How I Became Addicted to Simulations and Games

Richard B. Powers[1]

Abstract

Three outstanding teachers stimulated my interest in alternative methods of education and made me receptive to simulations and games. At my first gaming conference, I discovered the value of simulations and games by playing games rather than by listening to lectures. I found the spirit of play and cooperation at NASAGA and ISAGA conferences refreshing and my games owe a considerable debt to the experienced gamers I met there. My experience facilitating games has taught me that allowing a few players to judge the work of their peers using subjective criteria leads to negative emotions, which may cancel any potential benefits of a game. I have also learned that the NEW COMMONS GAME, which illustrates the tragedy of the commons, may leave players feeling helpless and fatalistic about solving real-world commons problems. Several strategies are presented that counter negative feelings and instill optimism in players that commons problems can be solved. Recent developments in the video gaming community provide grounds for optimism about the future of educational gaming. However, it is imperative that video game designers who have an educational goal incorporate the knowledge that educational gamers have acquired over the past 50 years, such as the need for debriefing. A hypothetical, long-term, large-scale game is described that has the potential to educate students campuswide about how a commons resource can be sustained for the benefit of all. In addition, if the game is conducted across semesters or years, players' responsibility to future generations of players could be studied and enhanced. However, the hypothetical game would require revising current thinking about debriefing. A brief description of the games I have designed is included.

Keywords

Alternatives to Violence Program; cofacilitation; debriefing; educational games, video games; end-game strategies; FREE RICE exercise; future of simulation/gaming;

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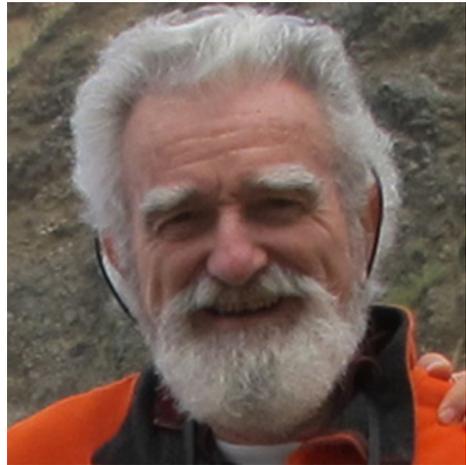Email: rbpelk@gmail.com

judging aesthetics; long-term, large-scale game; NASAGA; necessity of debriefing, ISAGA; NEW COMMONS GAME; one-play games; personal history; Personalized System of Instruction; pregnancy game; responsibility to future generations; TAKE-A-CHANCE game; written debriefing

Three outstanding teachers contributed to my development as a teacher and, I believe, led to my receptivity to simulations and games. Richard S. Balvin at California State College at Los Angeles inspired my lifelong interest in social psychology and, in after-class discussions, listened with a sympathetic ear to my complaints about the lecture-quiz teaching method.

Lee Meyerson (1957), a pioneer in the field of rehabilitation psychology at Arizona State University, demonstrated that even the lives of those with profound disabilities could be improved. As part of our graduate training under Lee, my wife, Elki, and I taught mentally impaired children to cooperate in a task that required simple communication between pairs of children. We learned the utility of a systematic application of behavior modification techniques and, with their use, discovered that these children could learn much more than we initially thought. Our success showed me that effective teaching involved much more than lecturing and quizzing.

Jack Michael, a dedicated and creative teacher at Arizona State University, introduced me to Fred Keller's (1968) Personalized System of Instruction. In Keller's system, students must pass weekly quizzes at an 80% correct level or retake variations of the quiz until they do so. Volunteer student proctors were responsible for grading the quizzes and keeping records for their 10 students. Proctors had to pass the quiz at the 90% level and pass it before the Wednesday weekly quiz. Proctors quickly learned the names of their 10 students and were available after hours at the testing center to answer questions and retest their students. Proctors were invaluable in other ways. For example, during one quarter, we conducted a COMMONS POOL GAME in which 177 students played across 22 class days (Powers, 1987). About midway through the experiment, the resource (class points) was dangerously low due to overexploitation. To keep the game from ending prematurely, students voted to allow the 17 proctors to choose for them. The proctor-representative voting system proved successful in restoring the resource and allowing the game to continue until the end of term. Without the help of the student proctors, teaching up to 200 students with Keller's system would have been impossible.

Introduction to Simulations and Games

The Elevator Pitch

My initial experience with the world of simulation and gaming occurred at the first NASAGA conference in 1975. I stepped into a crowded elevator that was on its way up to the registration desk where this East Indian fellow with a thick accent (Sivasailam Thiagarajan aka Thiagi) was demonstrating how to play number games on his calculator. That year, I was teaching statistics to social science majors, and I knew how anxious my students were about math and calculators, so I was keenly interested in his spiel. Thiagi held us spellbound as we followed his instructions to make our calculators read the same as his and by the time we reached our stop on the elevator, I was sold on using calculator games in my class. So before I even registered for my first conference, I had experienced the excitement of games and of their power to educate.

Gaming Conferences

I could cite examples of insights gained from any NASAGA conference to prove that my positive experience at that first conference was not a one-off event. A prime example is a simulation/game called ME? YOU'VE GOT TO BE KIDDING? designed by Barbara Barham (Barham, 1988). In the game, preteen girls "experience" the negative consequences of becoming pregnant in their early teens. Several males, myself included, played the role of a pregnant 14-year-old girl. We wore an apron sewn with a protruding belly and drew cards with realistic consequences that were usually negative, for example, "Your best friend has taken you in after your father kicked you out of the house. However, you can only stay at her place until the baby is born."

After our babies' birth, we were given dolls to care for. When one of us left the doll unattended to go to the bathroom, as I did, we were arrested for child neglect. Amid all the laughter, the difficulty and tragedy of a teenaged girl going through pregnancy without the support of boyfriend, family, or community was brought home to us in a way that no PowerPoint presentation ever could (for a review, see Powers, 1988a).

Gamers Are Special

Early in my academic career, I dutifully attended regional and national conferences in my field. They were dull, lonely affairs at which attendees presented papers or gave
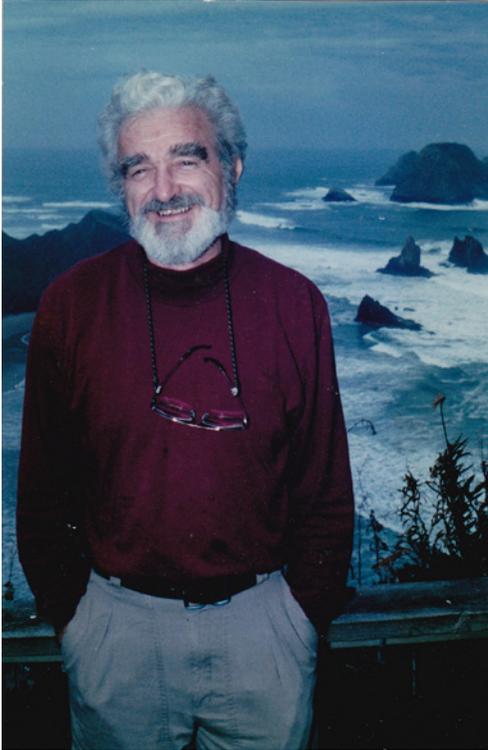
talks in a formal atmosphere where seeking recognition or displaying one's status was all-important. However, one's profession or how degreed one was has never mattered to attendees at NASAGA or ISAGA. I find the lack of pretense, the camaraderie, and the willingness to share among gamers refreshing. As gamers come from a variety of disciplines, they have to speak plainly (no jargon) and I believe this is one reason why it is so easy to pick up new ideas.

Another reason for the ease of learning new things at gaming conferences is the spirit of play. Serious games such as BAFA BAFA (Shirts, 1970/2011) are not only challenging, but also great fun to play. I am also convinced that the spirit of play creates an atmosphere of cooperation where it is easy to make friends. Mary and Harry Bredemeier, David C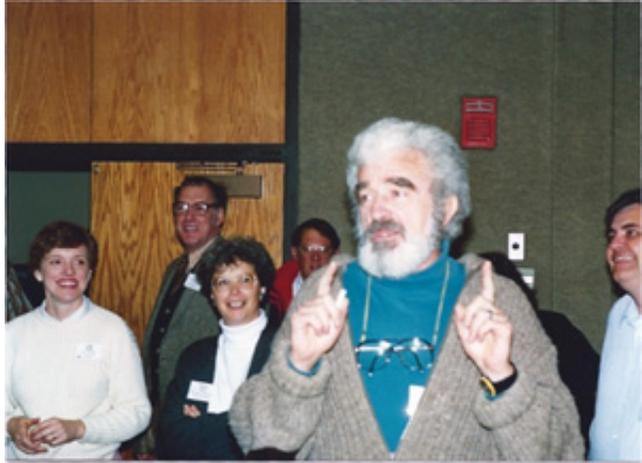rookall, Cathy Stein Greenblat, Jay Schindler, and the late Barbara Steinwachs are just some of the creative gamers I met early on at NASAGA conferences who became lifelong friends.

Gamers Who Influenced Me

At that first conference, I attended Fred Goodman's game design workshop where he encouraged us to reexamine our beliefs about the nature of games and showed us the value of metaphor. At another conference, he introduced us to probability voting. Fred described the potential of probability voting in the FLOATING CRAP GAME (Goodman, 1981) with college administrators and is an excellent example of his playful approach to serious games.

Alan Feldt, Cathy Stein Greenblat, Barbara Steinwach, and Thiagi also held design workshops at NASAGA and these workshops were the heart of the conference for me. These creative and busy gamers were always ready to share their expertise and invite

a newcomer to become one of the initiates who take games seriously. Others influenced and supported me by giving generously of their time and knowledge. At the top of the list are Mary and Harry Bredemeier, who gave feedback on the NEW COMMONS GAME on several occasions (see the review by Bredemeier, 1995). As a result of their thoughtful critiques, I reexamined and revised the game or else felt duty bound to justify why one of their suggested changes should not be made. The game is a much better game because of those two wise and generous people.

Cathy Stein Greenblat and John Gagnon challenged me to go beyond the rough prototype of the original Commons Game developed with my students Richard Duus and Richard Norton. In rewriting the manual, I realized how often I had to correct players' misperceptions when introducing the game. For instance, players believed that they could make the resource recover faster than it was programmed to do by discovering some "correct" strategy. No correct strategy existed other than not choosing the exploit card, but "refraining from doing something" is a difficult concept for novice players to grasp. A game manual must anticipate potential problems and I learned to think like a novice player in writing it. The current kit and manual are much improved over the earlier version as a result of Cathy and John's suggestions.
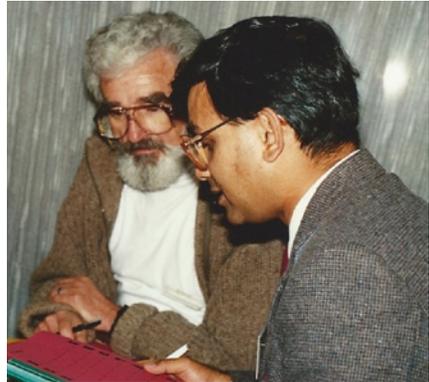
Without Barbara Steinwach's enthusiastic support of AN ALIEN AMONG US (Powers, 1999), the game may not have been published. Initially, the editors of Intercultural Press rejected the game, but Barbara convinced them to take another look. So the game was born thanks to Barbara and is now played in the United States and several European countries. Lesson for newcomers: ISAGA and NASAGA have many experienced gamers who are willing to give newcomers a helping hand. Ask for their help.

Teaching in Other Contexts

Oregon Peace Institute

In 1987, I took early retirement from Utah State University for health reasons and we moved to the Oregon coast. Within a year, I convinced Elizabeth Furse, cofounder of the Oregon Peace Institute, that more educators should use simulations and games to teach conflict resolution, prejudice reduction, and related peace topics. For several years, we conducted workshops for teachers playing a variety of simulations and games. BAFA BAFA demonstrates the difficulties of interacting as a visitor in a foreign culture. In STARPOWER (Shirts, 1969/2011), a privileged minority typically abuses their power by making rules that favor them over their fellows. WILDFIRE II (Roosevelt Center for American Policy Studies, 1987) captures the ease with which a local conflict can escalate to a nuclear war when the antagonists have nuclear weapons. THE NEW COMMONS GAME simulates Garrett Hardin's (1968) tragedy of the commons, in which a group tends to overexploit their resource.

Alternative to Violence Program

Eventually, the Oregon Peace Institute dissolved due to a lack of funding and I latched on to the Alternatives to Violence Project (AVP). The all-volunteer AVP organization conducts workshops in prisons and communities worldwide relying on experiential exercises to teach nonviolent living (AVP/USA, 2002, 2005).

In our Playing with Conflict course at Portland State University, Kat Kirkpatrick and I use several exercises from AVP manuals to teach basic conflict resolution concepts and skills (Powers & Kirkpatrick, 2013). We also followed the structure of an AVP workshop because our course, like theirs, is conducted over one weekend. I learned four lessons conducting AVP workshops that proved invaluable for our course: the value of a tight agenda, the willingness to change the agenda when a game was not working, the need for participants to blow off steam in a "light and lively" after a difficult game or exercise, and the advantages of two or more facilitators.

In addition to oral debriefings, students wrote a debriefing report after the weekend part of the course ended. The written report followed the DIE debriefing model developed by Bennett and Bennett (2008). The advantages of a written debriefing report were brought home to us when we discovered how much students had to say after they had time to reflect upon their experiences. Perhaps the most important advantage of a written debriefing over the immediate oral debriefing is that *all* students shared their thoughts, feelings, and concerns with us. With from 30 to 35 students in our classes, shy students spoke infrequently or not at all, even on occasions when the oral debriefing was extensive. However, we learned from their written debriefing reports that shy students were indeed keenly involved in the exchanges among their peers both during the game and the oral debriefing.

Two facilitators have several advantages: they provide two points of view in the oral debriefings, they serve as models for effective facilitation as a team, and they can take turns, allowing one to rest and observe while the partner facilitates.

Hard Lessons Learned

Judging Others

I was the target of anger when I allowed players to be judged on the aesthetics of their work in GRAND DESIGN (Powers, 1991). A dozen teams of 10 or so players each sat at tables in a large room. Teams had a white poster board, a set of 2-inch colored squares cut from poster board, a pair of scissors, and a roll of Scotch tape. Each team had squares of one color, for instance, Team A had red, Team B had yellow, and so on. Teams were instructed to create a design by taping squares to the poster board. Players could not leave their table, but could buy or exchange squares with players at adjacent tables. Teams could also solicit help from their immediate neighbors to obtain a color
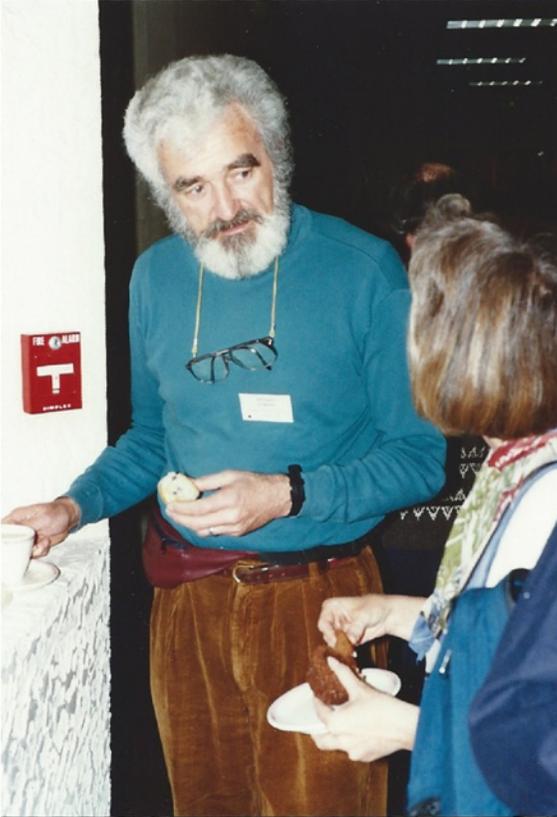
from a group six tables away. At least in theory, it was possible for a team to incorporate all the colors in their design. Players were fully involved in the task and the resulting designs were colorful and creative. After each team did a show and tell, judges picked the three most beautiful designs, using criteria they deemed appropriate.

Howls of protest erupted from the losing groups when the winners were announced. Losing players questioned the expertise of the judges and challenged the criteria used in the selection. Emotions boiled over during the debriefing with people arguing not only with me, but also with each other. Some felt judging was part of life so was a legitimate part of the game. Others countered that judging created a few winners, but many losers. The latter group argued that most of us have a long history of being judged by parents, teachers, and bosses and dislike the feeling of failure that accompanies being found wanting. As the judges relied on personal standards, it struck losing players that winning and losing was arbitrary and therefore unfair. Needless to say nothing was resolved that day. Lesson learned: Judging players using subjective criteria, even in a trivial and fun context, can lead to strong negative feelings that may cancel any positive learning.

Teaching the Wrong Lesson

The NEW COMMONS GAME is designed to demonstrate how an unmanaged commons traps players into destroying a commons resource and it does so effectively. Roman Capaul and Marcus Ulrich (1998) have translated the game into German and developed an electronic version that runs more smoothly than the paper version and can accommodate up to 100 players. A problem with all versions of the game is that sometimes the results are so overwhelming and bitter that players despair over the possibility of changing human behavior. First-time players typically take too heavily from the resource, sometimes exhausting it after only a dozen trials. After such a game,

players who cooperated on most trials or tried to stop exploiters are angry and frustrated by their impotence. In the debriefing, these players conclude that a commons resource will be destroyed eventually as that is "just human nature" or because "you can't stop the greedy people"—not lessons I want players to take home.

Creating Positive Lessons

Below are several strategies I use to rekindle hope that this social dilemma can be solved:

- In a majority of runs of the NEW COMMONS GAME, most players on most trials choose cooperation. I point this out and suggest that cooperation is more characteristic of human nature than greed.
- At the end of the debriefing, I hand out stories of ordinary individuals who have tackled real-world commons problems in creative ways. Such stories tend to stick in memory (Heath & Heath, 2007) and when the hero is a young person, the power to influence others can be dramatic (James, 1989; Siebert & Rohmer, 2009).
- When I gave my Psychology 101 students a chance to replay the NEW COMMONS GAME another day, many did so. Even though experienced players may have played their second game with others they did not know, they usually (86% of groups) discovered one of the strategies that sustained the resource. Players left the game feeling successful and, more importantly, with the knowledge that human nature was not the fixed entity they had assumed it to be.
- In the weekend course we teach now, the NEW COMMONS GAME can only be played once so the benefit of repeated plays is not available. To increase the chance of a positive experience, we play a one-trial, *n*-person prisoner's dilemma game called TAKE-A-CHANCE (Powers, 2012) both before and after we play the NEW COMMONS GAME. The points in the TAKE-A-CHANCE game count (a small amount) toward the student's grade. We offer students three choices: cooperation, exploitation, or no-play. The no-play choice allows players who do not fully trust others to opt out of the game, yet still earn a few points. If players choose no-play in both the pre- and post-tests, they would earn enough points so that their grade is not affected.

The 2010 and 2011 TAKE-A-CHANCE games were similar with about half of the 55 students (52%) choosing to cooperate, 12% choosing to exploit, and the remainder (36%) choosing no-play in the first TAKE-A-CHANCE game. In the second game played at the end of the last day of class, 89% chose to cooperate, no one chose to exploit, and 11% chose no-play. In both years, cheers and applause erupted when the totals were announced after the second game. These results suggest that all students resisted the temptation to exploit and most trusted others enough to cooperate when their grade points were at stake. Lesson learned: Strategies exist that allow students to

discover that social dilemmas are solvable by cooperation. Such strategies need to be employed if we want students to be optimistic about solving real-world commons problems.

Will Simulation and Gaming Blossom in the 21st Century?

Some Concerns

In a recent interview (Remer, 2010), I was asked to predict the future of gaming and recalled the late Garry Shirt's inspiring keynote address at the 1999 NASAGA conference in San Francisco. Garry predicted that the field of simulation and gaming would finally assume a central position in education in the 21st century. However, up until a few months ago, I did not share Garry's optimism. Only a few of my nongaming colleagues see games as having some value, that is, something to use occasionally to keep students interested. Even these colleagues do not see games as a methodology around which to design a course or a series of courses. I see no evidence that most nongaming academics' perception of the value of games in education has changed.

An Encouraging Note

However, my view about the potential of simulations and games for education has changed as a result of reading Jane McGonigal's (2011) book, *Reality Is Broken*. I urge all educational gamers to read it, especially the last four chapters, which describe large-scale educational exercises and games with socially beneficial goals. For example, in the FREE RICE exercise (UN World Food Program, 2013a), players answer vocabulary questions and each correct answer earns 10 grains of virtual rice. Virtual rice turns into real rice provided by the sponsors of the game who donate the rice to the UN World Food Program. The program then distributes the rice to those in need around the world. The exercise began on October 7, 2007, and as of April 8, 2013, more than 98.8 billion grains of rice had been donated (UN World Food Program, 2013b). Assuming 48 grains of rice per gram and 200 grams per meal that translates to more than 10 million meals distributed. So large-scale educational exercises and games have tremendous potential to effect change in the world.

Will the video gaming community initiate the renaissance in educational gaming that Shirts predicted? Perhaps. However, arguing against that thesis is the fact that commercial video games have several layers of difficulty and mastering each level requires repeated play, sometimes over many days. Thus, the goal of commercial video game designers is to keep people playing the game. By contrast, some excellent educational games such as BARNGA (Thiagarajan & Thiagarajan, 2006) or STARPOWER (Shirts, 1969/2011) generate stimulating debriefings with the potential for significant personal insights for players, but because of a surprise element in the game can only be played once. Thus, if the goal of a game is educational rather than

entertainment, repeated play of some educational games is not necessary. As a result, designers of video games may have no incentive to develop such games.

Necessity of Debriefing

To be successful as educators, video game designers must incorporate the lessons educational gamers have learned over the last 50 plus years. One such lesson is the importance of debriefing a game. A game provides an experience, while its debriefing allows an opportunity for players to reflect on the often confusing and emotionally charged events that they experienced in the game. In the debriefing, players gain insights about the self, other players, and the potential lessons embedded in the game. For example, at some point in the debriefing of STARPOWER, the low status group will charge that they would not have abused power as the high status group did. Players in the high status group typically laugh in response and counter that the low status players would have behaved just as the high status group did. The discrepancy in outlook usually leads to an intense discussion about the nature of power and how difficult it is to resist the pressure to conform to one's peer group. Also, for some, the lesson that "I might have acted as those high status scoundrels did in the same circumstances" is not without pain (see Havel, 1997, for an insightful analysis of how the perks of political power made him suspicious of himself when he became president of Czechoslovakia). Unfortunately, neither McGonigal nor Tom Bissell, in a recent book on the importance of video games, even mention debriefing (Bissell, 2010; McGonigal, 2011).

So while I see the potential of a huge impact on education as a result of recent events in the video gaming community, I am concerned that that community is not familiar with the field of educational gaming. I believe it is time that ISAGA and NASAGA invite people in the video gaming community to attend our conferences. We should reciprocate and attend one of theirs, for instance, the Games for Change Festival (www.gamesforchange.org).

A Large-Scale, Long-Term Educational Game

The following what-if scenario was inspired by examples in McGonigal (2011) and is presented to illustrate the potential for educating a large number of players about an important global problem. A commons pool game could be designed for a college campus and played daily by several thousand students. Assume that one round is 24 hours and that a player might harvest once from a pool of points at any time within a 23-hour period. The last hour in the 24-hour cycle would be used to tally the day's results and provide feedback to players for the next round.

A player responds at time x, when others will have already played (at time $x - y$) and others have yet to play (at time $x + y$). Thus, both the number and attributes of other players (age, gender, education level, and game experience) would be unknown to players when they played. The indeterminate aspect of the game simulates a real-world commons, such as an ocean fishery, in which a fisher harvests a species of fish

at a given time and has no way of knowing how many other fishers have fished or will fish for a species that season. For this reason, the conditions of play provide results more applicable to the real world than games in which players sit in face-to-face groups.

In our hypothetical game, players harvest from a pool of points that replenish daily, like a biological species, at a rate that is a function of the points remaining in the resource. Points reproduce until they reach their original saturation state. Players may harvest, for example, up to 10 points at a time. However, a sustainable harvest is 5 points or less. If most players restrict their take to 5 points or less, the resource will remain rich and last as long as the game is available, a semester or a year. However, if most players continue to overexploit, take 6 or more points, the resource will become exhausted and the game could end in a week.

Students play by inserting their IDs in their computer and instructions for the game are displayed. Feedback about the size of the previous day's take, the number of players participating the previous day, and the current status of the resource are also be displayed. This feedback should cost a few points because obtaining information about a system such as a biological resource always entails costs. Points could be redeemable for various items in the college bookstore, such as coffee cups, pennants, and T-shirts; for pizza at the local pizzeria; for reduced tickets to a local concert; and for air miles by a domestic carrier. All of the merchants in the examples could be sponsors of the game who exchange goods or services for advertising.

Stakeholders in the Game

Students from various departments could be in charge of overseeing their specialty, that is, biology majors might design the game components that model population dynamics for a given species; computer majors might write the program, collect and analyze the data; graphics majors might design feedback displays for players' computers; communication majors could examine the patterns of communication that develop; and marketing and business majors could conduct the outreach to local businesses to induce them to sponsor the game in exchange for advertising. In this way, the students and faculty of several departments would have a vested interest in the game. In addition, colleges and universities within the state might compete to see how long they could sustain the resource in a common pool game on their campuses. A few questions that occur to me:

- What pattern(s) of leadership would prove most effective in convincing others to harvest sustainably?
- How many sustainable strategies do players discover and what makes it easy for players to discover and use them?

Ostrom (1990) and Princen (2005) found a mix of institutional and user-generated rules or customs that helped sustain a commons pool resource in the real world.

- What might constitute a comparable mix of institutional and user-generated rules in the commons pool simulation/game at a college?

Responsibility to Future Generations and the Problem of End-Game Strategies

The breaks between quarters, semesters, and years will lead to changes in the number and identity of active players and introduce the problem of the responsible or ethical use of a resource. In our hypothetical campus game, responsibility to the next generation means leaving enough points in the resource so that a new group of students, for instance, incoming freshman, will have the opportunity to play the game. The question of sustaining a resource across generations is vital to civilization and academic interest in the problem of what the present generation owes to future generations is not new (English, 1977; Partridge, 1981; Rawls, 1971) and shows no signs of diminishing (Rawls, 2001; Sen, 2009; Solow, 1992).

However, getting players to leave some of the resource for an anonymous group of others will not be easy. In my Introductory Psychology class (Powers, 1987), students planned an end-game strategy that consisted of a complete "take" of the resource during the last week of class with the take to be divided among them. This end-game strategy was unrealistic in the context of a real-world commons, that is, a group of fishers does not suddenly decide to maximize their take and destroy a commons fishery in one fell swoop. Students taking a break from school or graduating seniors may employ similar end-game strategies in our hypothetical commons pool game and this presents a challenge if we want to create a simulation game that encourages sustainable use of real-world resources across generations.

New Models of Debriefing Needed

The use of large-scale, long-term games suggests other questions and problems for game designers and facilitators. As stated above, educational gamers believe that debriefing is essential for significant learning from games, so we have an obligation to ensure that everyone is debriefed, regardless of the number of players in a game or how long they have played. Some issues that occur to me with respect to debriefing of a large-scale, long-term game are as follows:

- One exercise called INVESTIGATE YOUR MP'S EXPENSES (McGonigal, 2011) had 20,000 players. How would we debrief that many players?
- Do we develop a variety of debriefing formats for different time periods, that is, a day, week, month, and year?
- Players have teachable moments in a game, for instance, when they become angry or when they have an epiphany, and want to discuss their experience immediately. The potential exists for many more critical moments in a game played over a semester or a year than in 3-hour simulation or game. How do we capitalize on such teachable moments?

- Players may drop out of a game because they became angry, frustrated, or felt powerless. Do we include players still in the game in the debriefing of a player who has dropped out? If not, the debriefing is limited to a facilitator and one player, a different model of debriefing than the one typically used.
- How do we compare and evaluate what is learned by those playing a short time (a day or a week) to those playing a longer time (a semester or more)?

Simulations, Games, and Exercises I Have Designed

Some of the following games and exercises are still being developed (UNFAIR GAME, TAKE-A-CHANCE). Others never grew out of a rebellious adolescence (ZAN-TEC'S GAME, DISCOVER ME) and are listed only to stimulate others to use the underlying premise and design a better game. Four games/exercises can be purchased: NEW COMMONS GAME, AN ALIEN AMONG US, COMMUNICATION ROADBLOCKS, and Elbow's METHODOLOGICAL BELIEF. Email me at rbpelk@ gmail.com for more information about any of the games.

- AN ALIEN AMONG US (1999). Teams select 6 candidates from a list of 12 to travel with an alien back to her planet. The object is to learn about each other's worlds. Teams must buy information about the candidates from nine categories of information such as gender, reason for going, and religion. In making their selections, players discover that their judgments are biased, influenced by stereotypes, and that they have overlooked the benefits of attributes they devalued.
- COMMUNICATION ROADBLOCKS (2005a). This demonstrates the roadblocks to communication in *Parent Effectiveness Training* (Gordon, 1970) and *People Skills* (Bolton, 1986). Participants role-play a roadblock and the audience attempts to identify it by calling out its name. Next, participants distribute six red dots on a large chart according to the roadblocks others impose on them. On a second chart, they distribute six blue dots according to the roadblocks they impose on others. The distributions highlight the roadblocks participants need to work on.
- DISCOVER ME! (1995a). Participants respond to a word or question on a card with a brief association. Cards increase in difficulty across four decks. This exercise can be used as an icebreaker (Deck 1 cards) or in a setting where highly personal questions are acceptable. An example of a Deck 4 question: "What keeps you from being great?"
- GRAND DESIGN (1991). Up to 20 teams of from 5 to 12 persons construct a design from colored squares taped to a white signboard. In order to utilize all the colors available, a team must obtain (by trade or purchase) squares of the other teams. The game demonstrates that if we rely on the diversity others provide, we can increase our creativity.
- METHODOLOGICAL BELIEF (1995b). An exercise based on Peter Elbow's (1986) work, which allows participants to argue for a belief that is contrary to

one of their own. The audience in the three-person team listens and sympathetically questions the advocate's new belief. Elbow argues that a new idea or unfamiliar belief is often rejected before any of its merits are discovered. The exercise encourages a tolerance for unusual ideas, which may enlarge a participant's perspective.

- The NEW COMMONS GAME (1993). Players (individuals or teams) take points from a common pool that replenishes periodically. If the take is consistently too large, the pool becomes depleted and the game ends. The game demonstrates that trust, while important in maintaining relations between players (agencies, nations), needs the support of group-imposed sanctions if Hardin's tragedy of the commons is to be prevented. (For a comparison of results in two games, one in which points mattered and one in which they did not, see Powers, 1992. For a review, see Bredemeier, 1995.)

- STOP! (1977). Players draw cards in turn from a poker deck and may keep the card or donate it to their group. When a team believes the total points in their stack is close to a designated number (as in the game of blackjack), they yell STOP and all teams must stop play. The team with the total closest to a designated number without going bust wins that round. Players in the winning team earn the points they kept for themselves. After several rounds, teams are given a weapon: They may give cards to the other teams without the other teams' knowledge. In this scenario, weapons are always used and it is not possible to establish a winning strategy. Will teams forgo the use of weapons when given a chance to confer? The game was inspired by the classic Robbers Cave experiments done in the late 1940s and early 1950s by Muzafer Sherif and Caroyln Sherif (1956).

- TAKE-A-CHANCE (Powers, 2012). A modified *n*-person prisoner's dilemma game designed to measure trust. Players have three choices: cooperation, exploitation, and no-play. The no-play choice separates players who intend to exploit from those who refuse to exploit, but who do not trust everyone to cooperate. Maximal trust in a group occurs when no one chooses no-play or exploitation.

- UNFAIR GAME (Powers, 2005b). A group is told that they are about to play one of three unfair games but are not told which one (John Rawls' original position). They are then given an opportunity, first as individuals and then as a group, to adjust the games so that they are a bit more fair. The reasons players give for their adjustments reveal their thinking about economic justice.

- ZAN-TEC'S GAME (Powers, 1988b). A simulation/game designed to teach responsibility to future generations. Each of three generations has a wealthy, middle class, and poor group. All citizens in a generation take from a common pool to pay for the cost of living, building materials to create something lasting and meaningful, health insurance, and to save for the future. The first generation also designs their culture and maintains a history of their values, goals, and progress toward those goals for the next generation to build upon (for a review, see Donohue, 1990).

Declaration of Conflicting Interests

Funding

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