The Effect of Population-Level Learning on Entry Likelihood in the Mobile Game Industry

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Population-level learning has traditionally been used to provide an explanation for the underlying mechanism of industry change. But it has yet to examine the impact on strategic decisions such as market entry. This conceptual paper aims to provide an insight into how population-level learning affects entry likelihood by acting as a tool for interpreting population-level changes. We study this in the context of the fast-paced mobile gaming industry where population-level information is salient and develop a set of propositions with regard to the likelihood of entry.

Keywords: Organizational Learning, Population-Level Learning, Entry Likelihood, Mobile Game Industry

Ⅰ. Statement of Intended Contribution

This paper addresses the factors organizations consider when introducing a new product into the market. Specifically, it aims to establish an understanding of how population-level learning assists in the processing of information to manage product introduction risk. Product launch decisions are based on the general concept of the weight of the benefits against the risks of entry. Learning organizations' perceptions of the benefits and risks of new product launch are affected through the processing of population-level changes. Businesses may be able to predict the general entry behavior of other industry members and generate a dynamic competitive strategy.

Ⅱ. Background

With the proliferation of mobile devices, the mobile game industry has taken up nearly half

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of the global gaming market. With virtually unlimited accessibility, both casual gamers and enthusiasts gamers play games whenever and wherever they please. As the global network infrastructure develops, we are going to witness even more expansion in the mobile gaming market and the growth of the gaming industry as well.

In this growing industry, game developing companies constantly enter with new games to have a piece of the evergrowing pie. With the increased number of new games released and escalating competition for gamers' attention, companies in the mobile gaming industry are eager to monitor trends that are constantly changing and scan the market to find the next big thing. The information about trend change and the emergence of new product categories is fed to gaming companies and they make one of the most important decisions in the gaming industry: decisions associated with market entry. While many enter as a new firm, some make the decision to diversify (Panwar & Bapat, 2007).

Making a series of decisions about market entry, one very simple but highly consequential choice has to be made: entry itself. Depending on whether to enter or not, companies need to formulate strategies and configure resources. To make this critical decision, they need to assess the industry attractiveness that can be determined using a complex and often confusing industry dynamics (Porter, 1980). The barriers

to entry contribute a large proportion in the decision to enter among other significant components (Orr, 1974). While insights from the positioning school are undeniably salient in determining the presence and strengths of the entry barrier, this study strongly believes that organizational learning also presents great potential in expanding our understanding about the entry decision.

Among various streams of research in organizational learning perspective, population-level learning has provided an insight into the mechanism behind industry change. Obviously, studies about population-level learning are not particularly assertive in claiming its contribution to providing implications about strategic choice and strategy formulation. However, we earnestly believe that knowledge derived from population-level learning can enable companies to make sense of market changes and meaningfully inform us in strategically critical decision making about market entry. Unlike pure population ecology, population-level learning does acknowledge the active role of organizations in experiencing the events in the industry and thus infer causal relationships among various elements influencing the dynamics in an industry.

With the above-mentioned motivations and potential to contribute to the relevant field of research, this study aims to develop a set of propositions concerning the effect of population-level learning on the likelihood of entry decision to offer plausible explanations about why firms

are more or less likely to enter into a market.

Ⅲ. Literature Review

3.1 Organizational learning

Organizational Learning (OL) is "the process through which organizations change or modify their mental models, rules, processes or knowledge, maintaining or improving their performance" (Chiva, Ghauri, & Alegre, 2014). These include both the cognitive and behavioral elements of learning. Organizations consciously engage in learning activities by gathering and processing information to gain insights through experience and observation. Reflecting the behavioral side of OL, conscious choices are made to bring organizational change (Huber, 1991). This is illustrated by Templeton, Lewis, & Snyder (2002) as the change and adaptation of organizational processes via targeted activities. Insights from OL becomes especially relevant and critical for organizations operating in dynamic environments by empowering them to assess and respond to the uncertainties and risks.

Huber (1991) comprehensively presents the processes and literature in OL spanning from knowledge acquisition, information distribution, information interpretation, and organizational memory. This study primarily follows the tradition of OL but focus more on the knowledge acquisition construct and its subprocess of searching and identifying meaningful information associated with changes at the industry level.

Founders and founding conditions have lasting impacts on organizations. Population ecology proposes imprinting that founding conditions determine how newly created organizations interact with environments. Drawing from organizational learning theory, entrepreneurship literature acknowledges the role of founders in deciding how new ventures operate. While imprinting emphasizes the role of context and previous experience shapes choices made by entrepreneurs, different streams of research similarly identify the role of the environment.

Organizational environments are bound to change and depending on industry characteristics, so does its rate of change. During these times of change when the fit between the organizations and the environments diverge, it results in low performance, low survival, or a costly transformation (Miller & Friesen, 1980; Lilien & Yoon, 1990; Virany, Tushman, & Romanelli, 1992). To survive organizations, scan their environment in search of information regarding changes (Wilensky, 2015). The information gained via scanning is utilized to enhance the effectiveness of strategic choices (Hambrick, 1982).

3.2 Population-level learning

Population-level learning is a development from and extension of the organizational learning theory that derives from firm-level insights. Studies of population-level learning concerns industry-level analysis (Miner and Anderson 1999). While organizations learn from their own experience and from that of others (Huber, 1991); learning by doing and learning by observation or vicarious learning, Miner and Anderson assert that learning also occurs at the population-level whereby affecting industrial change. With a critical event causing organizations to fail at a population-level, organizations that survive the event learn, enabling them to change behavior collectively and initiating an industry-wide change (Miner et al. 1996).

Studies about population-level learning are limited in numbers. Even with its greater potential to expand our understanding of how collective learning by organizations shapes the industry level change, not enough attention has been given to how organizations learn from the changes in population-level factors. OL is a conscious decision to create insights from own experience, the experience of others, and a population-level experience. As lessons from studies about own learning and vicarious learning have made a huge contribution to management research, studies of population-level learning deserve more scholastic and managerial attention. For example, density can be an effective proxy for determining the available resources in an industry (Delacroix, Swaminathan, & Solt, 1989).

3.3 Market entry

Entry is the act of providing a new product or service to a market. The majority of literature focuses on the entry decision; whether to enter or not. These are then followed by entry mode, entry strategy, entry tactics, and post-entry performance (Orr, 1974; Sharma, 1998; Trim & Pan, 2005).

Entry is determined by "the incentives to enter relative to the level of entry barriers" (Orr, 1974). Entry decisions are contingent upon the benefits of entry outweighing the efforts required to overcome entry barriers. Karakaya & Stahl (1989) have identified and delineated the barriers to entry. The presence of these barriers results in a smaller number of entries and thus enables incumbents to enjoy above-average profitability (Yip, 1982). Supporting research has shown that entry barriers influence profit rates (Mann 1966; Shepherd and Shepherd 1979).

Even in the face of entry barriers, firms have shown to enter into markets and even become more successful than incumbent firms. This phenomenon is more observable in fast-paced dynamic environments. Organizations enter either as pioneers or followers (Zachary et al, 2015). Followers come into the market either as an imitator or a differentiator and

may enter through internal development, M&A (mergers and acquisitions), and sequential entry (Jain, 1981; Porter, 1980). This paper will focus primarily on the impact of population-level learning on entry decisions in the form of product launch.

Ⅳ. Propositions

4.1 Learning from changes in density

Learning about the changes in population density affects how organizations assess the benefits of entry against the barriers to entry and thus the likelihood of entry. As this study is concerned with a mobile gaming industry, an industry that experiences a rapid change, density here refers to the number of products of a specific genre amongst a pool of different genres. As the number of products in a given genre increases, organizations that engage in learning behavior monitor proxies that represent the change. According to population ecology, an entity in an environment has neither the perception of density nor the means to gain access to relevant information. In a similar manner, while organizations, as an individual in the population, do not have an understanding of 'density'. They rather 'feel' this through the reduction in exploitable resources (Hannan and Freeman 1977). However, organizational learning assumes that organizations are capable of inferential reasoning and conscious decision making, emphasizing a more proactive participant of the environment.

One of the noticeable characteristics of the mobile game industry is that population-level information is provided both directly and indirectly by platform organizations such as Google and Apple and third-party sources. This makes information regarding population-level changes highly accessible, moreover in real-time, in comparison to other industries. Salient information such as density or the dispersion of product categories becomes relatively easily attainable. To illustrate, charts provided by the platform businesses include games and their respective genres. Potential entrants can then get a snapshot of how many games in a specific genre are presently in service.

Learning organizations will use this information to construct meaning, create knowledge, and make decisions (Choo, 1996). Density can be a proxy that indicates abundance or scarcity of resources within a given space in the population ecology literature (Young, 1988). However, density also provides information regarding the distribution of certain species (in this case genres). By understanding how particular genres are distributed in the space, organizations can distinguish whether a particular genre is trending or not. Organizations tend to herd toward trends accepting the phenomena as a growing market and to reap the benefits of the early

entry (Li, Li, & Cai, 2014).

Entry barriers are one of the major factors that deter organizations from entry (Karakaya & Stahl, 1989). Orr (1974) suggests that entry is likely when the incentives to enter are greater than the level of entry barriers. These incentives and barriers can be quantified and decisions are made upon the analysis of these elements. Karakaya & Stahl (1989) have identified and delineated the barriers to entry. Learning about the change in density impacts the perception of selling expenses. Because mobile games are virtually free to play, selling expenses refer to the cost of acquiring a new user. As mobile game developers' business model primarily comprises of advertisement revenue and monetization (users making in-game purchases), these costs are especially critical at the time of entry decision.

New users try out new games when: (1) their current game has come to the end of its product life cycle, (2) their current game is unsatisfactory, and (3) their needs for new experiences is high. Users characteristically try multiple games and remain in select genres depending on their personal tastes. They also have a tendency to regress back to older games they have played if newer or 'better' games are not aligned with their preferences. When the density of a certain genre increases, game developers with plans to enter into the genre will be able to conclude that the greater number of users are accustomed to the genre

and thus that cost of new user acquisition will be lower than otherwise.

Proposition 1: Population-level learning of the change in density will impact the perception of the benefits of entry and the cost of overcoming entry barriers and consequently affect the likelihood of entry. Specifically, the higher the increase in density of a genre in the mobile game industry is, the higher the likelihood of entry by a game company is.

4.2 Learning from changes in category growth

Momentum refers to the upward or downward rate of movement. We define momentum as the collective rate of growth of products in a particular genre category. Similar to density, information about momentum is also provided by the platform businesses and third parties in the form of charts or reports. Game genres that experience growth in high-velocity are presented on 'top charts'. When games belonging to a particular genre occupy a significant portion on these charts we call this genre a high momentum genre.

Critical events gain attention from industry members (Miner et al. 1996) and become a source of social performance feedback (Kim, Finkelstein, & Haleblian, 2015). The products become the focus of attention for organizations and create aspiration levels on the basis of the

discrepancy between the reference group of organizations and their status (Greve, 1998b). To reduce the gap, managers engage in mimetic adoption methods to benefit from what has already become 'successful' (Greve, 1998a). This impacts managerial perceptions of the merits of entry.

When a particular genre of games occupies the limited space in the ranking charts, game companies will be able to interpret the change in gamer preference based on belief-driven sense-making processes (Weick, 1995). This is because the community has at least a partial understanding of the mechanism behind the rankings. In order for games of a genre to enter the charts, they must grow at a higher velocity than others. This signals to the community that a significant number of users are and have been playing games in the genre. Game developing companies taking the follower approach get to spend less on educating the customers, reducing advertising costs (Mitchell, 1989). Furthermore, capital requirements shrink as a standard or model to follow allows the firm to bypass certain parts of the creative development process (Valdani & Arbore, 2007).

Proposition 2: Population-level learning of the change in the growth of a particular genre will impact the perception of the benefits of entry and the cost of overcoming the entry barriers and consequently affect the likelihood of entry. Specifically, the higher the increase

in the growth of a genre in the mobile game industry is, the higher the likelihood of entry by a game company is.

4.3 Learning from changes in performance

Change in performance often draws managerial attention. While an increase in performance is the most critical objective for organizations and a decrease in performance attracts concerns and demands timely remedial intervention, stable performance closely aligned with aspiration level represents a state of equilibrium between external demands and internal response. In the mobile gaming industry, performance stability applies to games that maintain their positions in the chart for an extended period of time. This is well represented in the 'top-grossing' chart provided by the platform businesses. It is not uncommon for some games to enter the chart briefly due to the short life cycle of mobile games. Others manage to maintain their positions longer. Such an extended presence sends a strong signal to potential entrants.

Gaming companies that are aware of performance stability games will modify their product launch strategies by either hastening or postponing their product launch dates (Tran, Sibley, & Wilkie, 2012). Some companies choose to expedite the development process and release games earlier than later, taking advantage as a fast follower but others putting off the product release in order to perfect their products

(Lilien & Yoon, 1990). For example, if games of a particular genre rank high and stay long enough in a chart, some developers with similar capabilities see this as an opportunity to piggy-back and are more likely to release their games sooner than later. For others, a stable performance by existing games is a signal that warns the presence of strong competitors. However, games don't survive long in the market and developers know that the success of the same genre games is good news rather than bad. This encourages developers to release their games. In sum, population-level learning on the stability of performance influences the perception of the benefits to entry and affects the likelihood of entry.

Proposition 3: Population-level learning of performance stability of a particular genre will impact the perception of the benefits of entry and consequently affect the likelihood of entry. Specifically, the lower the change in the performance of games of a genre ranked high in the mobile game industry is, the higher the likelihood of entry by a game company is.

V. Research Setting

Due to the relative novelty of mobile games, the academic community has yet to determine universal definitions and key characteristics of the industry. What is agreed upon is their portability where consumers are able to access games anytime, anywhere so long as access to a network is available. Because all mobile handsets are produced with network hardware, mobile gaming is possible virtually anywhere. This characteristic has contributed to the various range in genres. Light users demand games that can be played over a short period of time, for instance, to pass the time on the way home on public transportation. The role-playing games (RPG) genre and simulation games serve hardcore consumers. This results in the user base of the mobile game industry highly diverse in terms of age and gender.

Price is one of the most significant elements that impact the industry dynamics. As most games are free to play with a freemium pricing scheme (where users can optionally purchase premium items or services) users have greater opportunities to try out multiple games and find one that fits their needs best. Moreover, unlike console or PC gamers, mobile gamers are able to enjoy a large selection of games, while the counterpart particularly locks themselves to fairly limited choices.

Owing to these characteristics, the development period of mobile games is relatively shorter than that for other platforms. Capital requirements for development are low as the gaming hardware has processing limitations that need to be addressed. This also allows game companies to develop their products with just a handful

of developers. Jeong & Kim (2011) report that PC and console games require at least two years to develop with over 20 trained personnel, costing approximately $3 million. In the case of mobile games, five people with a $150,000 budget for a three to six-month development period produce a game.

VI. Discussion

This study aims to investigate how population-level learning affects the likelihood of entry in the mobile game industry. Based on a review of the literature and the characteristics of the industry, we find that conscious attention to population-level information offers a learning value that learning experience associated with firm-level does not address and conclude that learning population-level changes in population density, growth of categories, and performance stability influences the likelihood of entry.

Real world examples can explain the plausibility of the propositions. First, concerning the change in density impacting the likelihood of entry, game developers consciously monitor the number of same genre games released in a given time frame, and the increase in numbers signifies that games of the same genre become popular. Game companies collectively learn that it is the right time to enter the market. Second, games that rapidly climb the charts attract attention from game companies. Especially, game developers pay extra-attention to genres where they compete. For example, if Battle Royale FPS (First Person Shooter) genre becomes popular and more BRFPS games enter the chart, this becomes a strong signal to companies that develop shooting games. They interpret this trend as a window of opportunity that they cannot miss, leading to the increased launch of the same genre games. Furthermore, if such a phenomenon involves the emergence of a new genre, this impacts game developers to diversify into a new genre by pouring games into the market. And lastly, maintaining rank in a chart is a significant signal. If a game ranks high and stays long enough, the game draws attention from not only the competing developers but also from newly established developers. Strong and stable performance often gives birth to many admiring copy cats, leading to increased product releases to the market. Contrary to Proposition 1 and 2, Proposition 3 predicts that a smaller change in performance becomes a crucial population-level learning element because stability in performance means less variability or change.

VII. Theoretical and practical contributions

First, this study contributes to the body of

population-level learning literature by providing a different perspective: as a tool for interpreting information and creating knowledge. Second, while proposing a causal relationship of entry likelihood being a function of benefits from entry against the cost of overcoming entry barriers, we assert that learning processes aid in the decoding and interpretation of population-level information to impact entry decisions. And lastly, this study sheds a partial light on why herding behavior occur in fast-paced industries by portraying the mechanism behind learning and the likelihood of entry.

Ⅷ. Limitations and future research

We must first address the classical limitations of organizational learning. There is a tendency to define learning both as improvement and as a particular set of processes. This makes learning a good thing by definition and disregards the probability of learning processes transforming into intelligent behaviors. It is unclear whether the knowledge created actually turn into behavioral actions or remain simply as additional information stored in organizational memory. This leads to the measurement problem when conducting future research. It is difficult to clearly stipulate whether learning has actually occurred.

Another issue is a tendency to view the learning of particular learners (individuals, groups or organizations) as something that actually occurs in an environment dominated by exogenous factors. Among the numerous elements that affect behavior, it becomes difficult to isolate learning as the key that leads to the change. Theoretically, we need to have a lens that can separate actors from the background. We also need to prescribe the boundaries between organizations and environments and identify types of interaction between them that makes the boundaries blur.

There is also a tendency to underestimate the shortsightedness of learning. Learning processes respond primarily to outcomes that are near to action in time and space. This is referred to as the myopia of learning (Levinthal and March 1993) which favors immediate efficiency over returns that are more distant in time and space. Taking time into consideration, learning predominantly addresses the changes taken in the short-term and deem it as the results of learning while the impact may, in reality, manifest in a longer time frame. It becomes uncertain whether learning processes invariably lead to improvements or simply just another improvement.

Learning in this particular study also ignores the competitive and cooperative consequences of learning where organizations may bilaterally interact with one another. We deal with the results of the 'before and after' the occurrence

of unilateral learning by the subject firm when multiple phases of learning may occur with various organizations within the industry.

Being a conceptual exploratory study, the lack of empirical analysis must be addressed in future research in order to provide a more robust explanation of the propositions mentioned above.

With all the above-mentioned limitations, theoretical arguments and propositions laid out in this paper have the potential to illuminate and provide a solution to the problem of entry decisions faced by organizations in a dynamic industry. We strongly believe that this study contributes to the audience of research and practice by directing attention to key indicators of population-level changes such as changes in density, growth of categories, and performance stability.

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