a lot to tailor the game

play specifically to the individual languages or countries, but we did try to encourage a sense of national pride across languages. We used country mailing lists to invite employees to play, and we kept score by language as well as by player. Many employees spoke of the importance of quality of language translation to perception of code quality. Relative to a game like *Halo* or even *Angry Birds*, it was a very simple game but effective because it lies squarely in the realm of organizational citizenship. People wanted to ensure that their language version of Windows 7 was high quality.

AJP: Do traditional games such as card games, checkers, and others influence the design of productivity games at Microsoft?

Smith: Yes, absolutely. The simple games often contain the greatest lessons for how to keep play interesting. We have a great card game, designed by Adam Shostack in Microsoft Security, called the Elevation of Privilege. It's inspired directly by traditional card games, and we use it to help build threat models. A threat model is a representation of a set of possible attacks against the functionality or features of software, and it helps us build more secure software because potential attacks are evaluated and discussed as the software is being built. Elevation of Privilege is for three to six players. The deck contains seventy-four playing cards in six suits: one suit for each of the STRIDE (Spoofing, Tampering, Repudiation, Information Disclosure, Denial of Service, and Elevation of Privilege) threats. Each card has a more specific threat on it. As game play progresses, the threat model is built. As players take turns in the game, they imagine new attacks in certain categories dictated by the game play, and they develop the model by taking turns throughout the game. This is a very specific example of how card games can influence productivity game design.

AJP: With the considerable number of games you use, how do you keep players playing? How do you make the play itself sufficiently rewarding?

Smith: One of the key goals in game design is to attract and engage as many players as possible for as long as possible. Productivity games are slightly different from games for entertainment, as we can't count on genre to appeal to a niche player. The target audience for a productivity game may spend their discretionary time playing chess, *Farmville*, *Halo*, *Ms. Pacman*, solitaire, Jenga, *NASCAR*, *Angry Birds*, crossword puzzles, or *Madden 12*. Because we are trying to encourage beta testing and feedback, we benefit tremendously from a great diversity of players. So we have to design games that have appeal to a broad demographic. We rely on standard game-design

techniques and try to ensure that all our games appeal to players who enjoy player versus player, player versus self, and player versus environment.

AJP: You said earlier that play is voluntary, so may we assume you do not require employees to play your productivity games?

Smith: Yes, right. No one is required to play our games. In *The Grasshopper: Games, Life, and Utopia*, Bernard Suits states very clearly that playing games is different from working. For a game to be fun, or for play to be truly voluntary, a player must be able to choose to stop playing at any time. We expect that in our productivity games. We don't require or anticipate that anyone will play for a certain period of time. We believe that if we required that, these would not be games anymore, they would be work.

AJP: Does competitive drive encourage wider participation in workplace games?

Smith: Yes, it absolutely has a place. It is one of the top four or five considerations in appealing to a broad group of employees. In game design, this is known as the player type who is motivated by elements in the player-versus-self category. This is an important category, particularly in a number of cultures from around the world. As I noted earlier, many cultures frown on or discount the idea of a leader board. They believe strongly that no single person should be better than another and that work as a team is what comes first. Without a player-versus-self category, many people would simply ignore a leader board, go about their business, and ignore the game. Adding game mechanics to appeal to those who want to beat their personal bests allows each individual to improve without stealing the spotlight from the team.

AJP: How does success at productivity games relate to career growth for those who play them?

Smith: The traditional career ladder is often considered a zero sum game—like cutting a cake—the bigger your piece is, the smaller mine must be. I would propose instead that career growth over the long term is fueled by skills growth. As an employee, there are many different ways I can grow my skills. My manager might assign me a new task that stretches my ability, or I might get to take a job-related training class, but that's about it. In both cases, I'm not choosing the skills I personally want to develop. To grow, I need to stretch. Many organizations have stretch goals or extra time to allow employees to spread their wings. But, for employees whose companies don't provide that, any attempt to think out of the box is a risk. We talked about that—and about trust—earlier. I would like to come back to it in this context.

Many employees are comfortable taking risks and are willing to explain to the boss why things did or didn't work out, but others are not. In a down economy, with high unemployment rates, many of us are just thankful to have a job. An individual's willingness to make bold bets and take big risks on the job is reduced by fear—fear of not doing well at performance-evaluation time, or fear of being reprimanded, or even fear of being fired. Generally, most organizations do not reward failure, and it takes a high-trust environment for people to take big risks. So productivity games are an important way for management to encourage risk taking and experimentation that lead to innovative output. Many successful employees think back over their careers to examples of coworkers they competed with in ways that turned out to be great for their careers.

AJP: Do employees from the gamer generation view productivity games in significantly different ways than other employees?

Smith: There are some fascinating differences. For anyone interested in this, I recommend *Got Game: How the Gamer Generation Is Reshaping Business Forever* by John C. Beck and Mitchell Wade. They point out that gamers view the world differently. They tend to have an increased appetite for risk, are more willing to persist in finding a way out, are more open with their communications, and tend to bring more creative solutions to problem solving. These are generally our younger employees, of course. However, the recent success of social games like *Farmville* and *Angry Birds* has influenced everyone. One key thing I have seen and tried to work with is the importance of immediate feedback—gamers' tendency to canvass the surrounding environment for hints of how to improve, their willingness to press reset and start over, and how they value reputation. For me, I've learned that all this is about more than games. There are some life-stage and generational differences that include, but also transcend, gamers. The Framework for 21st Century Learning—put forth from P21, a national organization advocating twenty-first-century learning skills for all students—highlights the four Cs: Critical thinking and problem solving, Communication, Collaboration, and Creativity and innovation. Some interesting research on children shows that more young children know how to play a computer game (58 percent) than swim (20 percent) or ride a bike (52 percent). While almost 70 percent of children ages two to five can operate a computer mouse, only 11 percent can tie their own shoelaces. According to the Entertainment Software Association, 64 percent of par-

ents believe games are a positive part of their children's lives. The digital media firm eMarketer expects the number of U.S. social gamers to grow to 68.7 million in 2012, with almost 30 percent of the Internet population playing social games.

AJP: Will this change work as we know it?

Smith: Yes, it will. Shifts in global, societal, technological, economic, and socio-political trends will shape the future of work. Work and life will become blurred. Already almost half of U.S. employees work beyond normal hours, and one-third do personal tasks at work. Emerging economies, globalization of the workforce, and smart and connected technologies that enable mobility and flexibility will lead to an increased use of game mechanics in the workplace of the future. Games can help businesses cross cultural, generational, language, and geographic boundaries, and as the gamer generation enters the workforce and as society shifts towards a more plugged-in global village, it's inevitable, in my mind, that games will be a big part of the shift.

AJP: How does the fast pace of change in communications outside the workplace compare to the pace of innovation inside the workplace? Is business the crucible of innovation that most people think it is? If not, how can the workplace keep up?

Smith: The two seem hard to compare. There are significant pros and cons, or strengths and weaknesses, in each environment. Business communication has always been rapid, reputation based, and reliable. Brands, job titles, and marketing efforts help shape reputation, which influences the quality of the communication. Social communications have grown by leaps and bounds as a result of the transparent, open social network. I think there are opportunities for each—the workplace and the world outside it—to learn from the other. Businesses can benefit from crowd-sourcing and social-networking tools. I believe that the changing demographics in the workplace will bring new technologies and communication capabilities for everyone.

If I use the dictionary's definition of geek as "an enthusiast or expert especially in a technological field or activity," most of our employee audience is geeky, and the games are targeted at them. I would expect that any game built to attract organizational citizenship efforts from a group of employees in any industry would be targeted at enthusiasts or experts in that particular field. As productivity games move outside organizational

boundaries, I think they must become more mainstream and less geeky. Game designers and game masters must know their audience. For example, our games use acronyms that are familiar to our audience, but those would require more explanation and context if our games were distributed to a broader audience.

AJP: Summing up, you believe that productivity games translate into measurable gains or reduced costs for business and other organizations. Correct?

Smith: Yes, absolutely. As Reeves and Read discuss in *Total Engagement*, games can help with employee engagement, and whether that shows up in cost savings, additional productivity, crowd sourcing, employee retention, or recruiting, games can deliver explicit cost savings to an organization.

AJP: Finally, what is your fondest hope for the future use of play and games in the workplace? How would you like to see play and work grow to more closely resemble each other?

Smith: I believe productivity games will be viewed as a business process—a twenty-first-century business management strategy—and applied widely across a variety of industries. We've already seen more companies start to pilot the use of game mechanics as part of their work, and with the success of social games, it's only natural that games and play will permeate the workplace over the next few years. There are distinct areas where games work tremendously well in the modern organization, and there's an opportunity for everyone to start experimenting. The future world of work will be a better place by incorporating play and games as part of the daily experience.