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Meet the (media) producers: artists, composers, and gamemakers

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Abstract

Purpose – The purpose of this paper is to detail the perceived influence of early gaming habits toward media production from seven students enrolled at a university in the Southeastern US. Participants identified as heavily involved in creating media such as anime, videos, fanfiction, webcomics, games, and digital music.
Design/methodology/approach – This exploratory study used qualitative research, thus data collection and analysis included questionnaires, interviews, and artifacts identifying and categorizing six main themes: game play preferences, persistence, early connections between game play and media, support and feedback, creations inspired by games, and significance of games in current lives.
Findings – The study found that most participants believed game play in childhood influenced increasingly complex media production habits. Six of the seven believed game play influenced their career path. The paper concludes with implications for education including games as conduits to personalized learning and career paths.
Originality/value – Results from this study extend prior research on the value of games to promote media production and meet personal and professional goals. This is significant as prior research linking early game play to media production influencing career goals is sparse.

Keywords Twenty-first century skills, Game play, Gaming and career paths, Media production, Personalized learning

Paper type Research paper

Introduction

There is little disagreement that success in the twenty-first century is tied to production-oriented, collaborative, and creative pursuits. Society values those who create, share, and socialize in online spaces (Trilling and Fadel, 2009). Medical, technical, government, education, and computer-science-related industries seek those adept in media literacies (Casner-Lotto and Barrington, 2006), and younger generations in particular are heavily engaged in producing or creatively mixing media using internet technologies (Lenhart *et al.*, 2010). Adolescents and young adults frequently collaborate with others who share their interests in gaming, social media, or Web 2.0 content creation (Jenkins *et al.*, 2006; Herro, 2014). Video games and other media "design" platforms are touted as facilitating rich experiences in which participants hone twenty-first century skills and engage in interest-based learning (Gee, 2009; Jenkins *et al.*, 2006; Squire, 2011).

The benefits of playing video games

Much has been written about the cognitive benefits of playing video games particularly "higher-order thinking skills such as strategic thinking, interpretive analysis, problem solving, plan formulation and execution, and adaptation to rapid change" (Cayton-Hodges, 2011, blogpost). Granic *et al.* (2014) discuss game play as a motivating way to engage in

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mental multi-tasking and sharpening of spatial skills while honing creativity, trial-and-error, and general problem solving. Jackson *et al.*'s (2011) study of 491 adolescent gamers showed an overwhelming connection between video game play and creativity, and the absence of creativity when considering non-gaming activities. Shapiro (2014) describes the metacognitive and interpersonal skills honed in games citing them as spaces to innovate and nurture perseverance, reciprocal apprenticeships, and relationships with opponents and teammates. Numerous studies suggest that when games are contextually relevant and appropriately challenging, student's motivation and self-esteem increases (Ke and Grabowski, 2007). Griffiths (2002) noted health and education benefits of video game play via improved visualization, hand-eye coordination, math and language skill development, and increased confidence. Durkin and Barber (2002) stated that adolescents' game play contributed positively to relationships with family members and friends, engagement in schools, enjoyment of recreational activities, and overall well-being. Furthermore, according to Cayton-Hodges (2011) researchers suggest that creating video games facilitates similar skills and increases critical and analytical thinking as players engage in designing complex systems involving goals and rewards while encouraging problem solving, iterative design, and practice with collaborative and visual digital media literacies. Gee (2005) points to learning experiences garnered through game design opportunities for players to practically, and often tacitly, direct their own learning. Game design has recently been linked to computation expression – a precursor to computer programming (Kafai and Burke, 2013).

Noted detriments of game play

Game play has been suggested to promote negative associations including fostering violence, hindering social skills, causing obesity, and promoting distraction (Anderson *et al.*, 2008; Chatput *et al.*, 2011; Ferguson, 2011). Garris *et al.* (2002) discuss game play as dynamic and motivating, but also point to engagement in games as potentially addictive and obsessive, further characterizing game play as sometimes detrimental to training (e.g. military) when players are "played out" (p. 459), and fail to complete activities. Additionally, emotional and physical effects such as social isolation and motion sickness were reported negative consequences for some players (Merhi *et al.*, 2007).

What do gamers say?

Those who frequently play interactive computer or video games, often called "gamers," have provided insight into their shared motivation for playing, describing their comfort, and willingness to express themselves in games experiencing feelings of "curiosity, astonishment, and interest and attention, reasoning, creativity, and problem solving" while engaged in teamwork, encouragement, and fun (Cole and Griffiths, 2007, p. 579). More than one-third of gamers believe "they could be more themselves in the game than in real life" (p. 579). Escapism through immersion in game play has been described as a gamer sacrificing his/her complete self, through "cognitive challenges, trial-and-error learning," and "a multiplicity of overlapping and fluid forms of engagement" (p. 344). These video gamers relish in designing or playing games because they feed their imagination, allow them creative control, provide a continuous feedback loop for their work, and make them feel powerful (Callega, 2010).

The benefits of media production

There are also noted benefits of media production. As access and engagement increases via the internet and social media, arts organizations generally agree the participatory experiences promote diversity within arts audiences, broadening what is considered art and creating a deeper experience for online audiences (Thomson *et al.*, 2013). Media production

can foster a sense of civic engagement and increase learning (Jenkins *et al.*, 2006). Anderson and Rainie (2012), point to neuroscientists' findings that humans react to design elements in digital environments, which "can cause feel-good chemical reactions, alter human responses to stimuli – increasing reaction times, for instance – and in certain situations can improve learning, participation, and motivation" (p. 2). Media production has been shown to hone multiliteracies and give learners a voice, allowing them to consider power relationships through collaborative production or media sharing and to "concurrently develop habits of considering implicit messages, assumptions, and biases within their own and others' products, and to understand the social structures and tensions behind systems of media production and consumption" (Soep, 2007, p. 208).

Convergence culture and productive play

Media researchers have used the term "convergence culture," denoting the flow of content across multiple media platforms, which is supported and often transformed by members within the media audience (Jenkins *et al.*, 2006). Convergence culture recognizes the increasing blurring of lines between distinct genres of movies, games, social media, and emerging technologies, oftentimes emanating from audiences who choose to consume and participate. For instance, game and media scholars have examined the production habits of players, finding that gamers engage in sophisticated design experiences with a variety of media creating useful artifacts enhancing play, modding the environment, or writing fanfiction in affinity spaces germane to particular games (Hayes and Duncan, 2012; Squire *et al.*, 2005). Productive play and its relationship to convergence culture has also been discussed in depth from the perspective of gaming as fostering a desire for players to produce and "pay for" their own forms of entertainment media to support gamers' experiences. This sort of production, play, and entertainment often occurs across and between media genres (Pearce, 2006).

While considerable research has been conducted on why people play and persist in games (Callega, 2010; Cole and Griffiths, 2007; Gee, 2007), the benefits of gaming to promote systems thinking, problem solving, creativity, and interpersonal skills (Cayton-Hodges, 2011; Gee, 2005; Granic *et al.*, 2014; Jackson *et al.*, 2011; Shapiro, 2014), and the convergence of gaming and other forms of media production surrounding games (e.g. in affinity groups, modding games, creating artifacts for game play) (Gee and Hayes, 2010; Jenkins *et al.*, 2006; Squire, 2011), less research has been done directly with those who create media inspired by past game play. While studies are limited, a few researchers have attempted to link game play to media production and career goals. Drawing on two players' contributions toward wiki-editing and fanfiction writing, Ochsner (2013) poses that affinity for games can shape the goals and trajectories of players, allowing them to imagine new futures. Gee and Hayes' (2010) narratives of four women gamers, in various stages of life, provides the most detailed explanation of gaming as a gateway to technical and interpersonal skills, design, writing, artistic expression, and programming. In one account, Gee and Hayes trace the trajectory of a successful human resource developer to skills honed in a virtual world and its surrounding "communities of practice." Communities of practice (Lave and Wenger, 1991) denote people who collaboratively share, support, and refine their work around common interest. The authors discuss the capacity of games to influence enduring personal goals, which in turn impacted the women's navigation of social, cultural, and economic problems. They suggest games and digital media have significantly altered the learning landscape allowing people to pursue their own special trajectory – with tremendous, but largely ignored, consequences for education. Similarly, in a literature review of gaming in education, games are described as opportunities to provide personalized learning opportunities (McClarty *et al.*, 2012). However, the review provides limited empirical evidence for how this might occur. For example, the authors suggest games allow teachers to understand students'

strengths and weaknesses, scaffold learning and offer engaging curricular choices, and then point to games as conduits for personalized or interest-based learning, but they provide little evidence of actual students' gaming experiences to inform what might be done.

In the sections below, a study is detailed describing the perspectives of seven university students regarding video game playing and media production. Six primary themes from the qualitative data collection and analysis are discussed. The paper concludes with limitations and final thoughts.

The study

Since media production is increasingly valued as an expression of literacy and considered an important means of preparing students in the twenty-first century (Peppler and Kafai, 2007; Gee, 2009), understanding the potential of game play toward media production may offer insight into how to provide interest-driven approaches to learning, and effective ways to enhance deeper learning experiences. This study draws on the work of Gee and Hayes (2010) and adds to the literature on productive play, in which individuals' goals are advanced based on their interest and creativity at the intersection of work and play. To that end, the research provides an in-depth look at the relationship between gameplay and media production from the perspective of seven young adults who trace their trajectory from youth to early adulthood. Our central question was, "Has video-game playing impacted your media production?" Specifically, we sought to explore if they believed the introduction of video game play in their lives influenced their production habits or career goals.

Research approach

This exploratory, qualitative study was approached through a questionnaire, followed by semi-structured questions and interviews (Merriam, 2009), allowing us to analyze the relationship between game play and media production, the phenomena we wished to understand and describe. Data were collected from individuals who shared this common experience and self-identified as video game players and media producers. Qualitative inquiry was used to investigate "how people interpret their worlds, how they construct their worlds, and what meaning they attribute to their experiences" (Merriam, 2009, p. 5); in this case how students engaging in producing media interpreted whether their current production is attributed to their game-playing experiences.

Participants

Seven students at a university in the Southeastern US enrolled in four different program areas (computer science, education, communications, and engineering) were recruited for the study. All were chosen because they spent significant time in the University's media labs and self-identified as passionate about, and deeply involved in producing media. Their common media production habits included: digital music mixing and production, webcomics, fanfiction, fan art, instructional video creation, and designing games. Participants were between the ages of 19 and 24; two were graduate students, the other five were undergraduates. Most came from middle class families with two-parent households, one student reported their household income below $25,000, one reported a household income above $100,000 while growing up, and all had siblings. None of the students perceived their parents as media producers. Six of the seven participants had parents who imposed limits on time spent playing games in childhood, with one participant stating his father really "hated" video games. Table I provides information concerning reported time spent playing games in elementary school, high school, and college.

Data collection

Data were collected via a questionnaire aimed at understanding participants' demographics, early experiences with game playing and media production, enjoyment of games, perspectives toward the influence of games and current media production, and beliefs about the influence of game play and media production for career or life goals. The questionnaire consisted of 43 open-ended questions, which informed questions for follow-up interviews. A Google Hangout facilitated a full-group interview with nine additional questions formulated to extend their responses, probing further about game play and media production habits. The interview was recorded and transcribed. Finally, follow-up e-mails invited participants to clarify information, and share links or artifacts to their current work. All seven participated in both surveys and the Google Hangout, six of the seven participated in the e-mail exchanges and provided artifacts (embedded images, video, links to websites), including written narration explaining the examples of their media production.

Data analysis

Following the steps of qualitative data analysis, three researchers used open coding, which were then grouped into "analytical codes" to interpret the data and highlight categories (Merriam, 2009, p. 180). This provided an initial understanding of how the participants experienced game play and media production in their lives. Next, each researcher developed categorical codes or "clusters of meaning" (Creswell, 2007, p. 61) from the data, which were used to write a description of themes tied to participants' experiences. Nvivo was used by two of the researchers to identify, sort, and code themes, the third researcher read, winnowed, and sorted data into themes manually. Consensus regarding themes from clusters of meaning identified participants' perceptions of: game play preferences, persistence, early connections between game play and media production, support systems and feedback, media creation, and significance of games in their current life.

Main themes are highlighted as we recreate the essence of "how and why" these individuals believe video game play influenced their media production, referring to them collectively as "media producers."

Game play preferences

Affinity for fiction. The media producers stated that they preferred games encompassing adventure, historical fiction, science fiction, role-playing, or fantasy while growing up. Six of the seven participants mentioned enjoying the genres of role-playing and platforming games, wanting to "put themselves in the character's shoes." The same six participants owned multiple gaming consoles, with the one participant, "Krista" (all names are pseudonyms) only owning and gaming on a PC. When asked to rate the importance of the genre to the enjoyment of games on a "scale of 1-10," again the six console gamers rated the genre as highly important, assigning an 8, 9, or 10, and Krista rated the genre as a "3."

Table I. Participant reported hours per day spent on game play

Participant	Degree sought	Elementary school	High school	College
Destiny	Computer Science BS	2-3 hours	2-3 hours	6-7 hours
Riley	Computer Science BS	2-3 hours	4-5 hours	2-3 hours
Arnie	Counseling Education MA	1 hour	4-5 hours	2-3 hours
James	Computer Science BA	4-5 hours	2-3 hours	1 hour
LouAnn	Human-Centered Computing PhD	2-3 hours	2-3 hours	2-3 hours
Alex	Communications BA	4-5 hours	4-5 hours	4-5 hours
Krista	Engineering PhD	2-3 hours	2-3 hours	2-3 hours

Fantasy, role-playing, and immersion. Asking participants to simply talk about their favorite games or series growing up, six mentioned games with deep narrative storylines such as Final Fantasy (Squaresoft, 1997) Blizzard games, Zelda (Nintendo, 1986), and Half-Life (Sierra Studios, 1998). One mentioned enjoying MECC (1973) adventure games such as Oregon and Amazon Trail. Most of the games mentioned were in the "high-fantasy" or "science-fiction" genre, meaning they included magic or non-existent technology such as flying pirate ships or light sabers. When asked to specify favorite games when growing up, all of the media producers, without direct prompting, discussed researching a particular game's development, and the feelings and skills the games evoked. For example, Destiny suggested she was "hooked on the Final Fantasy franchise" (Square Enix, 2015) and admired the sole composer for the series as a "self-taught musician that I look up to"; Riley enjoyed Super Smash Bros. (Nintendo, 2014), Metroid (Nintendo, 2002), and Pokémon (The Pokémon Company, 1996) franchises saying "Pokeman singlehandedly motivated me to learn how to read when I first got it for the Gameboy." LouAnn stated that Final Fantasy 7 and 9 introduced her to "really deep story-telling and character connections." Krista suggested, a point and click adventure game, Spy Fox in Dry Cereal (Humongous Entertainment, 1997) had developers who understood "amusing dialogue and animations." All of the media producers said they enjoyed the same type of games now as they did growing up and while they branched out into newly released games they often followed the next generation of games by the same developer.

Persistence: fun, immersion, and completion

Five participants talked about escaping the real world, immersing themselves in fantasy, and feeling a sense of completion or accomplishment by "finishing a collection" (completing a series of games). All seven participants mentioned the importance of fun when asked why they currently gamed and suggested they would continue playing particular games if they had rich story lines, were highly interactive and had well-developed characters. The media producers discussed the amount of development that went into producing a good game making statements such as:

> I think the reason I like them (referring to Super Mario Brothers, Zelda, and Halo) the most was because of the amount of development that was put into making them good games. Poorly architected games were clear when you played them. The online multiplayer component and competitiveness – being able to beat people in fights or game play or character statistics - that was great, too.

They believed certain game mechanics increased their persistence and allowed them to escape by becoming totally immersed in the game. One participant noted gaming allowed her to take "a vacation to the game worlds in my living room anytime I wanted," and another said she played pretend with her sister while fully immersed in game play. Leveling up, solving puzzles and taking on increasingly difficult challenges were cited as enjoyable and not tedious.

Early connections between game play and media production

Interestingly, the majority of media producers pointed to particular types of media embedded within their favorite childhood games when asked why specific games became their favorites. They mentioned the games graphics, music, well-developed worlds or artwork. To illuminate understanding, we provide transcribed data from two of the participants. When talking about the Metroid franchise, a series of 11 science-fiction games played on the Gameboy, Riley stated:

> Looking back on it, and replaying it within the last year, I think what kept bringing me back was the immersive and open environment that I could explore. The pixel artwork was very detailed, and the music and sound design really drew me in. Car trips to the beach and mountains would blur by

> and all I remember of that time are the cool, metal walls of the Biologic Space Laboratories. By the time I played Half-Life 2 (Sierra Entertainment, 2004), I had played a lot of good and mediocre shooters. Half-Life 2 blew my mind because, like Metroid: Fusion, it was very immersive and structured itself differently from most shooters I'd played. In many cases, I was either given a very short, paragraph length briefing on why I was either sneaking into this building or storming this village to shoot dudes, or given a more informative but immersion breaking cutscene.

James stated:

> As for Zelda, my friends liked it and I thought it was cool, though until recently I've never been very good at them, however, Zelda's world and designs helped spark a love for fantasy settings and characters, which show up prevalently in my work. Earthbound (Nintendo, 1994) hit home with my deep seated love of cartoons and silly games, and influenced that side of art.

Support and feedback

Five of the seven participants talked in great detail about the social aspect of gaming playing with friends, other gamers, or while exploring and conquering fantastical worlds. They expressed feelings of social support whether playing with or against "friends" making statements such as, "I enjoy being able to beat people I *like* […] and totally destroying them was great, too." "I made friends over video games, and still do," "I played with a cast of exciting and interesting characters who would talk to me and make me feel important," and "I've connected with a lot of amazing people through them, and many an hour has been spent going over experiences in games or story lines or characters."

Participation in online gaming communities was mixed among the seven participants; three participated in gaming communities related their play such as Steam (http://steamcommunity.com/), massively multiplayer online forums, and The Art of Warfare (www.taw.net). Although we asked exclusively about gaming, many referred to games as the connection to particular online communities related to media production. For example, Arnie talked about his significant participation creating music for Abelton (www.ableton.com/), LouAnn mentioned art communities such as DeviantArt (www.deviantart.com/), and Furaffinity (www.furaffinity.net/), and Riley discussed co-hosting a monthly online video talk show in support of game development.

School was not considered a primary support, and in some cases not even a secondary support for media creation. Riley and James created and shared music and artwork online; Arnie was heavily involved in music programs at school, yet his network to share his compositions existed outside of school; Alex saw his best, most creative writing as unencumbered outside of school; and LouAnn felt largely misunderstood by her teachers, writing fanfiction and creating anime for her internet fans. At the university level, few of their skills were recognized in coursework other than a few specialized classes using 3D modeling or game design modding.

Media production: creations inspired by games

All seven of the participants believed most of their current creations were inspired by video games, often having been played years ago. Destiny said all but two or three of her songs were inspired by Final Fantasy and Super Nintendo games, in particular the game Aero the Acro-Bat (Sunsoft, 1993); Riley drew fan art inspired by StarFox (Nintendo, 1993) and other short platforming games; Arnie, who designed graffiti art and music, believed the biggest contribution game play had was in his interpretation of what was aesthetically pleasing; Krista wrote several fanfictions and drew hundreds of fan art characters based on various games; LouAnn suggested almost every drawing and animation she created came from video game play (she was also heavily involved in cosplay, a subculture promoting costuming and role play with particular characters); Alex said much of his fiction

writing is inspired by video games. James provided a trajectory of game-play inspired media production saying:

> [Games inspired] pretty much every doodle in elementary, sketches in middle school, more complex works in high school and college. When I started on deviant art, I only did Earthbound drawings pretty much - 2D drawings in flash, 3D renderings in blender of pseudo N64 graphics […] then I moved on to an idea of my own that I never did anything with (hey I was like, what, 13?). Then more complex 3D pictures, 2D digitals in photoshop […] then I moved on to other games like Kirby, Zelda, and Mario, etc. On YouTube, I have a channel dedicated to direct transcriptions of Earthbound and other songs. As for more original works, any character I create I automatically think, "Could I put this in a game sometime down the road?" When I was in elementary school, I tried to come up with a game idea, creating characters and a whole world - I was a very ambitious child. As I got older, I did a choral arrangement of the song "wisdom of the world" from the Earthbound series, and a transcription of the barbershop rendition of "God Only Knows" from Bioshock infinite.

Significance of games and media in their current life

The media producers unequivocally believed video games were important in their current lives, but not simply for fun, social bonding, or challenge. Six of the seven participants stated game play was important for ongoing inspiration to guide their media production. Depending on their interests, they believed games continued to influence the art they drew, the songs they composed, the stories they wrote, the videos they made, and the character or role-playing groups they engaged with. They mentioned passion, the need for creative expression, occasional profit, and promoting a sense of happiness as reasons for their continued productivity. Their current media production included: working on music for an Android App a friend was releasing, producing an album, creating a "logo series" using Adobe Illustrator (www.adobe.com/products/illustrator.html), drawing comics for a writer, drawing character-expression art for Dungeons & Dragons, and transcribing the orchestra parts of Pink Floyd's, The Trail. Many of them noted they were occasionally approached and paid for their current work, usually by friends or someone who had viewed their work online. Alex said, "They inspire me to write stories. My inspiration for becoming a writer came from seeing the great worlds created in video games, and I desired to recreate that in writing," and James spoke in depth about the continuing influence of games to engaging with other forms of media saying, "If it wasn't for games, I wouldn't have drawn as much or got into wanting to make music, or got into pretending so much as a kid." Many were eager to share their current productions; screenshots from three of the media producers are below (Figures 1-3).

"Dr. Dre"

Figure 1.
Screenshot of comic created by James

Figure 2.
Screenshot of album cover art designed by Riley

Figure 3.
Screenshot of 3D spider art

Aspirations: perceived influence on their future. The media producers are currently making media and believe they will continue to make media in the future as either a hobby or career. Lack of time or energy, time management, the capacity to learn new programs, at times, keeps them from producing as much as they would like. Three of the seven saw game-play as integral to the career that they wanted in gaming industry, however three others mentioned game-play inspired careers unrelated to a gaming career. LouAnn, Riley, and Destiny hoped to work in the game design industry with three separate interests: writing narratives, mixing soundtracks, and programming games. Riley was also considering a career in writing soundtracks for television or movies. James wanted a career in animation that focused on voice-acting or 3D modeling. Alex said he wanted a career in what he loved, and what was inspired by games – writing for digital newspaper or a magazine. Krista said her dream job was to be a voice actor on animated movies even though her degree was in engineering with a minor in Japanese. Arnie saw media production continuing to influence his hobbies but did not know if it would greatly influence in his planned future as an administrator in higher education. Interestingly, four participants said that without the influence of video games they do not know what they would be doing on their "life track."

The media producers offered thoughts regarding why some produce more media than others. Most of them believed their need to be creative was something they developed at a young age, and three of them pointed to "fear" as the reason why some choose not to create media. Riley said some people were afraid to write (his passion), Alex suggested it was

"fear of the unknown" citing the internet as an "open door for experimentation with digital media and an overwhelming number of resources," and Arnie commented that the competition, especially with crowd-funding was so fierce that it scared amateurs off.

Discussion

As evidenced in the discussion of the themes, the media producers were more likely to persist at playing games offering fantasy worlds, role-play, or interaction with characters and other players through action and adventure. They believed the immersive experiences provided support, fun, "an escape," and challenge, impacting perseverance in which they completed long games or in some cases entire series. These findings add to the large body of literature suggesting game elements influence players' persistence and motivation (Cole and Griffiths, 2007; Gee, 2007). Emerging from this research was evidence that most of the young gamers were drawn to types of media present within games (graphics, music, artwork) at young ages, and this exposure inspired them to produce similar types of media extending many years into the future; all of the media producers pointed to the strong influence of gameplay to their current production. Furthermore (as demonstrated in James' detailed account) some of the media producers became interested in creating various forms of media, but then continued refining and learning more sophisticated ways to use the medium. These findings confirm the work of Gee and Hayes (2010) implying that early experiences with gameplay could shape the trajectory of media production (interests and products) and in some instances influence interest in particular careers. The study points to two significant ideas, detailed in the following sections that may impact pedagogical approaches with media in K-12 and higher education settings.

Games as conduits to interest-based or personalized learning

The inarguable value the media producers placed on game play to pique their interests, provide a means of socialization and support, and facilitate a means of escape is not a novel finding, but instead consistent with research across fields (Callega, 2010; Gee, 2007; Granic *et al.*, 2014). What is significant are findings suggesting particular games captured the media producers' attention and then persisted with various types of media that were first appealing, and then became the focus of their work for years to come, in many cases the influence has persisted for more than a decade. The media producers pointed to particular games capturing their imagination, inspiring them to take on roles, write stories, draw, and create music. Somewhat different than prior research (Gee and Hayes, 2010; Ochsner, 2013), the production was not necessarily tied to modding a game, or creating artifacts or fanfiction around the game. This finding affirms studies pointing to games as motivators, which can serve to increase self-esteem (Ke and Grabowski, 2007), and suggests this same motivation and confidence may extend to media production. Findings also demonstrate a clear chasm between the media producers' interest and perceived value of their game play and creations, and lack of recognition and support in school (at all levels) for these activities. Supportive networks were formed on their own accord outside of school, which increased their motivation to develop skills. Since both gaming and media production skills can hone valuable literacies (Gee, 2009), this implies that educators in K-12 and higher education may draw on game play preferences, or specific game genres important to individuals as a starting point to personalize learning. This sort of personalization may engage students by connecting learning in and out of school, narrowing the chasm.

One pedagogical approach might include surveying students and hosting discussions to first define gaming and media interests, followed by applying natural connections in course goals or content to game narratives, and then allowing students a choice in how to approach problem solving. Curriculum delivery, in this case, would be far more learner-centered and differentiated. It would also entail instructors understanding problems posed in games and their relationship to content. Media production could be approached in a similar manner, tying

the game play and content or inquiry to problem solving with solutions demonstrated through preferred media creation. For example, in a history course, students who play the game Civilization (1991) and enjoy graphic design might apply game play encounters and knowledge of societal achievements in culture and science to course content, and then use graphic design (i.e. 2D or 3D renderings in Adobe Illustrator) showing solutions to issues faced by ancient civilizations. Differing from previous approaches toward integrating gaming and media production, this tactic honors the preferences and skills of individual students. Conceivably, understanding learners gaming interests and connecting them to thoughtful media production may entice learners to hone multiliteracies, giving them a voice (Soep, 2007) and fostering a sense of well-being (Anderson and Rainie, 2012) while promoting learning.

Connecting game play and media production to careers

Importantly, this study demonstrated that game play could influence career paths, including aspirations outside of the game design industry. Six of the seven participants discussed the strong connection between game play as a primary influence of their media production, which in turn influenced their career paths. Early experiences with game narratives, design elements, and soundtracks were identified as highly appealing by the young adults and created a desire to increase skill development and production. This often translated to honing more complex practices with 3D modeling, computer animation, photo editing, video editing, music composition, and audio platforms. Again, support for refining the skills occurred primarily outside of school with the exception of a few computer science courses teaching 3D modeling skills; the main reinforcement to continue their work occurred through online critique and feedback. Akin to Ochsner's (2013) findings, the study reinforces that participation in interest-based communities of practice combined with formal education may motivate and enable participants to consider, and then reach career goals. This finding implies two ideas: there is value in relating game play and media design experiences to assist learners in developing career goals, and educators, like students in this study, should connect complex media production skills to jobs.

It also raises the question of whether middle, secondary, and post-secondary educators might offer additional support mechanisms to reinforce work shared in online communities, and whether these support mechanisms might further assist students in career choices. A useful tactic might include educators exploring their students' game play interests, connecting those interests to media production, and then guiding students to consider a wider range of careers. In this way, educators and their students might capitalize on games capacity to inspire, articulate, and then shape professional identities (Ochsner, 2013), while further legitimizing skills that occur outside of formal education.

Limitations and future research

There are limitations of this research that should be noted. First, the small sample size limits the generalizability of the findings, as does the participant pool. Enrollment in higher education degree programs is not the norm for all gamers creating complex media and may have influenced current opportunities for media production. Second, to a large extent the data relied on self-reporting and reflects what participants choose to share. Finally, we acknowledge the possibility of confirmation bias (Nickerson, 1998) as interest in this study originated from our existing beliefs about game play and "noticing" students creating media, this may have influenced how we theorized our hypothesis.

Nevertheless, this study lays the groundwork for future research with larger, more diverse populations of gamers. Future research may seek to understand educators and employers perspectives of game play and media production toward skill development, and career trajectories. In this way, researchers can better understand and facilitate sustainable approaches leveraging game play and media design in school.

Final thought

A significant hurdle to connecting game play, media production and twenty-first century skill development in classrooms is undoubtedly educators' ability to conceptualize support this sort of personalized, media-focused learning. This research offers a deeper understanding of "who" these media producers are, and the potential to tie games to important types of learning and their futures. This is significant as currently using games to personalize learning or influence career paths is not prevalent in the literature. The parting words of the media producers during a final interview sums up the significance of offering opportunities to create media. When asked their views regarding what was common among all media producers, they all emphatically agreed it was "the love," "the itch," "the passion," "the drive," and "the intrinsic animalistic kind of quality that is ingrained where you want to create, you want to produce, you want to make things." Fostering this thirst for learning in education through interest-driven approaches, drawn from game play, and offering rich learning environment using media creation may benefit today's learners and tomorrow's careers.

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Further reading

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