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# Optimal Distinctiveness in the Console Video Game Industry: An Exemplar-Based Model of Proto-Category Evolution

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**Abstract.** In this paper, we develop an exemplar-based model of the emergence and evolution of proto-categories—new groupings of products that are only weakly entrenched but have the potential to become widely institutionalized—and examine how different positioning strategies of new entrants vis-à-vis the exemplar of a proto-category affect entrant performance. Empirically, we study the U.S. console video game industry where proto-categories frequently emerge and evolve around exemplary hit games. Analyzing a proprietary database of 6,544 games comprising 78 such proto-categories, we find that, in the early stages of proto-category emergence, conformity with the exemplar’s features is positively associated with new entrants’ sales. As a proto-category evolves, a moderate level of differentiation becomes important for enhancing sales. We also find that this temporal dynamic is driven by the changing competitive intensity in the proto-category and strongly mediated by critics’ reviews. Moreover, the mediating effect of critics’ reviews on entrant sales becomes increasingly salient with the evolution of a proto-category. Finally, we show that accounting for the influence of emerging prototypes does not diminish the explanatory power of the exemplar model we propose. We conclude the paper by discussing the implications of our findings for research on categorization and optimal distinctiveness.

**Keywords:** exemplar • strategic differentiation • optimal distinctiveness • categories • intermediary • video games

## Introduction

Categorization is a ubiquitous process that occurs across all social forms and levels of analysis (Bowker and Star 2000). It simplifies cognition by channeling the allocation of attention, enabling us to process vast amounts of information more quickly and efficiently (Rosch and Lloyd 1978). It also allows for social comparison of entities and helps define their identities (Glynn and Navis 2013). Not surprisingly, category membership has been shown to shape market competition and affect performance outcomes (Cattani et al. 2017b).

Early research on market categories and performance focused on the notion of “categorical imperative” (Zuckerman 1999), examining the consequences for individuals, products, and organizations that spanned categories (Hsu 2006, Zuckerman 2000, Zuckerman et al. 2003). This line of research was premised on the institutional theory emphasis on isomorphism (DiMaggio and Powell 1983) and centered around the notion of category prototypes (Rosch and Mervis 1975). Researchers documented that atypical entities—those deviating from a category’s prototype as measured by the average values of key category attributes (Posner and Keele 1968)—tended to suffer negative performance consequences (but see Pontikes 2012, Smith 2011).

While the prototype-based model has continued to have a major influence on category studies, its limitations have created blind spots in our understanding of categorization processes (Durand and Paoletta 2013, Glynn and Navis 2013, Kennedy and Fiss 2013). First, past studies based on the prototype model have focused primarily on established categories with clear boundaries. Part of the reason is that a clear prototype only emerges after a prolonged period of interaction and collective sense making among market participants and when categorical boundaries stabilize (Rosa et al. 1999). As such, while the prototype model is powerful in understanding performance consequences of fitting in versus deviating from established categorical expectations, it is ill suited to explain the dynamics of category emergence and evolution (Durand and Paoletta 2013). Second, in established categories and stable environments, a prototype simplifies pair-wise comparison by providing an important benchmark for social judgment and evaluation (Bowker and Star 2000). New product offerings are evaluated by their similarity and differences against the prototypical features (Deephouse 1999). However, in dynamic contexts, new categories constantly emerge and evolve, and prototypes are not yet available. It is unclear how audiences navigate the ambiguity associated with

emerging and evolving categories, gauge new offerings, and make purchasing decisions. As such, we know much less about how similarities and differences among new offerings are benchmarked, what strategic differentiation entails, and how it will affect performance outcomes of those new offerings.

To fill these knowledge gaps, we introduce the notion of proto-categories and develop an exemplar-based model to explain the dynamics of emergence and evolution of such categories. Drawing on the notion of proto-institutions (Lawrence et al. 2002), we define proto-categories as emergent groupings of products or novel practices that, while only weakly entrenched, can shape the attention and behavior of producers and consumers in a product market. If such novel practices or product forms associated with a proto-category become institutionalized, the proto-category may evolve to become a fully fledged category; otherwise, it may fizzle and, in retrospect, be better understood as a kind of fad or fashion (Abrahamson 1991). Compared with the prototype model, the exemplar model has two important merits in explaining the emergence and evolution of proto-categories. First, according to the exemplar model, the emergence of proto-categories starts with the formation of similarity clusters around exemplars—highly salient and successful product offerings (Hannan et al. 2007). In the context of proto-categories where uncertainty and ambiguity abound, exemplars provide tangible information cues regarding market demand, focalize attention of producers and consumers, and shape the trajectories of category evolution (Cohen and Basu 1987, Rosa et al. 1999, Strang and Macy 2001). Second, the exemplar model points to an important anchor of market participants' social evaluation in emerging and evolving proto-categories. In the absence of an established prototype, exemplars form the basis for judging conformity and differentiation of new product offerings. In particular, the core features of exemplars help define and delineate a provisional category boundary upon which category membership is judged (Nosofsky and Palmeri 1997, Smith 2014). At the same time, the boundary of a proto-category is inherently in flux (Ruef and Patterson 2009), and there can be significant variations in category members' peripheral features (Pontikes 2012). This provides opportunities for strategic differentiation of new product offerings vis-à-vis the exemplars.

Building on these insights, in this paper, we focus our inquiry on three related questions: How does strategic differentiation of a new product offering vis-à-vis the exemplar of a proto-category affect the offering's market performance? How does the performance impact of strategic differentiation change as the proto-category evolves? And what are the underlying mechanisms driving the observed effects? By answering these

questions, our aim is to take a first step in illustrating the fruitfulness of and setting an agenda for the study of proto-categories. Instead of concentrating on how proto-categories become institutionalized, we believe that a focus on the strategic entrepreneurship that underlies proto-category emergence and development provides a key and underappreciated engine for categorization process. To wit, we encourage more scholarly engagement at the interface of organization theory and strategic management as exemplified by research on optimal distinctiveness (Zhao et al. 2017).

Empirically, we study the U.S. console video game industry, a dynamic and entrepreneurial context where proto-categories frequently emerge and evolve around exemplary hit games. We define a video game proto-category as a grouping of video games that are understood as similar with respect to an exemplary hit game. Our definition is thus consistent with past conceptualization of the categorization process where the formation of similarity clusters is regarded as an initial step of category emergence (Hannan et al. 2007). It is also consistent with the view of categories as comprised of "constituent members whose inclusion is defined by rules or boundaries pertaining to a common type of product or service" (Navis and Glynn 2010, p. 440). While only some of these groupings may ultimately result in institutionalized and stable video game categories, the development of such proto-categories around exemplary hit games is a significant phenomenon in the industry. For example, the great success of *Grand Theft Auto III* has led to the creation of a distinct grouping of games that popularized the "action," "racing/driving," and "shooter" feature combination.

Our data includes a proprietary database of 6,544 games that comprise 78 proto-categories we identified between 1995 and 2012 and firsthand interviews with industry insiders.<sup>1</sup> The interviews were valuable for strengthening and contextualizing our hypotheses, and the statistical analysis of the database enabled us to systematically evaluate our predictions. Our results suggest that there is temporal variation in the performance consequences of strategic differentiation in emerging and evolving proto-categories. We show that in the early stages of proto-category emergence, when an exemplary hit game provides a cognitive infrastructure for audience perception and evaluation and competitive pressure is relatively weaker, conformity with the exemplar's features is positively associated with new entrants' sales. As the proto-category develops, we find that an intermediate level of strategic differentiation becomes more critical in producing better performance outcomes. We show that this temporal dynamic is driven by the changing competitive intensity based on the number of prior entrants into the proto-category and strongly mediated by critics' ratings of the entrant

games. We also find that the mediating effect of critics' ratings on entrant sales becomes increasingly salient as the proto-category evolves. Finally, we verify that accounting for the influence of emerging prototypes does not diminish the explanatory power of the exemplar model we propose.

### The Prototype-Based Model of the Categorization Process in Product Markets

A product market is a socially constructed space where producers and consumers interact to make sense of each other's behaviors and form shared knowledge structures about product offerings (Rosa et al. 1999, White 1992). Faced with myriad choices, consumers may rely on the recommendations and endorsements of experts (e.g., critics) who categorize and segment competing offerings into comparison sets and evaluate the appropriate features of different groups (Bowker and Star 2000, Zuckerman 1999). Product categories thus provide a cognitive infrastructure that helps audiences allocate attention and make quick and efficient choices (Leung and Sharkey 2014, Porac et al. 1995).

Extant research on categories in organization studies has predominantly drawn upon the prototype-based model. Rosch and Mervis (1975) define a prototype as a set of features commonly associated with members of a category. Based on this definition, the prototype is essentially a central tendency and cognitive representation of a category's average or typical values of key attributes (Posner and Keele 1968, Reed 1972). The prototype may not be descriptive of any actual member of a category, yet it provides a cognitive schema for delineating the appropriate attributes and features that constitute the category's membership (Higgins and Bargh 1987). As such, the prototype of a category is an important benchmark against which audiences flesh out available information and form social judgment about new product offerings (Smith and Zarate 1992).

New product offerings are compared with the category prototype, and their legitimacy and appeal are gauged by the departure of their features from the centroid of mean values of the category (Posner and Keele 1968). Atypical product offerings—those nonconforming to category prototypes (e.g., category-spanning products)—may not be readily compared with others, are difficult to evaluate, are perceived as less legitimate, and suffer negative performance consequences (Zuckerman 1999). The prototype model has had a major influence on category research in organization studies and received strong and consistent support in a variety of different contexts and across levels of analysis (e.g., Hsu 2006, Zuckerman 2000).

Despite these past findings that support the prototype model of categorization, challenges have been made to three interrelated assumptions underlying

this line of research: first, that categories act as strong constraints; second, that producers are passive bystanders in categorization processes; and third, that categories are well defined at the outset and prototypes are readily available as a benchmark for comparison. The notion of categories as strong constraints rests on the argument that categories have distinct and institutionalized boundaries, and comprehensible identities are associated with individual categories. Both experimental and field studies of product categories tend to focus on categories that already exist, eliding questions of how they came to be (e.g., Porac et al. 1995, Sujan 1985). Recent studies have relaxed these assumptions and suggested that boundaries between categories can be ambiguous, blurred, or gradually eroded (Durand et al. 2007). In these cases, atypical product offerings may be more legitimate and less problematic (Negro et al. 2010, Smith 2011). For example, Rao et al. (2005) found that category spanning was less penalized when categorical boundaries in French gastronomy became deinstitutionalized and eroded as a result of increasing borrowing across boundaries triggered by high-status actors. In addition, different categories may fit together in ways that do not necessarily lead to confusion (Durand and Paoletta 2013, Wry et al. 2014).

Challenging the idea that market actors are passive participants in categories, a more recent trend in categorization studies has started to emphasize their active influence on the creation of and membership in categories. The argument is that market participants could strategically manage categorical expectations and audience perceptions and, thus, actively work to advance their interests in the categorization process (Cattani et al. 2008). For instance, a firm may choose in which categories to claim its membership (e.g., Vergne 2012). Category-spanning firms may engage cultural entrepreneurship to enhance audience attention and positive evaluation (e.g., Zhao et al. 2013). And producers may gain opportunities to depart from categorical expectations as a category develops (e.g., Hsu and Grodal 2015) or actively shape category durability and change (e.g., Lounsbury and Rao 2004).

Finally, the third assumption underlying the prototype model of categorization that has been challenged is around how well categories are defined and how they are recognized as they evolve. For instance, Durand and Paoletta (2013) discuss how categories can be defined in a variety of ways, highlighting how the notion of a fixed, institutionalized category anchored by a prototype may limit our understanding of the processes and effects of categorization. The prototype model is particularly ill suited for explaining category emergence. Proto-categories, for instance, are rarely well defined but characterized by the cacophony of uses, claims, and product features (Rosa et al. 1999). Customer needs remain fluid, and the understanding

of key stakeholders, such as consumers, producers, critics, and regulators, is unstable, incomplete, and disjointed (Suarez et al. 2015). In this case, market participants lack a clear category schema, and the prototype as a sense-making tool is still being formed and not readily available as a basis for social judgment (Hsu and Grodal 2015, Pontikes 2012).

During the early, fuzzy period of category emergence, similarity clusters play an important role in guiding audience attention and structuring market activity (Delmestri and Greenwood 2016, Hannan et al. 2007). Similarity clusters are formed when market participants compare the characteristics of producers and products, begin to perceive similarities among competing product offerings, and consider them as members of a common set (Hsu and Grodal 2015). However, such similarity clustering based on pair-wise comparison is extremely demanding and requires a considerable cognitive load, which increases exponentially as the number of entities and the number of attributes rise linearly (Cohen and Basu 1987, Hannan et al. 2007, Nosofsky and Palmeri 1997, Smith and Medin 1981). This is particularly true in highly uncertain and complex environments. When a new product market space is emerging, there is considerable ambiguity, and different market actors often vary in who they regard as category members and what should be the criteria for membership (Granqvist et al. 2013, Rosa et al. 1999). Similar products might be labeled differently whereas dissimilar products might claim membership to the same, still-fuzzy category (Pontikes 2012, Vygotsky 1987). This is further complicated by producers' strategic move in either associating or disassociating their products with the emerging category (Granqvist et al. 2013). Therefore, pair-wise comparison is extremely challenging, if not impossible, in emerging product market spaces, and there is a strong need for a benchmark for comparison and judgment before the formation and stabilization of a category prototype.

### The Exemplar-Based Model of the Emergence and Evolution of Proto-Categories

Beyond the prototype-based model, past research has suggested another model of the categorization process in product markets: the exemplar-based model (Cohen and Basu 1987, Smith and Medin 1981). This alternative model of categorization based on exemplars (Nosofsky and Johansen 2000, Smith and Zarate 1992), while understudied in the strategy and organization literature, holds promise to address the various challenges faced by the prototype model previously described. Indeed, proto-categories are often first recognized through some salient and prominent product offerings—exemplars (Cohen and Basu 1987, Smith and Kemler Nelson 1984). In the absence of a clear prototype, exemplars serve as tangible manifestations

of information cues and focus market participants' attention on concrete instances (Cohen and Basu 1987, Smith and Medin 1981). These concrete instances represent the "hot center" of the market space and become important benchmarks against which a target object is compared and evaluated (Cohen and Basu 1987). By providing a benchmark for perception and judgment, an exemplar helps enhance information processing efficiency as well as cognitive stability and makes a feature-to-feature comparison between a target object and the exemplar more feasible (Brunner et al. 1956, Lingle et al. 1984). As such, proto-categories typically emerge as initial similarity clusters formed around exemplars. However, such similarity clusters may be fragile and ephemeral, and the vast majority of them might fail to make it to the next stage before stabilizing as a mature and established category. Still, the identification of a highly visible or celebrated exemplar can trigger the creation process of a proto-category and galvanize collective interest and effort to institutionalize the category (Kennedy and Fiss 2013).

Knowledge of such exemplars is fashioned and promulgated through public discourse (Kennedy 2005, Rosa et al. 1999). Market participants recognize and learn about exemplars through stories that producers and audiences share in public media, such as industry newspapers and consumer magazines (Lounsbury and Glynn 2001, Weick 1995, White 1992). Stories of exemplars contain important information regarding their unique and popular core attributes (Thagard 1992). Producers use these stories to infer and sense market demands and, thus, guide their new product development whereas audiences rely on information embedded in these stories to discriminate among new product offerings and make purchasing decisions (Martens et al. 2007). While clear demarcations between a member versus nonmember and good versus poor members of a proto-category are seldom unequivocal until it stabilizes, the core attributes of an exemplar may help draw a provisional category boundary and provide a cognitive infrastructure for producer and audience sense making. As stories of exemplars spread through the producer and audience communities, the narratives help create collective beliefs about the inchoate boundaries of the proto-category and establish an initial quality ordering within the proto-category (Meyers-Levy and Tybout 1989). New product offerings that display a common set of attributes matching the exemplar's core features are treated as belonging to the proto-category and become plausible candidates in audiences' consideration set (Hannan et al. 2007). At the same time, the proto-category remains sufficiently flexible to assimilate a diverse set of new entrants in terms of other product attributes beyond those essential, core features (Rosa et al. 1999).

Once the membership of a new product is established, comparison and evaluation of the product is

then carried out on a feature-by-feature basis against the exemplar (Smith and Medin 1981). The flexible boundaries of a proto-category offer producers opportunities to strategically differentiate their products from the exemplar (Cattani et al. 2017a), and the distance between the characteristics of the new product and the exemplar could prove critical in audience judgment and evaluation (Cohen and Basu 1987). In this way, besides explaining the emergence and evolution of proto-categories, the exemplar model also serves as a bridge between organization theory and strategic management scholars by opening up new questions about how category evolution and internal dynamics shape and may be affected by strategic decision making and performance (Cattani et al. 2017b, Zhao et al. 2017). Building on the exemplar model and using the console video game industry as an empirical setting, we examine the strategic differentiation between a new product offering in a proto-category and the category exemplar and its associated performance consequences, a topic that has received limited attention to date (Kennedy and Fiss 2013, Navis and Glynn 2010).

### Empirical Context: Video Game Proto-Categories Around Exemplary Hit Games

The console video game market, like other cultural industries, is characterized by high uncertainty in consumer (aka “gamer”) taste and preferences (Loguidice and Barton 2009). New types of games and generations of platforms are frequently created in an effort to chase and corral taste. As part of this process, game publishers and their developers attempt to sense gamers’ preferences and hope that the products they launch will become hits. Still, gamers’ tastes and each product’s success remain largely unpredictable in advance. Only a limited number of original games are launched with great success—known as “the greatest hits.” These big hits are normally quickly recognized because of their prominent market success immediately after release and widely acclaimed as success stories.

One key component of these success stories revolves around the big hits’ novel creation or (re)combination of game features (Arsenault 2009, Tschang 2007). The creation of a big hit with a novel combination of game features—the exemplar—is a key moment in the emergence of a video game proto-category. More importantly, the exemplary hit games immediately begin to influence other publishers’ game designs and development. For instance, the success of *Grand Theft Auto III* has stimulated a series of similar games (e.g., *Mafia*, *The Getaway*, *True Crime*, etc.); these games all combine the action, racing/driving, and shooter features and immerse gamers in story-driven, open-ended urban environments that incorporate driving and attacking

capabilities as well as violent and criminal themes. As such, exemplary hit games serve as important benchmarks, and the development of new games around the exemplar is an essential part of the emergence and evolution of a proto-category. For instance, a CEO of a video game publisher stated, “When a hit game is released, a new formula is found. It is further developed and perfected by the continued development of similar games. New game genres typically emerge out of these new formulas!” A senior product manager of another video game publisher similarly commented, “Entire game genres typically have emerged by mimicking and extending on great games.” Another video game developer we interviewed resonated this, saying, “We constantly search for proven techniques and what is known. Highly successful games become our design document. . . . This is an important risk mitigator.”

Reinforcing their role in proto-category emergence, the exemplary hit games are often sequelized like blockbuster movies. *Super Mario*, for instance, has had several versions developed over the years, each building on the changes in platforms, competitor games in the space, and gamers’ feedback. This means that the exemplar games and the proto-categories formed around them may go through renewal phases. Still, not every exemplar and the proto-category formed around it are able to sustain audience interest over time, and different proto-categories may have substantially different levels of popularity. In addition, not all games entering a proto-category are created equal. While some games are effortless endeavors that enter a proto-category simply to cash in, others end up being innovative and some even surpass the original inspiration. Industry experts have emphasized this point, arguing that some of the new entrants “were indeed little more than derivative products with a new skin but the same game underneath, [but] many at least tried a few things. In these cases, the game creators went for revision instead of replication” (Arsenault 2009, p. 166).

### Hypotheses: The Performance Implications of Strategic Differentiation Around Exemplars

In light of the formation of proto-categories around exemplars and the potential for variation among new entrants, it remains an open empirical question as to how new entrants in these proto-categories should best position themselves strategically vis-à-vis an exemplar to improve performance. The prototype model has embraced strategic balance as an optimal positioning strategy for entrants into highly stable and institutionalized product categories; that is, an intermediate level of strategic differentiation vis-à-vis the category prototype contributes to optimal market performance (Deephouse 1999). The strategic balance approach brings together

two seemingly disparate explanatory approaches to organizational behavior in strategy and organization theory (Deephouse 1999, Zhao et al. 2017). On the one hand, strategy scholars have considered differentiation as an important generic organizational strategy (Porter 1996) and have argued that distinct market positions and unique resources contribute to competitive advantage (Chen and Hambrick 1995). Market entry studies, in particular, have highlighted the importance of differentiating on product features (e.g., attributes, price, and quality) for new entrants to outcompete market leaders (e.g., Ethiraj and Zhu 2008, Shamsie et al. 2004). On the other hand, institutional theorists have asserted the need to be similar to peers to gain recognition and credibility (DiMaggio and Powell 1983). The strategic balance approach reconciles these competing arguments regarding the performance impact of strategic differentiation and proposes that an intermediate level of differentiation—being neither too different nor too similar as compared with the category prototype—will be most rewarding and valued by consumers. For example, Deephouse (1999) found that commercial banks' deviance from a mean industry attribute position has an inverted-U-shaped relationship with their financial performance. Later studies replicated this pattern of relationship between strategic differentiation and market performance across a variety of different contexts (Zhao et al. 2017).

While the strategic balance approach usefully captures the main way of balancing conformity versus differentiation tensions in highly institutionalized product markets where there are clear prototypes as benchmarks, it falls short of explaining the optimal positioning strategies in more dynamic and entrepreneurial markets. In such markets, proto-categories frequently emerge and evolve around exemplars, prototypes are still being formed, and the competitive intensities shift over time (Cennamo and Santalo 2013, Jennings et al. 2009). The strategic balance approach also tends to conflate strategic positioning with the role of intermediaries; in highly uncertain and ambiguous settings, intermediaries could be critical in mediating the performance impact of strategic positioning (Zhao et al. 2017, Zuckerman 1999). In light of the changing competitive intensities of proto-categories around exemplars, we propose a temporal dynamic of the optimal positioning strategy for entrants and expect it to be significantly mediated by market intermediaries (in our case, the game critics).

In particular, we expect that, in the early stage of proto-category emergence, the exemplar serves as a strong and salient benchmark for new entrants. It also becomes an important yardstick that game critics use in attending to and evaluating these entrants and guides consumer purchasing decisions (Mervis and Rosch 1981, Rosch 1975). As such, critics' evaluations and,

consequentially, consumer choices are strongly framed by the exemplar and its unique feature combinations. At the same time, since the number of entrants in the proto-category is limited at this stage, the competitive intensity is relatively weaker, and there is no strong imperative for the entrant game to deviate from the exemplar. Instead, audiences may still be intrigued by the exemplary hit game and similar games with very close features.

As a proto-category evolves, it might become increasingly important to show how new entrants add value beyond the initial exemplar. This is because growing knowledge of the exemplar and increasing satiation among consumers along with intensifying competition among members of a category may all push new entrants to differentiate themselves in a more crowded category space (Navis and Glynn 2010, Wry et al. 2011). As such, there's more opportunity for new entrants to deviate from the features of the exemplar and depart from the initial categorical expectations (Hsu and Grodal 2015).

Still, conformity pressures may remain strong at this stage, making extreme deviation from the exemplar problematic—that is, it might lead to more ambiguous perceptions of category membership, potentially leading to the inattention of and loss of appeal to key audiences if not the very legitimacy of a new entrant (Zuckerman 1999). Thus, as a proto-category evolves, it may become increasingly important for new entrants to offer products that are moderately differentiated from the exemplar. One of our interviewees articulated this clearly: "Gamers are easily bored. They crave for something newer. You need to be forward-looking and make changes, but still not deviate too much." Accordingly, we predict the following hypotheses:

**Hypothesis 1.** *In the early stage of proto-category emergence, strategic differentiation of new entrants vis-à-vis the exemplar will be negatively associated with entrant performance.*

**Hypothesis 2.** *As the proto-category evolves, strategic differentiation of new entrants vis-à-vis the exemplar will have an inverted-U-shaped relationship with entrant performance.*

### The Role of Intermediaries

Market intermediaries are central to categorization dynamics (Hannan et al. 2007, Zuckerman 1999). Intermediaries are of different types and may include the media (Kennedy 2008, Lounsbury and Rao 2004), industry and professional associations (Hiatt and Park 2013), and rating and accreditation agencies (Sauder 2008). While the validity of certain intermediary evaluations are questionable (Chatterji et al. 2016) and sometimes even distorted by powerful stakeholders (Waguespack and Sorenson 2011), past studies have consistently shown that they play a fundamental role

in shaping the relationship between category members and end consumers.

The influence of market intermediaries is particularly prominent in the consumption of cultural and experiential products, such as restaurant meals, movies, books, and video games. Such products entail uncertain value (Zhao and Zhou 2011) because consumers cannot know the quality of a good until it has been purchased and consumed (Hsu et al. 2012). In this case, product evaluation “involves less a process of calculation, than one of judgment that requires knowledge about a plurality of criteria, suitable weightings, and appropriate preferences” (Orlikowski and Scott 2014, p. 869), and consumers tend to rely on intermediaries’ published reviews in making purchasing decisions.

Previous research has suggested that intermediaries influence market transactions through several mechanisms. First, intermediaries can help reveal hidden product quality and thus facilitate consumer judgment through their evaluations (Zuckerman 1999). Second, intermediaries may shape consumers’ theory of value (Durand and Boulongne 2017) by specifying particular criteria for product assessments (Ruef and Scott 1998) and, thus, directing consumer attention to certain product attributes and away from others (Shrum 1996). Third, precisely because of their subsequent influence over consumers (Epseland and Sauder 2007), intermediaries may also provide guidance to producers and allow them to effectively differentiate themselves from one another. Through these mechanisms, critics help establish mutually agreeable terms (Hsu 2006, Rao et al. 2005, Shrum 1991) and facilitate market transactions among its various types of participants.

In the context of the console video game industry, professional critics, as a prominent intermediary, provide ratings of games, adjudicate quality, and help consumers sort through different offerings (Zhu and Zhang 2010). Critics frequently comment on entrant games in proto-categories and are noted for comparing entrants with exemplars in their discussions. As such, we expect critics’ ratings of an entrant game to be an important mediating mechanism influencing the link between strategic differentiation and entrant performance (Fleischer 2009, Hsu 2006, Zuckerman 1999).

However, most research on the role of intermediaries does not grapple with how the role or effects of critics may shift over the life cycle of products or industries (Zhao et al. 2017). The role of critics is especially important under conditions of uncertainty and ambiguity where critic evaluations help both producers and consumers make sense of how the quality of variegated offerings relates to each other. In our context of video games, we have argued that proto-categories formed around exemplary hit games may exhibit increasing product variation as the proto-categories develop. This is because, while early entrants tend to conform to

the exemplar, later entrants are more heterogeneous because of the changing competitive intensity in the proto-category. As a result, it becomes more difficult for consumers to sort through the growing thicket of competing games and their features. In this case, critic ratings become more important as they ease the burden of this growing evaluative complexity.

As a proto-category evolves, it is also more difficult for products to stand out and gain attention. Thus, the criteria for positive product assessment are also changing, and there is a stronger imperative for strategic differentiation; both critics and consumers seek innovative, high-quality products that are more interestingly differentiated from the initial exemplar. Indeed, critics are even more likely to act as “market-makers,” embracing innovations and endorsing “game-changing” product offerings (Pontikes 2012). Therefore, strategic differentiation of entrant games becomes increasingly important for gaining favorable critics’ reviews. These reviews, in turn, help make games appear distinctive and reflect levels of quality, which translates into higher sales. Accordingly, we propose the following:

**Hypothesis 3A.** *Across all stages of proto-category evolution, critics’ evaluation of an entrant game vis-à-vis the exemplar will mediate the impact of strategic differentiation on entrant performance.*

**Hypothesis 3B.** *The mediating effect of critics’ evaluation on entrant game performance becomes increasingly salient as the proto-category evolves.*

## Data and Methods

To identify potential exemplars and track product entrants into proto-categories, we started by collecting all console video games launched in the U.S. market between 1995 and 2012. This is a time period with rapidly evolving production technologies and consumer tastes (Arsenault 2009, Loguidice and Barton 2009), and it has been deemed by some the golden age of console video games because of the surge after the initial success in the late 1980s and lack of competition from PC and cell phone games (Aoyama and Izushi 2003). Consistent with recent research on the game industry (e.g., Mollick 2012), we then excluded game compilations, expansion packs, and add-ons; this resulted in a sample of 9,024 stand-alone games. In compiling the sample, we drew on two primary databases that have been empirically validated in past research (e.g., Corts and Lederman 2009): MobyGames, where we collected important game demographic information (e.g., publishers, developers, release date, game features, critics’ ratings), and NPD, where we acquired proprietary data on game sales.

## Exemplars

To systematically identify games (out of the 9,024) that served as exemplars, we initially used two key criteria consistent with how past studies have identified benchmarks and associated success stories. First, given that exemplars are performance-based and industry top performers are best qualified as potential benchmarks (Strang 2010), we narrowed the candidate pool down to those games with at least one standard deviation above the average total sales of the 9,024 games.<sup>2</sup> To be recognized as an “exemplar practice” and trigger extensive interest among potential entrants, the exemplary game also needed to be widely broadcast as being successful and innovative in market stories (e.g., those published in product reviews and industry magazines). Accordingly, as a second criterion, we selected games that appeared on at least one of the five “greatest games” charts created by five notable game magazines/websites: Electronic Game Monthly (top 200 games), IGN (top 100 games), G4TV (top 100 games), GameRankings (top 100 games), and Game Informer (top 100 games). Together, our initial two criteria yielded 163 potential exemplars around which proto-categories were forming. Indeed, on closer inspection, it was evident that most of the 163 games gained substantial market reception in their debut weeks when their sales peaked, and most garnered (multiple) important awards during the year of their formal release. Consistent with this observation, interviewees within the industry suggested that developers and publishers frequently used strong early sales and nominations for (and then winning) awards in the year of launch to identify blockbusters. As such, these two criteria had the advantage of not only fitting with industry designation of exemplars but also avoiding an econometric bias: ex post identification of the exemplars and associated proto-categories.

After surfacing the likely list of exemplary hit games, it was important to focalize the features of the hits that appeared salient to new product entrants. To do so, we again relied on the classification methods used by gamers as found on three major gamer websites (MobyGames, IGN, GameSpot) as well as on Wikipedia. These sites contained well-structured game descriptions, detailed award information, and critics’ reviews. Raters on these sites systematically compared games on standard dimensions, such as gameplay, sound and graphics, and story line. In addition, they discussed premium new features of the games. Two of this paper’s authors independently scrutinized the texts and identified “core” features that appeared to be used by gamers to distinguish the exemplars. The core features were based on celebrated descriptors in the game industry, such as a game’s genre (e.g., action, horror), its technical features (e.g., first-person perspective, 3-D), and its action sequence (e.g., ‘real time, turn

based). Typically, the core features and their combinations were those seen by critics and users as being new, refined, and/or superior to those in other games at the time.

The initial independent coding by the two authors reached substantial agreement ( $\kappa = 0.92$ ). To reach complete consensus, the authors then had an open and intensive discussion, and when a debate still remained, they relied on a third author, a veteran industry insider, to help resolve it. Our final coding revealed that of the 163 games, 78 had unique core sets of features, were widely regarded as the greatest games of their time, attracted substantial gamer interest, and significantly influenced and inspired subsequent game design. These 78 games were considered the exemplars around which proto-categories were being formed. The remaining 85 games had core features identical to some of the 78 exemplars, often because they were sequels of them. We therefore considered these 85 games part of the 78 proto-categories but as important *renewals* that might help reinvigorate audience interest in the proto-categories formed around the initial exemplars. Columns 1–3 of Table 1 shows some sample exemplary hit games in our data and their associated core features.

## New Product Entrants

The core features of an exemplar help delineate a provisional boundary of a proto-category and discriminate between members and nonmembers (Hannan et al. 2007). Collective identities may also develop around these commonly shared core features and help audiences define the proto-category around the exemplar, identify legitimate members, and organize their expectations and evaluations of how well a new entrant performs vis-à-vis the exemplar (Durand and Paoletta 2013). Accordingly, to identify games following the exemplar and entering a proto-category, we defined new entrants as those games that were released after the exemplary hit game and shared the exemplar’s core attributes. These games with the same core features yet varied differentiations from the exemplar’s other features comprise the evolving proto-category.<sup>3</sup> For example, some of the games entering proto-categories formed around three exemplars—*Grand Theft Auto III*, *Resident Evil*, and *Mass Effect*—are listed in column (4) of Table 1. Column (5) includes some illustrative quotes extracted from our firsthand interviews and the text data previously discussed, which demonstrate the exemplars’ influence on new entrants’ development. As shown in those quotes, new entrants took exemplars as a benchmark and inspiration. At the same time, there were also different degrees of variation among those new entrants.

Overall, our empirical strategy for identifying new product entrants in a proto-category is consistent with

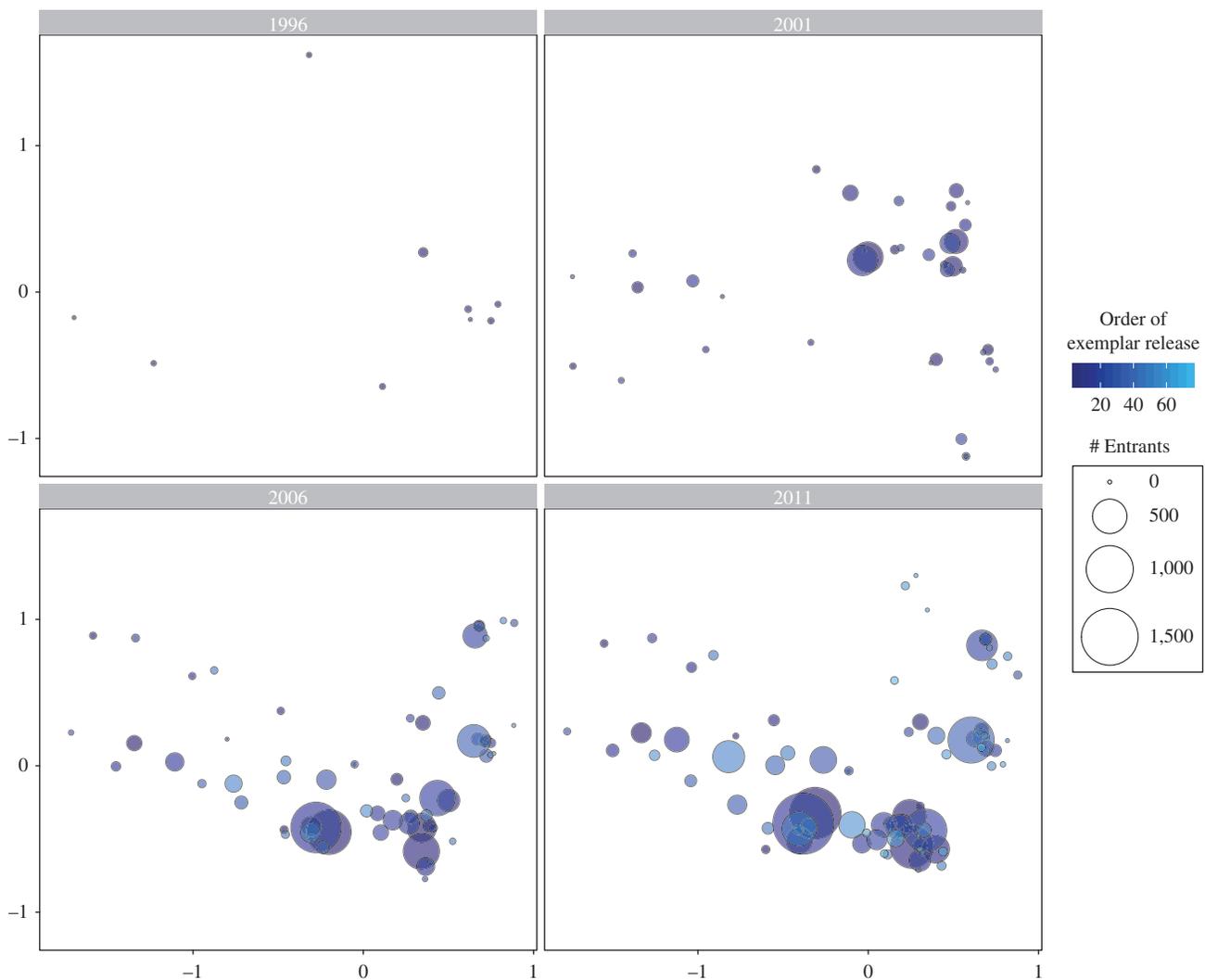
**Table 1.** Examples of Exemplary Hit Games and New Entrants of Proto-Categories

Exemplars around which proto-categories emerge	Release information of exemplars	Core features of proto-categories	Sample new entrants	Illustrative quotes showing proto-category emergence around exemplars and new entrants
<i>Grand Theft Auto III</i>	Publisher: Rockstar Games Developer: DMA Design Release date: October 22, 2001	Action, racing driving, shooter	<i>The Getaway</i> , <i>True Crime: Streets of LA</i>	"GTA3 was a major trend setter, a game that helped further gaming as a whole. It broke new ground in so many ways and marks the start of a new era in gaming. It led to the widespread propagation of a more specific set of gameplay conventions and sparked a new genre of games, a genre that didn't exist until GTA3 was released."
<i>Resident Evil</i>	Publisher: Capcom Entertainment Developer: Capcom Co. Release date: March 30, 1996	Action, puzzle solving, survival horror	<i>Parasite Eve II</i> , <i>Dead Space</i>	"Resident Evil coined the term survival horror, though it is possible to find examples of the genre before it. Nevertheless, this Capcom's zombie outbreak game made waves." "Parasite Eve II has fewer RPG elements than the first game, and the game plays more like Resident Evil. The sales pitch for this game included the words 'like Resident Evil, but with fun combat.'" "Dead Space was very much a survival horror game at a time when being a survival horror game wasn't cool. Even if the game was almost entirely co-opted from Resident Evil, the setting, lore and enemies were so inventive and unique that Dead Space really stood apart from its father-game."
<i>Mass Effect</i>	Publisher: Microsoft Game Studios Developer: BioWare Release date: November 20, 2007	Action, role-playing (RPG), sci-fi futuristic, shooter	<i>Deus Ex: Human Revolution</i> , <i>Alpha Protocol</i>	"Mass Effect is a science fiction RPG developed by BioWare. It has revolutionized video games as a story-telling medium, and has been credited for creating a league of its own." "The cyberpunk-themed Human Revolution is a game widely considered as an impressive game following Mass Effect." "Taking Bioware's excellent Mass Effect as a starting point, Obsidian wanted to create a real world espionage RPG—Alpha Protocol—that put the player in the shoes of a super secret agent. The game used Mass Effect as a template, along with influences from all things espionage, such as James Bond and Mission Impossible. The game played almost exactly like Mass Effect."

past studies that conceptualize members of the same category as sharing common core characteristics but differing with respect to peripheral features (e.g., Rao et al. 2000) and category emergence and development as gradual and protracted processes that start with the formation of similarity clusters and unfold with entry of new members over time (e.g., Hannan et al. 2007). As in these other studies, because the development of new categories may have experienced renewals, substitutions, and disruptions, we did not impose an a priori time window in tracing entrants but left the entry pattern to be naturally borne out of our data. We ended up with 6,544 unique entrants in the 78 proto-categories. Reflecting that category memberships are not mutually exclusive and the same entities can belong to multiple categories (Hannan et al. 2007), a portion (43%) of these games are entrants into two or more of the 78 proto-categories; we controlled for this in our analysis.

Figure 1 displays the 78 proto-categories and all their entrants at four points in time. It is a multidimensional scaling (MDS) plot based on the Euclidean distances between core features of each pair of the 78 proto-categories in 1996, 2001, 2006, and 2011. Each of the 78 proto-categories is indicated by a solid bubble. The darker (lighter) color means the focal proto-category is released on an earlier (later) date, and the size of the bubble reflects the cumulative number of entrants in the proto-category. As shown in the figure, the 78 proto-categories have varied distance from each other. Over time, we also see that each proto-category is surrounded by other proto-categories with different levels of popularity in terms of the number of entrants. While our primary focus is on the temporal dynamics of the impact of strategic differentiation on entrant performance within each proto-category, we accounted for both the distance and popularity variations across the 78 proto-categories in supplementary analyses.

**Figure 1.** (Color online) Multidimensional Scaling (MDS) Plot of the Proto-Categories at Four Time Points



*Notes.* Some proto-categories appear to be embedded in other proto-categories. This does not mean that one proto-category is a part of another but rather just an artifact resulting from the different sizes of the circles that indicate the cumulative number of entrants in the proto-categories.

### Dependent and Independent Variables

The key dependent variable of interest theorized in our hypotheses is *market performance* of new product entrants. We measured *market performance* by inflation-adjusted, aggregate U.S. dollar sales (logged) of a console video game. Our primary independent variable is new entrants' level of *strategic differentiation* vis-à-vis the exemplar. We calculated strategic differentiation by comparing the features of an entrant game and those of the exemplary hit game using a Euclidean distance measure. Following previous research (Zhao et al. 2013), this distance variable was further adjusted for the changing salience and popularity of certain feature combinations over time. This is because certain feature combinations, such as action adventure or first-person-perspective shooter, may appear more often than random assignment and are thus viewed as less distant than unpopular/unfamiliar combinations

(see Appendix A for more details). We then created a square term of the strategic differentiation variable to test the inverted U-shaped relationship between strategic differentiation and market sales of a new entrant.

To model the changing influence of strategic differentiation on new entrants' sales, we needed a variable that captures the temporal dynamic of proto-category evolution. One apparent candidate for this variable is time, that is, counting the time (# of months) lapsed since the exemplary hit game's release. Based on this, we created a temporal dynamic variable *time since exemplar release*. We also theorized that one driving force of the temporal dynamic is the changing competitive intensity resulting from the increasing number of new entrants into a proto-category. Accordingly, we also created a second temporal dynamic measure counting the cumulative *number of prior entrants* (logged). This empirical strategy resonates with past research that has traced

evolutions of populations and institutional fields using a “clock” based on the accumulation of new entries (Burns and Wholey 1993, Carroll and Hannan 1989). The rationale is that with more entrants, the proto-category grows from early to more developed phases with increasing competition faced by potential new entrants and stronger pressures to differentiate. Empirically, we interacted the two temporal dynamic variables with the strategic differentiation variable and its squared term to test how the effect of differentiation changes as a proto-category evolves. We present our main analyses based on the time since exemplar release variable and use models with number of prior entrants for unpacking the underlying mechanisms.

### Critics’ Rating as a Mediating Mechanism

We coded *critics’ rating* scores of both the exemplar and new entrants using the MobyGames’ MobyRank score. According to MobyGames, MobyRank score is “a statistically accurate metric of critic success for a game.” It is calculated as “a weighted average of normalized rankings from individual critics, where the weight is given to each critic based on their rating history, accuracy, and variance.” Thus, critics with high accuracy, low variance, and high reputation have their ratings weighted higher in the MobyRank score calculation. Consistent with our theory that game categories emerge around exemplars that serve as benchmarks for new entrants, we took the difference between the MobyRank score of a new entrant and that of the exemplar as a measure of relative improvement of the new release.<sup>4</sup>

### Control Variables

As discussed earlier, a proto-category might be renewed and extended by a later high-profile game that helps reinvigorate audience interest. Recall that out of the original 163 hit games identified in our coding protocol, 85 shared core features with an earlier hit game and, therefore, were considered as renewal games. For each of the remaining 78 proto-categories, we then coded *renewals* by counting the number of renewal games up to a focal game’s release. Renewals may influence the focal game’s sales and attract further entrants into a proto-category. Along these lines, we also controlled for *prior entrant success* (average dollar sales of all prior entrants of a proto-category, logged) in our models because it may similarly affect a focal game’s sales. Controlling for prior entrant success also helps ensure that we estimate the temporal dynamics of different proto-categories on a comparable basis. Given that we have 78 proto-categories with varying dynamics, we also included *category fixed effects* in our models.<sup>5</sup>

At the publisher level, we first controlled for whether a publisher releasing a new game in a proto-category created the original exemplar, using a dummy variable,

*exemplar publisher*. Publisher of the exemplar may have some leverage in releasing a new game into the same proto-category. A publisher is also likely to pace its game releases in the same proto-category carefully, so we created a variable counting the *time since last entrant* release (in months) by the focal publisher. Whether a publisher is a specialist or generalist may have an impact on its decision to enter a proto-category as well as its performance (David and Strang 2006). Accordingly, we controlled for a publisher’s degree of *generalism* by counting the number of unique features of games it published in the past three years.

At the game level, we included a variable, *feature spanning*, which counts the total number of features that an entrant game has. Previous research on categories has suggested that feature spanning has a significant impact on product performance (Wry et al. 2014). To capture whether an entrant was a sequel or not, we included a dummy variable, *sequel*, in our models. Because the Entertainment Software Rating Board (ESRB) aims to aid consumers in determining a game’s content and suitability, its classification of a game might affect the game’s market reception. Accordingly, we controlled for the *ESRB rating* of a focal game using a set of dummy variables indicating ESRB’s classification of games: early childhood, everyone, everyone 10+, teen, mature, and adults only. A dummy variable, *licensed game*, was also created, which takes a “1” if a game is a licensed game based on preexisting creations (e.g., books and movies) and a “0” otherwise. Furthermore, we controlled for seasonality. In particular, launching during Christmas season has been shown to have a significant impact on game sales (Wingfield and Guth 2005). Therefore, we included in all models a *Christmas season* dummy indicating whether a game was released in December. We also controlled for *platform age*, counting the number of months (logged) since the debut of the focal game’s console platform. In addition, using a dummy variable, *multi-category entrant*, we controlled for whether a focal game is considered a member of two or more of the 78 proto-categories. Finally, in models where we used number of prior entrants to capture the temporal dynamic, we controlled for a focal game’s entry *speed*, which is the difference in months between the focal game and the exemplar’s release dates (reverse coded). This control helps isolate the impact of competitive intensity from other unobserved temporal forces and also account for potential selection issues in a publisher’s launch of an entrant into a particular proto-category.

### Modeling

To estimate the impact of strategic differentiation on entrants’ sales, we employed structural equation models (SEMs) using Stata’s *sem* command with robust standard errors. This modeling strategy accounts

for the fact that strategic differentiation may affect performance both directly and indirectly through critics' ratings (Eliashberg and Shugan 1997). Compared with using separate regressions (e.g., Baron and Kenny 1986), SEM has two main advantages in testing mediating effects. First, the SEM estimation of latent variables helps to mitigate measurement errors that might lead to underestimation or overestimation of mediation effects (Shaver 2005). Second, SEM allows explicit modeling of the correlation of error terms across systems of equations (Shaver 2005), which helps address potential endogeneity concerns.

In our case, to identify the system of equations, we needed to employ at least one explanatory variable—an instrument—that directly affects critics' rating but does not directly affect game sales and include it in the equation estimating critics' rating of a focal game. Because this instrument does not directly affect game sales, it would not be included in the equation estimating sales, and the system would be identified. In doing so, we can also alleviate the concern that positive review by critics is simply a correlator rather than influencer of higher game sales (Eliashberg and Shugan 1997).

Empirically, we used a dummy variable, *Japan branch*, as such an instrument. It indicates whether a focal publisher has a sister branch located in Japan. Because some of the greatest hits in the video game market first emerged in Japan, a publisher with a Japan branch

may better sense the market opportunity, more quickly gather firsthand information regarding the hits, and incorporate that information in developing a new game (Izushi and Aoyama 2006). This may help improve the new game's quality and enhance its critics' rating while, at the same time, may not have a direct effect on its market sales in the United States. Our analysis of the effect of Japan branch on critics' rating and game sales suggests it meets these criteria and qualifies as a strong instrument<sup>6</sup> (Wooldridge 2002).

## Results

Table 2 shows the summary statistics and correlation matrix of key variables. Variance inflation factor (VIF) analyses revealed no multicollinearity concerns in our models. We report the results of the structural equation models in Table 3 where we use time as a measure of the temporal dynamic. The table displays total effects first and then direct and indirect effects. Several notable findings regarding control variables are worth mentioning. We find that a game suffers in market sales when it has a longer time lag since the last game release by the same publisher, is released on an older console platform, and when there are more renewals. In contrast, a game that is released by the exemplar publisher or by a generalist tends to have higher market sales; so is a game that is either licensed or a sequel.

**Table 2.** Descriptive Statistics and Correlation Matrix of Key Variables

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1 Dollar sales	14.687	1.624	1.000										
2 Strategic differentiation	0.029	0.019	-0.050	1.000									
3 Strategic differentiation <sup>2</sup>	0.001	0.001	-0.039	0.935	1.000								
4 Time since exemplar release	75.517	44.080	-0.022	0.006	0.003	1.000							
5 Time since exemplar release × Strategic differentiation	0.005	0.837	0.020	-0.004	0.003	-0.029	1.000						
6 Time since exemplar release × Strategic differentiation <sup>2</sup>	0.000	0.064	0.007	0.003	0.013	-0.017	0.934	1.000					
7 Number of prior entrants	2.942	1.907	-0.015	0.050	0.001	0.583	-0.001	0.007	1.000				
8 Number of prior entrants × Strategic differentiation	0.002	0.046	-0.011	0.719	0.669	0.004	0.411	0.388	0.027	1.000			
9 Number of prior entrants × Strategic differentiation <sup>2</sup>	0.000	0.004	-0.013	0.677	0.711	0.008	0.390	0.419	0.001	0.942	1.000		
10 Critics' rating	-16.446	13.816	0.417	-0.066	-0.056	-0.022	-0.019	-0.029	-0.010	-0.038	-0.038	1.000	
11 Renewals	0.869	2.026	0.041	0.007	-0.032	0.298	0.018	0.012	0.508	-0.001	-0.042	-0.006	1.000
12 Prior entrant success	13.823	5.243	0.013	-0.006	-0.010	0.291	-0.003	-0.001	0.570	-0.004	-0.008	-0.017	0.170
13 Exemplar publisher	0.006	0.080	0.164	-0.092	-0.060	-0.038	0.015	0.000	0.005	-0.032	-0.026	0.102	0.000
14 Time since last entrant	2.980	13.533	-0.028	-0.020	-0.013	0.219	-0.013	-0.013	0.242	-0.006	0.005	-0.013	0.145
15 Generalism	1.277	1.385	0.227	-0.017	-0.023	0.073	0.009	0.002	0.045	-0.017	-0.024	0.077	0.044
16 Feature spanning	5.055	1.738	-0.018	0.334	0.347	0.057	0.053	0.053	-0.204	0.285	0.306	-0.028	-0.319
17 Sequel	0.291	0.454	0.168	-0.185	-0.132	0.035	-0.025	-0.028	-0.066	-0.122	-0.088	0.219	-0.137
18 Licensed game	0.402	0.490	0.029	0.310	0.239	0.030	0.055	0.051	0.153	0.243	0.180	-0.197	0.246
19 Christmas season	0.504	0.500	-0.003	-0.006	-0.009	-0.041	-0.009	0.004	-0.020	-0.034	-0.033	-0.005	-0.005
20 Speed	123.483	44.080	0.022	-0.006	-0.003	-1.000	0.029	0.017	-0.583	-0.004	-0.008	0.022	-0.298
21 Platform age	3.465	0.785	-0.096	0.006	0.014	0.199	-0.005	-0.011	0.073	0.005	0.009	-0.003	-0.031
22 Multi-category entrant	0.678	0.467	0.012	0.163	0.185	0.100	-0.005	-0.005	-0.134	0.178	0.197	0.045	-0.261
23 Japan branch	0.259	0.438	0.105	-0.107	-0.099	-0.015	-0.025	-0.023	0.005	-0.099	-0.087	0.115	0.013

Table 2. (Continued)

	12	13	14	15	16	17	18	19	20	21	22	23
12 <i>Prior entrant success</i>	1.000											
13 <i>Exemplar publisher</i>	0.002	1.000										
14 <i>Time since last entrant</i>	0.080	0.057	1.000									
15 <i>Generalism</i>	0.015	0.115	0.122	1.000								
16 <i>Feature spanning</i>	-0.017	0.004	0.114	-0.007	1.000							
17 <i>Sequel</i>	0.035	0.154	0.026	0.060	-0.011	1.000						
18 <i>Licensed game</i>	0.007	-0.107	-0.053	0.064	0.076	-0.513	1.000					
19 <i>Christmas season</i>	-0.037	0.000	-0.006	-0.001	-0.032	0.008	0.000	1.000				
20 <i>Speed</i>	-0.291	0.038	-0.219	-0.073	-0.057	-0.035	-0.030	0.041	1.000			
21 <i>Platform age</i>	0.068	-0.024	0.057	-0.046	0.070	0.044	0.001	-0.060	0.199	1.000		
22 <i>Multi-category entrant</i>	0.055	0.025	0.122	-0.023	0.485	0.145	-0.149	-0.046	0.100	0.094	1.000	
23 <i>Japan branch</i>	-0.001	0.104	0.064	0.219	-0.013	0.149	-0.161	0.000	0.015	-0.038	-0.025	1.000

In terms of our main findings, model 3 of Table 3 shows that as a proto-category evolves (i.e., as time since exemplar release increases), strategic differentiation will have an inverted-U-shaped relationship with game sales. In contrast, in the early stage of a category evolution, there is an overall U-shaped relationship between differentiation and sales. Figure 2(a) aids the interpretation of these results; it plots the temporal impact of strategic differentiation on sales. The curves, using one to nine years since exemplar release as cut points, clearly illustrate the temporally inflected patterns. In the early stage of proto-category emergence (e.g., one to two years), products perform best when either closely conforming to the exemplary hit game or by significantly differentiating from it. Note that the differentiation level needs to be at least above 0.09, which is around the 99th percentile of the differentiation distribution in our data, for strategic differentiation to have a positive impact on sales. Therefore, on the whole, we see our results as consistent with Hypothesis 1; that is, optimal differentiation requires early conformity. More research is required to understand how significant differentiation may generate higher rewards in a category when it is emerging or will result in confusion about its relationship to the category—leading to the inattention and poorer performance emphasized by Zuckerman (1999).

Figure 2(a) further shows that, as a proto-category evolves, the effects of strategic differentiation on performance shift fairly quickly. At around three years since exemplar release, the curve starts to turn from a U shape to an inverted-U shape.<sup>7</sup> This supports Hypothesis 2. We identified the optimal differentiation points and calculated their corresponding effect sizes at each stage of proto-category evolution. For instance, when time since exemplar release is four years, a game that is optimally differentiated from the exemplar will have a 3.9% increase in sales compared with a game with no differentiation. When time since exemplar release is nine years, a game that is optimally differentiated from the exemplar will have a 28.1% increase in sales

compared with a game with no differentiation. Therefore, we observe an increasing imperative for optimal differentiation as a proto-category evolves.

In Table 4, we run the same set of models as in Table 3 but replaced time since exemplar release by number of prior entrants as a temporal dynamic variable. We again plotted the total effects of differentiation on sales as the number of entrants increases in Figure 2(b). The figure uses the 10th–90th percentile of entrants as cut points and again demonstrates the temporally inflected patterns. This is strong evidence that the changing competitive intensity resulting from increasing number of prior entrants is a key driving force underlying the temporal dynamic.

In both Tables 3 and 4, models 4 and 5 show the direct effect of strategic differentiation on game sales and critics' ratings, respectively, and model 6 the indirect effect on sales. Consistent with Hypothesis 3A, the results suggest that the temporal dynamic of the performance impact of strategic differentiation is mostly mediated by critics' ratings. Figure 3(a) and 3(b) plot the temporal pattern of the mediating effect. The figures demonstrate that strategic differentiation has a positive impact on critics' ratings even at the early stage of category emergence, and the level of strategic differentiation that maximizes critics' ratings increases with time since exemplar release. However, as the total effect of strategic differentiation on sales in model 3 of Table 3 suggests, at the early stage, it is still more optimal to conform to the exemplary hit game than deviate from it. This is because, at the early stage, while critics appreciate strategic differentiation and sales increase with critics' ratings, the impact of strategic differentiation on critics' evaluation is relatively small. Consumers' strong preferences toward games that conform to exemplary hit games play a larger role in the total sales.

However, as a proto-category evolves, the impact of strategic differentiation on critics' ratings grows, and critics appreciate a larger differentiation from the exemplary hit game. In this case, the indirect effect

**Table 3.** Structural Equation Modeling of the Temporal Impact of Strategic Differentiation on Game Sales

	Total effect on game sales (1)	Total effect on game sales (2)	Total effect on game sales (3)
<b>Measures of strategic differentiation and temporal effects</b>			
<i>Strategic differentiation</i>	-1.632 (0.984)	-7.329*** (2.306)	-7.165** (2.328)
<i>Strategic differentiation</i> <sup>2</sup>		80.607** (28.627)	81.314** (28.852)
<i>Time since exemplar release</i> × <i>Strategic differentiation</i>			0.197*** (0.052)
<i>Time since exemplar release</i> × <i>Strategic differentiation</i> <sup>2</sup>			-2.392** (0.663)
<b>Mediating mechanism</b>			
<i>Critics' rating</i>	0.069*** (0.014)	0.070*** (0.014)	0.070*** (0.014)
<b>Other controls</b>			
<i>Time since exemplar release</i>	0.002** (0.001)	0.002*** (0.001)	0.002*** (0.001)
<i>Renewals</i>	-0.025** (0.009)	-0.026** (0.009)	-0.029*** (0.009)
<i>Prior entrant success</i>	-0.005 (0.006)	-0.005 (0.006)	-0.006 (0.006)
<i>Exemplar publisher</i>	0.897*** (0.067)	0.892*** (0.068)	0.884*** (0.068)
<i>Time since last entrant</i>	-0.004* (0.001)	-0.004* (0.001)	-0.004* (0.001)
<i>Generalism</i>	0.299*** (0.024)	0.299*** (0.024)	0.297*** (0.024)
<i>Feature spanning</i>	-0.019+ (0.011)	-0.021+ (0.011)	-0.021* (0.011)
<i>Sequel</i>	0.638*** (0.038)	0.636*** (0.038)	0.635*** (0.038)
<i>Licensed game</i>	0.545*** (0.041)	0.552*** (0.041)	0.547*** (0.041)
<i>Christmas season</i>	-0.011 (0.030)	-0.012 (0.030)	-0.009 (0.030)
<i>Platform age</i>	-0.119*** (0.018)	-0.119*** (0.018)	-0.121*** (0.018)
<i>Multi-category entrant</i>	0.036 (0.041)	0.036 (0.041)	0.037 (0.041)
Observations	9,685	9,685	9,685

dominates the direct effect. As a result, it becomes optimal to differentiate more from the exemplar over time so as to maximize its impact on critics' ratings, which, in turn, enhance entrant performance. These findings strongly support Hypothesis 3B. Overall, our findings regarding the mediating effect of critics are consistent with past work emphasizing the key roles that intermediaries, such as rating agencies, evaluators, and industry media, play in the structuring of markets (e.g., Lounsbury and Rao 2004,

**Table 3.** (Continued)

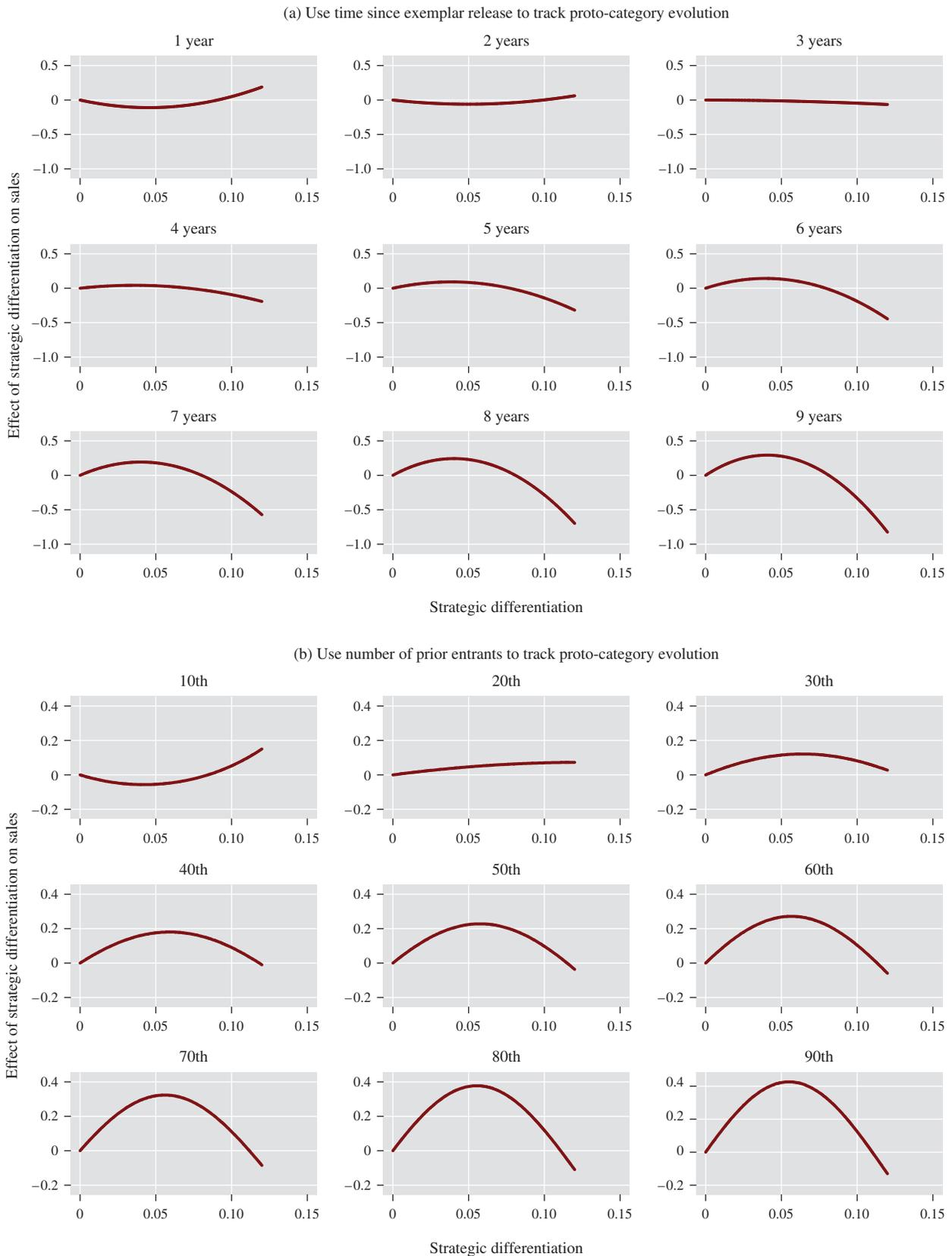
	Direct effect on game sales (4)	Direct effect on critics' rating (5)	Indirect effect on game sales (6)
<b>Measures of strategic differentiation and temporal effects</b>			
<i>Strategic differentiation</i>	-6.703** (2.215)	-6.608 (20.087)	-0.462 (1.408)
<i>Strategic differentiation</i> <sup>2</sup>	85.807** (28.526)	-64.328 (251.818)	-4.493 (17.601)
<i>Time since exemplar release</i> × <i>Strategic differentiation</i>	0.100+ (0.052)	1.391** (0.451)	0.097** (0.037)
<i>Time since exemplar release</i> × <i>Strategic differentiation</i> <sup>2</sup>	-1.074 (0.679)	-18.860** (5.945)	-1.317** (0.497)
<b>Mediating mechanism</b>			
<i>Critics' rating</i>	0.070*** (0.014)		
<b>Other controls</b>			
<i>Time since exemplar release</i>	0.002*** (0.001)	-0.000 (0.005)	-0.000 (0.000)
<i>Renewals</i>	-0.037*** (0.009)	0.115 (0.084)	0.008 (0.006)
<i>Prior entrant success</i>	0.002 (0.006)	-0.111* (0.044)	-0.008* (0.004)
<i>Exemplar publisher</i>	0.527*** (0.094)	4.457*** (0.488)	0.311*** (0.073)
<i>Time since last entrant</i>	-0.004** (0.001)	0.003 (0.012)	0.000 (0.001)
<i>Generalism</i>	0.218*** (0.029)	1.124*** (0.207)	0.079*** (0.022)
<i>Feature spanning</i>	-0.043*** (0.012)	0.308** (0.099)	0.022** (0.008)
<i>Sequel</i>	0.379*** (0.065)	3.679*** (0.316)	0.257*** (0.057)
<i>Licensed game</i>	0.721*** (0.059)	-2.504*** (0.352)	-0.175*** (0.045)
<i>Christmas season</i>	0.036 (0.029)	-0.639* (0.259)	-0.045* (0.020)
<i>Platform age</i>	-0.106*** (0.017)	-0.205 (0.169)	-0.014 (0.012)
<i>Multi-category entrant</i>	-0.010 (0.041)	0.677+ (0.376)	0.047+ (0.028)
<i>Japan branch</i>		1.972*** (0.269)	0.138*** (0.030)
Observations	9,685	9,685	9,685

Notes. All models included category fixed effects and ESRB rating dummies.

+*p* < 0.10, \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001.

Pontikes 2012, Zuckerman 1999). Going beyond this past work, though, our findings also suggest that the mediating role of critics becomes increasingly salient and influential in shaping consumer purchase decisions and thus game sales as a proto-category evolves.

**Figure 2.** (Color online) The Temporal Effect of Strategic Differentiation on Game Sales



**Table 4.** Models Using Number of Prior Entrants to Capture the Temporal Dynamic

	Total effect on game sales (1)	Total effect on game sales (2)	Total effect on game sales (3)
<b>Measures of strategic differentiation and temporal effects</b>			
<i>Strategic differentiation</i>	-1.703 <sup>+</sup> (0.979)	-6.942** (2.295)	-13.266*** (3.110)
<i>Strategic differentiation</i> <sup>2</sup>		74.132** (28.510)	133.312*** (39.545)
<i>Number of prior entrants</i> × <i>Strategic differentiation</i>			3.878** (1.370)
<i>Number of prior entrants</i> × <i>Strategic differentiation</i> <sup>2</sup>			-37.134* (17.545)
<b>Mediating mechanism</b>			
<i>Critics' rating</i>	0.068*** (0.014)	0.069*** (0.014)	0.070*** (0.014)
<b>Other controls</b>			
<i>Number of prior entrants</i>	-0.301*** (0.033)	-0.299*** (0.033)	-0.301*** (0.033)
<i>Renewals</i>	-0.005 (0.009)	-0.006 (0.009)	-0.007 (0.009)
<i>Prior entrant success</i>	0.058*** (0.009)	0.058*** (0.009)	0.057*** (0.009)
<i>Exemplar publisher</i>	0.877*** (0.068)	0.873*** (0.068)	0.862*** (0.068)
<i>Time since last entrant</i>	-0.003* (0.001)	-0.003* (0.001)	-0.003* (0.001)
<i>Generalism</i>	0.300*** (0.024)	0.300*** (0.024)	0.300*** (0.024)
<i>Feature spanning</i>	-0.021* (0.011)	-0.023* (0.011)	-0.023* (0.011)
<i>Sequel</i>	0.644*** (0.038)	0.642*** (0.038)	0.638*** (0.038)
<i>Licensed game</i>	0.549*** (0.041)	0.555*** (0.041)	0.543*** (0.041)
<i>Christmas season</i>	-0.008 (0.029)	-0.010 (0.029)	-0.007 (0.029)
<i>Speed</i>	-0.007*** (0.001)	-0.007*** (0.001)	-0.008*** (0.001)
<i>Platform age</i>	-0.126*** (0.018)	-0.126*** (0.018)	-0.127*** (0.018)
<i>Multi-category entrant</i>	0.047 (0.041)	0.047 (0.041)	0.037 (0.041)
Observations	9,685	9,685	9,685

### Robustness Checks

We conducted a series of robustness checks to further validate our findings. To begin, we experimented with alternative, more conservative criteria to identify exemplars and their core features. First, rather than using one standard deviation above average sales as the cut point, we tried two standard deviations above the average. Second, instead of focusing on games that

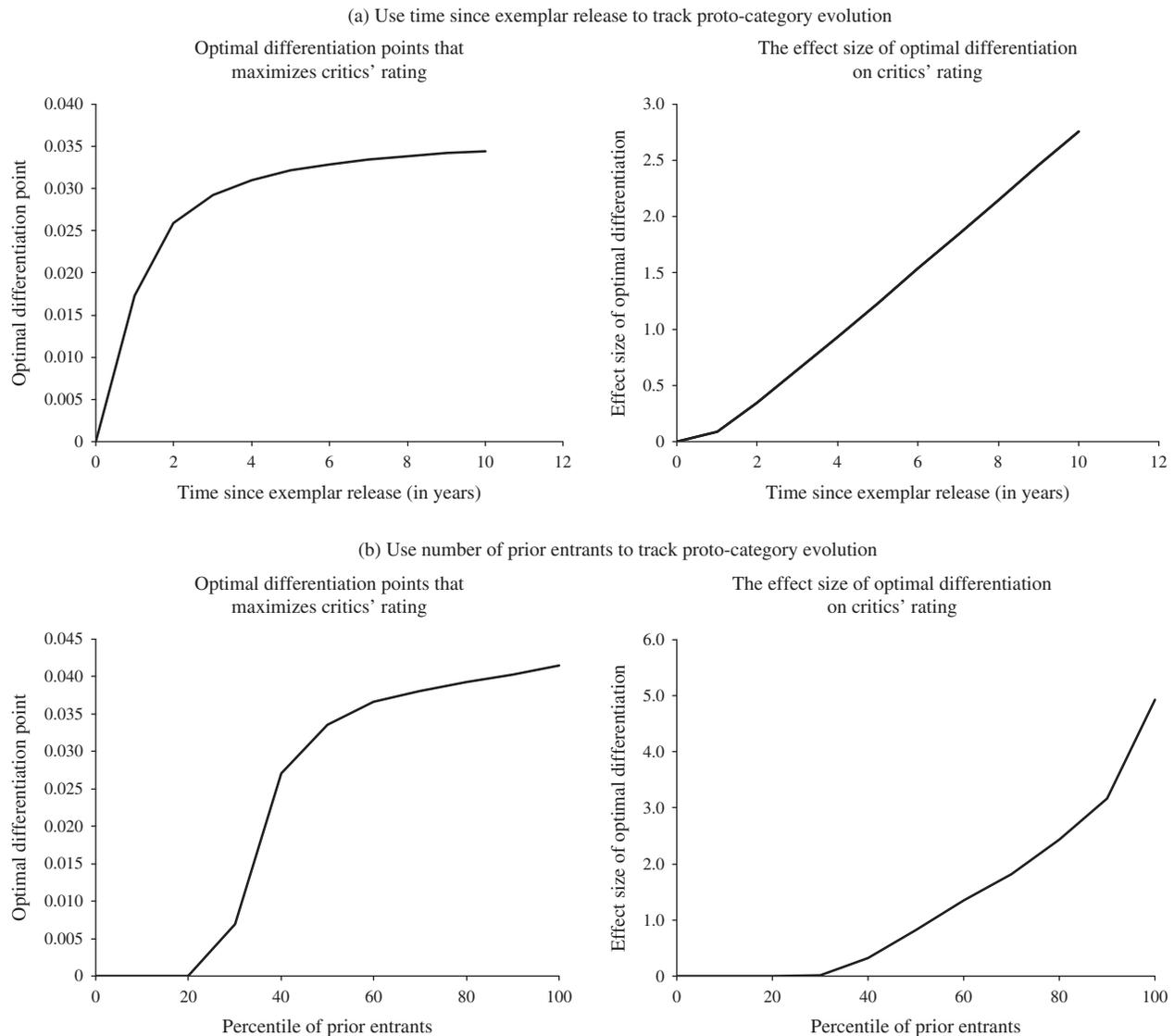
**Table 4.** (Continued)

	Direct effect on game sales (4)	Direct effect on critics' rating (5)	Indirect effect on game sales (6)
<b>Measures of strategic differentiation and temporal effects</b>			
<i>Strategic differentiation</i>	-8.271** (3.189)	-71.847** (25.311)	-4.994** (2.042)
<i>Strategic differentiation</i> <sup>2</sup>	88.812* (41.119)	640.169+ (338.065)	44.500+ (25.261)
<i>Number of prior entrants</i> × <i>Strategic differentiation</i>	0.981 (1.457)	41.677*** (11.333)	2.897** (0.980)
<i>Number of prior entrants</i> × <i>Strategic differentiation</i> <sup>2</sup>	-4.333 (19.065)	-471.865** (155.487)	-32.801** (12.703)
<b>Mediating mechanism</b>			
<i>Critics' rating</i>	0.070*** (0.014)		
<b>Other controls</b>			
<i>Number of prior entrants</i>	-0.195*** (0.037)	-1.516*** (0.268)	-0.105*** (0.029)
<i>Renewals</i>	-0.023* (0.009)	0.222** (0.085)	0.015* (0.007)
<i>Prior entrant success</i>	0.043*** (0.009)	0.204** (0.071)	0.014* (0.006)
<i>Exemplar publisher</i>	0.561*** (0.092)	4.320*** (0.486)	0.300*** (0.071)
<i>Time since last entrant</i>	-0.003* (0.001)	0.005 (0.012)	0.000 (0.001)
<i>Generalism</i>	0.220*** (0.029)	1.141*** (0.207)	0.080*** (0.022)
<i>Feature spanning</i>	-0.044*** (0.012)	0.302** (0.099)	0.021** (0.008)
<i>Sequel</i>	0.383*** (0.064)	3.670*** (0.316)	0.255*** (0.056)
<i>Licensed game</i>	0.722*** (0.059)	-2.574*** (0.353)	-0.179*** (0.046)
<i>Christmas season</i>	0.037 (0.029)	-0.631* (0.259)	-0.044* (0.020)
<i>Speed</i>	-0.006*** (0.001)	-0.029*** (0.007)	-0.002** (0.001)
<i>Platform age</i>	-0.110*** (0.017)	-0.236 (0.169)	-0.016 (0.012)
<i>Multi-category entrant</i>	-0.008 (0.041)	0.648 (0.376)	0.045 (0.028)
<i>Japan branch</i>		1.986*** (0.269)	0.138*** (0.030)
Observations	9,685	9,685	9,685

Notes. All models included category fixed effects and ESRB rating dummies.

+*p* < 0.10, \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001.

appeared at least once on the five top award lists, we used games that appeared on at least three of the five “greatest games” charts as well as on all five. Third,

**Figure 3.** Optimal Differentiation Points and the Effect Size of Optimal Differentiation on Critics' Rating

rather than using total sales to determine sales averages and standard deviations, we used first-month sales. Finally, we limited our sample to those exemplars for which the two coders reached complete agreement on the core features even in their initial coding. In all four adjustments to the criteria, the findings on strategic differentiation's impact were consistent.

A second set of robustness checks was around unmeasured and unobservable game features. These unmeasured game features may include characters, story line, graphics, sound effects, etc. Although these elements are difficult to quantify, critics' ratings should capture much of their effects. Thus, by using critics' ratings, we believe our models are more fully specified. To check this assumption, we acquired a proprietary database from IGN Entertainment where games are rated on their presentation, graphics, sound, game play, and story line and then given an overall score

of appeal on these dimensions. Not surprisingly, the *IGN score* and critic's rating of a game were strongly correlated (0.66). Our results remained robust when we replace the critic's rating with *IGN score* in our models.

As a third set of robustness checks, we modified our assumptions about market timing. To control for the possibility that the development of certain games were already underway before the emergence of a proto-category, we ran models that excluded those games that were launched in the first six months after the exemplary hit game release. Next, mindful of the possibility that the effect of strategic differentiation on new entrants' sales might be confounded by other hard-to-observe factors, such as word-of-mouth and peer influence among gamers, we replaced our primary outcome variable by *opening-month sales*. We reasoned that these alternative influences would be weaker in the opening

month after a focal game's release. With both adjustments, our reported findings hold.

Our fourth set of robustness checks was around publisher-level factors, particularly those not sufficiently captured by our control variables. It might be argued that pricing strategies across games in a category might affect the results. We used *units sold* to account for publishers' different pricing strategies, such as cost leadership, and found consistent results. In addition, we also considered other variables that might help account for potential publisher-level heterogeneity, for example, the average dollar sales of a focal publisher's prior entrants and the publisher's average performance across all prior games (entrant or not). These variables were ultimately dropped from our analysis because of multicollinearity issues.

As shown in Figure 1, the 78 proto-categories have varied distance from one another, and they also become more or less popular with different numbers of new entrants over time. The potential interdependencies and overlaps across the 78 proto-categories might have competitive implications that influence an entrant game's strategic differentiation and its performance impact. We took two steps to address this potential concern. First, we controlled for the average distance between a focal proto-category and the rest of the 77 proto-categories. This distance variable is calculated based on the pair-wise Euclidean distance variable we created for generating Figure 1. Our findings remain robust after including this additional control. Second, we created a distance-weighted popularity variable—the weighted average of cumulative numbers of prior entrants for all other exemplars, where the weight was given by the inverse of the distance between each of these other exemplars and the focal exemplar. Controlling for this variable also does not change the pattern of our main findings.

Finally, while our theory suggests that exemplars serve as important benchmarks for audience evaluation in the emergence and evolution processes of proto-categories, it still begs the following question: As a proto-category develops, will an emerging prototype start replacing the exemplar as the benchmark, thus diminishing the role of exemplars? To examine this, we created an alternative strategic differentiation variable—*Diff. from Avg.*—measuring the Euclidean distance between a focal game's features and the average features (i.e., the "central tendency") of all games released in the same proto-category within the past year (Smith 2011). We again adjusted this distance variable for the changing popularity of certain feature combinations over time. Our results demonstrate that controlling for *Diff. from Avg.*, that is, strategic differentiation of an entrant game vis-à-vis the emerging prototype, does not change the pattern of our main findings. This suggests that the importance of the exemplar as a

benchmark is not diluted by the emerging prototype, adding further evidence of the unique value of the exemplar-based model in the categorization process.

## Discussion

In this paper, we introduced an exemplar-based model of the categorization process, which we argue was particularly useful for identifying proto-categories and theorizing the dynamics of within-category positioning and performance. We grounded our hypothesis development in the U.S. console video game industry where proto-categories frequently emerge and evolve around exemplary hit games. We argued that the impact of strategic differentiation on new entrant performance would inflect over time, and the temporal dynamic is strongly mediated by market intermediaries. Using structural equation models to analyze 6,544 games within 78 proto-categories, we found that, in the early stage of proto-category emergence, conformity to the exemplar's features pays off; as the proto-category evolves, a moderate level of differentiation becomes important for enhancing sales. We further showed that this temporal dynamic is driven by the changing competitive intensity in a proto-category because of the increasing number of new entrants, and it is strongly mediated by critics' reviews of entrant games. Moreover, the mediating effect of critics' review becomes increasingly salient as the proto-category evolves. We also show that the role of the exemplar as a benchmark for new entrants sustains even after accounting for the influence of emerging prototypes. These findings have important implications for research on categorization and optimal distinctiveness.

## Implications for Category Research

Earlier studies on categorization have mainly focused around the notion of categorical imperative (Zuckerman 1999), demonstrating the negative impact of category spanning on performance of individuals, products, and organizations. Later studies have examined various boundary conditions of the categorical imperative and showed that, in more dynamic categorization contexts (e.g., when categories are emerging or in flux), category spanning does not necessarily lead to performance penalties. While these are significant advances of the categorization literature, a focus on across-category dynamics has contributed to two major theoretical blind spots: a lack of strategic agency around categorical expectations and a lack of attention to within-category processes.

Our study adds insight by studying a dynamic categorization context—the console video game market—where nascent video game proto-categories frequently emerge around exemplary hit games and showing that in such a context there are wide variations in terms

of how new entrants strategically position themselves vis-à-vis the exemplars. We note that the emergence and growth of proto-categories requires new entrants to adjust their differentiation strategies to be optimally distinct. Our study thus brings the strategic agency in categorization processes to the fore. In doing so, we conceptualize proto-categories not as static, exogenous structures with immutable behavioral expectations, but as bounded yet fluid environments where organizations resemble and compete with each other in a temporal dynamic. Our study therefore highlights the value of integrating the categorization and optimal distinctiveness literature and helps sensitize scholars to the strategic management of within-category processes that have been elided in prior studies. In this way, our study directly answers the calls to bridge organization theory and strategy and study the performance dynamics associated with institutional processes (Oliver 1997, Zhao et al. 2017).

Relatedly, by studying the relationship between strategic positioning and performance in proto-categories, our paper also adds to the emerging stream of work on category emergence and evolution that remains in its infancy (Durand and Paoletta 2013, Glynn and Navis 2013, Kennedy and Fiss 2013). To this end, our paper highlights the critical role an exemplar plays in launching a new product category and attracting new entrants. We find that exemplary hit games, because of their visibility and saliency, quickly attract the attention and garner support of key audiences and potential entrants. The core features of the exemplars help delineate the boundary of and define what lies inside and outside the proto-categories. The exemplars also form the basis for interaction among various actors and draw the boundaries within which entrants strategically differentiate their offerings and compete for consumers. An emerging proto-category is thus recognized with the exemplar as a benchmark and coalesces around its core features. This exemplar-based model of category emergence and evolution is particularly useful in studying categorization dynamics in highly uncertain and ambiguous contexts where clear prototypes are not immediately and readily available. In this case, the exemplar plays a fundamental role in providing a cognitive infrastructure for market participants and structuring their interactions and sense making.

Our results also show that accounting for the influence of emerging prototypes will not diminish the role of exemplars; we continue to observe a significant impact of strategic differentiation of new entrants vis-à-vis the exemplar on entrant performance after controlling for strategic differentiation of new entrants vis-à-vis the emerging prototype. This is an important finding that significantly advances our understanding regarding the potential relationship between the

exemplar and prototype models. Past studies have suggested that the two models are mutually exclusive with some in favor of the prototype model (Homa et al. 1981, Posner and Keele 1968) and others in favor of the exemplar model (Medin and Schaffer 1978, Palmeri and Nosofsky 2001). Other studies have instead found that both models are informationally equivalent (Barsalou 1990) and hence cannot be empirically distinguished. More recent research has increasingly viewed the exemplar and prototype models as lying on a continuum, pointing to a potential shift where prototypes are expected to emerge from repeated exposure to and abstraction over exemplars (Verbeemen et al. 2007, Bod 2009). The implication of such a shift is that, as the proto-category evolves, the emerging prototype will increasingly replace the exemplar as the comparative standard for categorization and evaluation.

However, as we demonstrated, such shift from the exemplar model to the prototype model is neither universal nor inevitable. In contexts with substantial environmental uncertainty and complexity such as ours, this shift might be particularly challenging since market participants need to gradually abstract a prototype through their prolonged interaction with and repeated use of the exemplar in making judgment and evaluation on new products (Homa and Vosburgh 1976, Rosch and Mervis 1975). As such, the influence of the exemplar may sustain despite the formation of a category prototype. Moreover, the boundaries of proto-categories are in flux and may constantly change with new entrants. This nature of proto-categories may further promote exemplar influence while discouraging prototype abstraction or even disadvantaging the use of prototypes in categorization (Baetu and Shultz 2010, Smith and Minda 1998). Future research should build on our study and continue to explore the relationship between prototype and exemplar models in other contexts. There are a series of interesting questions scholars may ask: When might we recognize a meaningful prototype (or full-fledged category) to actually exist and, in turn, to demarcate when scholars and practitioners might be better served to devote greater attention to prototypes versus exemplars? Might exemplars be a (more) useful proxy regardless of a category's evolutionary stage? What are the roles of prototypes versus exemplars in either enabling or hindering category emergence and evolution?

Furthermore, our study also helps address the boundary questions of emerging categories. Past research has mainly focused on established categories and studied how their boundaries can become more or less stable and more or less clear and can be reconstituted by different interests (Lounsbury and Rao 2004). The limited number of studies on category emergence to date has pointed to a number of forces that delimit the boundaries of new categories. These include the

imposition of state authority (Strange 1998), the identity movement of activists (Weber et al. 2008), the soft power of entrepreneurs (Santos and Eisenhardt 2009), and the collective meaning construction among a variety of actors (Khaire and Wadhvani 2010). Our study extends this line of work by drawing on research on proto-institutions (Lawrence et al. 2002) and introducing the notion of proto-categories. We argue that these proto-categories do not yet have entrenched boundaries; rather their boundaries are being formed around the core features of an exemplar and constantly evolving as a result of the strategic positioning of new entrants vis-à-vis the exemplar.

Finally, most extant research on market intermediaries has been conducted in the context of established markets, so our understanding of their particular role in shaping category emergence and evolution is limited (Lee et al. 2017). Our paper helps address this gap by highlighting the powerful and time-varying mediating role of professional critics. Specifically, we show that the performance consequences of new entrant positioning in a proto-category are strongly mediated by critics' reviews across all stages of the proto-category's evolution. Moreover, critics play an increasingly salient role in adjudicating quality, sorting through offerings, and dictating the optimal level of product differentiation as the proto-category develops. We view such temporal dynamics in the influence of intermediaries as an integral part of category emergence and evolution research. Future work should continue to explore how intermediaries create and shape boundaries of nascent market categories by setting criteria of evaluation, establishing hierarchies of quality, and in turn influencing producers' strategic actions.

### Implications for Optimal Distinctiveness Research

Our paper also extends previous scholarship on optimal distinctiveness. Since the origin of the optimal distinctiveness concept in social psychology (Brewer 1991) and its integration into organization studies (Deephouse 1999, Porac et al. 1989), the challenging differentiation–conformity nexus has become a core debate in strategy and organization research (Zhao et al. 2017, Zuckerman 2016). Despite the growing body of research on optimal distinctiveness, the focus of those studies has been mainly on highly mature organizational fields, such as financial services or health care firms. In such settings, which are classified by Scott and Meyer (1991) as strong technical and institutional environments, legitimacy expectations are considered invariably potent, and strategic positioning is gauged against the resources and capabilities of a stable and strong set of competitors. Under the scope condition of an established market with both strong competitive and strong institutional pressures, strategic balance—an intermediate level of strategic

differentiation—have been consistently theorized and found to be a significant contributor to optimal distinctiveness and, in turn, higher market performance (Zhao et al. 2017).

Our study relaxes this scope condition by focusing on the console video game market where proto-categories frequently emerge around exemplary hit games and competitive pressures shift with the evolution of these categories. This setting represents a dynamic environment with varying strengths of the conformity versus differentiation tension, which moderates the effectiveness of strategic balance in enhancing market performance. Therefore, we observe a moving optimal distinctiveness point over time, adding a critical dynamic to the relatively atemporal research associated with strategic balance theory. Moreover, we explicitly theorized and tested the mediating role of critics, which has been conflated with ultimate market performance in past optimal distinctiveness studies (Zhao et al. 2017). Further research in this direction would not only enhance theory but could have practical value in helping future managers develop a deeper understanding of how shifts in legitimacy expectations and competition, mediated by professional gatekeepers, have implications for strategy and performance.

More broadly, the dynamic conceptualization of optimal distinctiveness helps extend the competitive strategy literature. To date, the vast majority of studies on competitive positioning are set in contexts of established industries with a stable set of product features and meanings (Anthony et al. 2016). In these industries, shared understanding of the product category has already been developed. There is consensus among producers and consumers about what product attributes serve as the basis of positioning and what performance criteria are most relevant. Optimal competitive strategy in such cases requires firms to carve out a unique, defensible position relative to their competitors against these widely shared criteria (Cattani et al. 2017a).

In dynamic contexts with emerging and evolving product categories, what constitutes an optimal competitive strategy is more ambiguous. In these settings, where shared understandings are still emerging, some argue that firms need to first collaborate to legitimate a category and mutually establish its core features and identities (Kennedy 2008, Khaire and Wadhvani 2010). Once the category is established and its boundary defined, firms then strive to differentiate themselves from one another (Navis and Glynn 2010). As such, optimal positioning entails an early conformity followed by later differentiation. Others, in contrast, suggest that category emergence by definition implies a lack of consensus and conflicting interpretations around different product offerings (Benner and Tripsas 2012, Garud and Rappa 1994). This ambiguity and lack

of shared understanding encourages experimentation and opens up opportunity for firms to advance different specifications and interpretations of their products. The early diversity and experimentation is then followed by increasing conformity and convergence as certain product specifications gain momentum and become a dominant design.

Our findings are most consistent with the first view: in the early stage of proto-category emergence, we find that higher conformity pays. However, there is evidence that high differentiation from the exemplar, while rare and risky, may also lead to high reward. While it is beyond the scope of this paper, future research could investigate what factors enable firms to pursue highly differentiated market positions and, at the same time, still overcome the illegitimacy discount and reap high performance, especially in settings where new categories frequently emerge and evolve. In addition, future research may examine a broader set of organizational and product dimensions that firms can mobilize and orchestrate to complement or compensate the nonconformity to be perceived as optimally distinct (Zhao et al. 2017). A related question is to explore what allows some products to become exemplars in the first place. These exemplars often represent the most radical deviations from any preexisting product forms yet still achieve considerable critical and market reception. Past studies on the origins of radical innovations (e.g., Tellis et al. 2009) might be particularly informative in this regard.

Finally, notwithstanding the peculiarities of the console video game industry, we believe our theory and key findings are fairly generalizable. As long as certain boundary conditions are met (e.g., a competitive market environment with increasing consumer demand for quality and differentiation), we expect the conclusions of this paper to carry over into other contexts. As such, we see exciting opportunities for future research to extend our theory and analysis to other types of products, industries, and countries.

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### Appendix A. The Calculation of the Strategic Differentiation Variable

For the sake of simplicity, in this hypothetical example, we assume that a game can have at most two features (*feat 1*, *feat 2*). We further assume that historically there have been 100 games released on the market, where 50 of these games had both features 1 and 2 while 25 games had only feature 1 and the remaining 25 games only feature 2.

In our calculation of the strategic differentiation variable, we first create a matrix  $H$  that describes the frequency of games with feature 1 and feature 2. In the previous example, we know that there are 25 games with either feature 1 or feature 2 only and 50 games with both features. Thus, the  $H$  matrix is

$$\begin{pmatrix} 25 & 50 \\ 150 & 150 \\ 50 & 25 \\ 150 & 150 \end{pmatrix}$$

Here, the denominator 150 is the total number of times each feature appeared in the past 100 games: feature 1 appeared in 75 games, and feature 2 appeared in 75 games, so a total number of 150.

Now suppose we want to compute the strategic differentiation between two games: game 1 has feature 1 only, and game 2 has both features 1 and 2. The feature indicator for game 1 is then (1, 0) and that for game 2 is (1, 1).

Using the  $H$  matrix, we compute the weighted feature indicator as  $H^*(1, 0)'$  for game 1, and  $H^*(1, 1)'$  for game 2:

$$\begin{aligned} \text{Game 1: } H \begin{pmatrix} 1 \\ 0 \end{pmatrix} &= \begin{pmatrix} \frac{25}{150} \\ \frac{50}{150} \end{pmatrix} \\ \text{Game 2: } H \begin{pmatrix} 1 \\ 1 \end{pmatrix} &= \begin{pmatrix} \frac{75}{150} \\ \frac{75}{150} \end{pmatrix} \end{aligned}$$

The strategic differentiation variable is then calculated as

$$\begin{aligned} \text{Strategic Differentiation} &= [(25/150 - 75/150)^2 \\ &\quad + (50/150 - 75/150)^2]^{0.5} = 0.37. \end{aligned}$$

### Endnotes

<sup>1</sup>We began by interviewing industry insiders with whom we had preexisting relationships and asked each to introduce us to others they knew. In total, we were able to converse with 20 industry participants. These include founders of major video game publishers and developers, top executives, production team lead, and senior game designers.

<sup>2</sup>Since most sales are realized in the first few months after game release, this measure also effectively captures the emerging performance of games.

<sup>3</sup>Because of data limitations, we were unable to collect rich text data for entrant games as we did for exemplary hit games. Therefore, it is impossible for us to individually verify each entrant game's core versus peripheral features. Our assumption is that as long as an entrant game has the same features as the exemplar's core features, it would be considered a plausible candidate in audiences' choice set. Future research should further verify this assumption as more nuanced data becomes available.

<sup>4</sup>In a supplementary analysis, we used the absolute MobyRank score of the entrant game without taking the difference and generated consistent findings.

<sup>5</sup>We considered including calendar year fixed effects to control for unobserved temporal changes over time. However, calendar year is highly correlated with the time since exemplar release variable (0.7). The category fixed effects and platform age variables also help take care of unobserved temporal changes.

<sup>6</sup>As shown in Table 3 (model 5), Japan branch has a significant positive impact on a game's critics' rating. In unreported analyses where we included the Japan branch dummy in the equation estimating game sales, we found it has no significant, direct impact on game sales.

<sup>7</sup>The 95% confidence interval of this turning point is (4.19, 63.80), which is within our observed values (0, 192) of the time since exemplar release variable (in months).

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