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# In search of Innovative ideas: does novelty add value?

Keywords: creativity, innovation, novelty, usefulness, ideation, idea evaluation

# Abstract

The paper examines interrelationships between key dimensions of creativity evaluation, novelty and usefulness, and how assessment of both contributes to the overall judgement of ideas. Two studies conducted in the US, China, and India indicated that novelty and usefulness dimensions are interdepended and are integrated into overall judgement of an idea in a trade-off manner. This pattern of findings provides evidence against broadly assumed independent or positively related nature of the relationship between novelty and usefulness and highlights complexity associated with the formation of overall value assessment.

# INTRODUCTION

Understanding the lost creative potential of all employees in organizations is a critical management challenge. Companies spend significant resources to promote creative thinking of their employees, however, often fail to recognize the full benefits associated with their investments. In the environment where businesses frequently develop comprehensive idea generation programs, it is becoming increasingly important to identify the most appropriate ideas. As creativity is central to the front end of innovation, the ability to effectively evaluate and select the highest quality ideas has become an important and sought out practical skill ([Damanpour, 1991](#_ENREF_28); [C. E. Shalley & Zhou, 2009](#_ENREF_143)). Although realized as a critical element, idea evaluation remains an under-researched topic ([T. M. Amabile, Mueller, Jennifer S. , 2009](#_ENREF_10); [Rietzschel, Nijstad, & Stroebe, 2006](#_ENREF_127), [2010](#_ENREF_128)). From a theoretical perspective, models of the creative process identify evaluation as an integral part of every step—from idea generation, to initial screening, to development and elaboration ([T. M. Amabile, Mueller, Jennifer S. , 2009](#_ENREF_10); [Lonergan, Scott, & Mumford, 2004](#_ENREF_83); [Michael D. Mumford, 2001](#_ENREF_100); [Simonton, 1999](#_ENREF_149)). Evaluation influences which ideas are shared, accepted, and have a chance to evolve ([Lonergan et al., 2004](#_ENREF_83)). However, empirical findings have suggested that in reality people do not perform optimally at idea selection ([Rietzschel et al., 2010](#_ENREF_128)) and often fail to recognize the value of creative ideas ([Mueller, Melwani, & Goncalo, 2012](#_ENREF_98)).

Evaluation of ideas entails individual assessment of novelty and usefulness, however, it is unclear if and how one dimension might inform the perception of the other, and how the two are integrated into the overall judgment. Do individuals see more novel ideas as less useful? And if so, how are these incongruent ratings prioritized and reconciled? As creativity is most often associated with novelty ([Mueller, Wakslak, & Krishnan, 2014](#_ENREF_99)), how does usefulness come into play and influence the overall perception of an idea? These open questions highlight complexity associated with idea evaluation, while limited knowledge of the novelty-usefulness relationship and its impact on the overall judgment of an idea calls for additional research in the area.

In this paper I develop and test a framework that explores how individuals evaluate creative ideas. Specifically I construct a model that depicts relationships among key dimensions of creativity, novelty and usefulness, and posits those relationships as contributing factors to the formation of an overall assessment. In line with a well-established definition of creativity, my model is grounded around novelty and usefulness as key elements underpinning an assessment of an idea. Departing from earlier perspectives where novelty and usefulness dimensions were thought of as independent of and largely unrelated to each other ([Grant & Berry, 2011](#_ENREF_49)), I argue that novelty is a predictor of perceived usefulness, a relationship that influences an individual’s overall perception of an idea. I draw on innovation, brainstorming, and explicit instructions literatures to develop an argument that novelty and perceived usefulness are related in a trade-off manner, such that novel ideas are generally seen as less useful. This dynamic highlights the complexity associated with idea evaluation, suggesting that though individuals generally seek ideas that are both novel and useful, they frequently value ideas that are either novel, but not useful or vice versa.

# THERETICAL BACKGROUND

The evaluative aspects of creativity have been studied under a variety of terms such as evaluation ([Blair & Mumford, 2007](#_ENREF_18)), convergent thinking ([A. Cropley, 2006](#_ENREF_24)), discernment ([Silvia, 2008](#_ENREF_147)), and assessment ([Robert J. Sternberg, 2012](#_ENREF_156)). Although it is commonly recognized as an integral part of the creative process, it has unfortunately been somewhat overshadowed by a focus on idea generation in past research ([Faure, 2004](#_ENREF_42); [Kijkuit & Van Den Ende, 2007](#_ENREF_66); [Kozbelt & Durmysheva, 2007](#_ENREF_71); [Nijstad & De Dreu, 2002](#_ENREF_107); [Silvia, 2008](#_ENREF_147)). For the purpose of this research, I highlight the following points about the evaluative aspects of the creative process. First, evaluation serves a much more pervasive function than it is commonly recognized since it is inextricably connected to the process of idea generation ([A. J. Cropley, 1999](#_ENREF_25); [Lonergan et al., 2004](#_ENREF_83); [Mark A Runco, 2003](#_ENREF_133); [Woodman, Sawyer, & Griffin, 1993](#_ENREF_169)). Furthermore, evaluation affects individuals’ and groups’ receptivity to, and selection of creative ideas ([Klein & Sorra, 1996](#_ENREF_70)), decisions to develop or kill new products ([Kijkuit & Van Den Ende, 2007](#_ENREF_66)), the adoption and diffusion of ideas throughout an organization or society ([Rogers & Adhikarya, 1979](#_ENREF_129); [Rogers & Cartano, 1962](#_ENREF_130)). Second, the role of evaluation applies not only to the perception of others’ ideas but also to self-evaluation, self-filtering, and self-regulation ([Detert & Edmondson, 2011](#_ENREF_30); [Gist, 1989](#_ENREF_47); [Lonergan et al., 2004](#_ENREF_83); [McNamee, 2010](#_ENREF_93)). Third, the above evaluating functions, whether applied to oneself or others, involve both conscious and unconscious mental activities. For example, Wallas ([1926](#_ENREF_165)), in his multi-stage model of idea creation, highlighted that during the incubation stage, the mind continues to work on the problem unconsciously, forming a multitude of associations, most of which are rejected as useless, and only occasionally finds a promising idea. Lastly, given that the evaluative process is subjective and often unconscious, it is susceptible to errors and biases ([Michael D Mumford, Robledo, & Hester, 2011](#_ENREF_104); [Simon, 1979](#_ENREF_148); [Tversky & Kahneman, 1974](#_ENREF_160)). Although some studies have suggested that people are capable of accurately evaluating the originality of their own ideas ([Silvia, 2008](#_ENREF_147)) and that domain experts are accurate judges of ideas in general (Amabile, 1982), other research has found that people are actually quite poor at idea assessment ([Mark A Runco, 1989](#_ENREF_132), [2008](#_ENREF_135); [Mark A Runco & Smith, 1992](#_ENREF_138); [Mark A Runco & Vega, 1990](#_ENREF_139)). Indeed even the evaluations of experts have been called into question when it comes to highly novel ideas ([Licuanan, Dailey, & Mumford, 2007](#_ENREF_78)), when past assumptions and mental models are incompatible ([Carlson & Gorman, 1992](#_ENREF_20); [Michael D Mumford et al., 2011](#_ENREF_104); [T.B. Ward, 1994](#_ENREF_166)), or when expertise is particularly high and thus constraining ([Michael D Mumford & Gustafson, 1988](#_ENREF_102); [Michael D Mumford et al., 2011](#_ENREF_104); [Robert J Sternberg, 1996](#_ENREF_154), [2006](#_ENREF_155)).

# RELATIONSHIPS BETWEEN KEY DIMENSIONS OF IDEA EVALUATION

I propose a creativity model that incorporates elements of novelty and usefulness and depicts how these dimensions are integrated to form overall assessment of an idea. Partially breaking from past research, I argue that the idea novelty is directly related to the perceived usefulness of that idea and that this relationship is generally negative in nature. Highlighting this negative relationship is important, as it creates the tradeoffs that translate into the assessment of an idea’s overall value. The model, which outlines the negative relationship between novelty and perceived usefulness as well as the positive effect of both on overall value, is highlighted in Figure1.

Insert Figure 1 approximately here.

In this paper I build on the perspective that the overall value of ideas is evaluated holistically and is based on some combination of novelty and usefulness sub-dimensions. However, I take this argument one step further to propose that novelty and usefulness dimensions are negatively interrelated in important ways. Although this contradicts the underlying assumptions of models that treat novelty and usefulness as largely unrelated to each other, it is actually consistent with the theory and discussions in most papers, which implicitly describe this interdependence. Indeed, a fair amount of data supports an ambiguous (null) or even a negative correlation between idea novelty and usefulness ([Mueller et al., 2012](#_ENREF_98)). For example, Manske and Davis ([1968](#_ENREF_90)) found a strong negative correlation (*r* = -.80, *p* < .01) between originality and usefulness. In a more practical creativity challenge, Ward ([2008](#_ENREF_167)) found that the most original ideas for new types of sports were also the ones rated as least playable (low usefulness). Other researchers have also found weaker negative correlations between novelty and usefulness ([Rietzschel et al., 2006](#_ENREF_127), [2010](#_ENREF_128)) as well as weak positive correlations ([D. H. Cropley & Kaufman, 2012](#_ENREF_26)). Rietzschel et al. ([2010](#_ENREF_128)) in discussing the results of their study of idea evaluation state “it is possible that participants perceived originality and feasibility to be incompatible” (p. 56). In addition, a longstanding body of explicit instruction research has looked at contrasts between instructions to generate different, novel, or creative ideas or products and instructions to generate useful, practical, or feasible ideas or products ([Goncalo & Staw, 2006](#_ENREF_48); [O'Hara & Sternberg, 2001](#_ENREF_111); [M. A. Runco & Okuda, 1991](#_ENREF_137)). Theory and results in this space highlight that there is a tension or tradeoff between novelty and usefulness features of ideas and products—instructions to emphasize one frequently comes at the cost or reduction in the other (Goncalo & Staw, 2006).

I build on these perspectives and propose that the relationship between novelty and usefulness is complex and includes trade-offs that are driven by the relationships between novelty (in terms of radicalness and originality) and usefulness (in terms of feasibility and practicality).

### **Novelty and Usefulness**

Radical ideas require a great deal of technological, organizational, or market development and change from the organization’s current position and are usually exceptionally difficult and risky for the firm to undertake. From a technological perspective, radical ideas may be based on substantial changes from the technological trajectory that are still not well understood or developed in the scientific community. The development and application of these types of technologies might still be in embryonic stages and thus individuals may perceive ideas that require these changes to be unworkable given the current state of technology within the organization. From an organizational perspective, radical ideas may call for significant transformation of existing organizational resources, structures, or processes that may similarly be perceived to be unworkable by an individual evaluating the relevant novel idea. From a marketing perspective, radical ideas may require that markets need to change substantially to adopt the product. Even if the changes required by a highly novel idea are theoretically feasible, they may be cost prohibitive. The potential investment required to develop new technology and integrate it into existing platforms, to develop organizational routines and other capabilities necessary to fully leverage a highly novel idea, or to substantially shift markets via branding, advertising, and other external communication can be quite substantial. Furthermore, investing in these required changes likely takes resources away from exploiting existing capabilities, and this in turn might result in costs associated with lost opportunities. Thus, radical ideas may be perceived as less feasible and less economically practical.

The other sub-dimension of novelty, originality, is negatively related to the other sub-dimensions of usefulness, relevance. Original ideas are unique and uncommon ([Dean et al., 2006](#_ENREF_29); [Rietzschel, De Dreu, & Nijstad, 2007](#_ENREF_126)), and thus, by definition, are unfamiliar to the organizational community. Uncertainty associated with ideas based on the unfamiliar technological or market place can lead individuals to perceive these original ideas to contain a greater degree of risk and thus to be less likely to be implemented. Furthermore, individuals might have a harder time envisioning the proposed solution and not recognize or understand how it applies to a given problem and as a result not see the benefit or advantage. Thus, I expect that originality of an idea is likely to negatively affect perception of idea’s feasibility. Due to the negative relationship between sub-dimensions of novelty and those of usefulness, I expect that there will be a trade-off relationship between Novelty and Usefulness.

***Hypothesis 1:*** *When evaluated on usefulness, the more novel the idea is, the less useful it will be rated.*

### **Novelty and Overall Value**

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Given the fact that assessment of an idea involves considerations of both novelty and usefulness, I expect that when entertained alone, that is without the consideration of usefulness, each dimension will be positively related to the perceived overall value of a creative idea. As pointed out by Erez & Nouri ([2010](#_ENREF_40)), the desire to create something new and different as well as openness to new experience are universal and are driven by human needs of exploration, autonomy and uniqueness. For organizations, novel solutions can be perceived as associated with greater potential outcomes resulting from new market and competitive opportunities or technological breakthroughs leading to significant increase in operational effectiveness and efficiencies.

***Hypothesis 2****: When evaluated on overall value, the more novel the idea is, the more valuable it will be rated.*

### **Perceived Usefulness and Value**

Perceived usefulness of an idea will also contribute to the overall assessment of an idea’s value. In order to be attractive, proposed solutions need to effectively address a problem that has been identified, achieve it in a cost effective manner and be technologically and organizationally feasible. As suggested by Grant & Berry ([2011](#_ENREF_49)), ultimately ideas need to solve problems for other people inside or outside an organization. In fact, an idea’s applicability to addressing the problems or needs of a wide range of coworkers, supervisors, customers, or clients was suggested as one of the attributes for idea evaluation ([Mohrman, Gibson, & Mohrman, 2001](#_ENREF_95)). Thus, the more relevant or applicable an idea is to solving a given problem, the more likely it will be seen as valuable. Furthermore, no idea can address or solve a problem if it is not feasible or practical to implement. Ideas that are not feasible will be seen as either not doable altogether or as very risky and expensive to put into practice, and thus will be perceived as less attractive. Ideas that are perceived as more feasible, will be seen as easy to put in place, less risky, less investment intensive and in general more desirable. Thus, I predict that perceived usefulness of an idea will be positively related to the idea’s overall value.

***Hypothesis 3.*** *When evaluated on overall value, the more useful the idea’s rating is, the more valuable it will be rated.*

The proposed negative relationship between novelty and usefulness (H1) has an interesting effect on how individuals process this information to form their perception of an idea’s overall value. Although I expect that both novelty and usefulness have a positive effect on an idea’s value, the proposition of a negative relationship between novelty and usefulness suggests that the effect of novelty on the overall value is partially reduced as a result of the negative effect on usefulness. For example, as more novel ideas are expected to be rated as less useful, potential positive effects associated with greater novelty on value will be partially off-set by the reduced rating of usefulness. Since both novelty and usefulness are being factored in to formulate the overall rating, more novel ideas are likely to be perceived as less valuable. Conversely, the less novel ideas will be seen as more useful and thus, the potential impact of low novelty will be partially compensated by the higher (due to the lack of novelty) usefulness rating.

***Hypothesis 4.*** *When evaluated on both novelty and usefulness, the overall value of a more novel idea will be reduced due to the negative relationship between novelty and usefulness.*

# STUDY 1

**Procedure**

In order to examine how participants perceive novelty and usefulness to form overall judgement of an idea, participants evaluated a set of four ideas on multiple measures of idea evaluation. In order to create a realistic setting, the ideas were introduced as proposed solutions to improve quality of student life on campus as part of an on-going project currently being undertaken by the university. Participants were informed that the school administration is working on a continuous improvement initiative to increase attractiveness of the university to students. The project team has run a competition among undergraduate students to solicit their suggestions and currently seeks help in evaluating the ideas that were submitted. After reviewing the task statement, participants were presented with four ideas (one at a time) and given a set of questions to answer. In order to ensure that study participants evaluate ideas of various degrees of novelty and usefulness, the selection of ideas was manipulated to include four combinations of novelty and usefulness including: 1) an idea of high novelty but low usefulness (Idea 1), 2) idea of low usefulness but high novelty (Idea 2), 3) idea of high novelty and high usefulness (Idea 3) and, finally, 4) idea of low novelty and low usefulness (Idea 4). In order for ideas to be relevant to the participants ([T. M. Amabile, 1982](#_ENREF_2)) ideas were selected from the pool of ideas submitted by students of their own campus (i.e. US students evaluated ideas collected in the US and Chinese students evaluated ideas generated in China). Specific ideas are included in Figure 2. Once all four ideas were reviewed and assessed, study participants were asked to complete the cognitive style assessment.

**Participants**

Participants in this study were undergraduate students at two large public universities in the US and in China. In the US there were one hundred and fifty three participants, 51% percent of whom were male, and 66% percent were non-white. The educational background of the US participants was diverse with 35 % of students majoring in finance, 24% marketing, 14% management and 12% supply chain. The Chinese sample consisted of one hundred and seventy six undergraduates, thirty percent male. Educational majors among Chinese participants included management (37%), finance (29%), marketing (13%) and some others (20%).

**Measures**

To measure key study variables, we have drawn on creativity, innovation and brainstorming literatures and adopted relevant items that tap into the sub-dimensions applicable to the proposed theoretical model. Unless otherwise indicated, all measures used a scale anchored at 1 (“strongly disagree”) and 7 (“strongly agree”).

**Control variables.** In line with previous researchers ([T. M. Amabile, Barsade, Mueller, & Staw, 2005](#_ENREF_8); [Madjar, Oldham, & Pratt, 2002](#_ENREF_89)) we have included gender and ethnicity (race) as demographic control variables. These variables were dummy coded as following: gender (male=1, other=0) and ethnicity (white=1, other=0).

**Focal Variables: Idea Evaluation.** Novelty variable was constructed by creating a dummy variable that contrasted novel and not novel ideas. Ideas that were categorized as novel (dummy coded=1) included Idea 1 (novel, but not useful) and Idea 3 (novel and useful). Ideas that were categorized as not novel (dummy coded = 0) included Idea 2 (novel, but useful) and Idea 4 (not novel and not useful). Usefulness variable was constructed as dummy variable contrasting useful and not useful ideas. Ideas that were coded as useful (dummy coded = 1) included Idea 2 (not novel, but useful) and idea 3 (novel and useful). Perceived novelty was measured by 6 items tapping into radicalness and originality aspects. Individuals were asked to state the level of their agreement or disagreement with statements such as “this idea targets a new area untouched by any other product or service at our university”, “the idea is different from other ideas that I have ever seen or heard”, “the idea is very new to me”. Perceived Usefulness was assessed by 6 items that captured feasibility and relevance. Participants were asked to indicate the level of their agreement with statements such as “the idea is easy to implement”, “the idea can be put into practice with little investment or effort” or “the idea would not be costly to develop and implement”. The idea’s overall value was assessed using 3-items adapted from previous creativity and innovation literatures to measure individuals’ overall assessment of the idea’s value. Specifically, for each of the ideas being evaluated, individuals were asked to state their agreement or disagreement with statements such as “the idea is really excellent” or “the idea is the one that I like a great deal”.

**Results**

In our analysis we used a hierarchical linear modeling and developed a series of models examining the relationship between an individual’s assessment of various dimensions of idea and the effect of cultural background on the idea’s assessment. Repeated measures data, i.e. ratings of four different ideas, were nested within persons. This nesting led to a two-level model, with idea ratings as predictors on the idea level and cognitive differences as predictors on the person levels. With the exception of dummy coded variables, predictors at level one were centered around the group mean and at level 2 – around grand mean ([Ita G.G. Kreft, 1995](#_ENREF_58)). To ensure that the use of hierarchical linear modeling is appropriate, we ran a number of null (intercept-only) models. The examination of the proportion of variance in the outcome variable that resided between individuals (ICCI1) and amount of variance in the level 1 slopes, a pre-condition for testing cross-level interactions ([Liao & Rupp, 2005](#_ENREF_77)), supported the use of multi-level data. Using the estimated variance components at the idea level (r=1.81, p <.001) and at the individual level (u0 = .64 p < .001) of the base model, the variance in the dependent variable attributable to each level could be computed. For example, the analysis indicated that 26% of variance (ICC1=.26) resided between individuals (level 2 predictors) while 71% of variance (ICCI=.71) occurred at idea level (level 1 predictors).

Tables 1 and 2 report descriptive statistics and correlations for the idea evaluation (Table 1) and individual differences (Table 2) variables included in my Study. The results of the correlation analysis of the idea evaluation measures provide early support for the hypothesized relationship among evaluation dimensions and indicate that there is a statistically significant negative correlation between novelty and perceived usefulness, and a positive correlation between novelty and value and perceived usefulness and value.

Insert Table 1 approximately here.

Insert Table 2 approximately here.

**Hypothesis Testing.** To test my hypothesis, I have constructed a series of HLM models. I began by evaluating the effect of novelty on usefulness (Table 3) moderated by cognitive style and self-regulation variables. Next, I have examined the relationship between novelty and overall value as effected by cognitive styles (Table 4).

Insert Table 3 approximately here.

Prior to the discussion of the results directly related to the hypothesis testing, it is warranted to go over the effect of control variables. None of the control variables (gender, or race) have an effect on the perception of idea’s usefulness. Effect of country on usefulness was also not statistically significant (Table 3, model 1).

Hypothesis 1 addressed the general relationship between the degree of an idea’s novelty and the perception of usefulness. As demonstrated by model 1 of Table 3, there is indeed a negative effect of novelty on usefulness (y=-.94, p < .001). This finding provides support for hypothesis 1. Hypothesis 2 predicted a positive effect of the novelty (when entertained alone) on the perception of idea’s value. Model 1 in Table 4 may suggest that the effect of novelty on value is insignificant (.03, ns). However, to test the hypothesis, the effect of usefulness on value needs to be partialed out. After controlling for usefulness (as depicted in Model 3 of Table 4), the effect of novelty on value turns significantly positive (y= .52, p <.001 ) landing support for Hypothesis 2. Hypothesis 3 suggested a positive effect of usefulness on idea’s value, which was also observed (y= .54, p <.001) supporting Hypothesis 3. To test the indirect effect of usefulness on the novelty-value relationship (Hypothesis 4) I used an interactive tool utilizing the Monte Carlo method to estimate confidence intervals for indirect effects ([Selig, 2008](#_ENREF_140)). The 95% confidence interval for indirect effects was calculated to be between -.5 and -.1, suggesting that with 95 % confidence we can conclude that the indirect effect is not equal to 0 thus landing support for Hypothesis 4.

# STUDY 2

Creativity is context specific ([T. M. Amabile, 1996](#_ENREF_5)), however, as noted by Zhou et al. ([2010](#_ENREF_171)), studies conducted in laboratory contexts (as was the case with Studies 1 and 2) can de-contextualize findings. Thus, to ensure generalizability of the findings, study 3 was conducted in the external environment and among adult population. The design of this study closely followed the format of Study 2 with slight modifications that were required due to differences in research setting.

**Sample and Procedure**

Participants were recruited through internet-based crowd-sourcing platform M-Turk. In the past, a number of studies have successfully utilized this type of research setting for data collection ([Chua, 2013](#_ENREF_23); [Welsh, 2014](#_ENREF_168)) and the quality of the data was found to be comparable to the measurements obtained by more traditional methods ([Paolacci, Chandler, & Ipeirotis, 2010](#_ENREF_117); [Peer, Vosgerau, & Acquisti, 2014](#_ENREF_118)).

A total of two hundred and thirty seven subjects participated in the study, one hundred and nineteen from the US and one hundred and eighteen from India. Forty four percent of the respondents were female and fifty six percent were non-white. The sample was diverse in terms of functional backgrounds with 27% reporting Engineering, 12% Finance, 10% Legal, 10% Marketing and some other backgrounds.

Similar to Study 1, the design of Study 2 has entailed evaluation of pre-selected ideas. As creativity is to be considered within context, it requires some degree of familiarity with the domain in which ideas are evaluated ([T. M. Amabile, 1996](#_ENREF_5)). Therefore, it was important to include ideas that were from a domain that is of interest to the general public. Since ideas included in Study 1 were primarily applicable to an academic setting, a new set of ideas was incorporated in the design of Study 2. Specifically, the ideas were adapted from Grant & Berry (2011) where participants were directed to a task of reviewing ideas submitted as solutions to a business problem in the music industry. As with Study 1, I looked to select ideas to represent each of the four categories of interest: 1) novel but not useful, 2) not novel, but useful, 3) novel and useful, and, finally, 4) not novel and not useful. To ensure appropriate representation of the ideas I have partnered with a Subject Matter Expert with extensive industry experience to sort the ideas included in the Grant & Berry (2011) study into the four categories. Furthermore, to verify pre-sorted ideas are generally perceived as expected, I have conducted a pilot study on M-Turk with 50 subjects who provided novelty and usefulness rating for each of the ideas being considered for inclusion in the study. According to calculated means and standard deviations of the obtained ratings (see Table 5) the results have supported intended assignment to the categories.

Insert Table 5 approximately here.

Amabile (1996) recommends that judges of creative ideas should have some training or be at least familiar with the domain in which they are rating ideas. To provide a point of reference from which to make a comparative judgment, participants were asked to review a sample of ideas generated for this problem. This approach was suggested in Amabile‘s Consensual Assessment Technique (1996) and implemented in the Grant & Berry ([2011](#_ENREF_49)) creativity experiment.

In order to create a realistic setting for the study, the creativity task was formulated to manipulate a real-world task of finding a solution to a business problem. Specifically the task statement included the following verbiage:

“**We need your help!** The Association of Independent Music Artists (AIMA), in response to falling CD sales of many of their members, recently hosted an online forum to solicit ideas to help unsigned musicians and bands find ways to make money and increase their sales. In an effort to help evaluate these ideas, we are crowdsourcing this task.  As part of this exercise, you will be randomly assigned to evaluate four ideas that have been suggested as part of the on-line brainstorming. Additionally, you will also be asked to answer a set of general questions about how people perceive their environment. To give you a sense of what type of ideas you might be looking at, below is the list of sample ideas that are currently being evaluated. Thank you for your patience and cooperation.”

Sample of ideas to familiarize participants with the domain included the following ideas:

* Perform at local bars and clubs
* Sell CDs for less
* Offer to play private parties
* Give music away for free on your band website
* Hold a raffle contest for those who buy the CD...like Willy Wonka‘s Golden Ticket
* Find volunteer students to do a marketing internship with the band to have someone focused
* Offer free music and sell advertising on your band website
* Dress up in animal suits or something else crazy, you might get free publicity and build interest from being different
* Advertise through Facebook and MySpace
* Sell band tee shirts and other gear
* Find other bands that you like and approach them with the idea of cross promoting their music on your website and yours on theirs
* Release bootleg albums of live shows for sale
* Paper college areas with flyers
* Approach independent stores to sell the CDs
* Put your songs for sale through Amazon or iTunes
* Publicize your talents with a free snippet CD and distribute it for free
* Video songs at a show and post on You Tube
* Have a CD release party
* Add CD coupons to live event tickets

Following up the task statements, participants were asked to evaluated total of four ideas. Figure 3. includes the ideas presented in the study.

Insert Figure 3 approximately here.

In Study 2 I used the same set of measures as in Study 1. All measures demonstrated sufficient reliability with idea level measures exceeded alphas of .80.]

**Results**

Table 6 provides the means, standard deviations, and inter-correlations of the idea evaluation variables.

Insert Table 6 approximately here.

Before testing the hypotheses, I examined whether systematic within- and between-individual variance existed in the idea evaluation measures by running a series of null (intercept-only) models. The analyses supported using hierarchical linear modeling (HLM) on these data, as there was sufficient within-individual and between-individuals variance in the measures. Specifically, as indicated by ICC(1) of .26, 74 percent of total variance is attributed to within individual, and 26 percent of variance to between individual differences. The HLM models that I have constructed included control variables of gender and race, neither of which were statistically significant (Table 4). Hypotheses 1 predicted a negative relationship between Novelty and Usefulness, which was supported based on the results presented at Table 7. Specifically, the analysis shows that novel ideas are generally perceived as less useful (y= -.58, p<.001).

Insert Table 7 approximately here.

Hypotheses 2 through 4 predicted a series of relationships between novelty, perceived usefulness and value. The results of these analyses are presented at Table 8.

Insert Table 8 approximately here.

Hypothesis 2 proposed a positive relationship between novelty and value. The output of the HLM model indicates that there is a significant effect of novelty on value, and this effect is positive (y = 57, p < .001). Thus, one can conclude that overall, individuals see more value in novel as opposed to not novel ideas. I have also predicted a positive relationship between usefulness and value (H3), which was supported (y=.65, p<.0001). Finally, I have argued that there is an indirect effect of novelty and usefulness on value (Hypothesis 4). Similar to the analysis done for Study 2, I have tested this prediction with an interactive tool utilizing a Monte Carlo Simulation. The results have supported my hypothesis as evidenced by the 95% confidence interval of the indirect effect estimated to range between -.57 (LL) and -.29 (LL). All in all, I conclude that all the hypothesis that described the relationship between key dimensions of idea evaluation have been supported.

# DISCUSSION AND CONCLUSION

In this paper I set out to explore a broad question of how people evaluate novel ideas by exploring the interdependencies among various aspects of creative ideas. Naturally, the most thought out idea is the one that is novel and useful, however, frequently, ideas tend to fall shorter on one of the dimensions. An interesting question was to see whether people’ s assessment of an idea’s usefulness depends on the degree of idea’s novelty, which in turn has an effect on the overall judgment of an idea.

The findings of the program of studies have largely supported my predictions. Both studies indicated that people’s perception of ideas’ usefulness does depend on the extent of idea’s novelty. Participants of both studies have seen novel ideas as less useful. Moreover, the analysis has shown that the novelty-usefulness dependency informs the overall perception of an idea’s overall value. This pattern of findings provides evidence against broadly assumed independent or positively related nature of the relationship between novelty and usefulness and highlights complexity associated with the formation of overall value assessment.

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Figure 1. Proposed Creativity Model

Novelty

Usefulness

Value

+

+

-

Figure 2. Ideas Evaluated in Study 1

| **Category** | **US Sample** | **Chinese Sample** |
| --- | --- | --- |
| 1. High Novelty / Low Usefulness | University should build innovative and technically advanced infrastructure to help students get around. Replace school bus system with automated bridges, electronic escalators, moving sidewalks and skytrams that go around campus. | Considering the architectural style and building size of University, distance from students’ dormitory to school gate seems to be very far, which results in inconvenience for students taking delivery, heavy lifting or baggage handling. This idea proposes to place conveyor belts on the side of road in the campus instead of walking, reducing the burden on heavy lifting and taking delivery for students. |
| 2. Low Novelty / High Usefulness | Implement internships within the flex or part time program. Potentially this can be done in several industries / organizations that operate on a 24 / 7 schedule | In general, University students take shower in the University's public bathrooms. The public bathroom, however, closes by shutting down water supply without any warning, often causing the embarrassing situation that shower takers are half washed when there is no more water. This idea proposes to install an electronic clock in the public bathroom to remind the remaining time before the bathroom will close, in order to prevent the embarrassing situation. |
| 3. High Novelty / High Usefulness | Roll out a “Trade your skill club”. Based on the historic tradition of barter, this club would offer students a chance to trade skills. For example, I can teach guitar lessons if someone can tutor me on differential equations. It can also be done for a non-academic exchange (teach guitar for learning to ride a motorcycle). | This idea proposes to launch an activity to help incoming new students at University to be connected to each other using the theory of Six Degree Separation, which suggests that you can be connected to any stranger through no more than five intermediaries. All the new students will be asked to find as many other students as possible through a chain of no more than five intermediaries, and the number of connections each new student has made will be publicized in the School Newspaper. |
| 4. Low Novelty / Low Usefulness | Introduce weekly de-stressing campus wide events – parties, street fares, games, music, food, discounts, free stuff. | More and more students begin to experience tennis games. However, due to the current shortage of school tennis courts, the University adopts the charging mode of pay by hour. This idea proposes to transform the charging mode from the existing pay by hour to pay by the number of sport times, allowing students use tennis courts without time limit. |

Figure 3. Ideas Evaluated in Study 2

|  |  |
| --- | --- |
| **Idea Category** | **Description** |
| Idea 1: Novel but not useful | Have the band buy a plane, decorate it with band’s logo and sell an opportunity to take a trip on a private plane with members of the band. |
| Idea 2: Not novel but useful | Not novel, but useful: Sell band’s merchandise, such as t-shirts, baseball hats, coffee mugs etc |
| Idea 3: Novel and useful | Have the band offer music lessons to make money and build a loyal following. |
| Idea 4: Not novel and not useful | Check people for recording devices at your shows |

Table 1. Study 1. Means, Standard Deviations and Correlations of the Idea–Level Measures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **St.D** | **1** | **2** | **3** |
| 1. Novelty | 0.50 | 0.50 |  |  |  |
| 2. Perceived Usefulness | 4.43 | 1.54 | -.194\*\* |  |  |
| 3. Value | 4.02 | 1.88 | .151\*\* | .634\*\* | 1 |
| tp<=.10\*p<.=05\*\*p<.001\*\*\*p<.001 |  |  |  |  |  |

Table 2. Study 1. Means, Standard Deviations and Correlations of the Individual-Level Measures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Mean | SD | 1 | 2 | 3 |
| 1. Country (China=1) | 0.53 | 0.50 |  |  |  |
| 2. Gender (Male=1) | 0.37 | 0.48 | -.156\*\* |  |  |
| 3. Race (White=1) | 0.11 | 0.31 | -.372\*\* | .141\* |  |
| tp<=.10\*p<.=05\*\*p<.001  \*\*\*p<.001 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

Table 3. Study 1. Results of the Hierarchical Linear Modeling of the Effect of Novelty on Usefulness

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | | **Model 1** | | |
| DV: Usefulness | | Main Effect  Level 1 | | |
| **Level 1** | |  | | |
| Intercept | | 5.10\*\*\* (.09) | | |
| Novelty | | -.94\*\*\* (.08) | | |
|  | |  | | |
| **Level 2** | |  | | |
| Country (China=1) | | -.10 (.09) | | |
| Gender | | .03 (.08) | | |
| Ethnicity (Race) | | -.08 (.14) | | |
|  | |  | | |
| R-Square | 0.10 | | |
| Level 1 n=1240 Level 2 n = 310 |  | | |
| tp<=.10\*p<.=05\*\*p<.001\*\*\*p<.001  Standard errors reported in parentheses |  | |  | | |  |

Table 4. Study 1. Results of the Hierarchical Linear Modeling of the Effect of Novelty and Perceived Usefulness on Value

|  |  |  |  |
| --- | --- | --- | --- |
| DV: Value | **Model 1** | **Model 2** | **Model 3** |
|  | Main Effect Novelty | Main Effect  Usefulness | Main Effect  Novelty and Usefulness | |
| **Level 1** |  |  |  | |
| Intercept | 5.35\*\*\*(.11) | 5.36\*\*\* (.10) | 5.10\*\*\* (.11) | |
| Usefulness |  | .46\*\*\* (.03) | .54\*\*\* (.03) | |
| Novelty | .03 (.09) |  | .52\*\*\* (.08) | |
|  |  |  |  | |
| **Level 2** |  |  |  | |
| Country (China=1) | 1.16\*\*\*(.12) | -1.16\*\*\* (.12) | -1.16\*\*\* (.12) | |
| Gender | .02 (.11) | .03 (.11) | .03 (.11) | |
| Ethnicity (Race) | -.31 (.19) | -.30 (.19) | -.30 (.19) | |
| R-Square | 0.13 | 0.22 | 0.24 | |
| n Level 1 - 1240 |  |  |  | |  |  |
| n-Level 2 =310 |  |  |  | |  |  |
| tp<=.10\*p<.=05\*\*p<.001\*\*\*p<.001  Standard errors reported in parentheses |  |  |  | |  |  |

Table 5. Study 2. Idea Evaluation Pilot: Categorization Check

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Novelty** | | **Usefulness** | |
|  | Mean | St. Deviation | Mean | St. Deviation |
| Idea 1:Novel, not Useful | 5.09 | 1.43 | 3.23 | 1.68 |
| Idea 2: Useful, not Novel | 2.90 | 1.92 | 5.54 | 0.88 |
| Idea 3: Novel and Useful | 5.07 | 1.43 | 5.05 | 1.48 |
| Idea 4: Not Novel and Not Useful | 3.32 | 1.83 | 3.86 | 1.53 |

Table 6. Study 2. Means, Standard Deviations and Simple Correlations of the Idea-level Measures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **St. Deviation** | **1** | **2** | **3** |
| 1. Novelty | 0.5 | 0.5 |  |  |  |
| 2. Perceived Usefulness | 4.55 | 1.34 | -.406\*\* |  |  |
| 3. Value | 4.21 | 1.639 | .196\*\* | .464\*\* |  |

\*\*p<=0.01.

Table 7. Study 2. Results of Hierarchical Linear Modeling of the Effect of Novelty on Perceived Usefulness

|  |  |  |
| --- | --- | --- |
| Variables | **Model 1** | |
| DV: Perceived Usefulness | Main Effect Level 1 | |
| **Level 1** |  | |
| Intercept | 4.71\*\*\* (.15) | |
| Novelty | -.58\*\*\* (.10) | |
|  |  | |
| **Level 2** |  | |
| Country (India = 1) | .29t (.15) | |
| Gender | -.11 (.11) | |
| Ethnicity (Race) | -.19 (.15) | |
| R-Square | 0.05 | |
| Level 1 n = 896, Level 2 n = 224 |  |

tp<=.10\*p<.=05\*\*p<.001\*\*\*p<.001

Standard errors reported in parentheses

Table 8. Study 2. Results of Hierarchical Linear Modeling of the Effect of Novelty and Perceived Usefulness on Value

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | **Model 1** | **Model 2** | | **Model 3** | **Model 4** | **Model 5** |
| DV: Value | Main Effect Novelty | Main Effect Usefulness | | Main Effect Novelty and Usefulness | Main Effect Cognitive Styles | Cross-Level Interactions |
| **Level 1** |  |  | |  |  |  |
| Intercept | 3.37\*\*\* (.22) | 3.65\*\*\* (.21) | | 3.16\*\*\* (.21) | 3.16\*\*\* (.22) | 3.11\*\*\* (.22) |
| Usefulness |  | .65\*\*\* (.03) | | .72\*\*\* (.03) | .72\*\*\* (.03) | .73\*\*\* (.03) |
| Novelty | .57\*\*\* (.10) |  | | .99\*\*\* (.08) | .99\*\*\* (.08) | 1.08\*\*\* (.11) |
|  |  |  | |  |  |  |
| **Level 2** |  |  | |  |  |  |
| Country (India=1) | 1.02\*\*\* (.23) | 1.02\*\*\* (.23) | | 1.02\*\*\* (.23) | 1.02\*\*\* (.23) | 1.12\*\*\* (.24) |
| Gender | -.16 (.16) | -.16 (.16) | | -.16 (.16) | -.17 (.16) | -.17 (.16) |
| Ethnicity (Race) | -.17 (.22) | -.17 (.22) | | -.17 (.22) | -.15 (.22) | -.15 (.22) |
| R-Square | 0.10 | 0.24 | | 0.37 | 0.37 | 0.37 |
| Level 1 n = 896 Level 2 n = 224 | | |
| tp<=.10\*p<.=05\*\*p<.001\*\*\*p<.001  Standard errors reported in parentheses | | |