Sticks, Stones and Video Games: Tools for Imaginary Play

In *Why Sticks are Good for Kids* on *PsychologyToday.com*, Andrea Bonior makes some excellent points about the importance of allowing creativity and imagination in play without overzealous, politically-correct, anxiety-driven restriction that keeps kids out of trees and puddles and away from sticks. When I was a kid, we lived near an orange grove and my neighborhood buddies and I spent a lot of our summer sitting in one particular tree, freely making use of sticks for a multitude of purposes. We make bows and arrows. Then swords. Then wands. We used the sticks to draw fantastic houses in the dirt. We stuck sticks into oranges to let the juice out. We also used small sticks to block up irrigation ditches to make tiny dams for imaginery creature. We came home exuberant, exhausted and filthy. It was great.

My concern is the gratuitous dig at technology as support for the greatness of imaginery play in nature. Setting up technology as the foe of ‘good’ kinds of play increases the technophobia already rampant across society. It does not follow that because outdoor play (with or without sticks) is so good (which it is), that technology is bad. In truth, we wouldn’t want our kids out in the park all day without spending at least a little time learning how to do other things, too. There are lots of kids who don’t have the same access to outdoor play and its accessories. Technology is like sticks. There are good and bad ways to use them both. Just like with sticks, there are creative, social and responsible ways for kids to use technology.

There is learning happening in all games no matter what the content—rules, rewards, sequences, goals, levels and
persistence. Games never worry about hurting your feelings. You don’t get enough points, you die. Try again. Kids do not have their self-esteem deflated by such straightforward assessments of their skill level. They try again. Do not underestimate the value of accepting the results and wanting to improve them. Competence and mastery in games builds self-efficacy and can also be a social currency that provides a basis for social interaction and relationship building in the same way people use golf or running. Many video game experiences reinforce structural, social and technical learning by providing a platform for imaginary play. Minecraft, for example, offers the ability to design, invent and share. It allows kids to feel control over an environment and develop visuospatial reasoning skills—the basis of logical reasoning—and rewards skills that are transferable to offline activities, such as persistence and self-regulation.

Don’t get me wrong. I agree with Dr. Bonior and I would encourage outdoor stick play over technology whenever the chance arose. Most kids have more chances to use technology than sticks. But when sticks, stones, mud and trees aren’t available I prefer games to television. While I suspect Dr. Bonior is using technology as a strawman, there are many people who view technology like the Pied Piper of Hamilton, fearing that their kids are going disappear into their
computers and mobile devices at age 5 and emerge at 22, pasty-faced and ill-prepared for life. Good parenting is about teaching balance, values and good decision making by setting limits and providing a full menu of learning opportunities.

It’s also about letting them fall out of a tree every once in a while, as hard as that is. As Dr. Bonior suggests, we need to get over the fear of our kids playing with sticks and tree climbing. How else, as she says, will they use to learn the the right and wrong ways? Equally important, however, is getting over the fear of the digital world that our kids also need to learn to navigate for the same reason.

The Positive Side of Video Games: Part III

Many people have the image of video games as socially isolating, if not psychologically addicting. Yet, like my friend Kristin demonstrated when she joined her son in the online game Wizard101 (see part 1), video games can connect families and friends across time and distances.

In my last post, The Positive Side of Video Games: Part II, I talked about how games are games function as learning environments. In this third, and final, post, I will talk about how games can facilitate positive emotions through
connection and mastery.

**DIWO (Do it With Others) or Quests with Friends**

Unlike email, texting, or even a phone call, playing a game with someone creates a sense of actually doing something together. Games create a sense of presence — the sense of being in a shared space (Ijsselsteijn, Freeman, & De Ridder, 2001). Beyond the affinity groups (Gee, 2007). and communities of learning (Lave & Wenger, 1990), games can provide a virtual location for social interaction and relationships beyond home or work because game environments function as Oldenburg’s (1999) “third spaces” or “great good places,” the informal places such as parks and coffee shops that encourage easy sociability and community (e.g., Steinkuehler & Williams, 2006). Multi-player games can be extremely social, with a high percentage of players making lifelong friends and partners (e.g., Cole & Griffiths, 2007).

**Optimal Engagement in Flow**

Csikszentmihalyi’s (1991) theory of Flow, or optimal engagement, is one of the most prominent concepts of Positive Psychology embraced by game developers (Pavlas, 2010). Several factors contribute to an individual achieving a Flow state. In the context of game development, the most notable is the balance between challenge and skill that allows an individual to be in and maintain the level of engagement defined as Flow (see figure below). The skill-challenge balance keeps emotions regulated in a productive way— it allows a player to be challenged enough to avoid boredom and not so much as to trigger anxiety. We can also map this to neuroscience in terms of arousal and the emotions that influence attention, such as conflict, complexity, novelty, and uncertainty or mystery (Rutledge, 2012).

There are other factors that contribute to Flow will sound familiar in the context of video gameplay. These include:
• The integration of clear goals with responsive feedback
• The merging of action and awareness so that the player has complete, focused concentration on the task at hand accompanied by a loss of self-awareness and the passage of time
• The sense of control and confidence

Flow Paths

Flow is a description of experienced engagement in an activity over time rather than at a single point. The Flow channel represent the player’s experience path of continual interaction between challenge and learning. In well designed games, players perform at the edge of their competency guided by clear goals and feedback. In the Flow state, the experience of play is fluid and is intrinsically psychologically rewarding independent of scores or in-game successes (Csikszentmihalyi, 1991).

Flow and Learning Zones

The balance of skill and challenge keeps the player’s brain aroused, attention engaged and motivation high. The acquisition of skills to meet each challenge also provides a
series of mastery experiences.

Games are designed with structures that create what Vygotsky (1978) called ‘zones of proximal development.’ where learning occurs due to observation and interactions that pull the player forward into more complex and demanding tasks.

Scaffolding is another key concept in Vygotsky’s model of social development. Scaffolding is the on-demand support that allows people to bridge the gap between current and required skills. The responsive feedback in gameplay along with social collaboration and communities provide this scaffolding, facilitating problem-solving and learning retention (Sun, Wang, & Chan, 2011).

A key feature of gameplay is that failure is not ‘failure’ in the schoolyard sense. Failure is equivalent to feedback and the risk of failing is minimal and recovery is easily achieved, encouraging exploration, experimentation and the development of new problem-solving strategies. The process of learning is a socially accepted progression providing social status through achievement in a peer-valued skill and allowing player to capitalize on their strengths.

Learning Trajectory

Community creates socially sanctioned support for curiosity and the motivation for scientific inquiry. Gamers frequently transform design issues into empirical questions, collecting data, building and comparing models to predict the system (i.e. decision rules, such as minimaxing or attempting to minimize the possible worst case or maximum loss) (Squire, 2008).
Consumption stimulates mastery and motivates production. The figure to the left shows Squire’s (2008) Trajectory of Player Experience which illustrates the gradual shift from player to designer, blurring the distinction between them similar to what we see happening to the boundaries between consumers and producers of other types of media, as well as breaking down of finite channels of distribution of media content.

Like Squire (2008), Salen and Zimmerman (2004) found that committed players change the rules for their own enjoyment, exploring which rules work and which don’t, and studying the structure that is contributing to meaningful game experience. The exploration becomes an iterative process of breaking, tweaking and modifying where players become more like designers or actually become designers.

**Flow or Success**

Whether a gaming experience creates a sense of control and competence from a Flow state, connection with an ideal self through immersion, or a sense of accomplishment or ‘fiero’ through skill mastery, these are positive emotions that have longer-term ramifications.

ADHD and learning-challenged children often experience more failures than others, especially in school. Failure, like mastery, impacts perceptions of self-efficacy and both build on previous experience to project future action, as
According to research in positive psychology, negative and positive emotional experiences are not structural equivalents. Where negative emotions lead to narrowed, self-focused, inflexible or defensive behaviors, positive emotions create upward spirals that promote increased openness and exploratory activity. According to Garland et al. (2010) and research findings based on Fredrickson’s Broaden and Build Theory (Fredrickson, 2004), positive emotions create a cognitive state that is more open, permeable, flexible and social and facilitate cognitive reappraisal of negative circumstances and beliefs (Tugade & Fredrickson, 2004). A buildup of cognitive, psychological, social and physical resources from positive emotions accumulates over time. Evidence suggests that positive emotions expand our mindsets in ways that little by little reshape who we are.

Conclusion

The experience my friend Kristin had with her son in Wizard 101 (see part 1) is a good example of how we can reevaluate and reframe our understanding of games as avenues to develop mastery experiences that promote self-efficacy and positive emotions. In a video game, we can:

- Experience emotional and physiological arousal that focuses our attention
- Trigger intrinsic motivation through evidence of accomplishments and successes
- Observe modeled behaviors and receive mentoring through collaboration
- Establish meaningful social connections in communities
Imagine ourselves in new ways with new strengths
Practice problem-solving and behaviors in low risk environments

Video games are not a panacea for all of society’s ills but neither are they the cause. Like all tools, from hammers to virtual reality, they can be used for good and for harm. But we can use them for good if we can focus on the psychological fundamentals that underlie both the specific content-driven experience as well the meanings we make of the meta-experience of interactivity and results. We can reframe our point of view about video games recognizing that the act of playing has a positive impact on self-efficacy, thereby increasing resilience, optimism and motivation. We can recognize that all interactive experience hold the potential to be mastery experiences just waiting to be conquered.

Cross-posted on Psychology Today Positively Media.

References


The Positive Side of Video Games: Part II

Video games have been at the forefront of interactive media and continue to be a significant part of the participatory media environment. The thought of a video game still may
strike horror into the hearts of many, but video games are just a digital manifestation of a very basic human behavior: play. Playing is where we learn.

In my last post *The Positive Side of Video Games Part I*, I talked about how games are just one part of the changing media environment that creates new assumptions and expectations about participation and interactivity. In this post, I will describe how games function as learning environments.

**The Power of Gameplay for Learning and Growth**

Throughout history, games and gaming have been an integral part of human expression of culture and identity, facilitating collaboration and creativity. Play is vital to a child’s social and emotional development. Play is where we work through emotions, learn to share, negotiate joining groups or ongoing play, experience the perspectives of others, learn to cope with our own emotions, and explore our self-perceptions (*Piaget, 1962*). It’s only the technology that is new.

The bulk of video game-related research has focused on the interactivity, cognitive resources, and impact of content (*Klimmt & Hartmann, 2009*). However, the experience of playing video games can impact self-efficacy in a number of ways. These include 1) the expansion and exploration of identity, 2) generation of and participation in communities of learning, 3) building social connections through collaboration and negotiation, 3) the promotion of problem-solving and decision-
making in low-risk situations, 4) development of intrinsic motivation, and 4) the creation of positive emotions.

**Games Expand the Sense of Self**

No matter how simple or elaborate the technology, games are fundamentally a set of rules and goals that function within a culture of social and communication behaviors specific to the game community. The culture defines membership and create game-based social norms (Steinkuehler, 2004). In other words, games provide structure and a social identity.

Video games allow people to adopt virtual identities. According to Przybylski, Weinstein, Murayama, Lynch, and Ryan (2012), the appeal of video games is in part due to the players’ ability to explore aspects of their ideal selves that might not find expression in real life. Gameplay experiences that were congruent with perceptions of a player’s ideal self were the most intrinsically motivating and emotionally engaging. Klimmt and Hartmann (2009) suggest that feelings of increased self-efficacy also enhance the motivation to play.

The experience of immersion in gameplay can enhance feelings of identification with self and others (Gee, 2007), which can promote self exploration (Klimmt, Hefner, & Vorderer, 2009) and results in the reevaluation and rescripting of self-narratives (Cunliffe & Coupland, 2012; Dagirmanjian, Eron, & Lund, 2007). For children with learning disabilities, they are often struggling not just with their disability but also with the label and social stigma who often view themselves as less competent across multiple domains, such as intelligence, academic skills, behavior and social acceptance (Smith & Nagle, 1995).

Open-ended collaborative games, such as Wizard 101, encourage creativity and imagination. Games in general provide a learning space that functions like Erikson’s (1956) concept of psychosocial moratorium – a safe place to think, take risks
and explore. Similarly, Bruner (1973) suggested that the purpose of play is to practice and explore behavioral patterns that a child can later use in other situations. Others researchers believe that play enhances the ability to understand and identify causal elements amidst irrelevant information (Weisler & McCall, 1976).

You Have to Learn to Play

Whether you play with other players or alone, in order to play, you must learn. Learning and playing are often indistinguishable because game structure mirrors well-established learning models (Van Eck, 2006). If you are learning in a game, you make progress. If you make progress in a game, you see evidence such as points or levels, reinforcing your perceptions of accomplishment and self-efficacy (Gee, 2007).

In multi-player games, newcomers learn through full participation. There’s no such thing as World of Warcraft ‘Light.’ You have to play to learn and you have to play with others, because it is by negotiating social relationships and developing collaborative skills that allow players to acquire genuine expertise.

Expertise in in any field is social capital and valued by peers. This motivates new players to engage in an “over-learning” period of extended practice aided by immediate feedback from the game system, such as error-produced death of your avatar, and encouragement from other participants, “Dude that was awesome!”

Where traditional educational outcomes tend to be score- and grade-based, the learning in gaming environment, whether individual or collaborative, is focused on skill acquisition around an activity because the goal is mastery for future play (Steinkuehler, 2004). There is no sustained social or intellectual capital accumulation in short-term rewards.
Gameplay success through mastery elicits commendations and validation from other players both within the magic circle of gameplay but also in the larger community of players who play that specific game.

Games create communities of practice – groups of people who share a common competence and interest, whether it’s Farmville or Call of Duty. Participation creates a shared understanding and reinforces the social identity that comes from being included in the group (Lave & Wenger, 1990).

Game knowledge and skill is a social language that provides connection and context, like any other sport, art, or specialized endeavor. The shared knowledge of a popular game creates what James Paul Gee (2007) calls “affinity groups” provide a way to identify other group members. It works for Call of Duty the same way it works for NFL Football. The common ground functions as a social bridge, allowing for social interaction with peers that has little to do with game content and a great deal to do with demonstrating competence, membership and social validation. Peer validation then reaffirms and reinforces the community-based identity and the social currency of learning as a community-valued asset (Lee & Hammer, 2011).

In multi-player games like World of Warcraft, the game culture often encourages players to ask questions of those more accomplished or to offer advice to those less experienced. Game producers recognize the value in promoting these types of collaborative cultures because rewarding play experiences translate into profitable commercial ones. Thus, multiplayer games include built-in functionality to support player discourse, such as chat channels. Beyond demonstrating expertise or facilitating learning, game play with collaborative missions necessitate mastering a much more serious social skill, cooperation such as the negotiation of moral behaviors and trust relationships necessary to complete quests and challenges (Nardi, Ly, & Harris, 2007).
Games Encourage Comfort with Decision-Making

Games, like much of life, are a series of puzzles and decisions. Unlike life, however, games make risk-taking easy. They often create situations where players not only must make decisions, they must make them quickly and must they must continually adapt to changing circumstances and rules. These circumstances encourage cognitive flexibility, the tolerance of ambiguity and comfort with decision-making without full information—excellent skills for dealing with real world situations on a daily basis at work, at school and at home (Reeves, Malone, & O’Driscoll, 2008).

Reeves et al (2008) go so far as to say that World of Warcraft provides an excellent training ground for effective leadership strategies, in large part because it teaching an understanding of the types of environments that facilitate adaptive decision-making.

In Part 3, I will conclude with a discussion of how thoughtful development and implementation of game design principles can ignite problem-solving, creativity, and learning and create positive emotions. Positive emotions lay the foundations for enhanced self-efficacy and resilience which also support a child’s ability to become a self-advocate for his or her own learning experience in an educational environment.

Cross-posted on Psychology Today at Positively Media

References


The Positive Side of Video Games: Part III
Many people have the image of video games as socially isolating, if not psychologically addicting. Yet, like my friend Kristin demonstrated when she joined her son in the online game Wizard101 (see part 1), video games can connect families and friends across time and distances.

In my last post, The Positive Side of Video Games: Part II, I talked about how games are games function as learning environments. In this third, and final, post, I will talk about how games can facilitate positive emotions through connection and mastery.

**DIWO (Do it With Others) or Quests with Friends**

Unlike email, texting, or even a phone call, playing a game with someone creates a sense of actually doing something together. Games create a sense of presence – the sense of being in a shared space (Ijsselsteijn, Freeman, & De Ridder, 2001). Beyond the affinity groups (Gee, 2007). and communities of learning (Lave & Wenger, 1990), games can provide a virtual location for social interaction and relationships beyond home or work because game environments function as Oldenburg’s (1999) “third spaces” or “great good places,” the informal places such as parks and coffee shops that encourage easy sociability and community (e.g., Steinkuehler & Williams, 2006). Multi-player games can be extremely social, with a high percentage of players making lifelong friends and partners (e.g., Cole & Griffiths, 2007).

**Optimal Engagement in Flow**

Csikszentmihalyi’s (1991) theory of Flow, or optimal
engagement, is one of the most prominent concepts of Positive Psychology embraced by game developers (Pavlas, 2010). Several factors contribute to an individual achieving a Flow state. In the context of game development, the most notable is the balance between challenge and skill that allows an individual to be in and maintain the level of engagement defined as Flow (see figure below). The skill-challenge balance keeps emotions regulated in a productive way—it allows a player to be challenged enough to avoid boredom and not so much as to trigger anxiety. We can also map this to neuroscience in terms of arousal and the emotions that influence attention, such as conflict, complexity, novelty, and uncertainty or mystery (Rutledge, 2012).

There are other factors that contribute to Flow will sound familiar in the context of video gameplay. These include:

- The integration of clear goals with responsive feedback
- The merging of action and awareness so that the player has complete, focused concentration on the task at hand accompanied by a loss of self-awareness and the passage of time
- The sense of control and confidence

![Figure 1. Balancing Challenge and Skill](image)
Flow Paths

Flow is a description of experienced engagement in an activity over time rather than at a single point. The Flow channel represents the player’s experience path of continual interaction between challenge and learning. In well-designed games, players perform at the edge of their competency, guided by clear goals and feedback. In the Flow state, the experience of play is fluid and is intrinsically psychologically rewarding independent of scores or in-game successes (Csikszentmihalyi, 1991).

Flow and Learning Zones

The balance of skill and challenge keeps the player’s brain aroused, attention engaged, and motivation high. The acquisition of skills to meet each challenge also provides a series of mastery experiences.

Games are designed with structures that create what Vygotsky (1978) called ‘zones of proximal development.’ where learning occurs due to observation and interactions that pull the player forward into more complex and demanding tasks.

Scaffolding is another key concept in Vygotsky’s model of social development. Scaffolding is the on-demand support that allows people to bridge the gap between current and required skills. The responsive feedback in gameplay along with social collaboration and communities provide this scaffolding, facilitating problem-solving and learning retention (Sun, Wang, & Chan, 2011).

A key feature of gameplay is that failure is not ‘failure’ in the schoolyard sense. Failure is equivalent to feedback and the risk of failing is minimal and recovery is easily achieved, encouraging exploration, experimentation, and the development of new problem-solving strategies. The process of learning is a socially accepted progression providing social status through achievement in a peer-valued skill and allowing
player to capitalize on their strengths.

**Learning Trajectory**

Community creates socially sanctioned support for curiosity and the motivation for scientific inquiry. Gamers frequently transform design issues into empirical questions, collecting data, building and comparing models to predict the system (i.e. decision rules, such as minimaxing or attempting to minimize the possible worst case or maximum loss) (Squire, 2008).

![Figure 2. Trajectory of Player Experience](image)

Consumption stimulates mastery and motivates production. The figure to the left shows Squire’s (2008) Trajectory of Player Experience which illustrates the gradual shift from player to designer, blurring the distinction between them similar to what we see happening to the boundaries between consumers and producers of other types of media, as well as breaking down of finite channels of distribution of media content.

Like Squire (2008), Salen and Zimmerman (2004) found that committed players change the rules for their own enjoyment, exploring which rules work and which don’t, and studying the structure that is contributing to meaningful game experience. The exploration becomes an iterative process of breaking, tweaking and modifying where players become more like designers or actually become designers.
Flow or Success

Whether a gaming experience creates a sense of control and competence from a Flow state, connection with an ideal self through immersion, or a sense of accomplishment or ‘fiero’ through skill mastery, these are positive emotions that have longer-term ramifications.

ADHD and learning-challenged children often experience more failures than others, especially in school. Failure, like mastery, impacts perceptions of self-efficacy and both build on previous experience to project future action, as illustrated in the schematic below.

According to research in positive psychology, negative and positive emotional experiences are not structural equivalents. Where negative emotions lead to narrowed, self-focused, inflexible or defensive behaviors, positive emotions create upward spirals that promote increased openness and exploratory activity. According to Garland et al. (2010) and research findings based on Fredrickson’s Broaden and Build Theory (Fredrickson, 2004), positive emotions create a cognitive state that is more open, permeable, flexible and social and facilitate cognitive reappraisal of negative circumstances and beliefs (Tugade & Fredrickson, 2004). A buildup of cognitive, psychological, social and physical resources from positive emotions accumulates over time. Evidence suggests that positive emotions expand our mindsets in ways that little by little reshape who we are.

Conclusion

The experience my friend Kristin had with her son in Wizard
101 (see part 1) is a good example of how we can reevaluate and reframe our understanding of games as avenues to develop mastery experiences that promote self-efficacy and positive emotions. In a video game, we can:

- Experience emotional and physiological arousal that focuses our attention
- Trigger intrinsic motivation through evidence of accomplishments and successes
- Observe modeled behaviors and receive mentoring through collaboration
- Establish meaningful social connections in communities of play
- Imagine ourselves in new ways with new strengths
- Practice problem-solving and behaviors in low risk environments

Video games are not a panacea for all of society’s ills but neither are they the cause. Like all tools, from hammers to virtual reality, they can be used for good and for harm. But we can use them for good if we can focus on the psychological fundamentals that underlie both the specific content-driven experience as well the meanings we make of the meta-experience of interactivity and results. We can reframe our point of view about video games recognizing that the act of playing has a positive impact on self-efficacy, thereby increasing resilience, optimism and motivation. We can recognize that all interactive experience hold the potential to be mastery experiences just waiting to be conquered.

—

Cross-posted on Psychology Today Positively Media.
References


Learning: The Impact of Game Characteristics, Player Traits, and Player States. (PhD Dissertation), University of Central Florida, Orlando, FL.


