

NURTURING AFFINITY SPACES AND GAME-BASED LEARNING



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In this paper, we will argue that to understand how gaming supports learning, as well as to design games for educational purposes, educators and scholars must think beyond elements of the game software to the social practices, or “meta-game,” that take place within and around games. Based on studies of fan sites associated with the popular computer game *The Sims*, we identify features of what we call “nurturing affinity spaces” that are particularly supportive of learning, and contrast these features with how schools are typically organized. How such spaces are developed and sustained remains a central question for future research on games and learning, and we conclude by identifying key areas for further investigation.

GAMES AND LEARNING

Those of us who have made the claim that games are good for learning have meant, of course, that well-designed games are good for learning, not poorly designed ones. While an empirical enterprise is under way to test whether and how games are good for learning, too often these studies do not first ensure they are assessing games that are well-designed.

The question of what makes a good game is, of course, different than the question of what makes a game good for learning. However, we have argued in earlier work that the very design of good games incorporates good learning features (e.g., Gee 2003, 2007). Good learning features are, in fact, a key aspect of good game design, because games are fundamentally problem solving spaces that are meant to engage players. Games designed around problems people could not learn to solve, and did not enjoy solving, simply would not sell.

Obviously, different types of players like different types of games. However, fundamentally, all good games have good game mechanics (the actions players take to solve problems) and engender in players a desire to persist past failure, thereby engaging in a good deal of practice and time on task. Good games also engage players in reflection on strategy, since to win such games players must figure out the rules of the game and how they can be used to the players' advantage (Gee, 2004; Hayes & King, 2009).

Even the term "game" in the claims that good games are good for learning needs explication. Commercial designers and designers of non-entertainment games for learning have realized that both engagement with a game and learning are enhanced by building social engagement inside a game and outside it, in communities organized around an interest in the game (Salen & Zimmerman, 2003). Thus, *World of WarCraft* players socialize within the game and they come together in fan sites to discuss, critique, analyze, and mod the game. Learning potentially stems from both the game play (that is, the play structured by the game as software) and the social practices going on in and around the game, as well as from the interaction between the two.

The term "metagame" has been increasingly used to describe "the game beyond

the game,’ or the aspects of game play that derive not from the rules of the game, but from interplay with the surrounding context” (Salen & Zimmerman, 2003, p. 481; see also Garfield, 2000). We will use the term “game” to describe just the software that sets up game play; i.e., what comes “in the box” or increasingly, is downloaded from the game distributor’s website. We will call the social practices that happen inside and/or outside the game, the “meta-game.” We will call the combination of the two—game and meta-game—the big “G” “Game,” with a capital “G” (see Gee, 1990, for a similar distinction between discourse and Discourse). We argue that the claim “good games are good for learning” should be rephrased as “good Games are good for learning.” Like many others today – game designers as well as game scholars - we see game design as Game design (in addition to Salen & Zimmerman, see, for example, Gee & Hayes, 2009; Gresalfi et al., 2009; Matos, 2010; Morgenstern, 2007).

There is an aspect of modern game design, well exemplified now in the commercial industry, that is, in our view, an important “value added” for learning in and through games, especially in regard to 21st century skills. This is the way in which many games today stress the role of players as designers. Many games allow players to modify (mod) them by using design software that comes with the game. Players can make small or big changes; they can design new levels and even whole new games. Further, many games today involve players as designers in the very way the game is played; that is, game design is a game mechanic in the game. This is true, for example, of *Spore*, where players constantly alternate between playing and designing (Morgenstern, 2007). *Spore*, also has a robust fan community devoted to design for the game. *The Sims* operates similarly, as does *Little Big Planet* and *GameStar Mechanic* (a game made for teaching

game design; see Games, 2008; Salen, 2007).

Designing, thinking like a designer, reflecting on the interaction between design and human interaction (as in a game), and thinking of complex relations in systems (as in the rule set of a game and the way it interacts with players and they interact with it) are all 21st century skills (Zimmerman, 2007). In a sense, however, all games treat players as designers, as an inherent property of good games, in that players must figure out the game rules and interactions so that they can use these rules and interactions to their advantage to win the game. Players are, in that way, co-designers of the game, recruiting the rules (as well as taking advantage of flaws or bugs in the rules) in certain ways to customize their own play and, thus, their own game.

However, games that stress the involvement of players as designers in the first sense, by making game design a core game mechanic, facilitating modding, and encouraging robust design communities to develop around the game are, we believe, particularly good for fostering skills with technology, design, system thinking, and socio-technical engineering (thinking about and creating good interactions between people and technology). We believe there is true “value added” with such games for learning in the 21st century. We will call such games big “G” Games with a plus: “Games+”. We can claim that “Games+ are particularly good for learning.”

In earlier work we have spelled out a number of learning principles that we believe good games incorporate as part and parcel of their design (Gee, 2003). It would be useful also to identify a set of guiding principles for games that support players as designers, as well as to ascertain the relationship between these two sets of principles. However, in this paper we wish to focus on aspects of Game (meta-game) design

concerned with social engagement and more specifically principles for good learning found in good meta-game design. Of course, we will argue that a principle of good meta-game design is involving players as designers. That is, most positive social engagement in and around games involves, in part, players acting and thinking like designers.

AFFINITY SPACES

When we think about fan communities associated with games, the concept of “community of practice” (Lave & Wenger, 1991; Wenger, 1998) is one that comes readily to mind. However, this term has been applied to so many different types of communities, some of which are not very “communal,” that it has lost its conceptual clarity (Barton, 2005). Furthermore, the concept of community of practice was originally based on studies of face-to-face groups that do not bear much resemblance to the geographically distributed, technologically mediated, and fluidly populated social groupings that comprise online game fan communities. In earlier work (Gee, 2004; Gee & Hayes, 2010), we used the terms “affinity groups” or “affinity spaces” to characterize these forms of social organization. We have used – and will use here - the term “space” instead of group because often in the modern world a “group” is defined by a space in which people associate, rather than some readily identifiable criteria like registering with a political party or completing professional training. On a fan site devoted, say, to *Age of Mythology*, who “belongs” and who does not? What does “belonging” really mean?

Most fan sites are completely open; anyone can find them and access their content. Some sites require visitors to become “members” which typically merely involves creating a username and profile. Accordingly, one of easiest and best ways to

answer the question of “who belongs” is simply to say that whoever enters the space (the fan site) is in the group and belongs. This sets up a sense of group membership that ranges from short-term lurkers to wholesale aficionados and everything in-between. This continuum is often one of the attractive features of affinity spaces, though, of course, the space can be organized to reshape this continuum in various ways. Within a space, various other sorts of (sub-)group membership criteria or norms can be set up.

The concept of affinity space stresses that the organization of the space (the site and what it links to, including real world spaces and events in some cases) is as important as the organization of the people. Indeed, the interaction between the two is crucial as well. Using the term “group” over-stresses the people at the expense of the structure of the space, and the way the space and people interact.

Affinity spaces do not have to be virtual, although the Internet lends itself extremely well to the creation of such spaces. A high school newsroom can be an affinity space. This space (e.g., the news room) is organized to structure social interactions of various sorts. There are varying degrees of participation; even a visitor who has come only once to the news room is “in” the affinity space and part of what defines the space, just as much as the news reporters and editors who are there frequently.

In earlier work, we have outlined features that we consider to be definitive of an affinity space (Gee, 2004; Gee & Hayes, 2010). However, these features, which we will discuss below, are not absolute. In most cases, an affinity space can reflect the “ideal” or prototype to a greater or lesser extent. Furthermore, some affinity spaces may be missing some features. Affinity spaces are a “fuzzy concept” in the logical sense that they are defined by fuzzy boundaries and not necessary and sufficient conditions (Rosch, 1975,

1983). In practice, affinity spaces that are high on all the features we discuss below are hard to achieve and take work to sustain.

Not all affinity spaces are alike, of course. They may share common features but realize those features in different ways. Furthermore, affinity spaces can differ from each other on features that may not be part of the definition of an affinity space, such as the appearance of the space or the types of content available. We will discuss some of the more salient differences among affinity spaces below.

Our discussion of affinity spaces is based on research we described in a recent book (Gee & Hayes, 2010). The book focused on girls and women as gamers and in particular, as game content creators. In this research we investigated various affinity spaces associated with *The Sims*, the best selling PC game series in history.

There are many different types of affinity spaces (and other kinds of communities) on the Internet and out in the real world (Barton & Tusting, 2005; Hellekson & Busee, 2006; Rheingold, 2000; Shirky, 2008; Wenger, 1998; Wenger, McDermott, & Snyder, 2002). Some are inclusive, supportive, and nurturing, while others are not. Affinity spaces and other sorts of communities can give people a sense of belonging, but they can also give people a sense of “us” (the insiders) against “them” (the outsiders). People can be cooperative within these spaces and communities, but they can also compete fiercely for status. They can communicate politely and in a friendly fashion or they can engage in hostile and insulting interaction (which is so widespread that a distinctive term, “flaming” is now used to describe it).

The Sims affinity spaces we studied in our book are organized around a passion for building and designing for *The Sims*. They are affinity spaces of a distinctive type.

They function in certain ways that we believe are good for learning and human growth. Since not all affinity spaces function this way, we will call these “nurturing affinity spaces.” We will soon list a variety of features that characterize affinity spaces in a general sense, and discuss more specific instantiations of these features that comprise nurturing affinity spaces. Later we will discuss how a nurturing affinity space can weaken or even cease to be nurturing by losing one or more of the features that define such a space.

We want to argue that human learning becomes deep, and often life changing, when it is connected to a nurturing affinity space. The following list is the set of features associated with *The Sims* nurturing affinity spaces we have studied. This is an “ideal” list; many real spaces and communities tend more or less toward these features, thus coming closer or not to being an “ideal” nurturing affinity space. It is difficult for human creations to remain close to any ideal, and spaces or other sorts of communities that are close to any ideal can change over time for the worse. However, during the time we studied them, these *Sims* affinity spaces came close to this ideal. An important question for further research is how nurturing affinity spaces are initiated, by whom, and how they are sustained over time.

As we list the features of a nurturing affinity space, it will become apparent how different school is from a nurturing affinity space. If human learning and growth flourish in a nurturing affinity space, then it is of some concern that school has so few features of such a space. To make this point, we will discuss how school compares with each feature listed below. We will, to make the contrast clear, talk about “traditional” schools or school as we traditionally conceive of it. Of course, in this age of school reform, there are

many people trying to break the mold of traditional schooling; nonetheless, this traditional model still prevails.

Features of Affinity Spaces

Here we describe fourteen features of an affinity space and the ways in which nurturing affinity spaces implement them:

1. *A common endeavor for which at least many people in the space have a passion—not race, class, gender, or disability—is primary.* In an affinity space, people relate to each other primarily in terms of common interests, endeavors, goals, or practices—defined around their shared passion—and not primarily in terms of race, gender, age, disability, or social class. These latter variables are backgrounded, though they can be used (or not) strategically by individuals if and when they choose to use them for their own purposes. This feature is particularly enabled and enhanced in virtual affinity spaces (Internet sites) because people can enter these spaces with an identity and name of their own choosing. They can make up any name they like and give any information (fictional or not) about themselves they wish. This identity need not, and usually does not, foreground the person's race, gender, age, disability, or social class.

There is an interesting paradox here: what people have a passionate affinity for in an affinity space is not first and foremost, at least initially, the other people in the space but the passionate endeavor or interest around which the space is organized. The passion that fuels an affinity space can, however, lead to quite different ways of behaving, depending on how the other features (see below) of the affinity space are implemented.

While people may eventually come to value their fellow members as one of the primary reasons for being in the affinity space, the shared passion is foregrounded as the reason for being there.

This shared passion can lead to good behavior if everyone sees that spreading this passion, and thus ensuring the survival and flourishing of the passion and the affinity space, requires accommodating new members and encouraging committed members. This is how nurturing affinity spaces implement this feature. Other affinity spaces may restrict full participation in the space only to people who have already proven themselves by passing various “tests” (e.g., newcomers may be flamed when they unknowingly break a norm or fail to already know what they “should” know).

School: Children in school rarely share a common passionate endeavor. In fact, children often have quite different views from each other and from the teacher as to why they are doing what they are doing in school (Willingham, 2009). Too often factors like race, gender, social class, or disability play a prominent role in school without the student’s ability to choose how to define and use his or her own identity. Finally, school is usually not about trying to spread a passion to as many people as possible.

2. *Affinity spaces are not segregated by age.* They involve people of all different ages. Teenage girls and older women, and everyone else in between, interact on *The Sims* sites we studied. There is no assumption that younger people cannot know more than older people or that they do not have things to teach older people. Older people can be beginners; indeed, anyone can begin at any time. Older and younger people judge others by their passion, desire to learn, and growing skills, and not by their age.

In nurturing affinity spaces, the older and more advanced members set a standard of cordial, respectful, and professional behavior that the young readily follow. Such respectful behavior norms do not, of course, apply in all affinity spaces. A significant proportion of adult participants seems to be one necessary condition. These norms also appear to be connected to an attitude that expertise is like a candle flame, sharing it never diminishes it or the person who has it. In some other affinity spaces, experts will only share their knowledge as mentors to a restricted number of people who already show commitment and talent (which is also true of many a graduate advisor in PhD programs).

School: School is, by and large, segregated by age with a low proportion of adults to young people. Knowledge is assumed to be associated with age, and students are measured in terms of standards for their age group, not, for example, in terms of the opportunities they've had to learn.

3. *Newbies, masters, and everyone else share a common space.* Affinity spaces do not segregate newcomers (“newbies”) from masters. The whole continuum of people from the new to the experienced, from the unskilled to the highly skilled, from the slightly interested to the addicted, and everything in between, is accommodated in the same space. Different people can pursue different goals within the space, based on their own choices, purposes, and identities. They can mingle with others as they wish, learning from them when and where they choose (even “lurking,” or viewing but not contributing, on advanced forums where they may be too unskilled to do anything but listen in on the experts). While passion defines a nurturing affinity space, not everyone in the space needs to be passionate or fully committed. They must, however, respect the passion that

organizes the space; the space will offer them the opportunity, should they wish to take it, to become passionate.

Nurturing affinity spaces make entry for newcomers easy. They do not haze or test them, though they do demand norms of respectful behavior and willingness to be a proactive learner. Some other affinity spaces, on the other hand, are rather like frat houses, treating newcomers like new pledges and seeing to it that they “pay their dues.”

School: School segregates newcomers from more expert students through tracking and grade levels. As a result, students are rarely exposed to the discussions and practices of more advanced learners; they have little sense of the possible learning trajectories available to them. Indeed, learning trajectories are, for the most part, determined for the learners by others, rather than by their own choices or passions.

4. *Everyone can, if they wish, produce and not just consume.* People who frequent a *Sims* affinity space often go there to consume, that is, to get content other fans have created, and that is fine. But the space is organized to allow and encourage anyone to learn to build and design. Tools, tutorials, and mentorship are widely offered. In some game-related affinity spaces, fans create new maps, new scenarios for single-player and multiplayer games, adjust or redesign the technical aspects of a game, create new artwork, and design tutorials for other players. In an affinity space, people are encouraged (but not forced) to produce and not just to consume; to participate and not just to be a spectator.

Most affinity spaces set high standards for the quality of production. There is rarely “social promotion” or lowered expectations. Indeed, as in other groups of experts

(Bereiter & Scardamalia, 1993), the standards for production typically rise continuously, as individuals innovate, create new tools, and otherwise push the collective bar for achievement. Nurturing affinity spaces enforce high standards through respectful and encouraging mentoring, based on the assumption that, no matter how expert one is, there are always new things to learn and people who know more than you do. Everyone is always a potential “newbie,” continually learning and being mentored, no matter how often they may mentor others.

School: School stresses consuming what the teacher and textbook says and what other people have done and thought. When students produce (e.g., a writing assignment), they do what they are told because they are told to, not because they have chosen it. Furthermore, student productions rarely become a lasting feature of school; that is, students do not see and learn from prior student work, nor do they use that work as a starting point for their own innovations and achievement. They have no sense that their own work might be used and appreciated by others.

5. *Content is transformed by interaction.* The content available in an affinity space (e.g., all the *Sims* houses, rooms, furniture, clothes, challenges, and tutorials) is transformed continuously through people’s social interactions. This content is not fixed. People comment on and negotiate over content and, indeed, over standards, norms, and values. Most of what can be found in an affinity space is a product of not just the designer (and certainly not just the company, e.g., the makers of *The Sims*), but of ongoing social interaction in the group. This is particularly evident in forum discussions around, for example, tutorials, in which people add information, ask questions, and

otherwise contribute a whole set of new information. Content producers in an affinity space, especially in a nurturing affinity space, also are sensitive to the views, values, and interactions of other members of the group.

School: School content is fixed by teachers, curricula, and textbooks, and the students' interactions with each other and with the teacher rarely changes anything in any serious way (with the proviso that some teachers, of course, try to adapt material for different sorts of learners, though often without these learners having much say in the matter).

6. *The development of both specialist and broad, general knowledge are encouraged, and specialist knowledge is pooled.* Affinity spaces encourage and enable people to gain and spread both specialist knowledge and broad, general knowledge. People can readily develop and display specialized knowledge in one or more areas, for example, learning how to make meshes in *The Sims* or how to tweak a game's artificial intelligence (AI). At the same time, the space is designed in ways that enable people to gain broader, less-specialized knowledge about many aspects of the passion which they share with a great many others in the space. Thus, for example, a *Sims* player may learn that Milkshape is a 3D modeling tool that can be used to mod *Sims* content, though not learn how to use the tool. This fosters the development of people who share knowledge and common ground but who each have something special to offer. It also means experts are never cut off from the wider community (Surowiecki, 2004).

In a nurturing affinity space, it is important that each person with specialist knowledge sees that knowledge as partial and in need of supplementation by other

people's different specialist knowledge for accomplishing larger goals and sustaining the affinity space. Knowledge pooling is enhanced by the fact that everyone in the group shares a good deal of knowledge about *The Sims* and design.

School: In school, most children rarely become experts or specialists in anything. Further, the children in a classroom or school rarely share a lot of general knowledge about something about which they all deeply care, which lays the foundation for each child's development of different forms of specialist knowledge, that they can use to achieve common goals.

7. *Both individual and distributed knowledge are encouraged.* An affinity space encourages and enables people to gain both individual knowledge (stored in their heads) and the ability to use and contribute to distributed knowledge (Brown, Collins, & Dugid, 1989; Hutchins, 1995). Distributed knowledge is the collective knowledge accessible through, in this case, the affinity space, and includes knowledge possessed by people, stored in material on the site (or links to other sites), or in mediating devices such as various tools, artifacts, and technologies to which people can connect or "network" their own individual knowledge. Such distributed knowledge allows people to know and do more than they could on their own. For example, a player who wants to create a new kitchen table for *The Sims* might ask questions on a forum, read tutorials, download modding tools, and analyze tables created by other players. Once the player has created a new table, she may upload it to the site along with instructions for other players. Thus, these spaces encourage and enable people to interact with others and with various mediating devices in such a way that their partial knowledge and skills become part of a

bigger and smarter network of people, information, and mediating devices and tools.

Nurturing affinity spaces tend to foster a view of expertise as rooted more in the space itself, or the community that exists in the space, and not in individuals' heads. "Experts" know their expertise is always partial and limited, and they draw on the knowledge stored in the community when they need to supplement their individual knowledge or learn new things. The public display of individual expertise is less important than contributing to the collective knowledge of the space. In less nurturing spaces, individuals place more of a premium on establishing their expertise in relation to other people in the space, and may vie to lay claim to the possession of unique knowledge or skills. As we will discuss below, even nurturing affinity spaces provide opportunities for the recognition of individual achievements and skill, but more in the service of encouraging individual growth and contributions to the collective good.

School: In school, the development of individual knowledge is valued, and the use of distributed knowledge is given short shrift. We still debate whether students should use tools such as calculators in math class. There are few sophisticated knowledge-building tools and technologies present in most schools; even access to computers, for example, is limited, and software is often outdated. Students rarely are encouraged to draw on each other's knowledge to supplement their own in academic tasks; in school that is often called "cheating." The evaluation of students and schools is predicated on individual achievement, typically measured by assessments of students' recall of facts and application of skills in isolation from other people, resources, or tools.

8. *The use of dispersed knowledge is facilitated.* An affinity space encourages

and enables people to use dispersed knowledge: knowledge that is not actually on the site itself but can be found at other sites or in other spaces. For example, in some *Sims* affinity spaces, there are many software tools available on site made by the designers of *The Sims*, but there are links to all sorts of other groups, software, and sites that have tools to facilitate building and designing for *The Sims*. In an affinity space devoted to the game *Age of Mythology*, as another example, people are linked to sites where they can learn about mythology in general, including mythological facts and systems that go well beyond *Age of Mythology* as a game. When a space provides access to dispersed knowledge, it recognizes the value of local and particular knowledge available in other places and created by other groups, and the necessary limitations of its own knowledge base and resources.

The concepts of distributed and dispersed knowledge are sometimes used interchangeably, but they have different origins and implications. Distributed knowledge, as described above, refers more to an aggregate of knowledge possessed by individuals associated with a community or within a space, and available for problem-solving. The concept of dispersed knowledge originated as way of describing economic systems in which the knowledge of the relevant facts (for example, on supply and demand for particular products) is dispersed among many people and localities (Hayek, 1945). In this case, it is assumed that it's not possible or even desirable to accrue all relevant knowledge in one place; dispersed knowledge is assumed to be necessarily specialized and context-specific. Thus, for example, a *Sims* affinity space devoted to fan fiction might link to individual authors' websites where fans can find more detailed information about these authors and their work.

Of course, affinity spaces differ in their connections to other spaces, based on what “counts” as worthwhile knowledge and expertise in the eyes of those responsible for the space. While we don’t have systematic data on the types of linkages associated with different sites, we speculate that nurturing affinity spaces tend to be more inclusive. For example, *The Sims Resource*, a site we consider to be nurturing, has a section in its forums specifically devoted to posting links to other sites, many of them personal sites created by individuals. A site we considered to be less nurturing, and that fostered a sense of elitism among participants, did not seem to have any section with links to other spaces or resources, perhaps because of the attitude that all “important” knowledge could be found in the space itself.

School: In school, too often valid knowledge is to be found primarily in the classroom, and restricted to general facts and principles found in textbooks or other “sanctioned” material. Specific, localized, and contextualized knowledge is typically considered inferior [despite efforts of educators to acknowledge the “funds of knowledge” brought by students to the classroom (Moll, Amanti, Neff, & González, 1992)]. The potential of the Internet to connect learners with other sources is viewed more as a threat to “safety” than a means of accessing important, decentralized knowledge systems, and many links are banned or heavily policed.

9. *Tacit knowledge is used and honored; explicit knowledge is encouraged.* An affinity space encourages, enables, and honors tacit knowledge: knowledge members have built up in practice, but may not be able to explicate fully in words (Polyani, 1967). For example, designers of *Sims* content typically learn primarily through trial and error,

not by memorizing tutorials and manuals. While tutorials (explicit, or codified knowledge) are found in abundance in these spaces, designers rely on personal contact, through forums and messaging, to pass on their own craft knowledge and tricks of the trade. Indeed, some spaces foster the expectation that tutorial authors will also be available to answer questions as other designers try to use their guides. As we've observed, even the most well-written tutorial cannot capture every potential application of a process, and at times players will share object files in order to troubleshoot without spending more time trying to articulating the problem. At the same time, the affinity space offers ample incentives for people to learn to articulate their tacit knowledge in words (e.g., when they contribute to a forum thread or engage in group discussion about a shared problem).

Since affinity spaces are often centered on a shared passion for producing things, not just consuming them, they all tend to honor tacit and craft knowledge (even producing fan fiction, for example, requires more than an explicit knowledge of grammar or techniques of fiction). Nurturing affinity spaces, however, tend to be tolerant of a wider range in people's abilities to articulate knowledge in specialist, technical language. They create better conditions for people to learn and develop professional-like varieties of language (Hayes & Lee, forthcoming).

School: In school, unlike in many workplaces, tacit knowledge counts for little or nothing (at least in the more "academic" – and valued – subject areas). Indeed, students often learn to articulate knowledge (say it or write it down) that they cannot apply in practice to solve problems.

10. *There are many different forms and routes to participation.* People can participate in an affinity space in many different ways and at many different levels. People can participate peripherally in some respects and centrally in others; patterns can change from day to day or across larger stretches of time. Sometimes people lead and mentor and other times they follow and get mentored. In nurturing spaces this variation is wider than in less nurturing spaces.

School: In school, by and large, everyone is expected to participate in the same way and do all the same things. Students (and teachers) are expected to show up at the same times and do the same things at regular intervals. A student can't choose, for example, to spend weeks just "observing" what happens in school, or to devote a day to tutoring younger students. Appropriate forms of participation tend to be narrowly defined.

11. *There are many different routes to status.* An affinity space allows people to achieve status, if they want it (and they may not), in many different ways. Different people can be good at different things or gain repute in a number of different ways. For example, in the *Sims* affinity spaces we've studied, some people are recognized for their skills as content creators, others for their tutorials, and still others for their roles in creating and managing the spaces themselves. Again, in nurturing spaces there is likely to be more variation and more routes to status, as well as more acceptance of people who do not want high status (and the corresponding commitment), than in less nurturing spaces.

School: In school, there certainly are different routes to status (e.g., being a good student, a good athlete, class president, and other such things). Unfortunately, in the

“official” reward system of school, too often the only route to status is being a “good student,” which means being good at being a student, not necessarily being good at solving problems or innovating.

12. *Leadership is porous and leaders are resources.* Affinity spaces do not have “bosses.” They do have various sorts of leaders, though the boundary between leader and follower is often porous, since members often become leaders and leader often participate as members. Leaders in an affinity space, when they are leading, are designers, mentors, resourcers, and enablers of other people’s participation and learning. They do not and cannot order people around or create rigid, unchanging, and impregnable hierarchies. Obviously there are degrees of flexibility in leadership, and while nurturing spaces foster respect for experts and those with more advanced skills, they tend towards less hierarchy and a view of leadership as “teaching,” with an emphasis on mentoring and providing resources, not necessarily instructing, though this can happen as well.

School: In school, teachers are leaders and bosses, and often are expected to see their role as telling, rather than resourcing learners’ learning and creativity. Even when students are given leadership roles, the ultimate authority always resides with the teachers or school administration.

12. *Roles are reciprocal.* In an affinity space, people sometimes lead, sometimes follow, sometimes mentor, sometimes get mentored, sometimes teach, sometimes learn, sometimes ask questions, sometimes answer them, sometimes encourage, and sometimes get encouraged. In nurturing spaces, even the highest experts view themselves as always

having more to learn, as members of a common endeavor, and not in it only for themselves. They want others to become experts, too. There is, as some of our interviewees reported, a desire to “give back” to others in the space.

School: In school, roles are not reciprocal. Teachers teach, mentor, and lead, while students “learn,” get mentored, and follow. Despite the occasional assertion that teachers are learners, rarely is it assumed that teachers will learn anything directly from their students, nor do students expect to teach their “teachers” or anyone else, for that matter.

13. *A view of learning that is individually proactive, but does not exclude help, is encouraged.* Affinity spaces tend to encourage a view of learning where the individual is proactive, self-propelled, engaged with trial and error, and where failure is seen as a path to success. This view of learning does not exclude asking for help, but help from the community is never seen as replacing a person’s responsibility for his or her own learning. Nurturing affinity spaces tend to promote a view of requests for help (when other resources have been exhausted) as a means for enhancing the knowledge base of the space as a whole, as participants engage in collective problem-solving. There is considerable tolerance for newcomers who may not yet be able to locate information readily and thus ask redundant questions. In less nurturing spaces, such requests can be treated as evidence of stupidity, or at least inexperience, and there is little tolerance for newcomers who have difficulty locating existing information on their own.

School: Ironically, in school, students are expected to be dependent on teachers and textbooks for information, yet getting help from other students often counts as

“cheating.” Few students learn to adopt a proactive, self-directed, and trial and error approach to learning. Indeed, since learning objectives and methods are determined by the teachers and curricula, there is little opportunity for students to be self-directed, except perhaps in how they master predetermined content.

14. *People get encouragement from an audience and feedback from peers, though everyone plays both roles at different times.* The norm of a nurturing affinity space is to be supportive and to offer encouragement when someone produces something. This support and encouragement comes from one’s “audience,” from the people who use or respond to one’s production. Indeed, having an audience, let alone a supportive one, is encouraging to most producers. Many *Sims* affinity spaces provide mechanisms for this feedback, such as guest books where people can post messages to content creators.

At the same time, producers get feedback and help (usually also offered in a supportive way) from other creators whom they consider either their peers or people whom they aspire to be like some day. Who counts as a peer changes as one changes and learns new things. Everyone in an affinity space may be audience for some people and potential peers for others—again, more so in a nurturing affinity space than in less nurturing ones. In some less nurturing spaces, most of the visitors are considered “audience” and few are allowed to contribute content or are considered capable of providing meaningful feedback.

School: In school, children rarely have an audience who really cares about their work other than the teacher. Feedback comes, by and large, from the teacher, who is not a peer (not simply in the sense of age, but also in the sense of expertise) or someone most

students aspire to be like, in terms of their own passions. Furthermore, students rarely have the opportunity to be an audience for other students, or to provide meaningful feedback to each other.

The list above is based on the online *Sims* affinity spaces we have studied. Other affinity spaces have these features as well. It is possible to implement these features in face-to-face groups, but it is likely to be more difficult, due to institutional constraints, pre-existing status differentials, and even geographical boundaries that prevent people with common interests from coming together.

The above features are not easy to achieve, in either nurturing or less nurturing versions, and they can deteriorate over time. Affinity spaces with positive learning and growth features present in nurturing affinity spaces are miracles of human interaction. We need to know a great deal more about how they are initiated and sustained. We also need to study how such spaces can be designed to support learning in areas we care about as educators and citizens, locally, nationally and globally.

CONTENT, KNOWLEDGE, AND CHOICE

The contrast between affinity spaces and traditional schooling may seem unfair. People choose to be in an affinity space, while schools are expected to force (or “motivate”) students to do things they may not want to do. In an affinity space, many people share a passion. Schools (supposedly) cannot be about passions, since everyone has to do, learn, and know the same things, namely, “what every educated person ought to know” (Hirsch, 1987). Too often, this leads to everyone knowing next to nothing, or at

least nothing very deeply.

Here is the sad fact: Humans do not learn anything deeply by force. Humans do not learn anything in depth without passion and persistence. That is why, for most people, what they learn in school is short-lived unless they practice it in work or other settings after school. It is also why so many people, children and adults, learn more important things in their lives out of school than in it.

Think, for example, about learning geometry. Forcing people to learn geometry all in the same way because they are “supposed” to know geometry is not effective. Few people learn it well enough to remember and use it unless their jobs (or other life experiences) give them opportunities to practice with it outside of school. They take geometry (or chemistry or algebra) as school subjects to progress to the next level of schooling. The subject serves as a gateway. Some people master it at school because they choose to and have a passion for it, if only for a high grade and getting into a good college.

Now consider how geometry learning happens when someone wants to design things in the virtual world *Second Life*. The building tools in *Second Life* are software tools for designing three-dimensional environments. Mastery of these tools requires a big learning curve, a learning curve that people take on by choice, driven by their passion for being designers in *Second Life*. These tools require the application of a good deal of geometry to fit all the angles and shapes perfectly together. In fact, the tools build in some nice representations of geometrical information, such as vectors.

In our book, we discuss a woman who is a skilled and widely respected designer in *Second Life*. She failed to learn geometry well in school but now feels quite confident

in her geometrical knowledge. This woman did not master geometry because someone told her she “had to” or “should.” She learned it because she wanted to design in *Second Life*, and knowledge of geometry is required to do that. Further, she had the support of the people and resources in *Second Life* affinity spaces devoted to design. Geometry became a tool for something she wanted to do.

The things we teach in school, subjects labeled “algebra,” “physics,” “civics,” and so forth, are all tools (Gee, 2007). For example, “physics” is a set of tools for doing physics, that is, for solving problems that involve forces such as motion, friction, and energy. These tools are also used in other enterprises, for example in building roller coasters in *RollerCoaster Tycoon* or designing rockets in real life, much like geometry is used in designing for *Second Life*. “Civics” is a set of tools for understanding and participating in government and society. These tools, too, can be used in other enterprises, for example, in designing virtual worlds with their own economies and governing structures. Humans learn things like facts, information, and principles (“content”) well and deeply only when they are learned as tools for doing something meaningful and important to them (diSessa, 2000; Gee, 2004; Shaffer, 2007).

This brings us to “knowledge,” or what school is supposed to be “about.” Lots of the features of an affinity space listed above use the word “knowledge.” Indeed, affinity spaces are, in a sense, knowledge communities. Such spaces build, transmit, sustain, and transform knowledge. But this knowledge is always in the service of something beyond itself. This does not mean such knowledge has to be practical in the sense of serving the needs of society as a whole. But it has to be in the service of doing, that is, in the service of solving problems.

In an affinity space, people do not judge what other people know by asking them to list what they know and to write down the facts, information, and principles they know (i.e., what they have stored in their heads). They judge what other people know based on what they can do and how they can put their knowledge to work in solving problems for themselves and in helping others to solve problems.

The philosopher Wittgenstein (1953/2001, p. 52) once said that we know whether someone knows something if they know “how to go on” in a course of action. If someone is doing something, they have to act. Then they have to ask themselves, did my action work and did it bring me closer to my goal or not? If the answer is “no,” then they have to choose how to “go on,” or how to proceed on a trajectory of actions that will, eventually, lead to success. All the knowledge in the world will do you no good in geometry, civics, or designing for *The Sims* if you do not know how to assess the success of your actions and how to go on in a successful trajectory to accomplish your goals (sometimes one way to go on is to change your goals). This is the main thing affinity spaces teach.

The learning scientist Dan Schwartz at Stanford University has said that looking at the choices people make in a course of actions devoted to solving problems in a certain area is a much better assessment both of what they know and of how well prepared they are for future learning in the same area (personal communication, see also Schwartz, Sears, & Chang, 2007). He suggests we should teach and assess choices, not knowledge, as content. For example, in solving a problem in science or mathematics, or of designing a building in *Second Life*, what are good choices to make when something has not worked? Should one try multiple solutions even if one solution already works? Is it more

helpful to write down representations on a piece of paper as one goes along or leave everything in one's mind? Imagine the transformation in schools if learning in school became about how to make good choices in science, mathematics, art, and civic participation.

Affinity spaces are organized to help people make better choices. They are organized to share information so that new and better choices can be discovered. They are organized, as well, to share information about choices that work and ways to learn how to make better and better choices. These choices are not just about designing things. They are also about how to socially interact in the affinity space, and outside it, as well, including in "real life," so that goals are accomplished and people grow, no matter what their age. When this focus on discovering and making good choices lessens, affinity spaces deteriorate. They may become sites devoted more to socialization or popularity, and fights arise over status, belonging, and how to behave.

The Pareto Principle

The ways in which participation and production work in an affinity space are quite different from school. Schools operate by the bell curve. In a bell curve, the great majority of people are in the middle range of achievement, with a few much better than the rest and a few much worse. Game-related affinity spaces, and other interest-driven spaces like *Flicker* (a photo sharing site), for example, tend to operate by the principle called the "80/20" or Pareto Principle (Shirky, 2008). Eighty percent of the people in an affinity space produce 20 percent of the content (the designs, pictures, mods, or whatever the activity of the group is) and 20 percent of the people produce 80 percent of content.

This 80/20 organization means such groups can recruit everyone's contributions while allowing the most dedicated to produce a great deal more. If we believe that young people today learn a great deal in such interest-driven groups, then it is important that there are many of them and that everyone can find ones in which they can be in the 20 percent of high contributors, if they wish, while making contributions in others where they are in the 80 percent.

Many people think that the bell curves we find in school, where nearly everyone is clumped in the middle at average, are just a reflection of people's "natures," that is, their genetics, like a normal distribution of height. Most of us, we think, are average performers and only a few are really good or really poor. But in reality, as Gould (1981) long ago pointed out, the standardized testing industry assumes bell curves and designs tests to get them. The design and scoring method of such tests is normative, just as is grading "on a curve." There must always be some students who have lower scores than all others, and some who have higher scores, even if the actual difference in their performance is quite small. In addition to how tests are designed, the way that schools design instruction contributes to an artificial view of people's abilities to learn.

When people are organized to learn something like algebra, with little choice, passion, or lucid understanding of why they learning what they are learning, the result is a bell curve. Most people cooperate and learn something, if not much. A few resist and learn nothing, and few find their own deep reasons for learning algebra. It is not that some people simply are not "gifted" at something like mathematics. What people learn outside school shows that nearly anyone can learn such things if they need and want to do it. Consider the woman we discussed previously, who hated geometry in school and now

uses geometry regularly, with confidence, because she has a passion for building in *Second Life*, and such building requires geometry.

Not everyone has a passion for the same things. People join different groups that support their learning and resource them. In some cases, this is enough. In other cases, they get hooked on the community and the passion the community supports and join the top 20 percent.

In our book, we look at women participating in two sites that constitute nurturing affinity spaces: *The Sims Resource* (TSR) and *Mod The Sims 2* (MTS2). These sites offer a good deal of support and encouragement for people with quite diverse skills and backgrounds. Not all sites devoted to *The Sims* operate like these sites.

An interesting contrast to these two sites is a site called *More Awesome than You* (MATY). This is a site whose participants pride themselves on being at the “cutting edge” of *Sims* hacks and mods. The participants are, for the most part, quite technically adept. The norms of behavior for the site favor dealing harshly with anyone with whom one disagrees and especially with newcomers (“newbies”) or people who are not highly skilled.

MATY is not, using the phrase of one post, “a standard buddy-buddy forum” (Rohina, 2009, reply 25). The post goes on to say that “you don’t come here to be loved or fawned upon or greeted with open arms, you come here for information and downloads to make your game More Awesome...If you don’t want chunks bitten off you, don’t play with tigers.” Another post includes the admission that MATY regulars “tend to give new arrivals a particularly hard time.” The post says that this “affords us a great deal of entertainment.” It is also a way, the post says, to separate the “wheat from the chaff”

and keep only newcomers who are tough and skilled (Rohina, 2009, reply 94).

MATY members are no fans of sites like TSR. In fact, MATY contains one thread that is a vicious rant against the TSR site owner, whom the thread accuses of “brown-nosing” Maxis in order to get prerelease access to *The Sims 3* and trying to co-opt *Sims 3* modding tools (Merlin, 2009). To MATY members, TSR would probably be a “standard buddy-buddy forum,” and, in the words of another post (which tells people who do not like MATY that they can go elsewhere), “There will be other places where you can have a group sing-a-long of ‘Kumbaya’ and pretend to care about each other’s days, your Special Sisters, your ‘creative’ abuse of the English language, your made-up attention-seeking disorders and diseases, and your emotional ups and downs” (Rohina, 2009, reply 43).

MATY has many features we associate with an affinity space. It is clearly a site of very high-level knowledge production—its mods are among the best available. Indeed, MATY had out an extensive mod of *The Sims 3*, a mod that corrected many errors in the code and made many improvements to the game, within two weeks of its release. However, its failure to accommodate a wide diversity of skills and backgrounds, and its treatment of newcomers, make it by our definition not a nurturing affinity space or, at least, only a partial one.

Designers like a woman whose virtual name is Tabby Lou—a woman respected widely on TSR—are not respected on a site like MATY. In fact, the site contains several criticisms of Tabby Lou. MATY participants look at themselves as hard-core technical experts. Tabby Lou and many of the other women we studied do not view themselves as such hard-core experts. They appear, rather, to view themselves as advanced learners.

Furthermore, they see their expertise as part of the community, something that adds to the community but is also always supplemented by the community. Finally, women like Tabby Lou do not see their technical and design expertise as separate from the social relations they have contracted in the community and the emotional intelligence they seek to combine with their technical expertise.

How people behave in these communities is not, in fact, a fixed property of them as individuals. It is certainly not due just to the presence of women or men. There are women on MATY and men on TSR. In fact, we have tracked the same individuals engaged with both sites. On MATY they behave harshly, and on TSR they behave cordially. How these communities behave is ultimately a matter of the culture a group grows and attempts to sustain.

We do not have a label for “experts” like Tabby Lou, though we are much more familiar with the sort of hard-edge, high-tech expertise of many MATY participants. However, we live now in a world where individual expertise, especially expertise that overvalues what it knows and undervalues what it does not know, is dangerous, as was the case with Alan Greenspan’s inability to predict the current global economic meltdown (Andrews, 2008).

Problems are too complex today to trust individual experts. They tend to trust their knowledge too much and pay too little attention to what they do not know, and to what others, perhaps those quite unlike them, do know. We need to grow not expert individuals but knowledge communities (or spaces or whatever term we ultimately settle on to describe them). Some will undoubtedly be like MATY, which for all its harshness does network people together for knowledge-building. But some will be like the affinity

spaces we have discussed—sites of shared learning with people devoted to spreading passion and knowledge and not restricting it to hard core experts. True innovation is as likely, or even more likely, to grow in a space that allows and encourages diversity of skills and backgrounds, than one that is more narrowly defined, no matter how high its status.

How these affinity spaces are developed and sustained remains an important question, not only for Game Studies, but for the learning sciences as a whole. In the sites we observed, considerable effort was devoted by the site managers as well as members to sustaining the site's focus, content, and positive social interactions. In addition, we do not know the extent to which the focus of these spaces – in this case, a computer game, or in particular, *The Sims* - contributed to their features, including the extent to which they were more or less nurturing. Maxis, the company that created *The Sims*, has made noteworthy attempts to foster a sense of community and participation among *Sims* fans, for example. Maxis also has allowed and even encouraged fans to engage in a wide range of content creation and modding practices, thus providing opportunities for diverse forms of participation and expertise. Despite *The Sims*' reputation as a “dollhouse” for little girls, the game is quite complex, with many affordances for learning technical and design skills. Indeed, before the release of *The Sims 3*, many fans expressed concerns that the tools incorporated in this new version of the game would render their expertise obsolete, and even lead to the demise of some *Sims* fan sites (so far, this has not been the case).

Lastly, we need to understand how affinity spaces are tied to other aspects of the metagame (Game or Game+) that play a significant role in learning associated with

games, and how these spaces might lead people to other spaces and types of knowledge that are not specific to games. For example, we found that some girls and women who learned technical skills through *Sims* content creation went on to take formal courses in graphic design, or explored affinity spaces devoted to architecture. While such individual learning experiences cannot be designed per se, it is clear that affinity spaces have much to teach us about fostering people's passion and commitment to learning.

REFERENCES

- Andrews, E. L. (2008, October 23). Greenspan concedes error on regulation. *The New York Times*. Retrieved from <http://www.nytimes.com/2008/10/24/business/economy/24panel.html>
- Barton, D., & Tusting, K., Eds. (2005). *Beyond communities of practice: Language, power, and social context*. Cambridge: Cambridge University Press.
- Bereiter, C. & Scardamalia, M. (1993). *Surpassing ourselves: An inquiry into the nature and implications of expertise*. Chicago: Open Court.
- Brown, A. L., Collins, A., & Dugid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- diSessa, A. A. (2000). *Changing minds: Computers, learning, and literacy*. Cambridge, MA: MIT Press.

Games, I.A. (2008). Three Dialogs: a framework for the analysis and assessment of twenty-first-century literacy practices, and its use in the context of game design within Gamestar Mechanic. *E-Learning* 5 (4), 396-417.

Garfield, R. (2000). Metagames. In J. Dietz (Ed.), *Horsemen of the Apocalypse: Essays on roleplaying* (pp.16-22). Sigel, IL: Jolly Rogers Games.

Gee, J. P. (1990). *Sociolinguistics and literacies: Ideologies in Discourses*. London: Taylor & Francis.

Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. New York: Palgrave/Macmillan.

Gee, J. P. (2004). *Situated language and learning: A critique of traditional schooling*. London: Routledge.

Gee, J. P. (2007). *Good video games and good learning: Collected essays on video games, learning, and literacy*. New York: Peter Lang.

- Gee, J. P. & Hayes E. (2009). No quitting without saving after bad events: Gaming paradigms and learning in *The Sims*. *International Journal of Learning & Media*, 1(3), 49-65.
- Gee, J.P. & Hayes, E.R. (2010). *Women as gamers: The Sims and 21st Century Learning*. New York: Palgrave.
- Gould, S. J. (1981). *The mismeasure of man*. New York: W.W. Norton.
- Gresalfi, M., Barab, S., Siyahhan, S., Christensen, T. (2009). Virtual worlds, conceptual understanding, and me: Designing for consequential engagement. *On the Horizon*, 17(1), 21 – 34.
- Hayek, F. (1945). The use of knowledge in society. *American Economic Review*, 35, 519–530
- Hayes, E. & King, E. M. (2009). Not just a dollhouse: What *The Sims2* can teach us about women's IT learning. *On The Horizon*, 17(1), 60-69.
- Hayes, E.R. & Lee, Y. N. (forthcoming). Specialist language acquisition and trajectories of IT learning in a *Sims* fan site. In S.C. Duncan & E.R. Hayes (Eds.) *Videogames, Affinity Spaces, and New Media Literacies*. New York: Peter Lang.

Hellekson, K. & Busse, K. (Eds.) (2006). *Fan fiction and fan communities in the age of the internet*. Jefferson, NC: McFarland.

Hirsch, E.D. (1987). *Cultural literacy: What every American needs to know*. New York: Houghton Mifflin.

Hutchins, E. (1995). *Cognition in the wild*. Cambridge, MA: MIT Press.

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: University of Cambridge Press.

Matos, X. (2010, March 3). Designing the Meta-Game. *GamePro*. Retrieved from:
<http://www.gamepro.com/article/features/214260/designing-the-meta-game/>

Merlin. (2009, May 28). TSR has already a Workshop for CC... *More Awesome Than You*. Message posted to:
<http://www.moreawesomethanyou.com/smf/index.php/topic,15059.msg433718.html#msg433718>

Moll, L. C., Amanti, C., Neff, D., & González, N. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory into Practice*, 31(2), 132-141.

Polanyi, Michael (1967) *The tacit dimension*. New York: Anchor Books.

Morgenstern, S. (2007, Feb. 8). The Wright stuff. *Popular Science*. Retrieved from:

<http://www.popsoci.com/entertainment-gaming/article/2007-02/wright-stuff>

Rheingold, H. (2000). *The virtual community: Homesteading on the electronic frontier*

(Revised Edition). Cambridge, MA: MIT Press.

Rohina. (2009, May 29). Important notice from the GRAMMAR POLICE. Plz read. This means you. *More Awesome Than You!* Message posted to:

<http://www.moreawesomethanyou.com/smf/index.php?topic=15068.0>

Rosch, E. (1975). Cognitive representation of semantic categories. *Journal of Experimental Psychology*, 104, 573-605.

Rosch, E. (1983). Prototype classification and logical classification: The two systems. In E. Scholnick (Ed.), *New trends in cognitive representation: Challenges to Piaget's theory* (73-86). Hillsdale, NJ: Lawrence Erlbaum Associates.

Salen, K. (2007). Gaming literacies: A game design study in action. *Journal of Educational Multimedia and Hypermedia*, 16(3), 301-322.

Salen, K. and Zimmerman, E. (2003). *Rules of play: Game design fundamentals*. Cambridge, MA: The MIT Press.

- Schwartz, D. L., Sears, D., Chang, J. (2007). Reconsidering prior knowledge. In M. Lovett and P. Shah (Eds.), *Thinking with Data* (pp. 319-344). Mahwah, NJ: Erlbaum.
- Shaffer, D. W. (2007). *How computer games help children learn*. New York: Palgrave/Macmillan.
- Shirky, C. (2008). *Here comes everybody: The power of organizing without organizations*. New York: Penguin.
- Surowiecki, J. (2004). *The wisdom of crowds*. New York: Doubleday.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press.
- Willingham, D. T. (2009). *Why don't students like school? A cognitive scientist answers questions about how the mind works and what it means for the classroom*. New York: Jossey-Bass.
- Wittgenstein, L. (1953/2001). *Philosophical investigations*. Oxford: Blackwell Publishing. (3rd ed., 2001).

Zimmerman, E. (2007). Gaming literacy: Game design as a model for literacy in the 21st century, *Harvard Interactive Media Review*, 1(1), 30-35.