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ABSTRACT

This study examines how negative feedback during opportunity exploitation influences the attributes and innovativeness of new products, and how these changes affect performance. In our study of 130 pre-venture clients from Small Business Development Centers, we find negative feedback positively affects the extent of product change, with additional influence when entrepreneurs are high in entrepreneurial self-efficacy. Idea ownership and the initial newness of the product do not increase the effect of negative feedback on product change. Additionally, the extent of attribute changes significantly increases the performance of the launched product. We find no support for negative feedback influencing the innovativeness of the product.

INTRODUCTION

Entrepreneurial exploitation involves developing new business ideas: developing new products or services, identifying new markets, or new ways of producing or delivering products or services (Carland, Hoy, Boulton & Carland, 1984). While innovative, “new to the world” products and services are often risky for customers and for the firm, there are potentially large pay-offs: unique benefits and solutions for customers and greater likelihood of product and financial success for the firm (Kleinschmidt & Cooper, 1991). Due to the potential benefits to firms and to general economic development, there is significant academic and practitioner interest in how to increase the number of successful new innovative business ideas (Ireland, Hitt & Sirmon, 2003).

Schumpeter’s (1942) theory of creative destruction provides the foundation for initial theory on innovation. Schumpeter believed that small businesses are in a position to develop more innovative products and services than larger, more well-established firms due to their flexibility and lack of bureaucratic barriers. However, there appears to be only partial support for this belief. “On a relative basis, small, entrepreneurial ventures are effective in identifying opportunities but are less successful in developing competitive advantages needed to appropriate value from those opportunities.” (Ireland, Hitt & Sirmon, 2003: 963; italics added). Generating profit from opportunities requires developing products that customers value as providing more utility than competitors’ products (a new “product” in this context is assumed to include new service products). Smaller firms often do not have the resources or expertise to conduct extremely thorough analyses during multiple stages of development. They do, however, have the ability to execute one particularly critical activity of that process, and that is to solicit feedback about their identified opportunity as they develop it into a marketable product. How entrepreneurs use feedback while developing their products may be an important component in determining the success of the resulting product.

Many organizations formalize feedback-seeking behavior as part of the new product development (NPD) process. In processes such as Stage-Gate®, seeking input from potential customers is an integral and continuous part of the process (Cooper 2001). The voice of the
customer is heard in the very early concept testing stage to help define the product, throughout development and customer testing to solicit feedback on prototypes or early versions of the finished product, to post-launch feedback on the commercialized product. The role of customer feedback is to improve and refine the product to best meet the needs of the customer, enhancing chances for customer acceptance and commercial success.

While customer feedback is clearly important, relevant feedback over the course of the NPD process can come from a number of important stakeholders, not just from customers. Suppliers have been identified as fruitful sources of ideas (von Hippel, 1988) as well as providing feedback about ideas to partners integrated in the NPD process (Ragatz, Handfield, & Petersen, 2002). Investors are interested in the outcome of the NPD process, and may insist on providing input and feedback during the development of new products. And, particularly for small or new businesses, family members may provide feedback, as well as other external parties, such as Small Business Development advisors (Ardichvili, Cardozo, & Ray, 2003).

Many entrepreneurial small businesses do not have formal methods for seeking and capturing feedback on innovative opportunities. Yet solicited and unsolicited feedback, both negative and positive, is apt to occur once a novel solution receives any exposure beyond that of its creator. In particular, novel product ideas typically generate negative feedback (Ford & Gioia, 2000). While positive feedback is apt to be reinforcing and not lead to change in the nature of the idea, product, or service, negative feedback has the potential to cause changes in the nature and attributes of the original product idea.

In summary, while NPD processes in large firms have been studied extensively, little is known about those processes in smaller firms. We hope to begin to address this gap by examining various aspects of negative feedback. We are interested in how negative feedback, from all stakeholders, affects opportunity exploitation in new ventures. Our research questions address both the extent to which negative feedback reduces the innovativeness of new business ideas, and the extent to which negative feedback influences changes in the resulting product. We examine individual characteristics that may moderate the effect of the negative feedback. We also examine the effect of reductions in innovativeness and degree of product change on subsequent performance of the new product.

THEORY AND HYPOTHESES

Product Development and Innovation

The NPD process is the series of activities that take place from opportunity identification and selection to a launched product. While the labels and number of steps or stages in this process can vary significantly from one company to the next and in some instances may not even constitute a formal process, the basic activities that characterize this process can be summarized as follows: (1) Opportunity identification and selection. This includes idea generation, initial screening of the ideas to the subset that merits continuation in the process. (2) Concept generation and evaluation. Elaborating on the idea to more fully flesh out the idea is the goal of this part of the process. Product attributes are considered as well as the feasibility of producing the product around those attributes. (3) Development and testing. The concept is developed to the state of an actual finished product, and evaluation occurs to test that product performs. (4) Launch. Offering the product for commercial sale. These steps create an iterative process where additional information is used to refine and improve the original idea to a commercial product. Over the course of this process, the attributes of the product may be modified, trade-offs may need to be
made among different attributes, or it may not be feasible or acceptable to offer the product in the manner in which it was originally conceptualized.

One important attribute of the new product is its innovativeness. Product innovativeness has often been operationalized as newness; the degree to which a product is different from existing products and practice (Garcia & Calantone, 2002; Szymanski, Kroff & Troy, 2007). Also related to innovativeness is “disruptiveness”: the degree of disruption the new product creates at different levels of analysis. These levels of analysis can be categorized as macro (how the attributes of the new product is new to the world, the market or industry), and micro (how the product is perceived by the firm or customer). Yet all of these conceptions of innovativeness share the common thread of the degree to which the product is different.

The literature recognizes several perspectives in evaluating the newness of a product namely that of the market (Atuahene-Gima, 1995), the firm (Danneels & Kleinschmidt, 2001, Gatignon & Xuereb, 1997) and the customer (Robertson, 1971; Robertson & Gatignon, 1986). Because we are studying the process of exploiting opportunities identified by individuals whose business state was identified as pre-venture, we concentrate on the market and customer perspectives. With respect to the market perspective, is the product perceived as new compared to competitive products? If there is no direct competition for the product, the product may be considered “new to the world”. With respect to the perspective of the customer, the question is whether the customer perceives the product as new. Products from a customer perspective may range from discontinuous innovations that require new learning to continuous innovations that require no new learning and are more easily adopted (Robertson, 1971). The fact that adopters can be classified as “early adopters” or “laggards” (Rogers, 2003) is an indication that not all customers have the same resources and propensity to adopt and will view the product as more or less new based on their own experience.

**Negative Feedback**

We expect negative feedback to cause alterations in the product, as customers, suppliers and others point out flaws during NPD processes that involve these stakeholders. In the sections that follow, we first describe how negative feedback fits into the general NPD process. Then we develop hypotheses relating negative feedback to changes in product attributes and relating negative feedback to reductions in the innovativeness of the product.

NPD processes that take customers’ views into account, at least during the initial part of the development process, can increase the diversity of ideas during concept development and design. Some customers, such as lead users, have proven to be a source of innovative ideas (von Hipple, 1988), and customers can also influence NPD teams through their interaction with the team. Teams that are exposed to customers’ needs and problems can motivate members to explore innovative alternatives (Kantor, 1988). In addition to understanding initial desires, customers’ involvement in concept testing during early stages of product development has been demonstrated to influence the success of NPD projects (Cooper, 2001). Over that last two decades, customer integration has become an accepted practice within NPD (Enkel, Perez-Freije & Gassmann, 2005). However, the work in this area has described the involvement of customers, but has not examined the valence of the feedback. The role specifically of *negative* feedback has only been addressed with respect to after a product has been launched into the market, and also only based on the customer as the source of that negative feedback. For example, once the product has been launched, negative feedback can be used as input into development of new products (Fundin & Bergman, 2003). However, existing theory on the effect of outcome feedback on individuals can help inform this process.
Feedback to individuals about the outcome of their effort provides external information regarding their performance. Individuals can then judge, based on this feedback, whether or not their performance meets their expectations or goals, and determine whether or not to adjust either their goals or their actions (Earley, Northcroft, Lee & Lituchy, 1990). This outcome feedback does not help them determine what actions they need to change in order to improve (which process feedback would provide), but it does provide cues that may trigger information search and reflection on possible changes in implementation strategy (Ford & Gioia, 2000). Feedback also provides motivational effects, particularly when the tasks are under the control of the individual. When negative feedback is perceived to be informational (“This lever is hard to use”), rather than controlling (“You should change this lever or I won’t invest in your product”), the feedback is most likely interpreted as constructive and supportive (Zhou, 1998). Although negative feedback will not enhance intrinsic motivation as much as positive feedback, it will cause individuals to change their behavior if they believe themselves competent at doing so, and also believe they are the driving force behind the performance of the task (Zhou, 1998).

Integrating the expected actions of individuals based on receiving negative feedback into the process of creating a new product, we can see that once entrepreneurs receive negative feedback on an idea, they would likely consider that feedback carefully. Because they are proposing a new product, they are unlikely to be able to judge the performance and suitability of the product; they lack the context in which they can predict its acceptability. Any new product will contain product attributes not readily understood with respect to utility. Due to this uncertainty, entrepreneurs likely expect to change their product while fine-tuning the idea and developing the actual product, and negative feedback should give them information with respect to the attributes that should be changed.

Unfortunately, a side effect of these changes may reduce the innovativeness of the product. Negative feedback on the creativity of an idea undermines individuals’ feelings of self-determination and perceived competence, and lowers their creativity (Zhou, 1998). This reduction in certainty about a new idea and their ability to successfully launch an innovative product may trigger caution on the part of the entrepreneur and reduce the innovativeness of the final product. Thus, our hypotheses about the direct effects of negative feedback are as follows:

Hypothesis 1a: Negative feedback will positively influence the degree to which the attributes of the resulting product are changed.

Hypothesis 1b: Negative feedback will positively influence the reduction in the innovativeness of the resulting product.

Researchers have examined many contextual and individual variables that affect the actions taken based on feedback. For instance, Zhou (1998) found that feedback given in an informational style had a more positive effect on creativity and feedback given in a controlling style. Ford and Gioia (2000) found that negative feedback was associated with novel decisions, but that the effect of the feedback was mitigated by trust among the decision makers. Given that individual differences and context have been shown to affect how feedback is interpreted and used, we next propose three moderating variables that we expect to affect the influence of negative feedback. All three are perceptual, in that they are beliefs held by the entrepreneur that might influence the weight placed on the negative feedback, and therefore the belief that the new product should be altered in some way. See Figure 1 for an illustration of the hypothesized relations.
Initial Innovativeness of the Product Idea

As mentioned above, the customer will perceive the innovativeness of an idea or product based on his or her own experience. The same can be said of the entrepreneur; the entrepreneur will judge a new product idea’s relative innovativeness of an idea based on his or her own knowledge of similar or dissimilar products in the marketplace. Since “new to the world” products often require new learning on the part of the customer and the entrepreneur developing the product, many modifications in the product, the marketing of the product, and the firm’s operations may be needed. Entrepreneurs may be more open to change if they believe the product represents a truly innovative idea (Christensen & Bower, 1996). There are no standards and past practices to follow or competitors to imitate with a “new to the world” product. Hence, negative feedback will provide particularly salient information about what should be changed in the product if the entrepreneur believes the initial idea was particularly innovative, and the entrepreneur is therefore more likely to make changes to the product. However, because this feedback will reflect what feedback givers already understand, that is, will reflect features with which the feedback givers have experience, the suggested changes will likely reduce the innovativeness of the product idea.

Hypothesis 2a: The initial innovativeness of the original idea will moderate the effect of negative feedback on the degree of attribute change such that increased initial innovativeness will increase the effect of the negative feedback.

Hypothesis 2b: The initial innovativeness of the original idea will moderate the effect of negative feedback on the reduction of innovativeness such that increased initial innovativeness will increase the effect of negative feedback.

Ownership of the Idea

Psychological ownership of an idea is linked to feelings of possession, and influence one’s attitudes and behaviors. Specifically, the psychology of possession literature demonstrates that psychological ownership influences attitudes toward an idea, such that one’s evaluation of an idea will be more favorable towards an idea that he or she owns (Van Dyne & Pierce, 2004). Additionally, feeling ownership of an idea will reinforce the notion that the idea is an extension of the individual, and also increase a sense of responsibility towards that idea, demonstrated by protecting and controlling the idea (Van Dyne & Pierce, 2004). To the extent that the idea is an extension of the individual entrepreneur, that entrepreneur may be less likely to act on negative feedback about the product. Protecting the idea from change also protects the ego of the individual. Idea ownership, then, moderates the effect of negative feedback on product change and innovativeness, such that it will reduce the effect of negative feedback on product change, and it will therefore also reduce the effect of negative feedback on innovativeness. In other words, the product will not change as much, and hence, will maintain its degree of innovativeness.

Hypothesis 3a: Ownership of the original idea will moderate the effect of negative feedback on the degree of attribute change such that increased ownership will weaken the effect of the negative feedback.

Hypothesis 3b: Ownership of the original idea will moderate the effect of negative feedback on the reduction of innovativeness such that increased ownership will weaken the effect of negative feedback.
Entrepreneurial Self-Efficacy

In small entrepreneurial firms, negative feedback may influence the development of the product more, or less, due to the beliefs held by the entrepreneur. For example, an entrepreneur confident about his entrepreneurial abilities, that is, high in entrepreneurial self-efficacy (ESE), may act differently based on feedback received than an entrepreneur low in ESE. ESE measures the degree of certainty an entrepreneur has in his or her ability to perform tasks in multiple domains, including marketing, management, finance, innovation, and risk-taking (Forbes, 2005). Those high in ESE are confident in their ability to conduct market analyses and develop new markets, and are therefore likely to be cognizant of the importance of meeting customer needs. Those high in ESE are also confident in their ability to set and meet goals and objectives, which implies that they will attend to information about obstacles towards those goals. Given that negative feedback provides information to entrepreneurs about attributes not acceptable to various stakeholders, entrepreneurs high in ESE will be more likely to consider changing and be effective at changing their new product. However, one of the attributes of the product entrepreneurs with high ESE may be less likely to change is the product’s innovativeness. As mentioned above, ESE reflects confidence in innovation and risk-taking as well as the functional skills areas of marketing and finance (Forbes, 2005). Because of their certainty in their ability in these areas, they would be less likely to reduce the innovativeness of the product based on the negative feedback they have received.

Hypothesis 4a: ESE will moderate the effect of negative feedback on the degree of attribute change such that increased ESE will increase the effect of the negative feedback.

Hypothesis 4b: ESE will moderate the effect of negative feedback on the reduction of innovativeness such that increased ESE will weaken the effect of negative feedback.

Influence on Performance

Our last set of relations examines influences on the performance of the new product. We look at the impact that the degree of product change and the reduction in innovativeness have on performance, expecting changes in product attributes to positively influence performance of the new product in terms of sales and market acceptance, but for reduction in innovativeness to be negatively related to performance.

An innovative product is less likely to have direct competition and it offers new attributes and benefits to customers yielding greater new product performance. Paradoxically, the innovative product disrupts customer consumption patterns and behavior significantly, and therefore may either slow adoption so that in the short run performance appears weak or the adoption never catches on with the majority of the market leading to poor new product performance. (Robertson, 1971; Kleinschmidt & Cooper, 1991; Veryzer, 1998; Rogers, 2003). However, if the product has been changed based on feedback from customers and others, those changes are likely to have made the product more acceptable to the market, thereby enhancing its prospects for success.

In a comprehensive review of the determinants of new product success and failure, Crawford (1977) and Cooper (2001) find that an absence of innovativeness (i.e., product benefits that are unique to a given product and are perceived as meaningful by customers) is an important underlying explanation for new product failure. Therefore, we expect that reductions in innovativeness should lead to lowered success of the launched product.
Hypothesis 5a: The degree to which product attributes change during the NPD process will be positively related to the performance of the product.

Hypothesis 5b: The reduction of innovativeness during the NPD process will be negatively related to the performance of the product.

SAMPLE AND METHODS

Sample and Study Design

The sample for this study is based on Small Business Development Center (SBDC) clients in a Midwestern state who sought counseling in 2006 or 2007 and who were categorized as “pre-venture” by the SBDC counselors. These clients may have already owned a business, but they requested counseling for a business idea that was still in the gestation stage. Survey data were collected in summer 2008, via a web-based survey. Solicitation emails were sent to 2631 SBDC clients, with reminder emails sent to those who did not reply within two weeks, yielding 130 usable observations. Survey data were augmented by information collected by SBDC offices in their normal intake and standard follow-up processes. The response rate is lower than desired (response rate was 5%), but discussions with a regional SBDC director revealed that many small business owners may not have the high-speed internet connection required to take the web-based survey in a timely fashion, and may not have participated for that reason. However, based on analyses of the regions represented by clients and respondents, there was no non-response bias based on region (therefore, for example, urban versus rural respondents were not over-represented). Also, the respondents did not differ significantly from non-respondents based on the mean number of hours of counseling they received, nor on which year they received counseling (2006 versus 2007).

With respect to feedback, our respondents indicated that slightly over half (59%) of the feedback was solicited. The sources of negative feedback were distributed fairly evenly among customers, family, and advisors, with very little of the negative feedback coming from suppliers or investors.

Measures

Measures for the dependent variables were created for this study, based on reviews of previous measures of innovativeness and performance of new products. The extent of product change was based on attributes drawn from NPD literature, such as the ease of use, the distribution channel, the intended customers, the features, and other similar types of changes. The reliability of this measure was acceptable (alpha = .88).

The reduction in innovativeness was based on an examination of innovation literature and choosing the items related to the newness of the product, reflecting newness to the world and newness to the market, as well as the extent to which it represented novel or unconventional methods of meeting customer needs. The ten item scale was asked twice, once with respect to the idea as it was originally conceived, and once based on the product when it was launched (both have reliability values above .90). We could have used the initial value as a control variable and the launched value as the dependent variable when examining the relation between negative feedback and innovativeness, but because we were also interested in the relationship between the extent of change in innovativeness and performance we created reduction in innovativeness by
subtracting the launched innovativeness value from the initial innovativeness value (a positive number represents a reduction in innovativeness).

The literature has measured commercial *performance* of a new product with perceptual measures (based on multiple items) on the degree to which the new product met its objectives relative to competition and expectations (Griffin & Page, 1996; Gatignon & Xueberg, 1997). Use of comparative measures is common in both NPD literature as well as in entrepreneurship literature (West, 1998) as both recognize the problems associated with using objective financial measures which are often unavailable or incomplete for new products. Performance in this study is a multidimensional variable constructed from two elements: perceived importance placed on particular new product objectives (e.g., market share) and outcomes on these same new product objectives. Outcomes for each objective were weighted by perceived importance on that objective to create a composite variable of overall new product performance. Composite measure of financial performance were based on Cooper and Kleinschmidt (1993) and weighted by the importance (Rochford & Wotruba, 1996)

Measures for the remaining model variables (the extent to which they agreed that the feedback was negative, idea ownership, and ESE) were all based on validated measures from previous studies, all with adequate reliability (all alpha values were above .8). The individual measures were standardized before creating the three interaction terms by multiplying negative feedback by each of the moderators: initial innovativeness, idea ownership, and ESE.

*Control variables* for the first two models include the number of hours of counseling the respondents received from the SBDC, the number of ideas they have launched previously (to control for previous experience), industry dynamism (since this might influence the acceptance of new products), and the initial innovativeness of the product idea (since the more innovative the product is, the more chance there is for reductions in innovativeness). When testing the impact of product changes and reduction of innovativeness on product performance, we also control for the comprehensiveness of the NPD process, since that has been shown previously to positively impact the performance of the resulting product.

**Methods**

We formally analyze regression equation outputs based on the sets of hypotheses. We created three sets of models, one for each of the dependent variables (degree of product change, reduction in innovativeness, and product performance). For the first two sets, we ran four regression models. The first model contained only control variables. We then tested the direct effect of negative feedback on the dependent variable (hypotheses 1a or 1b). Then we entered the remaining moderator variables, in order to distinguish the interaction effects in the final regression from possible direct effects. The final regression model containing the interaction variables allowed the test of hypotheses 2a, 3a, and 4a, or 2b, 3b, and 4b. The third set of regressions allows analysis of influences on product performance. The first model includes the control variables, and the final model tests the effect of product change (hypothesis 5a) and reduction of innovativeness (hypothesis 5b) on product performance. We evaluate the coefficients against three significance levels: \( p \leq 0.01 \); \( p \leq 0.05 \); \( p \leq 0.10 \).

We also conducted diagnostics on the regressions to look for evidence of multicollinearity. We examined Variance Inflation Factors to check for possible confounds to interpretation that may be caused by multicollinearity. All independent variables were below the suggested 10 cut-off level (Neter, Kutner, Nachtsheim, & Wasserman, 1996). In the next section, we describe the
results of the regression analyses, followed by the final section, which discusses the implications of those results.

RESULTS

Influences on extent of product change

Hypothesis 1a posits the positive influence of negative feedback on the extent of product change. Hypotheses 2a, 3a, and 4a test the moderating effects of initial innovativeness, idea ownership and ESE on the relation described in hypothesis 1a. The results for these hypotheses are shown in Table 1. Four regression analyses were run. The first regression includes only the control variables, none of which were significant. The second regression analysis includes negative feedback to test Hypothesis 1a. Negative feedback is significantly and positively related to the extent of product change (0.27, p ≤ .01), supporting Hypothesis 1a. Next, the moderators were entered into the regression to eliminate direct effects confounding the results of the interaction variables. None of the moderating variables (initial innovativeness, idea ownership, nor ESE) had a significant direct effect on negative feedback. Last, the interaction terms (negative feedback times each individual moderator) were entered into the model. Only hypothesis 4d is supported, that is, the interaction of ESE with negative feedback contributed positively to the extent of product attribute change.

Influences on reduction of innovativeness

Hypothesis 1b posits that negative feedback is positively related to a reduction of innovativeness in the product. Similar to the model described above, hypotheses 2b, 3b, and 4b test the moderating effects of initial innovativeness, idea ownership and ESE on the relation described in hypothesis 1b. The results for these hypotheses are shown in Table 1. Again, four regression analyses were run. The first regression includes only the control variables, and only the initial innovativeness of the product idea is significant (0.26, p ≤ .01). The second regression analysis includes negative feedback, which is not statistically significant; therefore, Hypothesis 1b is not supported. None of the moderators or interaction terms was significant, as seen in the last two regressions. Therefore, hypotheses 2b, 3b, and 4b are also not supported.

Influences on product performance

Hypothesis 5a posits the positive influence of the extent of product change on product performance. Hypotheses 5b posits the negative influence of the reduction in innovativeness on product performance. The results for these hypotheses are shown in Table 1. Two regression analyses were run. The first regression includes only the control variables, two of which were significant. Industry dynamism is positive and significant (0.18, p ≤ .05), and process completeness of the process is negative and significant (-0.13, p ≤ .01). The second regression analysis includes the two independent variables; the extent of product change, and the reduction of innovativeness. The extent of product change is positively related to performance (0.28, p ≤ .05), supporting hypothesis 5a. Reduction in innovativeness is not significantly related to performance, thus hypothesis 5b is not supported.

DISCUSSION

This study examines how negative feedback affects NPD in new ventures. Our research questions address both the extent to which negative feedback reduces the innovativeness of new
business ideas, and the extent to which the feedback influences changes in the resulting product. We found that the extent to which respondents agreed that the feedback was negative was positively related to the extent to which attributes changed in the product when it was launched. We did not, however, find support for the effect of negative feedback on reducing the innovativeness of the product. This lack of support may, however, be due to the low variance in the change in innovativeness of the product during development. On a 7-point scale of innovativeness, the mean initial innovativeness is 4.29, and the mean launched product innovativeness is 4.11. The mean change is .18, with a standard deviation of .77. Therefore, most products changed little during the development process. Also, in a meta-analysis of published studies on the relationship between innovativeness and new product performance (Szymanski, Kroff & Troy, 2007) find that innovativeness is a relevant factor of new product success under selected conditions. When innovativeness is conceptualized as having a meaningfulness component (meaningful to the customer, what others have labeled “useful”), the strength of the relationship with performance is greater. Furthermore, innovations that are new to the world rather than new to the firm are more apt to exhibit a relationship with performance. We measured innovation with respect to “newness”, without specifically testing for usefulness, many of the ideas in our sample was new to the firm, not the world, and were service-related. Therefore, there was relatively little innovation that should have contributed to success in this specific study.

We also examined individual characteristics that may moderate the effect of the negative feedback. Neither the initial innovativeness of the product nor the individual’s sense of ownership of the idea affected the influence of the negative feedback on product changes or innovativeness. ESE, however, increased the effect of negative feedback on changes in product attributes. Those entrepreneurs who exhibited confidence in their entrepreneurial capabilities changed their products more based on the negative feedback they received.

Last, we examined the effect of reductions in innovativeness and degree of product change on subsequent performance of the new product. Changes in the product during the development process resulted in higher performance, but changes in innovativeness did not. In addition to this finding, we find a curious result based on our control variable, process completeness. The extent to which the entrepreneurs reported conducting extensive NPD activities (such as detailed market studies, business and financial analyses, and testing) was negatively related to product performance. One possible explanation is that the entrepreneurs did not execute the steps as well as they claimed, that their view of “complete” is not as thorough as it was in the studies that have previously shown a positive relationship between thoroughness and success. Another possibility is that studies have shown process completeness is more critical to performance for more innovative new products. Given our sample, with relatively few truly innovative ideas, being intensely thorough in NPD processes may be counter-productive – perhaps more time and energy was spent on the process than was useful. This unexpected finding warrants additional research.

Limitations

Most of the limitations of this study are associated with the sample utilized for this research. Although the business ideas were new to the SBDC clients, they were not necessarily innovative ideas with respect to the market. This possibly influenced the data in that it was unlikely the innovativeness of the product would be significantly reduced during NPD. Additionally, portions of the sample do not have access to sufficiently high speed web access to enable them to take the survey easily, which may have reduced our response rate. Last, all the independent and dependent variables are from a single source, which could bias the results. With respect to this last limitation,
we did include control variables from external sources, and took care to word the questions objectively to try to reduce biased answers.

**Contributions for research**

Little has been done in the new products literature on the role of feedback and how it influences the development of an idea outside of the importance of customer feedback. In addition, there have been few (no?) studies that examine the impact of feedback from multiple sources on entrepreneurs and their business ideas. We have provided evidence that negative feedback is a significant influence on products during the development of product based on pre-venture ideas, that is, during opportunity exploitation. Negative feedback from multiple sources, including customers, family members and external advisors influences changes in product attributes, and the greater the extent of these changes, the better the performance of the product. Previous work in NPD literature has examined various influences of customer input into the NPD process, but we have isolated the effect of negative feedback in this process, while broadening the scope to include other stakeholders important to entrepreneurs. Additional promising areas of research would be to determine more closely the impact of each of these stakeholder groups, and also the influence of positive feedback.

**Contributions for practice**

This study provides a contribution to the literature by opening the door to an important and managerially controllable factor that can impact organizational performance. Entrepreneurs and small business owners may not actively seek out disconfirming or negative feedback on their business ideas. Demonstrating that, in fact, negative feedback has a positive impact on the performance of the final product may encourage entrepreneurs to seek out feedback. These results are important for Small Business Development Center counselors and others that provide assistance and feedback to entrepreneurs.

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Figure 1: The influence of negative feedback during opportunity exploitation

Negative Feedback

Initial Innovativeness

Idea Ownership

Entrepreneurial Self-Efficacy

Degree of Product Change

Performance

Reduction in Innovativeness
Table 1: Regression Models

<table>
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<th>DV = Extent of Product Change</th>
<th>DV = Reduction in Innovation</th>
<th>DV = Performance</th>
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<td>Controls 1b 2b, 3b 4b</td>
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<tr>
<td>Idea Ownership</td>
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<td>-.02</td>
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</tr>
<tr>
<td>ESE</td>
<td>.12</td>
<td>.10</td>
<td>-.11</td>
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<tr>
<td>Initial Innov x Neg. Feedback</td>
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<td>.09</td>
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<tr>
<td>ESE x Neg. Feedback</td>
<td>.24</td>
<td>.03</td>
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<tr>
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<td></td>
<td>-.13</td>
<td>-.11</td>
</tr>
<tr>
<td>Extent of Product Change</td>
<td></td>
<td>.28</td>
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<tr>
<td>Reduction in Innovativeness</td>
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<tr>
<td>Number of observations</td>
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<td>92</td>
<td>64</td>
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<tr>
<td>F value</td>
<td>.86</td>
<td>2.98</td>
<td>3.89</td>
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<tr>
<td>R²: Adjusted R²</td>
<td>.04</td>
<td>.12</td>
<td>.25</td>
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Significance based on one-tailed tests: * p ≤ .01; * p ≤ .05; + p ≤ .10