Expect Success, Get Success

How Self-fulfilling Prophecy Can Impact New Product Development

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Overview: In new product development (NPD), practitioners and researchers have explored a variety of organizational factors, such as market orientation and firm innovativeness, that drive product success. They have not explored the role of expected outcomes on NPD. Using a social psychology perspective—a hitherto missing perspective in the NPD literature—we highlight how expected outcomes can drive new product success. Specifically, we highlight how self-fulfilling prophecies are likely to impact the performance of new products favorably. Surprisingly, our results indicate that expected outcomes mediate the relationship between predicted product success and actual

success, leading to improved new product performance. Introducing a social psychological perspective can impact how innovative firms accomplish new product success.

Keywords: New product performance, Self-fulfilling prophecy, Expected outcomes, Market orientation, Firm innovativeness

Research on the new product development (NPD) process explores many variables ranging from intangible factors like organizational culture, managerial commitment, and innovation culture (De Brentani and Kleinschmidt 2004; Dobni 2008) to more concrete characteristics such as new product success rate, percent of overall sales attributed to new products, and profitability of new products (Cooper and Kleinschmidt 1995, 1996). The most common industry metrics of NPD are either cost or output oriented and include the following: R&D spending as a percentage of sales; total patents filed that are pending, awarded, or rejected; total R&D headcount; current-year percentage of sales due to new products released in the preceding X number of years; and number of new products released.

Despite the vast research on organizational factors that lead to new product success, 95 percent of the 30,000 new products launched globally each year fail (Emmer 2018). One reason for these failures may be expectations of failure or success. For example, when discussing the success of new automobile design, economist Thomas Schelling stated, "What is most directly perceived as inevitable is not the final result but the *expectation* of it, which, in turn, makes the result inevitable" (Reynolds 1965, p. 56). Organizational psychology and behavioral sciences researchers have long recognized that expectations impact actual performance, yet findings from social psychology are noticeably absent from the NPD literature. Self-fulfilling prophecy is one useful theory for understanding the correlation between expected and actual outcomes. Stated simply, a self-fulfilling prophecy occurs when an individual's expectations about themselves or another person/entity result in actions that confirm those expectations (Britannica 2020).

Robert Merton introduced the self-fulfilling prophecy concept in 1948 to explain how fictitious expectations can yield new behaviors that turn the fictitious into reality and thereby reinforce the original expectancy. Decades of social psychology research suggest that prescriptively describing a situation in a certain way, whether false or true, evokes behavior that makes the situation come true as originally described (Ferraro, Pfeffer, and Sutton 2009; Merton 1948).

Self-fulfilling prophecies result in predicted outcomes in organizational contexts and also in societal contexts. A classic example of self-fulfilling prophecy is anxious depositors who withdrew their savings out of fear of bank closures, which produced the precise event they expected and contributed to the Great Depression (Wheelock 2013). As another example, after the Option Pricing Theory published by Fischer Black and Myron Scholes in 1973 became widely known, deviations from the price of the option reduced substantially. While deviations of 30–40 percent were common beforehand, as traders became familiar with the theory, deviations from the options price determined by the

theory narrowed to only 2 percent between August 1976 to August 1978. Scholars attribute the increasing accuracy of the theory to people and organizations acting as if the theory were true, which in turn resulted in observed evidence supporting the theory (Black and Sholes 1973; Ferraro, Pfeffer, and Sutton 2005; Merton 1971).

Despite the benefits of applying self-fulfilling prophecy theories to create self-fulfilling outcomes, NPD researchers have neither studied nor widely applied these theories. Little NPD research has examined the role of employees' expectancy on new product performance. We bridge findings from social psychology with NPD by examining how expected outcomes affect new product performance. Because published research supports the relationship between market orientation activities and positive NPD outcomes, we do not recommend that organizations rely solely on self-fulfilling prophecy. Instead, self-fulfilling prophecy can complement the impact of market orientation practices. Our study includes market orientation activities but adds the self-fulfilling prophecy concept. A firm's innovativeness may increase the relative confidence of product developers, thus leading to higher expectations for product success. Specifically, we analyze the mediating role of self-fulfilling prophecy on the well-established relationship between market orientation—namely, customer orientation, competitor orientation, and inter-functional coordination—and new product performance, while accounting for firm innovativeness. Practitioners can apply our easy-to-implement recommendations to improve expectations of success and thereby enhance new product success.

Literature Review

To understand how and why higher expectations may lead to higher NPD success, we include the social sciences in our literature review. We reviewed drivers of NPD success and different types of self-fulfilling prophecies.

According to researchers, social psychological variables such as learning, knowledge, and creativity mediate the relationship between market orientation and NPD success (Im and Workman 2004; Nguyen et al. 2015; Slater and Narver 1995; Zhou et al. 2007). Firm innovativeness—that is, the collective openness to new ideas amongst employees and managers within a given firm—is another commonly cited driver of NPD success. Firm innovativeness is a component of firm culture, and it positively influences new product performance and firm value (Calantone et al. 2002; Hult et al. 2004; Hurley and Hult 1998; Rubera and Kirca 2012).

Mazzei et al. (2016) discuss sustained organizational success in terms of high-performance work practices (HPWPs) implemented through HR management tactics based on setting goals. The authors identify ability, goal commitment, and feedback as three categories of HPWPs that foster a culture of innovation that can help organizations balance short-term operational efficiency with a long-term portfolio of creative products and solutions. Notably, these authors recommend practices that rely on the creation, communication, and evaluation of *expectations* to foster a "supportive atmosphere that empowers and motivates employees to take action toward current and future firm success" (Mazzei et al. 2016, p. 59).

In 1968, Robert Rosenthal and Lenore Jacobson introduced the Pygmalion effect, a special case of self-fulfilling prophecy based on the experimental manipulation of teachers' expectations of their students. The Pygmalion effect occurs when subordinates perform better once supervisors expect more of them (Eden 1984). When supervisors' increased expectations create the Pygmalion effect, those supervisors generally become more supportive and task-oriented. This in turn increases employee productivity and thereby fulfills the prophecy stemming from the elevated expectations.

Another self-fulfilling prophecy is the Galatea effect, which stems from self-expectancy rather than supervisory expectancy. The Galatea effect is positive self-expectancy likely triggered by an authoritative source, such as supervisors, who communicate high expectations that motivate "subordinates to mobilize more of their own resources to perform well" (Eden 1984, p. 66). Some researchers argue that senior management commitment can positively impact new product success, while others contend that senior management input can become stifling in the NPD context (Cooper and Kleinschmidt 1996; Droge et al. 2008; Cooper 2014).

Unlike the Pygmalion effect, Galatea effects do not require sustained supervisor support beyond the communication of high expectations because employees have internalized the motivation to perform. Researchers have found that both the Pygmalion and Galatea effects increase productivity. Therefore, regardless of subsequent leadership, "the most effective supervisors are those who create high performance expectations for subordinates" (Eden 1984, p. 67).

Given these findings, the self-fulfilling prophecy could play a key role in determining the success of new product outcomes. In this study, we determine the nature and role of self-fulfilling prophecies on new product outcomes while considering firm innovativeness and market orientation.

The Study

We investigate whether self-fulfilling prophecy, specifically *expectations*, plays a mediating role similar to learning, knowledge, and creativity. We posit that firms that emphasize market orientation will be more confident in their understanding of the market, will have greater reason to expect success ("We have done our homework and understand what the market wants."), and will be more successful compared to firms that are more top-down oriented ("We are following management directives."). For this study, we surveyed 400 product developers in the United States that engage in NPD in the retail, health care, financial services, technology, manufacturing, and management services industries.

Based on the literature review, we created a theoretical framework that assesses the relationship between expectations and key new product development constructs. We define market orientation as a combination of customer orientation, competitor orientation, and inter-functional coordination (Najafi-Tavani, Sharifi, and Najafi-Tavani, 2016; Narver and Slater, 1990). Our study aligns with prior literature in assuming that

customer orientation, competitor orientation, and inter-functional coordination will positively influence new product success. In our study, we also assume that expectations of success are a crucial component of a product success framework. Specifically, these three factors of market orientation will influence expectations of success, and subsequently drive actual product success. We examine our theoretical framework for product success both with and without expected success to demonstrate its importance. Finally, we connect firm innovativeness with new product success (Calantone et al. 2002). We hypothesize that firms that set higher expectations of success will realize higher levels of success in the NPD context.

Methodology

To test our theoretical framework (Figure 1), we surveyed 400 product developers from different companies (Figure 2). Successful self-fulfilling prophecy is rooted in individuals' perception of expectations, so we measured self-fulfilling prophecy at the employee level by having respondents quantify the expected success rate for their company's new product launches. We asked respondents, "What is the expected success rate of product launches within your organization?" We measured firm innovativeness using Kunz, Schmitt, and Meyer's (2011) seven-item Perceived Firm Innovativeness (PFI) scale, which measures firm creativity, dynamism, trend development, idea generation, and culture. An example of items in this scale include "My company is dynamic," "My company is very creative," and "My company is a pioneer in its category." The Cronbach's alpha for these seven items was .944. Cronbach's alpha indicates that our scale has high internal consistency, thus confirming that these items can be converged into one construct prior to our regression analysis.

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Because we would neither suppose nor recommend self-fulfilling prophecy–generating expectations to exist outside established market orientation practices, we also measured the perceived impact of these practices on new product success. To capture the market orientation factors—customer orientation, competitor orientation, and inter-functional coordination—we asked respondents to rank the three most important causes of product success out of 14 potential options. These options were "product has a clear competitive advantage," "product meets customer needs," "senior management support," "product quality," "product technological sophistication," "buyer experience," "product innovativeness," "adequate market potential," "product price," "product usability," "customer input," "time to market," "product technological sophistication," and "post-sales customer experience." We dummy coded the results of these responses. While this process allowed us to capture various aspects of NPD, to align with prior literature (Najafi-Tavani, Sharifi, and Najafi-Tavani, 2016; Narver and Slater, 1990), we focused primarily on the items related to competitor orientation, customer orientation, and inter-functional coordination.

We created a dummy variable using "product has clear competitive advantage" to capture competitor orientation. We scored as "1" any item respondents as one of the three most important factors contributing to product success, and "0" for an item they did not identify as one of the three most important factors. For example, if a respondent felt that "product has clear competitive advantage" was one of the three most important causes of product success, we scored that as "1" and "0" if they did not. To capture customer orientation, we used a dummy variable for the response "product meets customer needs," and a dummy variable for the response "launch execution" to capture inter-functional coordination. The dummy coding approach proved useful as it allowed us to differentiate between firms of different orientations—that is, firms either embraced a customer orientation or they did not. Finally, we defined success as the actual percentages of success within the organization. We asked respondents, "What percentage of product launches are successful for your organization?"

To test our theoretical framework, we conducted a multiple regression analysis using two alternative regression models to explore which of them had a robust fit to the data. In the first model we included the variable that measures expectations and in the second model we excluded the variable that measured expectations. Specifically, in our first model, we ran a regression analysis using customer orientation, competitor orientation, inter-functional coordination, and firm innovativeness as our independent variables, percent of actual success as our dependent variable, and percent of expected success as our mediating variable. In our second regression model we removed "percent of expected success." We also conducted a post hoc analysis to explore our data further to understand our results better.

Results

Our analyses demonstrated satisfactory fit ($R^2 = .505$) for our theoretical framework, thus enabling us to empirically test our hypothesis. The full framework we proposed demonstrates a much better fit than the regression model excluding the variable "percent of expected success." When we removed "percent of expected success," the $R^2 = .095$. Thus, including "percent of expected success" is necessary in our regression model to achieve an acceptable R^2 over the threshold of .3 (Moore and Kirkland 2007). This finding is crucial as it demonstrates that our independent variables alone do not do a sufficient job explaining actual product success; the inclusion of "expected success" is required to fully explain the phenomenon.

Our findings support the prior literature demonstrating the importance of market orientation on new product success: percent of expected success was directly influenced by customer orientation (B=10.207, p=.003) and competitor orientation (B=7.610, p=.011). Interestingly, inter-functional coordination did not impact expected success. Crucially, our primary hypothesis was supported as expected success had a direct impact on actual success (B=0.619, p=.000). Finally, innovative firms have a direct impact on actual success (B=2.423, p=.000). Based on the results, we developed the final, supported theoretical framework (Figure 3). We have also included the results of the poor-fitting

framework in which we removed expected success to highlight the importance of expectations to get a robust model fit(Figure 4).

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Post Hoc Analysis

While we did not include several survey items in our theoretical framework, a post hoc analysis, including all 14 items in the regression analysis revealed some interesting results. "Senior management support" was the only additional item (beyond customer orientation and competitor orientation) that had a significant influence on expected success. Interestingly, senior management support had a negative influence on expected success (B=-11.962, p=.015). This additional finding highlights the complex nature of senior management support in NPD: while senior managers are helpful in providing access to necessary resources, they can also stifle the NPD process (Droge et al. 2008).

Discussion

Our theoretical framework shows that expected success is among the most predictive variables of actual product success, demonstrating the Galatea effect for organizations with customer and/or competitor orientations. Our findings highlight the need for firms to focus on customer needs and to develop products that are superior compared to competitive offerings in their space. Furthermore, these findings demonstrate that new product success is dependent on the existence of expectations of success.

If a product developer is confident in the quality of their new product, that product will have a better chance of actual success. Thus, employees' expected success of their efforts may serve as a mediator of the relationship between market orientation and new product performance. We found that more innovative firms realized higher percentages of product success when the Galatea effect was in place. In essence, self-expectancy impacts actual product success, which has several implications. Our results underscore why previous empirical findings regarding the support from senior management within the NPD process have been mixed (Droge et al. 2008). Specifically, our findings show that the Galatea effect operates without senior management support, and senior management support did not have a positive influence on new product success. This finding suggests that strong strategy revolving around a market orientation and clearly defined expectations are more critical to NPD success than top-down company culture. It also suggests senior management support alone will not guarantee product success, especially if the product developers themselves lack confidence in the new product. Employees need self-confidence to successfully promote a solution or idea (Zika-Viktorsson and Ritzén 2005). Companies should foster confidence amongst product developers, not simply among senior management.

The relationship between senior management support and positive new product outcomes is likely complex because product developers require senior management support to gain needed resources. However, such support may become counter-productive, especially in instances where a heavy-handed approach stifles product developers' confidence and, by extension, their creative output (Droge et al. 2008), leading to decreased product success. Our findings offer a more nuanced approach regarding which kinds of support are effective versus ineffective in the NPD process.

How to Create the Galatea Effect

Decades of academic research show that the Galatea effect has a significant impact on employee self-efficacy, motivation, and performance (Eden 1984, 1990; McNatt and Judge 2004). As we mentioned previously, self-fulfilling prophecy (including the Galatea effect) has not been explored in NPD settings. Guided by a customer and competitor orientation, product developers set and communicate expectations and evaluate whether those expectations are met (Mazzei et al. 2016). Setting these expectations creates a positive work environment and boosts employee morale (Eden 1984). Our study finds that the Galatea effect also impacts tangible, quantifiable metrics related to new product success.

For the Galatea effect to work, employees must perceive the expectations as feasible *because of* individual or team talents and capabilities, rather than as directives meant to drive productivity and profitability. How supervisors frame expectations and perceptions of their team members determines whether employees' confidence in their ability increases and whether the likelihood of success increases, or if the supervisors' actions serve to demoralize. Poorly communicated expectations can come across as an admonishment for lackluster performance and signal the belief that the individual or team has not been meeting the desired standard, which can reverse the self-fulfilling prophecy effect and negatively impact performance gains.

Ferraro, Pfeffer, and Sutton (2009) and Mazzei et al. (2016) suggest validation is a key HPWP that sustains the Galatea effect. To develop expectancy and encourage the Galatea effect, fostering self-confidence will be more effective earlier on in the NPD cycle (Zika-Viktorsson and Ritzén 2005). Encouraging employees to develop and communicate expectations, then evaluate whether those expectations are being met, has been shown to improve firm performance (Mazzei et al. 2016). Our study extends this literature by demonstrating that these HPWPs are applicable to the new product development process. In fact, the likelihood of new product success in the market is dampened without these clear expectations. Expectations of a negative outcome may ensue if positive expectations are not established early and reinforced.

To achieve the Galatea effect, leaders should instil employee confidence during the planning and execution of the NPD process. Companies cannot achieve the Galatea effect merely by setting expectations; they need to provide appropriate guidance, otherwise dissension between management and development teams over time. Senior managers and supervisors can cultivate product developers' belief in the company's NPD process

confidence in their abilities to meet customer needs successfully. Focusing on marketing orientation, such as encouraging development teams to spend adequate resources to gain a competitive advantage, also helps foster the Galatea effect. Developing a customer and/or competitor orientation requires having processes for ongoing internal monitoring of external components. While it's resource-intensive, this continual monitoring is critical to cultivating self-fulfilling prophecy in the NPD context. Organizations that give development teams the latitude to engage in these behaviors may ultimately achieve greater success.

Self-fulfilling prophecy stems from purposeful behavior. The nearly 50 percent of US banks that failed during the Great Depression failed because people *acted* upon their *expectation* that banks might collapse (Wheelock 2013). They withdrew their money in droves large enough to cause the failure they expected, therefore completing the self-fulfilling prophecy. During times of economic instability some countries have enacted limits on the amount of cash customers can withdraw. Inadvertently, management often acts in ways that restrict the very behaviors that would enable their teams to actualize their expectations. Development teams cannot simply think a successful product launch into existence because that is what is expected of them. Self-fulfilling prophecy is powerful, but only when leaders empower employees to act and given the latitude to engage in innovative and market-orienting behaviors like consumer behavior research, competitor analyses, and product testing. Leaders may find allowing their team's requests more time or funding for these market-orienting activities will enhance the self-fulfilling prophecy process.

Study Limitations

While we asked study participants how their organization defines new product launch success, we could not conceivably remove all definitional variance from the reported quantitative measure of success. We focused on how *expectations* contribute to success, not on what constitutes successful NPD efforts. As such, the definitional variance of success is less likely to insert noise into the analysis so long as participants were thinking about the same marker(s) of success as they relate to both organizational expectations and actual outcomes with their survey responses. The responses were post-launch and self-reported. Future studies should collect data throughout the NPD process so expectations can be more accurately captured in real time.

Conclusion

By exploring the role of self-fulfilling prophecy—and the Galatea effect in particular—we present a unique, social psychological perspective on what drives NPD success. Our study highlights how product developers who understand keenly customer needs and competitive actions will expect, and realize, greater levels of product success than those who simply carry out management orders. In a product development context, a top-down approach will not work as well. To achieve increased product success, product developers must feel confident in their products. Senior management can facilitate the self-fulfilling prophecy by creating organizational cultures and structures that enable product

developers to gain and retain this confidence. Using the insights from this study, organizations can facilitate increased NPD performance using social psychological processes in addition to technical processes to drive new product success.

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Figure captions

Figure 1.—Proposed theoretical framework

Figure 2.—Survey of NPD professionals

Figure 3.—Final theoretical framework

Figure 4.—Final theoretical framework, excluding expected success