

Please quote as: Bretschneider, U. (2020): Which Motivations Boost Idea Quality?
Exploring the Impact of Customers' Motives for Participating in Virtual Ideas
Communities on Ideation Outcome. In: European Conference on Information
Systems (ECIS). Marrakesch, Marokko.

WHICH MOTIVATIONS BOOST IDEA QUALITY? EXPLORING THE IMPACT OF CUSTOMERS' MOTIVES FOR PARTICIPATING IN VIRTUAL IDEAS COMMUNITIES ON IDEATION OUTCOME

Research in Progress

Bretschneider, Ulrich, University of Hagen, Hagen, Germany, ulrich.bretschneider@fernuni-hagen.de

Abstract

For practice it is important to leverage ideas of high quality from Virtual Ideas Communities (VIC). Therefore, firms that run such VIC have a strong interest in understanding which factors impact customers' ideation outcome. This research investigates the influence of customers' motivation factors for developing ideas on the quality of their ideas. So far, empirical studies that provide evidence on this association are neglected, although these insights would be highly beneficial for firms in their role as operator of VIC. Knowing the factors that have a positive influence will provide valuable insights into how to design effective incentive strategies that attract corresponding customer motivations and, in turn, will lead to higher levels of idea quality. In this research-in-progress paper we build a theoretical model explaining which of customers' motives for developing ideas have a positive impact on their ideation outcome.

Keywords: Crowdsourcing for Innovation, Virtual Ideas Community, Motivation, Idea Quality.

1 Introduction

More and more firms host so-called Virtual Idea Communities (VIC), such as DELL's Ideastorm (www.ideastorm.com), in which customers focus on voluntarily sharing and elaborating ideas for new product development (NPD) (Bretschneider, Leimeister, & Mathiassen, 2015; Schemmann, Herrmann, Chappin, & Heimeriks, 2016). Companies such as Google, Intel, BMW, SAP and Acrobat are a few examples that run such Virtual Idea Communities (VICs). In this context, customers are seen as a key resource for idea development as they often have high product expertise as well as experiences and creativity potential gained by regular product usage (Bayus, 2013; Cui, Wu, & Tong, 2018). Since 2003, this strategy is often referred to as Crowdsourcing for Innovation (Majchrzak & Malhotra, 2013).

In regard of customers' (also referred to as the crowd) high product expertise as well as experiences and creativity potential firms are particularly interested in receiving ideas of high quality, meaning ideas that are, for example, novel, innovative, constructive or detailed (Liu, Du, Hong, Fan, & Wu, 2020). However, most of the ideas, that the crowd is submitting, is of lower quality (Beretta, 2018). Only a small percentage of ideas fulfill firms' quality expectation (Blohm, Bretschneider, Leimeister, & Krcmar, 2011; Liu, et al., 2020; Piezunka & Dahlander, 2019) and, in turn, will benefit firms' NPD (Beretta, 2018; Piezunka & Dahlander, 2019; Zhao & Zhu, 2014).

Because of the high relevance of the ideation outcome for firms, scholars and practitioners share a strong interest in understanding the factors that influence customers' ideation outcome, meaning the quality level of ideas (Blohm, Riedl, Füller, & Leimeister, 2016; Ye et al., 2016). Knowing these factors will provide valuable insights into how to create effective incentive strategies that would correspondent to these factors and then attract customers to produce ideas of higher quality. As a consequence, this would rise the percentage of high quality ideas in VICs.

Although, research on VIC now is nearly a decade old, scholars in this field begun for the past few years to investigate the drivers of idea quality. For example, Liu et al. (2020) found that positive feedback, that customers received on their prior ideas, positively affect the quality level of future ideas. Guo et al. (2017) showed that openness to experience and extraversion are positively related to individual idea quality, whereas neuroticism and conscientiousness are negatively associated. Ye et al. (2016) found that individuals' openness to external sources of knowledge is related to their ideation performance.

In this paper we propose that motivations of customers are positively linked to higher ideation outcome. For several years, there is empirical evidence that different motivations, such as capability signalling, curiosity, or recognition, are important drivers that motivate customers to produce ideas in VICs (Antikainen, Mäkipää, & Ahonen, 2010; Bretschneider, et al., 2015; Jeppesen & Frederiksen, 2006). We postulate that some of these motives are positively linked to a higher ideation outcome, meaning that some of these motivations will lead to higher levels of idea quality.

Against this background, the objective of this research-in-progress paper is to build a theoretical model explaining which of customers' motivations for developing ideas in VICs have a positive impact on their ideation outcome, meaning the quality of ideas. In other words, in this research-in-progress paper the focus is on the theory-based development of a research model as well as on the operationalization of measures for the survey with which the model later will be tested and that will be conducted in the near future. To later test the theory, empirical data from the crowd of the SAPIens VIC, hosted by the ERP software manufacturer SAP, will be employed. On the whole, this research will answer ongoing calls to explore the relationship between customers' motivation and customers' ideation outcome in VICs (Liu, et al., 2020).

2 Theory Development

2.1 Capability Signalling

There is a rich body of management literature available that considers customers' motivations for developing ideas in VIC. A prominent motivation is that the crowd consider developing ideas in VICs as an effective way to demonstrate their capabilities and skills shown through their contributions (Antikainen, et al., 2010). Given the fact that customer ideas are prominently visualized together with the idea submitter's name on the VIC platform this is often used as an opportunity to demonstrate competence - mirrored in their ideas - to third parties. So, by submitting ideas, customers are able to send signals of competence, knowledge, and skills. Thus, participating can be a good channel for self-advertisement. Hence, this motivation is called capability signalling-motivation.

Signalling is discussed in economics contract theory (Bolton & Dewatripont, 2005) or Akerlof's "Market of Lemon" (Akerlof, 1970) and is described as someone putting credible information about himself across to another party (Spence, 1973). Signalling becomes relevant in the presence of asymmetric information, intimating that in some economic transactions, buyers of transactions have no or bad information concerning the seller's offer before the transaction happens. Because of this, buyers have considerable uncertainties concerning the transaction. In this context, signalling is a way of getting around the problem of asymmetric information by allowing the seller to send signals that would reveal some piece of relevant information to the buyer, thereby diminishing his uncertainties. For example, in the job-market-signalling-model, potential employees send a signal about their experience and skills to the employer through former job references or certificates of schooling (Spence, 1973). The afore-mentioned example illustrate that signals are sent out to known receivers, but it is also possible to send out signals to undefined people. For example, Rafaeli et al. (2009) found that people writing articles for Wikipedia seek to demonstrate their capabilities and show their skills through their contributions.

Applied to VICs, the fact that participants' ideas are prominently visualized together with the idea submitter's name on the VIC platform is perceived by participants as an opportunity to demonstrate personal capabilities and skills mirrored in their ideas. By submitting ideas, these participants are able to send signals of competences, knowledge and skills to unknown others. Audiences of such signals could be the firm that runs a VIC, thereby supporting a search for job opportunities at the firm. Additional hundreds of other crowd members participating in the VIC could be receivers of such signals. More generally speaking, submitting ideas in VICs for ideation is perceived by some participants as being a good channel for self-marketing. Since reactions by third parties may be triggered only if ideas of signal senders hold a certain quality level, this group will likely be interested in submitting high quality ideas. This leads to the first hypothesis:

H1: Higher levels of capability signalling-motivation in customers will have a significant positive influence on the quality of ideas.

2.2 Recognition

Customers also engage in VIC because they hope to receive positive reactions to their contributions (Antikainen, et al., 2010; Eisenberger & Rhoades, 2001b; Jeppesen & Frederiksen, 2006). This is discussed as the recognition-motivation. Customers expect positive reactions from other customer as well as from the firm that runs the VIC. In VICs, there are various IT-based mechanisms implemented allowing customer to praise submitted ideas. First, there are rating mechanisms that allow customers to rate submitted ideas. For example, there are simple binary rating scales (thumbs-up, thumbs-down) or 5-star rating scales, which enable customers to quickly share their evaluation. Other VICs implement a voting mechanism attached to each submitted idea that displays the number of votes an idea has received. Second, there is a review mechanism that allows customers to write a comment or feedback regarding ideas using certain review forms. For example, DiGangi et al. (2009) found that in DELL's Ideastorm VIC, one can observe an intense feedback culture. Typically, other customers comment on

ideas many times in a very friendly way. Overall, with the help of such IT-based mechanisms, idea submitters can receive recognition from third parties. Amabile et al. (1996), as well as Amabile and Gryskiewicz (1989) reported that in workplace evaluation the feedback that recognizes creative accomplishment can be conducive to creativity. This postulates that the influence of recognition motivation on creativity can be grounded in the goal-orientated-theory. In general, recognition is found to be a basic human need, as it gives people a sense of self-esteem (Holmström, 1999; Maslow, 1987). According to the goal-oriented-theory, individuals driven to a high degree by recognition motive - those systematically seeking for recognition - are concerned about their ability and performance relative to others (Dweck & Leggett, 1988). Recognition motivated individuals approach tasks as a normative social comparison with others in a desire not only for public recognition but also for “outperforming others as a means to aggrandize one’s ability status at the expense of peers” (Covington, 2000, p. 174). This suggests that participants of VICs are concerned about developing ideas of high quality, since they could receive such appreciation on the basis of submitted ideas. In developing high quality ideas, they probably see an opportunity to demonstrate to others their level of ability and thereby establish their ability in the eyes of other developers. We thus expect that customers driven by recognition motives will produce ideas of higher quality. We hypothesize as follows:

H2: Higher levels of recognition motivation in customers will have a significant positive influence on the quality of ideas.

2.3 Altruism

Antikainen et al. (2010) found that some customers have highly altruistic attitudes towards the company that runs the VIC. These altruism-motivated customers seek to help the company by ideas for new product development without expecting any reward. Psychologists have identified an interrelated psychological mechanism through which altruistic motivation stimulates creativity. For example, Silvia (2008) proposed that when individuals are altruistically motivated, they experience positive affect. This stimulates creativity by broadening the range of cognitive information available, expanding the scope of attention toward a creative task, and encouraging cognitive flexibility (Amabile, Barsade, Mueller, & Staw, 2005; Fredrickson, 1998). Applied to our context, this means that when customers in VICs are motivated by altruism it will not only expand the scope of attention toward assimilating a wider set of ideas but also encourage their cognitive flexibility, which is useful for generating ideas, for example when identifying patterns and associations between ideas. Thus, when VIC members are altruistically motivated, their desires to engage will lead them to focus on novel and good ideas. Hence, we hypothesize:

H3: Higher levels of altruism motivation in customers will have a significant positive influence on the quality of ideas.

2.4 Fun and Learning

There is evidence that customers of a firm engage in VIC because they have fun in developing innovations in the form of innovative ideas (Eisenberger & Aselage, 2009). By doing so, these customers are able to satisfy their creative urge and product-related curiosity or these individuals simply find developing ideas to be intellectually stimulating. This is discussed as the fun-motivation.

Further, there is the learning-motivation. Very often customers engage in VIC to gain knowledge from active participation in VIC (Antikainen, et al., 2010; Eisenberger & Aselage, 2009; Jeppesen & Frederiksen, 2006). Such involvement enhances customer’s knowledge about the underlying product, as well as about the underlying technologies. This, in turn, enables them to use the product in a much more comprehensive manner, thereby increasing the potential benefit of product usage (Nambisan, 2002). In studies on the association between motivation and creativity that are grounded and conceptualized on the self-determination theory scholars found that when individuals are intrinsically motivated, their fun and interest in learning will enhance their cognitive flexibility, willingness to take risks, and openness to complexity, which in turn will expand their access to ideas and potential solu-

tions (Amabile, 1979; Gagné & Deci, 2005). This enhances psychological engagement and builds energy for sustaining effort, increasing the amount of time that individuals are willing and able to work on their tasks (Fredrickson, 1998). The latter one is discussed as the so-called flow concept. Flow is the mental state of operation in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity (Grant & Berry, 2011). Individuals with higher levels of fun and learning motivation to perform a certain action are considered falling into the so-called flow experience while operating this action (Amabile, 1988). The flow state, in turn, has a documented correlation with high performance in creativity (McGonigal 2011; Peifer 2012). This is because individuals in the flow state concentrate their attention more effectively on their tasks (e.g., Amabile, 1996). As a consequence, results of higher quality emerge. We postulate that this can be assigned to our case, which leads to the following hypotheses:

H4: Higher levels of fun motivation in customers are positively associated with flow.

H5: Higher levels of learning motivation in customers are positively associated with flow.

H6: Higher levels of flow in customers will have a significant positive influence on the quality of ideas.

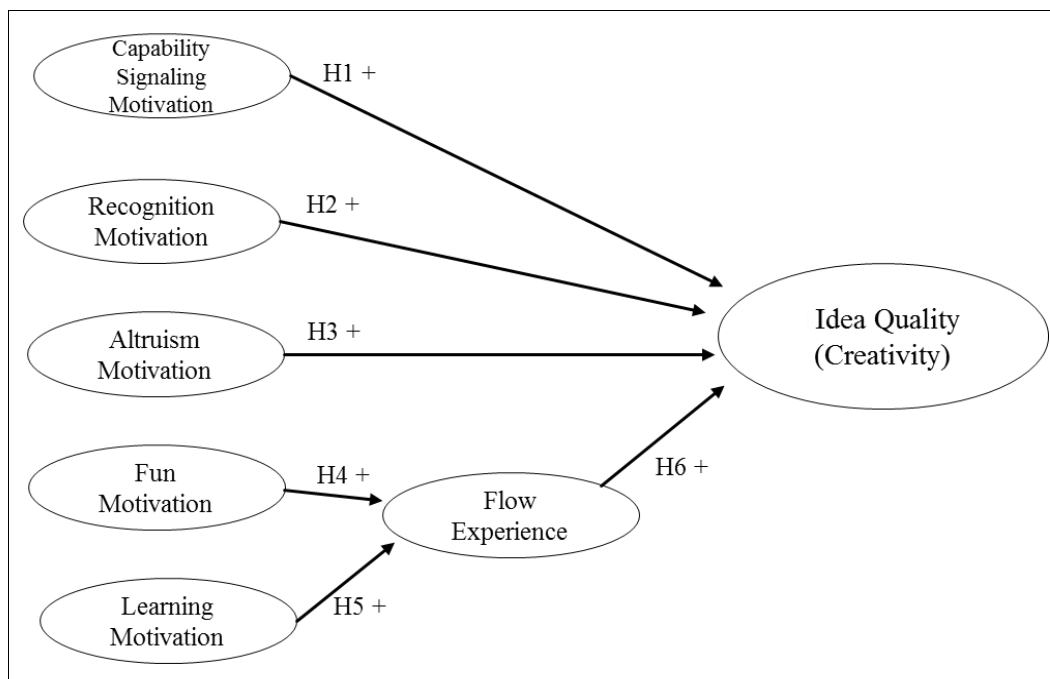


Figure 1. Proposed Research Model and Summary of Hypotheses

3 Methodology

To test our research hypotheses, we will collect data from „SAPiensi“ community (www.sapiensi.info), a typical VIC established and operated by the ERP software manufacturer SAP. SAPiensi was launched in the summer of 2016 targeting users of SAP software. On SAPiensi users are invited to submit ideas improving SAP solutions or SAP in general. Ideas have to be submitted via an Internet toolkit. Each submitted idea is visualized in an idea pool, a public section of the online platform. By March 2020 SAPiensi consisted of 320 SAP users of those 233 actively participated by submitting at least one idea.

3.1 Measuring Idea Quality (Creativity)

3.1.1 Sample and Procedure

To measure the construct “idea quality” we will select a collection of ideas from the SAPIens VIC, which will be evaluated by an independent expert jury in May 2020. We will select ideas that have been submitted by members of the SAPIens VIC. Each idea that will be included into our selection will come from a separate individual, so that the amount of ideas will correspond to the amount of idea contributors. The selected ideas emanate from the period from October 2019 to March 2020. Taking this sample and following this procedure we can be sure that no idea will be older than a half year.

Due to the “fuzziness” of the idea construct, a broad range of different evaluation methods for assessing idea quality is discussed in literature and applied in practice. Typically, the evaluation process is carried out by an independent expert jury. The methods in use range from unstructured discussions to complex rating schemes based on consensual assessments of the referees (Plucker & Renzulli, 1999). Based on a self-developed evaluation scale (see chapter 3.1.2 in which the development of the evaluation scale is described in detail) with eight items, a selection of ideas from the SAPIens VIC will be evaluated with the help Amabile’s Consensual Assessment Technique (CAT) (Teresa M. Amabile, 1996), which has been extensively used for evaluating customer generated new product ideas before (Kristensson, Gustafsson, & Archer, 2004; Matthing, Kristensson, Gustafsson, & Parasuraman, 2006; Poetz & Schreier, 2012).

Using the CAT method, the ideas will be evaluated by a jury consisting of experts in the domain of SAP. In concrete, our jury will consist of six referees who were employees of SAP. Each of the jury members has an in-depth knowledge as well as a high product expertise of the SAP software, so that each jury member will be able to assess the ideas objectively.

For evaluation, each idea description will paste into separate evaluation forms, which also will contain the eight items for idea evaluation. The evaluation forms then will be handed out to each referee in a randomized order. All judges will be assigned to rate the ideas with the eight different items on a rating scale ranging from 1 (lowest) to 5 (highest). Each member of the jury will evaluate the ideas independent of the others.

3.1.2 Measure

Idea quality is a complex construct. Various metrics consisting of different dimensions for assessing the quality of creative ideas have been discussed in the literature. We decided to develop our own scale on the basis of existing work, since there was no scale that fits very well with our context. In order to develop a reliable scale, we consider work done in creativity research. We conducted an extensive literature review and identified 18 articles from creativity research. These papers were useful for our research for the following reasons. First, all papers dealt with empirical evaluation of idea quality. Second, all papers had in common that they used a certain scale for evaluating ideas. Accordingly, we carefully analysed the scales for idea evaluation, particularly the used dimensions of idea quality, in order to check which dimensions did exist and which were appropriable for the development of our own metric. Based on the insights of this research, we used eight dimensions, described as follows.

The first idea dimension is novelty, which is a key criteria when evaluating ideas, e.g., used by Binnewies et al. (2008). An idea is described most novel if – from the perspective of its contemplator – it is rare and nobody has previously expressed it (MacCrimmon & Wagner, 1994). We adapted novelty unvaried in our scale. Originality is another dimension discussed in evaluating ideas. An original idea is defined consistently as an idea that has the characteristic of being inconvenient, visionary and surprising (Dean, Hender, Rodgers, & Santanen, 2006). Some authors speak of unusualness (Mumford, 2001), creativity (Binnewies, et al., 2008; Kramer & Kuo, 1997; Potter & Balthazard, 2004) or even non-obviousness (MacCrimmon & Wagner, 1994) in terms of originality. We adopted this criterion as originality. Another attribute of idea quality adopted unmodified is paradigm relatedness. This refers to an idea’s transformational character, and describes the degree to which an idea helps to overcome established structures, i.e., how radical or revolutionary it is (Dean, et al., 2006;

Garfield, Nolan, Dennis, & Satzinger, 2001; Hender, Dean, Rodgers, & Nunamaker Jr., 2002). Cooper et al. (1998) and Dean et al. (2006) use acceptability in order to express the degree to which an idea is socially, legally or politically accepted by others. We adopted acceptability in terms of user acceptance. With this criterion, we measured the degree to which other SAP users deemed an idea to be useful. Effectiveness describes the degree to which an idea would solve a problem, e.g., (Barki & Pinsonneault, 2001; Valacich, Wheeler, Mennecke, & Wachter, 1995). As this criterion is useful for our idea scale in the stated manner, we adopted it unmodified. Another trait of idea quality is elaboration, which can be seen as the extent to which an idea is complete, detailed and well understandable (Dean, et al., 2006). We adopted this criterion unmodified for our scale. We operationalize each of the idea quality's distinct eight dimensions by one item. Table 1 lists each dimension with its corresponding item.

| Dimension | Corresponding item | Notice and reference |
|----------------------|---|---|
| Novelty | The degree to which the idea is rare to SAP and not expressed in an SAP context before. | Contextualized from the novelty construct by Binneweis/Ohly/Niessen (2008), Eisenberger/Rhoades (2001a), Garfield et al. (2001), MacCrimmon/Wagner (1994), Massetti (1996), Miura/Hida (2004), Mumford (2001), and Shalley (1995). |
| Originality | The degree to which the idea is unusual, visionary and surprising. | Contextualized from the originality construct by Barki/Pinsonneault (2001), Binneweis/Ohly/Niessen (2008), Dean et al. (2006), Faure (2004), Hender et al. (2002), Kramer/Kuo (1997), MacCrimmon/Wagner (1994), Miura/Hida (2004), Mumford (2001), Potter/Balthazard (2004), and Sosik/Avolio/Kahai (1997). |
| Paradigm relatedness | The degree to which the idea helps to overcome established SAP structures, and is radical and revolutionary from SAP's point of view. | Contextualized from the paradigm relatedness construct by Dean et al. (2006), Garfield et al. (2001), and Hender et al. (2002). |
| Acceptability | The degree to which SAP users will deem the idea as being useful. | Developed in this research by building on the construct by Cooper et al. (1998) and Dean et al. (2006), who considered acceptability originally as the degree to which an idea is socially, legally, and/or politically accepted. |
| Effectiveness | The degree to which an idea will solve a problem in the SAP context. | Contextualized from the constructs by Barki/Pinsonneault (2001), Dean et al. (2006), Faure (2004), and Kramer/Kuo (1997). |
| Elaboration | The degree to which the idea is complete, detailed and well understandable. | Contextualized and renamed from the constructs by Dean et al. (2006) and MacCrimmon/Wagner (1994). |

Table 1. Scale for idea evaluation

3.2 Measuring Motivation and Flow

3.2.1 Sample and Procedure

To measure the motivations and flow constructs we will collect data from idea contributors whose ideas will be selected for the above described idea evaluation procedure. Since perceived motivation-related issues can best be expressed by individuals themselves, we will conduct a standardized questionnaire survey. By doing so, we followed a usual approach to measure motivation of individuals, for

example used by Grant and Berry (2011) who used self-reported data to measure different forms of motivations of employees. The same applies for the Flow variable. The idea contributors to be questioned will be provided with a personalized link to the online survey by e-mail. The development of the measures, which will be used in the online survey, is described in the next sub-section.

3.2.2 Measures

To measure the customers' motivation we will use the approach and scales developed by Grant and Berry (2011), which we adapted to our case. The scales open with the question, "Why are you motivated to develop ideas?" and then allow respondents to rate their degree of the five motivations introduced above. The capability signalling-, recognition- and fun-motivation scales are each composed of three items, including items such as "Because I enjoy developing ideas" and "Because it's fun to develop ideas" etc. (examples for the fun-motivation scale). The altruism- and learning-motivation scales are each composed of three items, including "Because I want to help others through my ideas" and "Because I care about benefiting others through my ideas" etc. (examples for the altruism-motivation scale). All items are equipped with a Likert-type scale anchored at 1 ("disagree strongly") and 5 ("agree strongly").

To measure flow we will use a questionnaire approach proposed and used by scholars from the field of psychology, for example by Bloom (1980) or Schacter et al. (2011). Based on this approach, Schacter et al. (2011) developed the flow state scale, which they validated in the context of sport. The flow state scale became a popular instrument to measure flow experience over time. Using this instrument respondents have to self-report past experience with the help of standardized scales using three to 10 items (Schacter, et al., 2011). For our case we will use a variation of the flow state scale to measure customers' flow experience during the development of ideas. Respondents will be asked to recall their last experience with developing an idea that occurred whilst participating in the SAPIens VIC. The scale opens with the statement, "When I developed my last idea..." and then allows respondents to rate their degree of flow state by using a 5-point Likert response format where 1 indicates "disagree strongly" and 5 indicates "agree strongly". Our flow state scale is composed of three items, including "...I completely focused on task", "...I found time different from normal" and "...I was not concerned with others".

4 Expected Contributions for Theory and Practice

Scholars and practitioners share a strong interest in understanding the drivers that influence the quality level of customers' ideas in VIC (Blohm, et al., 2016; Liu, et al., 2020). However, empirical studies that provide evidence on which of customers' motivation factors for developing ideas are positively linked to higher ideation outcome are neglected. Our planned research will fill this research gap by firstly investigating this association. This is highly relevant for firm's operation of a VIC. Knowing which of customers' motivation affect their ideation outcome will provide valuable insights into how to design effective motivation strategies. Designing an incentive structure that attracts the right motivations will lead to higher levels of idea quality in VICs over time. To promote recognition motivation, managers of VIC could, for example, provide positive feedback; to promote fun motivation managers could highlight the joy of problem solving or making use of gamification tools, such as leaderboards and status badges to acknowledge successful idea contributors. As it concerns capability signalling-motivation managers could for example think about combining the crowdsourcing for ideation in VICs with recruitment activities and, in particular, letting customers know that participating in ideation is also a chance of recruitment. In this regard our research will provide a highly relevant contribution for practice.

Beyond this practical contribution our research will also significantly contribute to theory. Since our research will be the first that investigates the relationship between customers' motives and ideation outcome and therefore will be the first that answers ongoing research calls in this field (Blohm, et al., 2016; Liu, et al., 2020), our research will expand the still young body of knowledge on drivers of idea quality in VICs.

References

- Akerlof, G. A. (1970). The Market for Lemons. *Quarterly Journal of Economics*, 488–500.
- Amabile, T. M. (1979). Effects of external evaluation on artistic creativity. *Journal of Personality and Social Psychology*, 37, 221–233.
- Amabile, T. M. (1988). A Model of Creativity and Innovation in Organizations. *Research in Organizational Behavior*, 10, 123-167.
- Amabile, T. M. (1996). *Creativity in Context*. Boulder: Westview Press.
- Amabile, T. M. (1996). *Creativity in context. Update to social psychology of creativity* (1 ed.). Oxford: Westview Press.
- Amabile, T. M., Barsade, S. G., Mueller, J. S., and B. Staw (2005). Affect and creativity at work. *Administrative Science Quarterly*, 50, 367–403.
- Amabile, T. M. and N. Gryskiewicz (1989). The creative environment scales: The work environment inventory. *Creativity Research Journal*, 2, 231-254.
- Antikainen, M., Mäkipää, M. and M. Ahonen (2010). Motivating and Supporting Collaboration in Open Innovation. *European Journal of Innovation Management*, 13(1), 100-119.
- Barki, H. and A. Pinsonneault (2001). Small Group Brainstorming: Is Electronic Brainstorming the Most Effective Approach? *Small Group Research*, 32(2), 158-205.
- Bayus, B. L. (2013). Crowdsourcing new product ideas over time: An analysis of the Dell IdeaStorm community. *Management Science*, 59(1), 226-244.
- Beretta, M. (2018). Idea Selection in Web-Enabled Ideation Systems. *Journal of Product Innovation Management*, 36(1), 5-23.
- Binnewies, C., Ohly, S. and C. Niessen (2008). Age and Creativity at Work: The Interplay between Job Resources, Age, and Idea Creativity. *Journal of Managerial Psychology*, 23(4), 438-457.
- Blohm, I., Bretschneider, U., Leimeister, J. M. and H. Krcmar (2011). Does Collaboration among Participants Lead to Better Ideas in IT-based Idea Competitions? An Empirical Investigation. *International Journal of Networking and Virtual Organisations*, 9(2), 106-122.
- Blohm, I., Riedl, C., Füller, J. and Leimeister, J. M. (2016). Rate or Trade? Identifying Winning Ideas in Open Idea Sourcing. *Information Systems Research*, 27(1), 27–48.
- Bloom, B. S. (1980). *All Our Children Learning*. New York: McGraw-Hill.
- Bolton, P. and M. Dewatripont (2005). *Contract Theory*. Cambridge and London: MIT Press.
- Bretschneider, U., Leimeister, J. M. and L. Mathiassen (2015). IT-enabled Product Innovation: Customer Motivation for Participating in Virtual Idea Communities. *International Journal of Product Development*, 20(2), 126-141.
- Cooper, W. H., Gallupe, R. B., Pollard, S. and J. Cadsby (1998). Some Liberating Effects of Anonymous Electronic Brainstorming. *Small Group Research*, 29(2), 147-178.
- Covington, M. V. (2000). Goal theory, motivation, and school achievement: An integrative review. *Annual Review of Psychology*, 51(1), 171-190.
- Cui, T., Wu, Y. and Y. Tong (2018). Exploring ideation and implementation openness in open innovation projects: IT-enabled absorptive capacity perspective. *Information and Management*, 55(5), 576-587.
- Dean, D. L., Hender, J. M., Rodgers, T. L. and E. L. Santanen (2006). Identifying Quality, Novel, and Creative Ideas: Constructs and Scales for Idea Evaluation. *Journal of the Association for Information Systems*, 7(10), 646-699.
- DiGangi, P. M. and M. Wasko (2009). “Steal my idea! User innovation community influence on organizational adoption of user innovations: A case study of Dell IdeaStorm. *Decision Support Systems*, 48, 303-312.
- Dweck, C. S. and E. L. Leggett (1988). A social cognitive approach to motivation and personality. *Psychological Review*, 95, 256-273.

- Eisenberger, R. and J. Aselage (2009). Incremental effects of reward on experienced performance pressure: Positive outcomes for intrinsic interest and creativity. *Journal of Organizational Behavior*, 30, 95-117.
- Eisenberger, R. and L. Rhoades (2001a). Incremental Effects of Reward on Creativity. *Journal of Personality and Social Psychology*, 81(4), 728-741.
- Eisenberger, R. and L. Rhoades (2001b). Incremental effects of reward on creativity. *Journal of Personality and Social Psychology*, 81, 728-741.
- Faure, C. (2004). Beyond Brainstorming: The Effects of Different Group Procedures on Selection of Ideas and Satisfaction with the Process. *Journal of Creative Behavior*, 38(1), 13-34.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300-319.
- Gagné, M. and E. L. Deci (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26, 331-362.
- Garfield, M. J., Nolan, J. T., Dennis, A. R. and J. W. Satzinger (2001). Modifying Paradigms- Individual Differences, Creativity Techniques, and Exposure to Ideas in Group Idea Generation. *Information Systems Research*, 12(3), 322-333.
- Grant, A. M. and J. W. Berry (2011). The necessity of others is the mother of invention: Intrinsic and prosocial motivations, perspective taking, and creativity. *Academy of Management Journal*, 54(1), 73-96.
- Guo, J., Su, Q. and Q. Zhang (2017). Individual creativity during the ideation phase of product innovation: An interactional perspective. *Creativity & Innovation Management*, 26(1), 31-48.
- Hender, J. M., Dean, D. L., Rodgers, T. L. and J. F. Nunamaker Jr. (2002). An Examination of the Impact of Stimuli Type and GSS Structure on Creativity: Brainstorming vs. Nonbrainstorming Techniques in a GSS Environment. *Journal of Management Information Systems*, 18(4), 59-85.
- Holmström, B. (1999). Managerial Incentive Problems. A Dynamic Perspective. *Review of Economic Studies*, 66, 169-182.
- Jeppesen, L. and L. Frederiksen (2006). Why do users contribute to firm-hosted user communities? The case of Computer-Controlled Music Instruments. *Organizational Science*, 17(1), 45-63.
- Kramer, M. W. and C. L. Kuo (1997). The Impact of Brainstorming Techniques on Subsequent Group Processes. *Small Group Research*, 28(2), 218-242.
- Kristensson, P., Gustafsson, A. and T. Archer (2004). Harnessing the creative potential among users. *The Journal of Product Innovation Management*, 21(1), 4-14.
- Liu, Q., Du, Q., Hong, Y., Fan, W. and S. Wu (2020). User idea implementation in open innovation communities: Evidence from a new product development crowdsourcing community. *Information Systems Journal*, in press, 1-29.
- MacCrimmon, K. R. and C. Wagner, C. (1994). Stimulating ideas through creative software. *Management Science*, 40(11), 1514-1532.
- Majchrzak, A. and A. Malhotra (2013). Towards an information systems perspective and research agenda on crowdsourcing for innovation. *Journal of Strategic Information Systems*, 22, 257-268.
- Maslow, A. H. (1987). *Motivation and Personality* (3 ed.). New York: Harper.
- Massetti, B. (1996). An Empirical Examination of the Creativity Support Systems on Idea Generation. *MIS Quarterly*, 20(1), 83-97.
- Matthing, J., Kristensson, P., Gustafsson, A. and A. Parasuraman (2006). Developing successful technology-based services: The issue of identifying and involving innovative users. *Journal of Service Marketing*, 20(5), 288-297.
- Miura, A. and M. Hida (2004). Synergy Between Diversity and Similarity in Group Idea Generation. *Small Group Research*, 35(5), 540-564.
- Mumford, M. D. (2001). Tradeoffs Between Ideas and Structure: Individual Versus Group Performance in Creative Problem Solving. *Journal of Creative Behavior*, 35(1), 1-23.
- Nambisan, S. (2002). Designing virtual customer environments for new product development: toward a theory. *Academy of Management Review*, 27(3), 392-413.

- Piezunka, H. and L. Dahlander (2019). Idea Rejected, Tie Formed: Organizations' Feedback on Crowdsourced Ideas. *Academy of Management Journal*, 62(2).
- Plucker, J. A. and J. S. Renzulli (1999). Psychometric approaches to the study of human creativity. In R. J. Sternberg (Ed.), *Handbook of Creativity* (pp. 35-61). Cambridge: Cambridge University Press.
- Poetz, K. M. and M. Schreier (2012). The Value of Crowdsourcing: Can Users Really Compete with Professionals in Generating New Product Ideas. *Journal of Product Innovation Management*, 29(2), 245-256.
- Potter, R. E. and P. Balthazard (2004). The Role Individual Memory and Attention Processes During Electronic Brainstorming. *MIS Quarterly*, 28(4), 621-643.
- Rafaeli, S., Hayat, T. and Y. Ariel (2009). Knowledge Building and Motivations in Wikipedia: Participation as "Ba". In F. J. Ricardo (Ed.), *Cyberculture and New Media* (pp. 52-69). New York: Rodopi.
- Schacter, D. L., Gilbert, D. T. and D. M. Wegner (2011). *Psychology* (Vol. 2). New York: Worth.
- Schemmann, B., Herrmann, A. M., Chappin, M. M. and G. J. Heimeriks (2016). Crowdsourcing ideas: Involving ordinary users in the ideation phase of new product development. *Research Policy*, 45(6), 1145-1154.
- Shalley, C. E. (1995). Effects of Coaction, Expected Evaluation, and Goal Setting on Creativity and Productivity. 38, 2(483-503).
- Silvia, P. (2008). Interest: The curious emotion. *Current Directions in Psychological Science*, 17, 57-60.
- Sosik, J. J., Avolio, B. J. and S. S. Kahai (1997). Effects of Leadership Style and Anonymity on Group Potency and Effectiveness in Group Decision Support System Environment. *Journal of Applied Psychology*, 82(1).
- Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), 355-374.
- Valacich, J. S., Wheeler, B. C., Mennecke, B. E. and R. Wachter (1995). The Effects of Numerical and Logical Group Size on Computer-Mediated Idea Generation. *Organizational Behavior and Human Decision Processes*, 62(3), 318-329.
- Ye, H., Blohm, I., Bretschneider, U., Goswami, S., Leimeister, J. M. and H. Krcmar (2016). *Promoting the Quality of User Generated Ideas in Online Innovation Communities: A Knowledge Collaboration Perspective*. Paper presented at the Proceedings of the International Conference on Information Systems (ICIS 2016), Dublin/Ireland.
- Zhao, Y. and Q. Zhu (2014). Evaluation on crowdsourcing research: Current status and future direction. *Information Systems Frontiers*, 16(3), 417-437.