

Users as a Hidden Resource for Creativity: Findings from an Experimental Study on User Involvement

Per Kristensson, Peter R. Magnusson and Jonas Matthing

The main objective of this article is to report the empirical findings from a study on user involvement in service innovation. In doing this, we seek to answer the question of how user involvement affects the originality of new service ideas. An experimental investigation was carried out which included 54 participants arranged into three groups of creative users, ordinary users and professional service developers. The empirical data revealed that the users produced more original ideas than the company's professional service developers. It is thus suggested that business organizations attempt to innovate original products would benefit from involving their customers.

Introduction

All innovation begins with creative ideas (Amabile, 1996; Amabile, Conti, Coon, Lazenby & Herron, 1996). The development of successful services, the implementation of new processes, the design of new products and their introduction onto the market all depend on a person or a team coming up with a good idea and developing this idea beyond its initial state. Launching a novel product, based on an original idea, in the field will increase the chances of gaining market share, thus implying a major financial advantage for a company. One critical phase in product and service development is the early idea phase. Nevertheless, one of the least understood aspects of innovation is real leaps of creativity (Cooper, 1993).

Research concerning products that are perceived as being creative reveals that they elicit a distinct set of aesthetic responses from observers, e.g. surprise, satisfaction, stimulation and savouring (Amabile, 1996). Early findings (Guilford, 1950; Barron, 1955) concluded that originality was an important dimension of a creative new product. Creativity results in the production of some novel out-

put that is satisfying and represents a real leap forward from the current state of the art (Stein, 1974). The originality of a product is explained by its uncommonness in a particular situation and its applicability to a given problem (Amabile, 1996). Recent research has identified some explicit product characteristics (dimensions), as discriminating signs of a creative product (Amabile, 1996; Besemer & O'Quin, 1987). The employment of dimensions in order to assess creative products is ultimately considered as the most useful procedure for creativity research in general (Amabile, 1996). According to Besemer and O'Quin (1987), dimensions that capture a new product, product ideas, or creativity in general, are characterized by novelty, resolution, and elaboration. The degree of originality is implied by the dimension novelty. In the literature (e.g., Isaksen, 1987) novelty is commonly and frequently referred to as the most obvious attribute of creativity in products. The extensive interest in the novelty dimension is perhaps explained by the fact that uniqueness of ideas is being held as an important criterion for product success (Booz, Allen & Hamilton, 1982). In other words, the future of a company today, is to a great extent

determined by the potential of their product portfolio under development. Hence, one important objective for an organization is to have the capability to present unique, and thus innovative, products. As many companies have the ambition to be innovative, originality is the concept that enfolds the innovative dimension.

Today, both scholars and practitioners have placed an emphasis on *unique ideas* (Cooper, 1993). This uniqueness, note, applies to the uniqueness perceived by the customer (Crawford, 1977; Stevens, Burley & Divine, 1999). On the basis of these findings, normative research has emphasized the involvement of customers in the development of new products and services. Since the customer using a new product or service always ends up as the adjudicator of this product, and thereby its success, the research literature has proposed customer involvement in new product and service innovation (e.g., Prahalad & Ramaswamy, 2000). More specifically, the customer is thought of as a co-producer and idea generator for new products and services (Prahalad & Ramaswamy, 2000; von Hippel, Thomke & Sonnack, 1999; Ramirez, 1999; Wikström, 1995). The logic behind this reasoning is that if the customers are the ones who can decide whether a product idea is unique or not, then he or she should be thought of as a valuable source for initiating profitable ideas. This greater focus on the customer is not, perhaps, entirely new. The conception of the customer as a co-producer, however, is another step forward. According to Wikström (*ibid*) deepening the interaction between customers and manufacturers improves the level of creativity. Since creativity plays an important role in the front-end innovation phase, co-opting customer competence, and involving them into the process, ought to be extra contributing in product development projects.

However, whether or not customers or users have really contributed with more creative ideas has not been thoroughly investigated in previous research. There are indications that users are the real source of many innovations (von Hippel, 1988), but this does not answer the question whether or not users contribute with more creative product or service ideas than the company itself.

Purpose and scope

The purpose of this paper is to report the empirical findings from a study on user involvement in service innovation. The focus of the paper is on the users' contributions to the originality of the generated ideas.

Thus, the research question is formulated as follows: *How does user involvement in service innovation affect the originality of the service ideas produced?*

Method

A working hypothesis for the study has been that user involvement in the service innovation process does affect the end-result with regard to unique ideas. In other words, it has been assumed that user involvement will make a difference compared to the involvement of only professional service developers in the development process – without the interaction of users. The interest is to pinpoint the actual differences and learn how to utilize them for improving user involvement. A cornerstone of our research has been to simulate a real situation of user involvement as realistically as possible. In other words, the research design itself should constitute a realistic way of organizing user involvement. The context chosen was the development of end-user services based on the GSM (Global System for Mobile Telecommunications) standard SMS. These services can be categorized as technically based self-services (Dabholkar, 1996). The platform used in the study is called Unified Services (US). US is essentially a converter between SMS¹ messages (text messages via the mobile phone) in GSM and http-calls on the Internet. From the users' point of view, US enables access to information on the Internet by sending and receiving SMS-messages. Furthermore, US can also be used for remote control. It is for example possible to create a service that can switch lights on and off in a home or a radiator in a building, or check whether a door is locked by just sending an SMS.

Sample

All non-professional participants, i.e. the users, were volunteered students from Karlstad University, recruited during lectures. The reason for choosing students is that they represent one of the most frequent user groups of the GSM/SMS service in focus during the study and, thus making them, *realistic* users. The professional participants in the control group worked as service developers at the R&D department of a leading telecommunications company in Sweden.

Design

In the CuDIT (Customer Driven IT) project an experimental method was chosen. The basic

idea was to design a study that compared new services generated by professional service developers at a company to services generated by users. In doing so, conclusions could be drawn regarding the actual value of user involvement by way of their contribution in an experimental setting. The design was a Multiple-Group Posttest Design (Spector, 1993, p. 38) using three groups. The first was a control group consisting of 12 *professionals* in service development, i.e. this group did not have any user involvement. The other two groups consisted of 19 and 17 *ordinary users*, represented by students in non-technical study programmes, e.g. social science, teacher training, business administration, etc. The difference between the two user groups was that in group three (with 17 participants) the students had been educated in different creativity techniques (henceforth *creative users*). The independent variable was the *user involvement strategy* (type of user) and the dependent variable was the *originality* of service idea (see Table 1 for design).

Limitations

From a methodological perspective, the design has two weaknesses. It does not use truly random assignment of the participants, nor does it have full control of the process during the experiment. Random assignment was not practically possible for any of the user-groups. Group one was picked at random; however the two other groups were volunteers. Although groups two and three were not assigned at random, we claim that they are most probably representative of the group of people that would participate in this kind of endeavor. The argument for this is that the whole setting of the experiment was designed in a similar manner to what could be employed in a real situation. The other problem to tackle is the limited amount of control over the experimental process. During the idea generation (12 days), the participants worked with the task on their own, though with the possibility of contacting us if problems arose.

To deal with this, all participants were equipped with a logbook (diary). After completion of the trial, all participants were interviewed as well; particularly about the incidents that took place around the ideas they had reported. Process data was thus collected from both the diary and the interviews. However, this data is not included in the analysis in this paper.

Procedure

The actual experiment consisted of four stages; *initiation*, *idea generation*, *termination*, and *evaluation* (see Figure 1).

Initiation

At the initiation meeting, users were gathered and the scope of the study was outlined. Then the application platform, US, was demonstrated to the participants. The purpose was to give them a feeling of the range of possibilities for these kinds of services. The task and instructions were handed out, in both oral and written format. All participants, with the exception of the professional service developers, were given the task of creating service ideas that they perceived as valuable to themselves. The experts, on the other hand, were instructed to design services that they thought would bring added value to the students at Karlstad University. By carrying out these different formulations, all groups were actually trying to satisfy the same target group, namely the students at Karlstad University. Consequently, it was possible to compare the ideas created for new services.

The participants were instructed to document the idea creation process in a diary that was handed out to them. The purpose of the diary was twofold, to function as a method for triangulation and to collect process data.

The participating users were also equipped with mobile phones containing a special account, since they were to come up with services ideas for this type of equipment. To provide the participants an even better sense of how these services work, they were given

Table 1. The Design of the Experiment

Independent variable	Process	Dependent variable
Type of user: – Professional developers – Ordinary users – Creative users	Idea generation of new services for mobile telephony	Creativity: – Originality

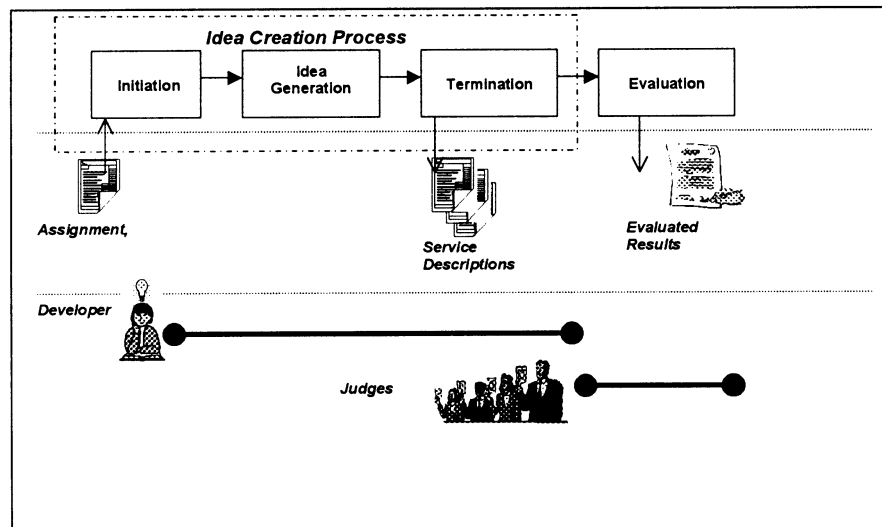


Figure 1. Outline of One Trial in the CuDIT Experiment

access to a sample of 10 already implemented services. To be able to test these, and to gain motivation during the experiment, the phones had a credit of approximately €25² and a so-called chat-board. All participants received hands-on training on how to use the phone through testing some of the services.

Idea generation

The generation of ideas lasted for 12 days. During this period, participants were to create service ideas by themselves and log them in their diary. An estimate of the amount of time spent on idea generation was on average established to half an hour each day.

Termination

After 12 days, the idea generation period was concluded and a meeting was held. All equipment was returned and the participants submitted their ideas into a service description. These were written descriptions of the service ideas generated in a pre-defined format.

Evaluation

After all trials had been concluded and the service descriptions were collected, the evaluation phase followed. In the CuDIT project several dimensions of the service ideas have been evaluated, here we will discuss one of them, originality. In order to evaluate them, we used one panel consisting of experts within the given panel domain (Amabile, 1996), mobile services, and one panel of users consisting of university students (see below for a more detailed description).

Measures

The assessment method was based on the Consensual Assessment Technique (CAT), (Amabile, 1996). CAT uses a panel of independent judges to evaluate different designs presented to them. 'Design' is a generic word for the object to be evaluated. The technique builds upon comparing different designs and judging them in relation to each other, as well as ranking them.

The type of judge evaluating a certain result can affect the evaluation, and thus also the (research) question of the value of involving users. For example, a company expert might evaluate the perceived user-value very differently to an ordinary user. In the CuDIT project, two different panels of judges were used to evaluate the ideas. These were (Panel 1) *experts* (professionals) and (Panel 2) *customers* (here in terms of students from Karlstad University), both groups familiar with mobile telephony services.

Before evaluating the originality dimension, the rating system was described both orally and in writing. A scale of one to ten was used for rating the originality of the service ideas generated. In order to 'calibrate' the judge's perception of the dimension to be evaluated, a test round was conducted. Five service descriptions were picked and assessed individually by the judges. After the individual assessments, the results were discussed in the group. The purpose of this round was to ensure that the judges had understood how the dimension was to be evaluated.

After this, the judges rated all the service ideas (objects) for the dimension in question.

The assessments were made individually. Each judge had a paper copy of each service description.

Results

Interjudge reliabilities

Ahead of analyzing the research question, an interjudge reliability test between Expert and Customer panels was carried out. A Pearson bivariate correlation test showed significant results for the Expert panel as regards their assessments of the originality variable. The strongest correlation (Pearson's r) obtained was 0.62 ($p < 0.001$) and the weakest 0.29 ($p = 0.009$). The judges' evaluations of the originality of the generated ideas was perceived as satisfactory. Therefore, the individual scores were averaged to a mean score for further statistical analysis. Similar to the Expert panel, an interjudge reliability test was carried out for the Customer panel. Overall, the Customer panel showed significant correlation as well, although one pair of ratings turned out non significant. The strongest correlation (Pearson's r) received were 0.57 ($p < 0.001$) and the weakest 0.05 ($p = 0.626$). Although two judges showed an unsatisfactory agreement the overall scoring was estimated to be appropriate for further statistical analysis. Consequently, the individual scores were averaged to a mean score.

The effect of user involvement on originality

The dependent variable, the originality of the generated service ideas, was tested by means of a one-way ANOVA. Table 2 shows the scoring for the various independent variables, according to the two panels.

In respect of panel one (Experts) a one-way ANOVA showed significant differences re-

garding the originality between the groups [$F(2, 242) = 7.33$, $p < 0.001$]. A post hoc comparison (Scheffé) indicated that the creative trained users had more original service ideas as compared to the company experts ($p = 0.011$). The difference between the company experts and ordinary users was close, but not, significant ($p = 0.102$). In respect of panel two (Customer) a one-way ANOVA also showed significant differences regarding the originality between the groups [$F(2, 242) = 4.87$, $p = 0.008$]. A post hoc comparison revealed that the creative users had more original service ideas as compared to the company experts ($p < 0.001$). There were no significant difference between the company experts and the ordinary users ($p = 0.413$).

Discussion

The present study challenges the normative view that organizations need to consider the voice of the customer when developing new innovative products. This was done by empirically investigating company professionals and users involved in the idea generation of service ideas. The assumption that customer involvement in the early stages of product development would result in more original ideas is supported by the present findings. There are primarily two interesting results which can be derived from the study and which will be discussed here:

1. Customers generate ideas that are more original than the ones generated by the company.
2. Customers generally assess innovative ideas different from the company.

It is an interesting fact that, in any event, the creativity trained users generate more

Table 2. Mean scores (and SD) for the originality across the three groups

Panels	Groups	n	M	SD
<i>Panel one</i> (expert judges)	1 Company experts	55	2.99	1.07
	2 Ordinary users	123	3.55	1.79
	3 Creative users	67	4.10	1.58
	<i>Total</i>	245	3.57	1.64
<i>Panel two</i> (customer judges)	1 Company experts	55	4.71	1.38
	2 Ordinary users	123	5.05	1.59
	3 Creative users	67	5.58	1.71
	<i>Total</i>	245	5.12	1.60

original ideas than the professional service developers. One plausible explanation for the results is that users have different cognitive styles of solving problems, often referred to as divergent thinking (Guilford, 1967). Convergent thinking, which is characterized by logical reasoning and problem-solving along established principles, is stimulated and sought for in many working situations. Accordingly, professional service developers may have seen technology grow from an initial state to a more mature and advanced platform over the years. Simultaneous to this, creating a very deep understanding of the technology itself might also become a burden against creativity. The knowledge creates a rigidity in thinking style, professional developers do not think outside the current capabilities of the technology. Since the customers do not possess the same technical skills, they are sometimes able to generate ideas that integrate, in a novel fashion, technology with their personal environments (i.e. needs and requirements). Furthermore, it is mostly a fact that professional developers and R&D staff do not live in the same environment as their customers, which is why it seems natural that a customer is able to provide more original service ideas. After all, it is difficult to envisage other people's (i.e., a customers') situations and unarticulated needs and requirements.

In respect of evaluating the ideas, experts and users made the same group-wise ranking of the originality of the generated service ideas. Overall, however, the expert panel gave the ideas a lower score than the customer panel. The reason for this is probably due to the circumstance that they have more knowledge of the current state of the art. Accordingly, non professionals seem to be unnecessary as judges of the *relative originality* of a group of service ideas. On the other hand, the customer panel appear to perceive the *absolute originality* on a higher level than the experts, which is why the user is a valuable instrument in indicating the absolute originality of an idea.

The research undertaken can be viewed in the light of the classic market debate concerning the two strategies, or business philosophies, of technology push and market demand. In innovation research, recent findings have proposed a market demand approach, aiming to develop competitive new products by incorporating and listening to the voice of the customer (Griffin & Hauser, 1993). However, most of this research suggests the involvement of customers for the sake of customization, and not for the sake of finding original products (Christensen, 1997). As the empirical

findings of this study suggest, users are able to create original and unique ideas, inclining toward the business philosophy of market demand. However, before drawing any final conclusions there is a need to reflect on at least two additional aspects. The first concerns how the originality, or other dimensions of the service ideas, will be affected by an interactive exchange of ideas between users and professionals. In the present study, users and professionals did not interact, and further research is needed in order to explore this matter. The other aspect concerns the question of whether the service ideas developed are possible to implement from a producibility point of view. The ideas generated proved to be original, but how do these ideas rate in respect of other dimensions, such as usefulness or, as mentioned, producibility.

Taken together, our study indicates that user involvement in service innovation can contribute to the creativity in the service ideas produced. In respect of the development of new services then, one managerial implication of this study suggests that business organizations, attempting to produce innovative and successful products, have a hidden resource in their customers.

Notes

1. SMS is an acronym for short-message-service, and is a technology for sending and receiving text-messages to the mobile phone. SMS is defined within the GSM specification. GSM is a pan-European standard for mobile telephony. The system was introduced in Europe in 1992, and is today spread all over the world.
2. The cost for sending an SMS message was €0.17 or \$ 0.15.

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Per Kristensson is Philosophy Licentiate at the Service Research Center, Karlstad University, Sweden. Peter Magnusson, is an Executive PhD Candidate at the Fenix program at Stockholm School of Economics and Telia Mobile. Jonas Matthing is a PhD Candidate at the Service Research Center, Karlstad University, Sweden.

