"Hey! Listen!": Video Game Dialogue, Integrative Complexity and the Perception of Quality

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Abstract

As a research variable, integrative complexity has a long, well-documented history as a predictor and correlate for real-world phenomenon (for example, Conway, Suedfeld, & Tetlock, 2001 for a discussion on integrative complexity and war). Recently, McCullough & Conway (2017a) displayed the variable's viability in the understanding of pop cultural domains. The present study builds upon this previous research and explores potential complexity differences between winning and losing video games at the Spike Video Game Awards. It compared the integrative complexity of a sample of video game dialogue for three categories (Best Shooter, Best RPG and Best Action/Adventure). Originally, individual ANOVAs revealed significant main effects for only the integrative and dialectical complexity for the Best Shooter category. An ad-hoc ANOVA of all three categories revealed similar results; however, across all analyses a consistent mean pattern emerged: The winning games averaged lower complexity scores than the losing games. These findings suggest a general association between simplistic dialogue and high-quality video games, providing keen insight into the underlying psychology of video games, and establishes a strong foundation for future research.

Keywords

integrative complexity; video games; Spike Video Game Awards

Introduction

Integrative complexity is a linguistic variable and measures the levels of differentiation and integration within a written work. As Wasike (2017) describes, "Differentiation refers to the articulation of a variety of message attributions within rhetorical material … while integration refers to the consolidation and articulation of the interconnectedness of these attributes in a meaningful manner" (p. 2). This means a complex writer addresses various viewpoints of an issue and meaningfully illustrates their connections, while a simplistic writer does not (for more detail, see Baker-Brown et al., 1992). Integrative complexity has a well-established history as a predictor and correlate: For examples, integrative complexity is predictive of the outcomes of political elections (Conway et al, 2012), if countries are going to war (Conway, Suedfeld & Tetlock, 2001; Suedfeld, Leighton & Conway, 2005) and the success of revolutionary leaders (Suedfeld & Rank, 1976).

The following study utilizes integrative complexity to begin exploring the underlying psychology that governs the perception of video game quality. Why use integrative complexity to study video games? According to McCullough & Conway (2017b), "linguistic measurements, in general, can provide a potential window into the behind-the-scenes psychology of the human experience" (p. 2). Linguistic analysis is an established aspect of game studies: For examples, Purnomo et al (2016) uses ludic linguistics to analyze the preferences and patterns in three narrative-gameplay driven games, and Copeland (2017) analyzes the specialized languages used in fantasy role-playing games. However, integrative complexity's dominant strength is its ability to evaluate the basic structures of paragraphs instead of its contents, providing inimitable insights into the psychological process that are not impelled by explicit forces (see Conway et al., 2014).

As seen in the aforementioned examples, historically-speaking, integrative complexity has primarily fallen under the domain of political psychology, but recently, McCullough & Conway (2017a) broke this pattern and applied it one aspect of the pop cultural landscape – the film award season. This particular study compared and contrasted the complexity of dialogue from films that won at the Oscars, Golden Globes and People's Choice Awards against the complexity of the films that while nominated, did not win and found a strong difference between the dialogue of films that ultimately won and the dialogue of the other films: The winning films exhibited consistently lower complexity scores than the other nominees. Their "results demonstrate that integrative complexity meaningful predicts movie success in major awards" (McCullough & Conway, 2017a, p. 5). As such, their article presents integrative complexity's strong potential as a viable variable outside political psychology and especially displays its value in terms of pop cultural research.

As such, the present study in many ways builds upon the work of McCullough & Conway (2017a) by applying integrative complexity's strength as a correlate to another pop cultural domain – video games. Like film, video games currently signify a cornerstone of popular and mainstream culture. According to the Entertainment Software Association (2015), 155 million Americans play videogames. Moreover,

ESPN now features broadcasts about professional video gaming (Schreier, 2015) alongside broadcasts about football, baseball and basketball, and media juggernauts like Time, New York Times, Entertainment Weekly and Empire award the title of Game of the Year to the video game they believe represent the pinnacle of video gaming each year.

Specifically, this study analyzes integrative complexity's role in the Spike Video Game Awards. More specifically, the present study seeks to determine if there is a complexity difference between the video games that won at the Spike Video Game Awards and the other games that were nominated but did not ultimately win.

What is Integrative Complexity?

As stated previously, integrative complexity is a linguistic variable and is defined as a person's proficiency in differentiating between the pertinent but discrete standpoints of a problem or issue and, at advanced levels, the proficiency in integrating said standpoints in some coherent and lucid manner (Suedfeld & Tetlock, 1977; see also Baker-Brown et al., 1992). It also has two subtypes – dialectical and elaborative. According to Conway et al. (2008) and Houck et al. (2014), dialectical complexity happens when discussion of a subject or issue is performed in a broad manner, assessing said subject from many distinct outlooks. Oppositely, elaborative complexity occurs when a solitary subject or issue is explored in a complex manner. Integrative complexity can be applied to any written or transcribed work.

Integrative complexity is scored on a scale of one to seven with one indicating low levels or differentiation and integration and seven indicating high levels of both. Traditionally, integrative complexity research has been accomplished through the use of certified human coders. More recently, however, Conway et al (2014) and Houck et al (2014) introduced the Automated Integrative Complexity, a computer program that has been widely-authenticated as a measurement of integrative complexity, which shows appreciably higher computer-to-human consistency than other currently available integrative complexity scoring programs. The program works by scoring each selected block of material (in this case, pieces of dialogue) on the same one-to-seven scale used by human-scorers. It estimates integrative complexity scores for each block by assigning words or phrases based on their empirical probability of appearing in complex passages. Functioning under the same logic, the program computes complexity scores for dialectical and elaborative Complexity as well.

Furthermore, not only has Automated Integrative Complexity been used as a predictive research tool in political contexts (e.g., Houck et al., 2017), McCullough & Conway (2017a) and McCullough & Conway (2017b) show the system's viability as a tool in the exploration and understanding of complexity in the pop culture context.

Integrative Complexity and Video Games: Expectations and Hypothesis

Based on the results of the McCullough & Conway (2017a), it seems logical to expect lower complexity to be correlated with winning and

higher complexity to be correlated with losing in the context of the Spike Video Game Awards. Furthermore, McCullough & Conway (2017a) is not the only previous piece of complexity research that supports this expectation. Typically-speaking, people favor simplicity over complexity. As Conway et al (2012) explains, "people seem to like simplicity. Simplicity requires less effort to both produce and understand than complexity; simplicity is reassuring; simplicity motivates us to action" (p. 600). Other contexts where simplicity is seemingly preferred are academic publications (McCullough, 2018), political leadership (Tetlock, 1984) and elections (Thoemass & Conway, 2007).

As such, the below exploration functions under the hypothesis that the video games that won at the Spike Video Game Awards will score significantly lower in regards to integrative complexity than the video games that did not win; however, it is important to note that this exploration is a rather novel application of integrative complexity as a variable. Integrative complexity has never before been employed in the context of video games or video game award outcomes, and while there are similarities between films and video games, they are not perfect analogues. As Veale (2012) writes, "videogames and cinema are both visually centered experiences and this shared trait came to dominate much of the discourse surrounding games" (para. 4); however, "it is [the] key difference in engagement which is why film and games are conceptually difficult to bridge" (para. 6). It is entirely possible that the general perception of quality is inherently discrete across these two mediums. As such, the possibility of lower complexity being associated with losing in this respective context is a very real, potential actuality.

Methods

The Spike Video Awards

The Spike Video Game Awards were a video game award show that was produced by Geoff Keighley. It focused around recognizing and awarding the best computer and video games of the year, establishing and advertising itself as an authority on the quality of video games (Spike TV, 2012). This intent is apparent in the names of the Spike Video Game Awards' categories (Best Shooter, Best Wii Game, Best Handheld Game, Best Original Score, etc.).

Despite ending in 2013, the Spike Video Game Awards were chosen as the platform for comparison because unlike the many other video game awards, the Spike Video Game Awards follow the traditional award show format. Instead of simply declaring a winner without context, the Spike Video Game Awards utilizes the nomination process for each of its categories. This format provides an easy, condensed means of comparison (winners vs losers) as opposed to comparing the winning games against the entirety of all other video games released the same year.

Sample of Video Games

While the Spike Video Game Awards feature a large number of diverse categories, only three categories – Best Shooter, Best RPG, Best Action/Adventure – were selected for use in this study. These particular categories were selected because all of the video games in these categories, both winning and losing games, featured and utilized

dialogue to a substantial degree (a necessity for the application of integrative complexity), all of the video games featured an English-dubbed version of the games, and the categories themselves represent some of the most popular and most profitable video game genres (Entertainment Software Association, 2015).

Sampled Video Games from The Spike Video Game Awards			
Category	Year	Winning Games	Losing Games
Best Shooter	2008	*Gears of War 2*	*Far Cry 2, Resistance 2, Left 4 Dead*
	2010	*Call of Duty: Black Ops*	*Bioshock 2, Halo: Reach, Battlefield: Bad Company 2*
	2011	*Call of Duty: Modern Warfare*	*RAGE, Gears of War 3, Battlefield 3*
	2013	*Bioshock Infinite*	*Battlefield 4, Call of Duty: Ghosts, Metro: Last Light*
Best RPG	2008	*Fallout 3*	*Fable II, Warhammer Online: Age of Reckoning, The World Ends with You*
	2010	*Mass Effect 2*	*Fable III, Fallout: New Vegas, Final Fantasy XIII*
	2011	*Skyrim*	*Dark Souls, Deus Ex: Human, Revolution, Dragon Age II*
	2013	*Ni No Kuni: Wrath of the White Witch*	*Pokemon X/Y, Final Fantasy XIV: A Realm Reborn, Fire Emblem: Awakening*
Best Action/ Adventure	2008	*Grand Theft Auto IV*	*Dead Space, Mirror's Edge, Metal Gear Solid 4*
	2010	*Assassin's Creed: Brotherhood*	*Super Mario Galaxy 2, Gods of War III, Red Dead Redemption*
	2011	*Batman: Arkham City*	*Assassin's Creed: Revelations, Legend of Zelda: Skyward Sword, Uncharted 3*
	2013	*Assassin's Creed:*	*The Last of Us, Tomb Raider, Grand Theft Auto V*

Table 1. List of sampled video games grouped by category and year.

An online random number generator randomly selected four years between 2003 and 2013 – 2008, 2010, 2011 and 2013 – in order to determine the actual sample of video games. The games from each year were split into two groups – the Winners, the games that ultimately

won, and the Losers, the other nominees. For a complete list of video games utilized in this study, please see Table 1.

Selecting Scored Materials and Scoring for Complexity

From each of the relevant video game, a sample of dialogue was collected for scoring purposes. To be considered, the individual pieces of dialogue needed to be at least three sentences in length but no longer than a paragraph. Per category, a total of 96 individual pieces of randomly selected dialogue, split evenly between the two groups, were transcribed and collected for each group. More specifically, 48 pieces of dialogue were collected and transcribed for the winners and 48 pieces of dialogue were collected and transcribed for the losers. These number was equally divided amongst the total number of games in each group and year. The pieces of game dialogue were the scored for complexity using Automated Integrative Complexity (Conway et al., 2014) with scores also calculated for dialectical and elaborative complexity (see Houck et al., 2014).

Results

Individual one-way analyses of variance (ANOVAs) for each category revealed significant main effects for integrative complexity and dialectical complexity for the Best Shooter category only (Integrative Complexity $F[1,95] = 5.665$, $p < .019$; Dialectical Complexity $F[1, 95] = 6.481$, $p < .013$). Aligning with expectations, the winning games scored lower across all three types of complexity (Integrative Complexity Winning M = 1.19, Losing M = 1.44; Dialectical Complexity Winning M = 1.11, Losing M = 1.33; Elaborative Complexity Winning M = 1.10, Losing M = 1.11). Please see Figure 1.

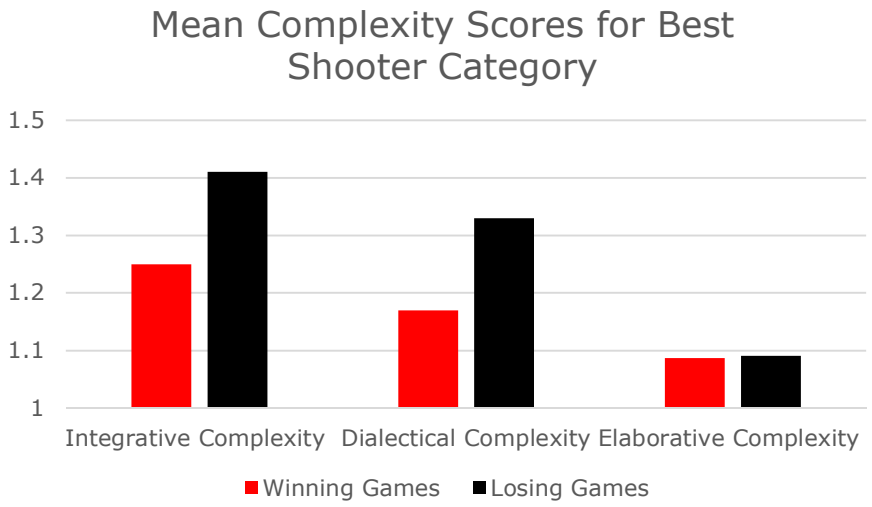

Figure 1. Mean scores for the Best Shooter Category – Integrative Complexity Winning M = 1.19, Losing M = 1.44; Dialectical Complexity Winning M = 1.11, Losing M = 1.33; Elaborative Complexity Winning M = 1.10, Losing M = 1.11.

Neither the Best RPG category and Best Action/Adventure category achieved statistical significance for any type of complexity ($p < .28$); however, mean patterns consistent with those seen in the Best Shooter category emerged. The mean complexity scores for the winning games

for Best RPG and Best Action/Adventure were generally lower than the losing games' mean complexity scores. Only the elaborative complexity for Best RPG showed equal scores between the two groups (Winning M = 1.05, Losing M = 1.05). See Figures 2 and 3.

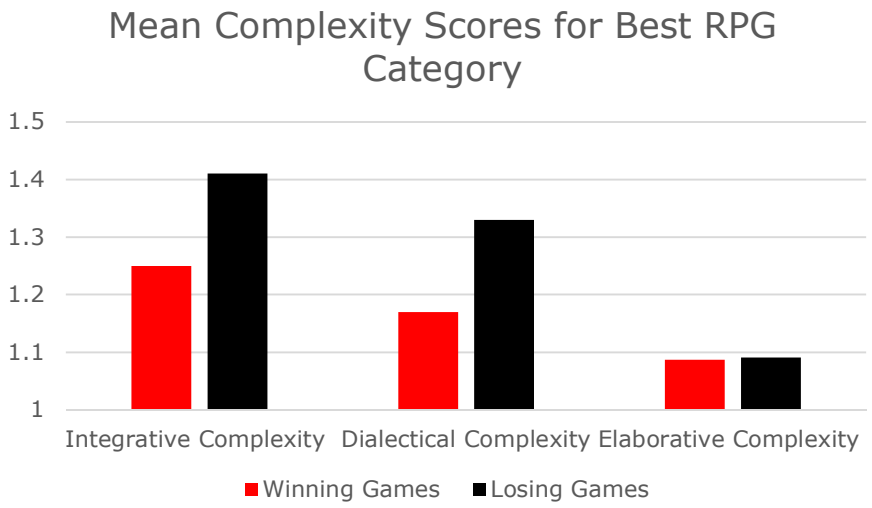

Figure 2. Mean scores for the Best RPG Category – Integrative Complexity Winning M = 1.21, Losing M = 1.31; Dialectical Complexity Winning M = 1.18, Losing M = 1.27, Elaborative Complexity Winning M = 1.05, Losing M = 1.05.

Obviously, these results are not wholly clean-cut. Significant main effects were not found in each case; however, the mean scores revealed conspicuous constancy in direction across most categories: Winners scored lower in complexity than losers, more often than not. Thus, to get a more general sense of the probability that the mean pattern was due to sampling error, an additional ad hoc ANOVA was conducted to test the entire sample of video games as a single dataset.

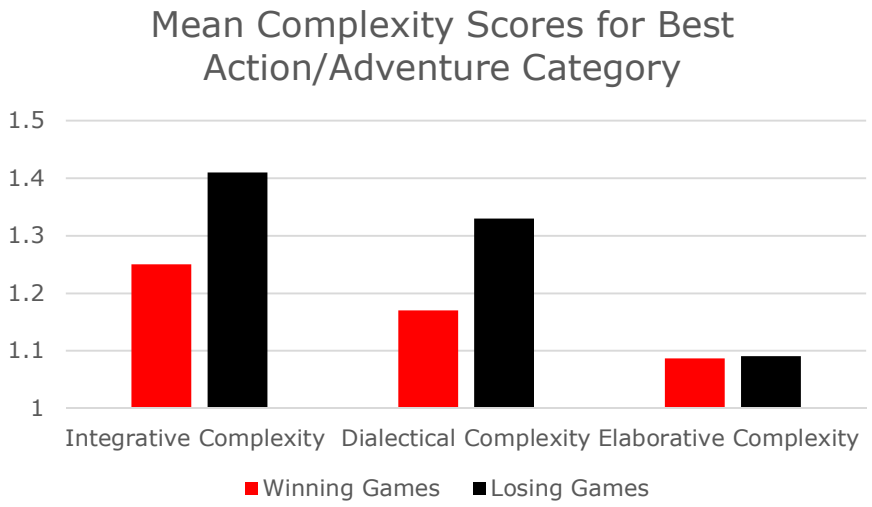

Figure 3. Mean scores for the Best Action/Adventure Category – Integrative Complexity Winning M = 1.36, Losing M = 1.47; Dialectical Complexity Winning M = 1.24, Losing M = 1.38; Elaborative Complexity Winning M = 1.10, Losing M = 1.11.

When all three categories were combined, a one-way ANOVA revealed parallel findings with the Best Shooter category. There were significant main effects for integrative complexity and dialectical complexity once again (Integrative Complexity $F[1,286] = 6.05$, $p < .014$; Dialectical Complexity $F[1,286] = 7.192$, $p < .008$) and the same mean pattern persisted: The winning video games scored lower across all three types of complexity (Integrative Complexity Winning M = 1.25, Losing M = 1.41; Dialectical Complexity Winning M = 1.17, Losing M = 1.33; Elaborative Complexity Winning M = 1.08, Losing = 1.09). See Figure 4.

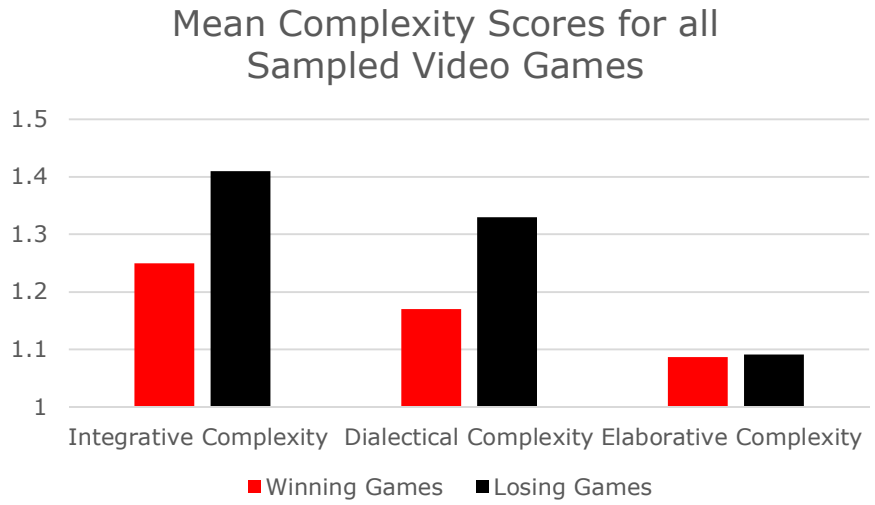

Figure 4. Mean scores for the ad hoc analysis, combining all three tested categories – Integrative Complexity Winning M = 1.25, Losing M = 1.41, Dialectical Complexity Winning M = 1.17, Losing M = 1.33; Elaborative Complexity Winning M = 1.087, Losing M = 1.091.

Across all analyses, word count did not have a significant or substantial moderating effect on the results.

General Discussion

First and foremost, these findings clearly show substantial differences in complexity between the winning games and the losing games. Aligning with the findings of McCullough and Conway (2017a), these findings clearly depict a general correlation between the higher levels of video game quality and the lower levels of integrative complexity. The existence of this correlation and its overarching consistency, while predicted, is still incredibly striking. McCullough & Conway (2017a) discusses how impressive its respective correlation between film and complexity. They write "given (a) the complex array of factors (many of which doubtless have nothing to do with complexity at all) that go into what makes a winning movie, and (b) the subtle, behind-the-scenes nature of the complexity construct itself, the consistency of this finding is impressive" (p. 5). Broadly speaking, the typical video games are the products of an even greater number of combined elements than the typical film. Alongside elements like narrative structure, sound, characters and – of course – discourse and dialogue, modern video game also incorporate unique elements like game play, active combat, multiple potential endings, interactivity and cheat codes as a few examples.

This correlation strongly suggests that the complexity of video game dialogue may exert stronger influence over video game success than a shallow reading might predict; however, it is important to remember that this study is both initial and preliminary in its scope and design, and as such, is bound by its inherent limitations. The following sections the overall implications of these finding along with their limitations and potential avenues for future research.

Implications

Obviously, the intention of the Spike Video Game Award is to reward the "best" video games of a single year. As mentioned previously, this mentality is clearly signposted in the very titles of the categories (Best Shooter, Best Wii Game, Best Handheld Game, Best Original Score, etc.). Based on this mentality, the question becomes what determines the perceptions of quality in video games. The above results provide one likely factor: It appears that generally higher-levels of video game quality are associated with lower levels of integrative complexity. Of course, at this point, it is impossible to determine the exact nature of that association. For example, lower levels of integrative complexity may cause players to perceive games more favorably or oppositely, game designers who create high-quality video games may simply produce more simplistic dialogue than other designers.

Furthermore, this study's respective sample of video games has implications for potential interpretations. Most notably, only video games that had been nominated for awards were scored and analyzed, meaning the sample only entailed video games that were already viewed positively, generally-speaking. No "bad" video games were utilized in this study. Assuming the accuracy of the above mean pattern, then it would be applicable across the complete continuum of video games. This supposed linear relationship would indicate that the dialogue in video games like *Ride to Hell: Retribution* (scored 16 on Metacritic) would score exceedingly high in terms of integrative complexity. However, currently, data from the lower end of the quality continuum has not been collected for comparison.

A linear relationship across the entire spectrum of video game quality is but one possible pattern that could explain the observed relationship. The relationship between integrative complexity and video game quality could also be a curvilinear relationship with the two extremes of the continuum scoring low in terms of complexity of the dialogue and the middle of the continuum scoring high. If that were the case, one would expect that the very best video game would score lower than those directly below it; but one would also expect the second-tier video games would score worse than those rated as of very poor quality. However, this study alone cannot directly determine the exact nature of the complexity-video game relationship across the entire spectrum of video game quality.

Elaborative Complexity

Across all sets of analysis, elaborative complexity never achieved statistical significance. Why is this? The answer may be the nature of video game design. According to Conway et al. (2008), elaborative complexity increases when "one should be especially likely to construct a complex defense of that singular perspective" (p. 1033), meaning that

it is likely to decrease when one considers multiple perspectives. The presence of choice likely increases the potential for the consideration of multiple perspectives, both on the gamer- and designer-level. According to Flannagan (2009), video games or, more specifically, "critical play means to create or occupy play environments and activities that represent one or more questions about aspects of human life. These questions can be abstract…or concrete" (p. 6).
These questions can manifest due to gameplay aspects like dialogue trees, open worlds and branching plotline or due to thematic or narrative elements. The existence of these questions challenge gamers and game designers to approach gaming in a multidimensional manner and likely result in the generally low levels of integrative complexity in both winning and losing video games.

Limitations

It is important to remember that the scope of this study was limited by design, only extending to the Spike Video Game Awards and, moreover, extending only to three of the twenty-plus categories featured within the show (for rationale, please see Methods section). As such, the concrete conclusions that can actually be drawn are equally limited in regards to the psychology of video game quality. In all actuality, it is possible this effect and associated mean pattern are limited strictly to the Best Shooter, Best RPG and Best Action/Adventure categories finitely, or only to the Spike Video Game Awards as a whole. Other video game awards or other quality-ranking systems may not intrinsically associate or correlate simplicity with high quality or the correlations may denote differing levels of strength or direction.

Moreover, this study is limited in terms of design in its inability to account for video games that function with complete lack or absence of dialogue as an aspect of its game play or mechanics (Tetris, for example). The three tested categories were specifically selected because they did not contain video games that were dialogue-null. This limitation, however, is slightly mitigated by the comparative ratio of video games with dialogue to video games without dialogue. There are substantially more video games with dialogue than without dialogue, particularly across the modern, mainstream video game landscape. This vast disparity in amount between these two types of video games, however, does not negate the existence of high-quality video games that do not feature dialogue nor undermine their importance or influence. Conceptualizing and advancing the findings of this study in order to account for dialogue-null video games is one potential avenue for future research. Other potential avenues for future research are discussed below.

Future Research

This study provides a strong starting point for future research endeavors into the psychology of quality perception in terms of its own merit and in context with McCullough & Conway (2017a): Both this study and McCullough & Conway (2017a) evaluate an aspect of pop culture (videogames and film) and both found correlations between lower levels of integrative complexity and higher levels of perceived quality. Broadly speaking, the most obvious manners in which future research can build upon this study are through a deeper exploration of the relationship between integrative complexity and video games and a wider

exploration of the relationship between integrative complexity and pop culture as a whole.

Video Games and Complexity

The effect discovered in this study may be strictly applicable only to the Spike Video Game Awards. In terms of the larger video game industry, the total number of video game awards extends beyond the Spike Video Game Awards: For examples, there are the Game of Year awards that are featured across many news and media publications (e.g. Time, Empire, Entertainment Weekly, etc.), the video game categories of the BAFTAs, and the relatively new Game Awards. Each of these is a potential point of exploration for future integrative complex research.

Moreover, video game awards are not the only indicators of quality in the video game industry. Critical, laymen and fan reviews, aggregated scores and overall sales are all examples of other valid indicators of quality for video and computer games. Investigating the role of integrative complexity for each of these individual indicators and for the collective impact of these indicators or discovering if this study's main effect is universally pertinent across indicators are also viable avenues for future research. In other words, does integrative complexity predict success in the case of all these indicators? If yes, what are the directions of the pattern of these predictions? And is there a consistent complexity pattern across the entirety of video game spectrum? These are research questions currently without answers, and answers to these questions would only assist the greater, overall understanding of the psychology of quality perception for video games.

Pop Culture and Complexity

Between this study and McCullough & Conway (2017a), a pattern has begun to emerge. Both of these studies analyze the connection between integrative complexity and success within two pop cultural domains (video games and film), and found in both contexts that simplicity was preferred; however, the findings of these two studies are not enough to prove the universal appeal of simplicity across pop culture as a whole, meriting more, deeper exploration. Furthermore, film and video games are not the only pop cultural domains. Combined, McCullough & Conway (2017a) and this study provide sufficient justification to expand the application of integrative complexity in other pop cultural domains.

Conclusion

This study is the first to apply integrative complexity to video games and tested potential complexity differences between the video games that won at the Spike Video Games awards and those that did not. It found that integrative simplicity is significantly correlated with a greater likelihood of winning: On the average, the games that won scored lower than the games that were only nominated. It is the responsibility of future research to continue building upon these findings and expand our collective understanding of the underlying psychology of both integrative complexity and video games.

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