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From Creativity to New Venture Creation: A Conceptual Model of Training for Original and Useful Business Modelling

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Abstract

This paper explores the processes of creating new companies with original and useful business models from a conceptual perspective. Based on data from large-scale creativity training programs and business model development studies in Denmark encompassing over 100 companies and 200 entrepreneurs, the key proposition of the paper is that entrepreneurs can enhance their development processes through training of their competences in creativity and in business modelling. The paper presents a set of key skill variables of creativity and of business modelling that need to be trained in order to enhance the probability of a successful process leading to original and useful business models. These skill variables are related to the start-up process and to any process aimed at rethinking or improving existing business models. The notions and potential effects of each focus, creativity and business modelling, are discussed, followed by a more in-depth discussion of the interrelationships between the creative process and the business modelling process. The implications of the paper are discussed in terms of a combined study module aimed at new venture creation students and pupils within higher education as well as primary, secondary and high school education.

Keywords: creativity training, opportunity spotting, new venture creation, original and useful business models, business model innovation.

Introduction

It is in the interest of societies and nations across the globe to educate and facilitate the innovation capacities of their citizens, in the long run aspiring for growth, wealth accumulation and humanitarian solutions through innovative businesses. In addition, it is widely recognized that a part of creating successful new products and businesses involves the ability to apply knowledge and creativity, and both practitioners and academics are focused on decoding the complexity of creative processes and utilizing them to a greater extent to create value through original and useful business models.

Innovation comes from the skillsets and creativity of individuals, but also from shifts in technology. For example, recent advancements in ICT and mobile communication networks and devices have given rise to not just new companies, but also to whole new industries. Healthy business environments, access to risk capital, public and private innovation programs and globalization of firms has in the last decade created a cascade of companies with value propositions outcompeting existing modes of business. Just ask the taxi industry, hotel

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industry or banking sector.

Technological advancements, whether in bioscience, engineering or software, do not by themselves create value in the sense of providing improvements for potential users or customers, yet alone value in the sense of profitable businesses. In order to accomplish this the unique technologies and advancements need to be "translated", via creativity, into sound and applicable business models. Chesbrough (2010) emphasizes this by stating that he would rather have a mediocre product in a great business model, than a fantastic product in a mediocre business model. This is of the utmost importance regardless of whether the situation is entrepreneurial or intrapreneurial[1]. Creativity is a crucial input variable for developing business models that are capable of creating the link between these ever-coming new opportunities and profitable commercialization in original and useful ways.

The proposition of this paper is that both entrepreneurs and intrapreneurs can achieve improvements to their development processes through systematic training of their creativity and business modelling skills.

However, creativity and business modelling are heterogeneous variables (cf. Byrge & Hansen, 2014; Lund & Nielsen, 2014) and unlike existing literature attempting to describe the relationship between business modelling processes and entrepreneurship processes (Verstraete & Jouison-Laffitte, 2011), this paper argues that there are multiple types of variables of creativity and business modelling. This means that training the skillsets required to rethink or improve existing business models must take this heterogeneity into account. This paper therefore builds a model from which to structure and discuss the skillset and variables relating to creativity and business modelling that should be present in venture creation programs (Lackéus & Middleton, 2015).

The structure of the remainder of the paper is as follows: Section two provides the theoretical background for the paper. Section three introduces the models and methods for creative process and training variables for creativity as well as business modelling. The fourth section discusses the implications of connecting these fields of study and how they may be combined into a study module for new venture creation students within higher education as well as primary, secondary and high school. The final section offers implications and conclusions from the discussions.

Theoretical background

In the study of the fields of creativity and business models, we have been privileged to engage with more than 100 companies and over 200 dedicated entrepreneurial /intrapreneurial individuals over the past 10 years in the form of several structured case studies using experimental and actions research designs. The goal of this research has been to help and study individuals and companies

[1] We define intrepreneurship as an entrepreneurship project that is anchored within an existing organisation but otherwise identical to entrepreneurship.

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in developing novel solutions to existing problems, whether the case has been developing original and useful business models or more incremental progressions to existing solutions. In most cases methods were applied that had the potential to enhance the success rate for managers and their businesses such as the Business Model Canvas (Osterwalder & Pigneur, 2010) and The Creative Platform (Hansen & Byrge, 2007). The privilege of this intensive interaction focused on our research question has given us valuable insight into the role of creativity and business models and their connectivity for businesses and entrepreneurs.

Creativity

Some of the first internationally recognized creativity training programs were developed during the 1960's. Most of these were short and simple including 10-minute training programs that only gave a few hints of how to think creative (Ridley & Birney 1967; Miller, Russ, Gibson & Hall, 1970). Since then, creativity training has become more advanced and of longer duration, including training programs lasting several days or weeks (Byrge & Hansen, 2013; Baer, 1988; Davis & Bull, 1978; Burstiner, 1973; Cliatt, Shaw & Sherwood, 1980; Byrge & Tang, 2015). Such training programs would include elements such as: processes (Parnes, 1992; De Bono, 1985), techniques (Wycoff, 1991), strategies (Davis and Roweton, 1968; Conningham and MacGregor, 2008) and cognitive stimulation (Gordon, 1961; De Bono, 1992). Today there are full bachelor programs where creativity is a central component like Creativity and Business Innovation at Vilnius College, Latvia, full elective semesters like Creative Genius at Aalborg University, Denmark, a full master program in Creativity and Innovation at University of Malta as well as full master programs like the Creative Studies at Buffalo State University, USA.

Creativity training has long been shown to have an important effect on the development of creativity for individuals (Torrance, 1972; Rose & Lin, 1984; Scott, Leritz & Mumford, 2004). In fact, the discussion is no longer whether such training has an important effect for enhancing human creativity. Rather the current discussion is concerned with how much effect as well as the relationship between the type of training and the type of effect.

There are only few disciplinary perspectives relating to the enhancement of human creativity. These include heredity, family and upbringing (Simonton, 1994), knowledge accumulation and environment (Byrge & Hansen, 2014), domain related deliberate practice (Hayes, 1989; Macnamara, Hambrick & Oswald, (2014); Ericsson, Krampe & Tesch-Römer, 1993) and creativity training (Scott, Leritz & Mumford, 2004). Heredity, family and upbringing are considered to be contingent factors, which are difficult to alter through education. Environment is a dynamic factor and can easily change depending on external non-controllable factors. Knowledge accumulation and domain related deliberate practices seems to have the negative side of causing a less flexible mind (Frensch & Sternberg, 1989). Thereby creativity training seems to offer

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itself as an important approach for the enhancement of creativity.

Hansen and Byrge (2007) invented a new method for planning and facilitating a creative process for highly heterogeneous groups (see Byrge & Hansen, 2014 for a more in-depth presentation). The method is called The Creative Platform. The Creative Platform was originally designed to facilitate a creative process involving both industry and university actors in a 48-hour camp setting. These industry–educational creative processes using this method in 24-48-hour camp settings quickly became popular across the educational system in Denmark and a number of practitioner books (Byrge & Hansen, 2007; Byrge & Hansen, 2008; Ullersted *et al.*, 2010) were published to support this dissemination. Later, The Creative Platform became popular in the broader industry and in particular in educational settings to facilitate creative process of networks, teams, group work, classes and departments.

Studies on the application of The Creative Platform in a creativity network consisting of 18 cross-industry organisations found that participants experienced a higher level of concentration, motivation, confidence and knowledge application than in other creative work (Byrge, 2011). The subjects identified some variables having key importance for this effect including a high diversity in the team, a rapid production of ideas, a strong focus on ideas rather than persons, use of external memory, absence of technical devices, anonymity, intensive creativity exercises, and a consistent acceptance of all ideas and mistakes (Byrge, 2011).

The Creative Platform was criticized for only having a short-term effect, and a call for a more long-term development of creative individuals was growing among practitioners that had been in touch with the Creative Platform. In collaboration with public organisations and private companies Byrge (Byrge & Hansen, 2014) developed an Embodied Creativity Training to facilitate a long-term development of creativity. Embodied Creativity Training is applied as morning training, training in the beginning of meetings, individual training and as monthly training depending on the organizational/educational setup.

Studies on the application of Embodied Creativity Training using experimental pre- and post-tests shows that creative production is significantly increased both in terms of fluency, flexibility, originality and resistance to premature closure (Byrge & Hansen, 2013; Byrge & Tang, 2015). It also shows a significant increase in creative self-efficacy (Byrge & Tang, 2015). Organizational studies on the application of Embodied Creativity Training shows an effect in relation to a more open mind towards organizational change, an increased willingness and ability to elaborate on ideas from colleagues, a strengthened feeling of community and increase in knowledge sharing as well as an increased level of energy at the workplace (Byrge *et al.*, 2013). The study also shows a strong grouping among employees into “hot” or “not” – employees seem to either love the training or not wanting to train at all.

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Business Models

Defining what a business model is, is an ongoing discussion (Zott *et al.*, 2011). While Porter (2001) points out that the term itself is inconclusive: "The definition of a business model is murky at best. Most often, it seems to refer to a loose conception of how a company does business and generates revenue. Yet simply having a business model is an exceedingly low bar to set for building a company", he states (2001, p. 73). In a recent contribution Jensen queries whether a unified definition is a useful goal at all (Jensen, 2014). In discussing the foundations of the term business model, Chesbrough and Rosenbloom (2002, p. 530) argue that the origins of the business model concept can be traced back to Chandler's seminal book *Strategy and Structure* (Chandler, 1962). Strategy, Chandler states, "can be defined as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals" (Chandler, 1962, 13). Further developments of the concept have travelled through Ansoff's (1965) thoughts on corporate strategy over Andrews' (1980) definitions of corporate and business strategy, which, according to Chesbrough and Rosenbloom (2002), can be seen as a predecessor, and equal to that, of a business model definition.

The interest in business models in the wake of the dot.com boom led to the development of numerous business model definitions (for a thorough review of these, see Jensen, 2014). While business models were often associated with companies that were not making money, the definitions of what a business model was, did not lack a revenue parameter. For example, Bell and Solomon (2002, xi) included a profit angle when they stated that a business model is:

> "[A] simplified representation of the network of causes and effects that determine the extent to which the entity creates value and earns profits."

Chesbrough and Rosenbloom (2002) provide a more comprehensive definition of what it means to discuss and evolve business models, in the form of six necessary ingredients for describing a business model:

1. Articulate the value proposition, that is, the value created for users by the offering based on the technology
2. Identify a market segment, that is, the users to whom the technology is useful and for what purpose
3. Define the structure of the value chain within the firm required to create and distribute the offering
4. Estimate the cost structure and profit potential of producing the offering, given the value proposition and value chain structure chosen
5. Describe the position of the firm within the value network linking suppliers and customers, including identification of potential complementors and competitors
6. Formulate the competitive strategy by which the innovating firm will gain and hold advantage over rivals

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According to Nielsen and Roslender (2015), the field of business models is characterized by a very heterogeneous set of ideas about what business models are (definitions), and what it means to describe and analyse business models (frameworks). Moreover, practitioners have until recently had very little guidance in their work with analysing, developing and innovating the business model of their companies. A breakthrough in this regard came in around 2004 when Osterwalder introduced the business model as a conceptual tool (Osterwalder, 2004; Osterwalder & Pigneur, 2005). His framework, or canvas as it is called today (Osterwalder & Pigneur, 2010), contains a set of elements (nine building blocks), describes their relationships, and allows for the expression of the business logic of a specific firm. It leads to a structured description of the value a company offers to one or several segments of customers. Moreover, Osterwalder & Pigneur's (2010) framework also describes how the architecture of the firm and its network of partners serves as a platform for creating, and delivering this value and relationship capital, in turn leading to the generation of a sustainable revenue stream.

This assumption corresponds with the previous remarks about business models being more complex than merely a matter of choosing revenue model or profit margin scheme. Business models are concerned very much with the configuration of the whole activity system surrounding the value proposition aimed at the firm's customer segment(s) (Taran *et al.*, 2016). Likewise, George and Bock (2011) define business models as the design of organizational structures to enact a commercial opportunity. Concurrently, business models have drifted into the fields of entrepreneurship and intrapreneurship with great success, in large part due to the design thinking approach (Brown & Katz, 2011) employed by Osterwalder and Pigneur (2010). Morris *et al.* (2005) find that the business models hold promise as a unifying unit of analysis that can facilitate theory development in entrepreneurship.

In Osterwalder *et al.* (2005), the value proposition towards customer segments play a vital role in the configuration of a business model and in the tool "Value Proposition Canvas", Osterwalder and Pigneur (2014) strengthen the articulation between their Business Model Canvas and Steve Blank's work on customer needs, best reflected in his book called "Four Steps to the Epiphany" (Blank, 2007), through this new tool. These ideas are further enhanced for the start-up setting in the Lean Launchpad methodology (Blank *et al.*, 2013). Like the process of the Lean Launchpad methodology, Verstaete and Jouison-Laffitte (2011) suggest that in an entrepreneurial process the entrepreneur revisits the business model in several steps or phases, as such creating a gradual epiphany of the best possible configuration.

Models and Methods

This section articulates the models and methods used throughout our research into creativity training and business modelling and from this work derives a set of variables for creativity training and a set of variables for business

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modelling.

The Creative Platform

The Creative Platform (Byrge & Hansen, 2014) is a process-oriented creativity training method. It is primarily a reflective training program because it gives the students an understanding of how and when to use the method to plan and facilitate creative processes. It creates a breakaway from everyday thinking, behaviour and communication by facilitating according to four fundamental principles of creativity: task focus, no experienced judgement, horizontal thinking and parallel thinking (Byrge & Hansen, 2014). *Task Focus* is a principle that ensures that the participants can forget the rest of the world and the social systems they are part of for the duration of the creative process. *No-experienced Judgment* is a principle that ensures that the participants dare to think and share original ideas in the process. *Horizontal Thinking* is a principle that ensures that the participants are able to combine all their knowledge in news ways regardless of the relation to the actual problem in the process. *Parallel Thinking* is a principle that ensures that the participants are able to put all their cognitive attention capacity into the process at hand. It is also often referred to as "one task – one deadline" because the participants should never think about future or previous parts of the process. The Creative Platform follows a six-phase model for the process (Byrge & Hansen, 2015). These six phases are designed to ensure that the participants in the process easily can follow the four fundamental principles of creativity. The six phases are as follows:

1. Preparation to ensure that the four fundamental principles are easier to follow.
2. Red carpet to prepare for getting into the creative mind-set.
3. Problem understanding to engage into the focus to be creative upon.
4. Idea generation and elaboration to produce alternatives and apply available knowledge into ideas.
5. Professional input to strengthen and further develop the best ideas
6. Blue carpet to become ready to go into the "real" world with your ideas

Preparation

Prepare by setting a team from the perspective of making the biggest mental library possible, so that horizontal thinking can easily happens. Hereby cross-disciplinary, cross-cultural, cross-hobby/sport, cross-life story and cross-industry is the key to a good team on The Creative Platform. Organize the physical room in a way that supports the four fundamental principles. Remove any objects that will create vertical thinking such as items or posters that remind/inspire participants of previous problem related solutions. Make sure there is a lot of creativity techniques prepared such as Brain-writing (Osborn, 1963), Synectics (Gordon, 1961), Lateral Thinking random stimuli and provocations (De Bono, 1992) or TRIZ inventive principles (Altshuller *et al.*, 1997) to help stimulate horizontal thinking. Remove any objects that may disturb task focus such as

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computers, mobile phones, clocks and watches. Also, make sure you are away from everyday tasks like your office, friends and non-participating colleagues. Put up posters describing the problem of the process in one or two sentences. Do your best to find and use a physical room where there is no pre-established judgment behaviour. Bad places often include the traditional meeting room, traditional teaching rooms, exam rooms, pubs and cafes. Plan the process in detail and organize the material needed for the process. Hereby you as a facilitator will be able to engage in the production of ideas without fear of failing the facilitation. Also, you organize the material so that paper, pen, whiteboard, prototype material, video production material, etc. is provided only when participants are supposed to use it in order to maximize parallel thinking.

Red carpet

Ensure that the participants are not mentally stuck in the past and future such as something that happened in the morning, that they are behind on important deadlines, what they are supposed to cook for the guests tonight, if they forgot to lock the door to the house, etc. This also involves that taking responsibility to avoid focus on social and private matters. This is often done by replacing more traditional introduction activities with a series of engaging creativity training exercises (or alternatively energizers). Typically, the red carpet lasts for 20-40 minutes and involves 4-6 exercises.

Problem understanding

Take responsibility to ensure that the problem is presented/revisited shortly and with only the most necessary background information. The trick is to present “need to know” and to leave out all “nice to know” information. “Nice to know” information may create confusion relating to the problem and start a long discussion for “what is really the problem” which is rarely a viable starting point for a creative process (but rather something to discuss before or after the creative process). The problem should be presented right after the red carpet. If presented before the red carpet the participants will have difficulties focusing on this presentation because they are mentally stuck in the past or the future.

Idea generation and elaboration

Idea generation starts with a top of the head individual production of ideas. It is individual to ensure no-experienced judgment. Then it is followed by producing ideas using creativity techniques in pairs. New pairs are constantly created in order to create optimal conditions for horizontal thinking. Ideas are quickly presented in smaller teams of 4-5 participants to ensure no-experienced judgment. Selection of multiple ideas for exploring their potential – this is an individual process or done in teams by anonymous voting. Selection criteria in the middle of the creative process are always based on surprising and original (if this would be possible - wow, it could change the world). No consideration to whether it is practically possible in its current form should be given. The idea

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elaboration, professional input and idea development will determine whether the surprising and original ideas are also applicable. Idea development is achieved by applying all the knowledge in the team (class) in relation to each idea. The idea development starts with the individual development of a participant's selected idea. Then it is followed by elaboration of ideas in pairs. New pairs are constantly created in order to create optimal conditions for the application of all the team's knowledge to all the chosen ideas.

Professional input

The purpose of professional input is to give the "surprising and original" ideas a second chance for reaching status of "original and useful/applicable" before traditional judgment will take place. Therefore, the first step is to identify which experts would be interesting to invite into the team for another creative process. The participants make up a list of people who have knowledge that may help further develop the ideas. The people are invited to the process either by setting up a new date for a process or by contacting them by e-mail/phone/etc. in the middle of the creative process. The participation of these new experts into the process requires an effort to make sure that they are not just judging whether they believe the ideas are useful/applicable or not. The key is to invite them into the process and make sure they will apply their knowledge creatively in the further development of the ideas to explore if they can become both original and useful.

Blue carpet

The purpose of the blue carpet is to bring the participants down from The Creative Platform and back to their everyday life of judgment, multitasking, person focus and vertical thinking. The first step is to evaluate the creative production from the creative process. Which idea is the best for the current problem, market, organization, situation, etc. The second step is to evaluate and discuss the creative process in order to make the planning, facilitation and performance better in the next creative process. Such evaluation of the process does not take place while working on The Creative Platform in order to ensure task focus – it can only take place after the process is over.

Creativity variables

Embodied Creativity Training (Byrge & Tang 2015) is an exercise-oriented method for long-term enhancement of creativity. It is primarily made up of embodied training because it makes the students become more creative at will and on command in all sorts of work settings including process work, individual work, teamwork and broader organizational work. As such it is part of building and enhancing key skills for creativity. Embodied creativity training creates better situational conditions for creative performance on specific creativity variables. The notion is that by practicing being creative the students become more creative. This is the same notion that goes for embodied training for

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becoming better at soccer, dancing, singing, math, IQ-problems and most other skills. The creativity variables (CV) are as follows:

CV 1 **Flexibility** is to develop a variety of ideas that are diverse form each other (not similar ideas). It involves being able to change perception at will and on command and to produce alternative perceptions regarding the same situation/problem. An example of an exercise training flexibility is: "Produce ideas for alternative uses of a door handle".

CV 2 **Parallel Thinking** is to focus on what happens right now. It involves being able to split at thought process into smaller pieces and work in accordance to one task – one deadline on one at a time. An example of an exercise training parallel thinking is: "Imagine you are the mayor of a rainy town and a company has offered to put a roof over all street and all parks. Think about this idea by splitting up your thinking into "all the positive consequences", "the negative consequences" and "alternative ideas to solve the same problem".

CV 3 **Fluency** is to keep a thought process going. It involves being able to produce a high number of ideas in a short time. An example of an exercise training fluency is: "Produce as many ideas as possible for how future petrol stations may be like".

CV 4 **Horizontal Thinking** is to be able to combine existing non-related knowledge in new ways. It involves being able to identify and apply the principles behind products and situations. An example of an exercise training horizontal thinking is: "Produce ideas for new products by combining two unrelated existing products in a new way (for example by combining streetlight and garden bird house)".

CV 5 **Creative elaboration** is to further develop existing ideas – this being your own ideas or the ideas produced by others. It involves being able to accept any idea and make creative contribution to this idea. An example of an exercise training creative elaboration is: "One of your friends has decided to invent a woman's bag that you hold with your teeth instead of your shoulders. Make further development on this idea to make it both original and useful".

CV 6 **Persuasion** is to convince others that your idea is a good idea in order to make them comply to the idea or to make them elaborate on your idea. It involves being able to respond creatively to critical feedback on your ideas. An example of an exercise training persuasion is: "Produce an idea for a future garden barbeque (grill). Now convince your sceptical partner that this is a good idea. The partner identifies one problem at a time with the new garden barbeque, and you respond by further developing your idea to include a solution to this problem. This continues until your partner thinks it is actually a good idea. Then you switch and continue by your partner producing another idea for a future garden barbeque".

CV 7 **Originality** is to produce unique and infrequent ideas. It involves being

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able to completely rethink how to approach a situation or a problem. An example of an exercise training originality is to show a traditional technical oriented Truck commercial video to the students and instruct to "Now imagine that this commercial is a trailer for a new movie production. The movie audience should be children aged 5-8 years old. You cannot change the trailer nor the audience of the movie and they must fit together. What is the plot in this new movie?"

CV 8 **No-experienced Judgment** is to think, share and elaborate on ideas without feeling judged by you or by others. It involves being able to accept mistakes made by you or by others. An example of an exercise training no-experienced judgment is: "Imagine a category for example items in the refrigerator door, animals in the zoo, chair types, etc. Come up with an element in the category at least every 2 seconds for example for the category of refrigerator door: milk, juice, yogurt… when you fail to continue every 2 seconds or if you say something that does not belong to the category you shout out loud *YES, I made a mistake*. Continue the exercise by imagining a new category".

CV 9 **Visualizing future scenarios** is to fantasize about possible situations that have never happened and may never take place. It involves being able to imagine improbable situations. An example of an exercise training visualizing future scenarios is: "Imagine all supermarkets are open only one day per year. Produce ideas for how this may affect everyday life".

CV 10 **Challenge fundamentally established theories and practices** is to make a serious attempt to question beliefs by coming up with alternative perceptions or ideas. An example of an exercise training to challenge fundamental established theories and practices is: "Develop an idea that can explain the diversity of animals and humans on earth. The idea should be different from existing ideas like design and evolution".

CV 11 **Identifying creative output** is to have an intuition to distinguish between non-original and original ideas and to be able to identify when fluency, flexibility and creative elaboration takes place in a creative work. An example of an exercise training identification of creative output is to hand out 20 pre-produced ideas for a future office chair and instruct to "sort these 20 ideas according to their level of originality so the most original ideas are on the top and the least original ideas are in the bottom".

Embodied Creativity Training has several formats including board game, classroom facilitated setup, digital online game, team self-instruction, digital e-mail/text and direct supervision and instruction. No matter the format chosen it should support the creation of an optimal situational condition for creative performance in each exercise. This means that the students should have the best conditions for being creative during each training exercise. The proposition of embodied creativity training is that the students will become more creative at will and on command the more he/she trains and the more engaged he/she is in

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the training. For example, the students might train for 3 hours a day, 1 hour a week, 6 hours a month or take a boot camp training creativity 40 hours straight. The hypothesis is that the more training the more the "creative variable" will turn into an embodied skill that becomes part of the automatic response pattern whenever creative ideas are needed or wanted.

Business models and innovating them

In the late 1990s the application of information technology was seen to be altering the nature of business, and attention to business models rose in its wake. Initially the 'business model' concept was almost synonymous with e-business. Indeed, the Internet had created new business model opportunities and much of the early business model literature focused on how e-business could create value in comparison to more traditional bricks and mortar business models. However, the field of business models has since grown into a unit of analysis alongside strategy and business development.

In 2008 a largescale business model project was started including more than 100 companies for more than 5 years. It was initiated as a business development initiative under the Region of Northern Denmark funded by European Structural Funds. The region had an ambition to provide new knowledge and tools to strengthen the growth potential of local businesses and to assist them in coping with the rising global competition. The project was grounded in the hypothesis that many companies in the region were experiencing that their present business models could not maintain sufficient competitiveness, profitability and withstand the pressures of global competitors' rapid copying of their products and solutions or the development of alternative new products. This was despite the fact that many of the companies had been perfecting their ability to extensively innovate products for many years and in general had quite high innovation rates. As a result of the analysis and experience of this project, the Business Model Design Center at Aalborg University was established to continue the work on enabling cutting-edge research by establishing a platform for multidisciplinary contributions on business modelling.

Most of the companies that participated in this research confirmed that they had a limited understanding of, or attention towards, the business model concept. Typically, the participating companies' business models were rather being influenced indirectly through their work with strategy (Seddon & Lewis, 2004; Yip, 2004), and thus under the auspices of the often uneasy relationship between strategy and business models (Magretta, 2002; Sandberg, 2002). Our findings indicate that traditional strategy theories are incomplete when it comes to designing a business configuration around a product, product-group or customer segment. Throughout the work with the companies in largescale business model project, it became apparent to us that the companies who had previously worked in a focused manner with designing their business through the use of strategy theory typically fell short when it came to creating original business model configurations.

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The framework of business models, for example mobilized through the Business Model Canvas (Osterwalder & Pigneur, 2010) provided an avenue for a more comprehensive understanding of how to configure businesses, hence removing these companies from thinking in terms of mere competitive positioning of a certain product or product category and towards thinking in terms of how the whole company was configured, including partnership structures. This is not to say that sound business configuration cannot be achieved by using traditional strategy theories altogether, however, our data suggests that comprehensive understandings are more readily achieved through the use of the business model concept.

Our data also indicates that developing existing or new business models is a complex process. Existing companies often get stuck in their existing business model *paradigm* and start-ups are often limited by their resources (financial, knowledge, experience, time) or lack the creativity to break out of well-known existing business models for that particular industry. This was especially evident in companies working with business or product development projects with too many unknowns (cf. Lund & Nielsen, 2014). It became evident that a platform was needed where business executives, consultants and researchers could experiment and challenge how to do applied business modelling. A general structure was established along three phases:

1. Understand the concept of business models: *A common understanding of the business model concept is needed as this enables discussion, exploration and definition of the starting point*
2. Innovate and create ground-breaking scenarios: *A toolbox including business modelling tools, opportunity spotting tools and creativity tools is needed*
3. Validate scenarios, choose and implement: *Business model innovation is precarious, therefore risk evaluation, legitimization and prototyping is necessary before implementation*

The structuring according to these phases suggests that business modelling is jointly dependent upon business model insights and creative processes. In the next section, we expand upon the mechanisms that have been identified by our researchers in business model development processes.

Business modelling variables

Lund and Nielsen (2014) conduct a longitudinal study of a start-up project through a series of development phases and in doing so depict the application of different types of business modelling tools according to the types challenges faced in each phase. In our empirical work with entrepreneurial processes and linking the process of configuring business models with business opportunities we have identified 11 specific business modelling mechanisms, in the text below denoted as the BM variables. In this section, we describe each variable, including examples of what it means to be performing it, the types of tools and processes that can be used to perform it and ultimately what applying this mechanism to a business model innovation process should achieve. The Business Modelling

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Variables (BMV) are as follows:

BMV 1 **Understanding contextual factors** is concerned with clarifying the factual starting point and establishing scenarios for the unknown parts of the business opportunity. You need to construct an overview of the factors potentially affecting this opportunity and then you will need to construct and prioritize a set of scenarios for their enablement. Without a starting point that defines the scope of the business case and its probabilities, it will most likely fail or derail. This implies a thorough analysis of, including, but not limited to: corporate culture, drivers of team-performance, incentives, stakeholders etc.

BMV 2 **Creating a high-performance team** differs from an ordinary team in terms of collective behaviour and effectiveness. For achieving high-performance team results it is important to which skills that are needed according necessary resources and expected activities for the business model configuration. The relationship between resources and expected activities is central to understanding the skills that the high-performance team needs. Often start-ups have overlapping activities and often sparse resources to support them. In addition, there is a need to define and structure of the team members' roles quite early in the process. Think of a football team; everyone has their position to play, and success grows when all of the players are playing their roles to perfection. This is both in the team internally, but also externally towards the remainder of the organization and external partners.

BMV 3 **Understanding the environment** and market mechanisms refers to gathering knowledge about how sales are made. How do you engage potential clients, and at what level of their particular organisations should you enter? Who is really paying for your product/service? Here you should be able to distinguish between customers (those who pay) and users. Instead of conducting a full-blown competitive landscape analyses, you should depict your “Market-type” hypothesis, make a rapid prototype map of the market ecosystem you are entering and use this to identify 5-6 potential customers and/or users that you can interview. You should support your analysis of their needs (jobs-to-be-done) with personas information about these respondents.

BMV 4 **Opportunity spotting** is the ability to innovate and create original and useful business models is also a possibility. A prospective entrepreneur can thereby create original and useful business model configurations around existing business opportunities, which might produce much more flexible solutions outside of the realm of the legal notion of business opportunities. On the other hand, an entrepreneur may

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identify a market segment in need of a distinct value proposition completely outside of the realm of existing business opportunities and in such a situation the degree of variation and room for creative solutions is much bigger.

BMV 5 **Understanding production constraints** such as policy, regulation and access to finance is important because a business model will be centred around services and/or products. Understanding production constraints means that you are aware of what might drive scalability or hinder potential scalability. This both relates to internal aspects such as finance, capacity and ethics, but also external aspects such as policy and regulation. You need to analyse the potential constraints on growing the business. You also need to analyse the dimensions of increasing and exponential returns to scale in the type of business you are looking at.

BMV 6 **Identifying existing business model practices of competitors in the field** can be done by identifying and grouping the potential competitors in your field, e.g. according to the technology they use, their position in the value chain or another dimension. Identifying the existing business model practices of competitors goes beyond the value chain positioning and is also different from a traditional market or competitive analysis, because it focusses on the way value is delivered. When you have made a meaningful segmentation of existing competitors, use the Business Model Canvas to map out each distinct segment.

BMV 7 **Interaction with potential customers** is focused on gather in insights about customer needs and jobs-to-be-done, which is very different from product characteristics. This can only be achieved by talking to real customers. In this phase, you should be applying tools to help you identify the needs and jobs-to-be-done of users and customers, for example by applying the Value Proposition Canvas (Osterwalder et al., 2014) or the 4-steps to the epiphany methodology (Blank, 2007). You will need to identify customer pains and gains, and then refine your potential solution and value proposition with experiments and rapid pass/fail tests.

BMV 8 **Mapping the Customer Journey through the firm** helps you to understand where and how you meet the customer. It will affect your internal organisation and let you understand the necessary information flows. For this purpose, you can use the Customer Journey tools articulated in Richardson (2010) and Edelman and Singer (2015) as well as www.servicedesigntools.org. This should help you reflect on whether the way you treat the customer is in accordance with the value

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proposition that is asked for.

BMV 9 **Using successful business model analogies for prototyping future scenarios** is a way of acquiring inspiration for a new business model around a business opportunity. Using successful business model analogies to prototype different ways of doing business will help to inspire you to see successful compilations of the nine variables you have worked with so far, in a type of pattern-matching. You can use the analogies below to achieve this type of inspiration:

a) Can you become a platform based business model?
b) Can you establish a network-based business model?
c) Can you re-sell your customer?
d) Can you leverage your strategic partners?
e) Can you create a digital transformation?
f) Is there data around your business that you could sell?
g) Can you create an industry disruption with new technology?

BMV 10 **Business Model Configuration matching** goes into much greater detail with the way you configure your business model than e.g. in the case of working with the analogies in the last BM variable. We have developed the business model suite software (Taran *et al.*, 2016; Nielsen *et al.*, 2017) to help the configuration process. It has 251 value drivers and has identified 71 presently applied business model configurations. This software-based framework can be used for identifying useful business model configurations and supporting the analytical processes of students.

BMV 11 **Testing and validation of identified business models** is to identify customers' willingness to pay and the strength of the business case. In any business, it is adamant to have product-market fit. Are the customer segments for example aligned with the value propositions and is the revenue model coherent? A classic mistake is to create a fantasy revenue model with no correlation to the product-market fit. This mechanism therefore includes notions of financing, budgets and profit structures. The product-market fit and willingness to pay can be tested in a customer discovery process, and it should be done numerous times, both with the expected business model configuration and alternative scenarios.

Application and discussion

In the sections above, we introduced the attributes and effects of each of our two sets of variables, namely the creativity variables on the one hand and business modelling variables on the other. In order to accomplish the objective of the given paper, this section first describes the application of the creativity

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and business modelling variables in an educational setting and then discusses their combination.

The New Venture Creation module

Venture creation programs differ significantly in regards to their connections to commercializing university research and whether they give credits to the participating students (Lackéus and Middleton, 2015). At Business Model Design Center, Aalborg University an entrepreneurship course spanning a full semester has been launched (a full semester is equivalent to 30 ECTS). Of the 30 ECTS credits given, approximately 10 ECTS relate to in-class instructions, exercises and group work. The remaining 20 ECTS relate to project work; in this case starting a new company in practice. The course is called new Venture Creation (NVC) and it is designed based on the intensive interaction and research with over 100 companies and 200 individuals in creativity and business modelling. The notion was to design a course that gave the students both theoretical insights and practical experience, while simultaneously creating a start-up company during a semester. It is centred around a step by step business configuration approach including relating disciplines, creativity and business modelling. The result should be a company with a billable product. The ambition in creating this type of course is inspired by successful entrepreneurship courses at d.school at Stanford University, USA, The Lean Launch Pad at Berkley, USA, Business Kitchen in Oulu, Finland, and Aalto Design Factory, Finland. The NVC module is structured according to three phases:

1. Understand the basics and align the students' objectives

This is done through three intensive weeks in an interacting format with the following thematic areas:

- The basics
    - Entrepreneurship - What it is and why it matters
    - Defining an introducing a Business model framework
- Team and Idea Development
    - Establishing a creative mind-set
    - Idea generation
    - How to be in a Professional Team
- Opportunity Spotting and Opportunity Creation
    - Understanding problem and/or situation
    - Leveraging from a creative mind-set
- Defining and delimiting the opportunity and team
    - Understanding the customer needs through a Customer Discovery process
    - Defining the vision and anticipating the mission

2. Business modelling a start-up

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Through the following 10 weeks, each week defines an iteration in the process of creating a start-up along with configuring a successful business model. This is inspired by the Lean Startup Methodology (Ries, 2011) and several other entrepreneurship programs around the world (e.g. The Lean LaunchPad). The 10 iterations are:

1. Defining the business model starting point
2. Customer segments
3. Value Proposition design
4. Product-Market Fit / Defining a minimum viable product
5. Channels
6. Customer relationships
7. Revenue streams and Pricing
8. Key Activities / Key Resources / Partners
9. Cost Structure/ Operational Plan, Fundraising
10. BM Configurations and BM Environment

This phase is executed through a "flipped classroom" approach. Instead of lecturing about the basics during class time, the instructor assigns the core lectures as preparation, and the lecture starts with a presentation from each start-up with the theme of last week's lecture. Then the next iteration starts with an inspirational keynote from a practitioner, followed by an academic lecture and a new assignment addressing the topic of the iteration and assigning the start-ups a number of tasks that have to be completed before the next presentation in the following week.

3. Validation

The business idea, the developed business model and organisation and governance of the start-up venture is validated and evaluated through two steps:

- The final pitch
  The start-ups present their project in front of experienced business people and investors.
- Exam
  The team is evaluated on the terms of their academic approach and their application of theoretical knowledge, skills and competences.

Combining creativity and business modelling variables

This section relates the 11 mechanisms of creativity and the 11 mechanisms of business modelling to the phases of the New Venture Creation educational training program. This leads us to a new conceptual model that integrates the interrelationships between creative processes, business model ingredients, creativity variables as well as business modelling variables. This conceptual process model for the creation of original and useful business models is illustrated in figure 1 and encompasses eight phases. In the figure, we have

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depicted the necessary variables for each phase.

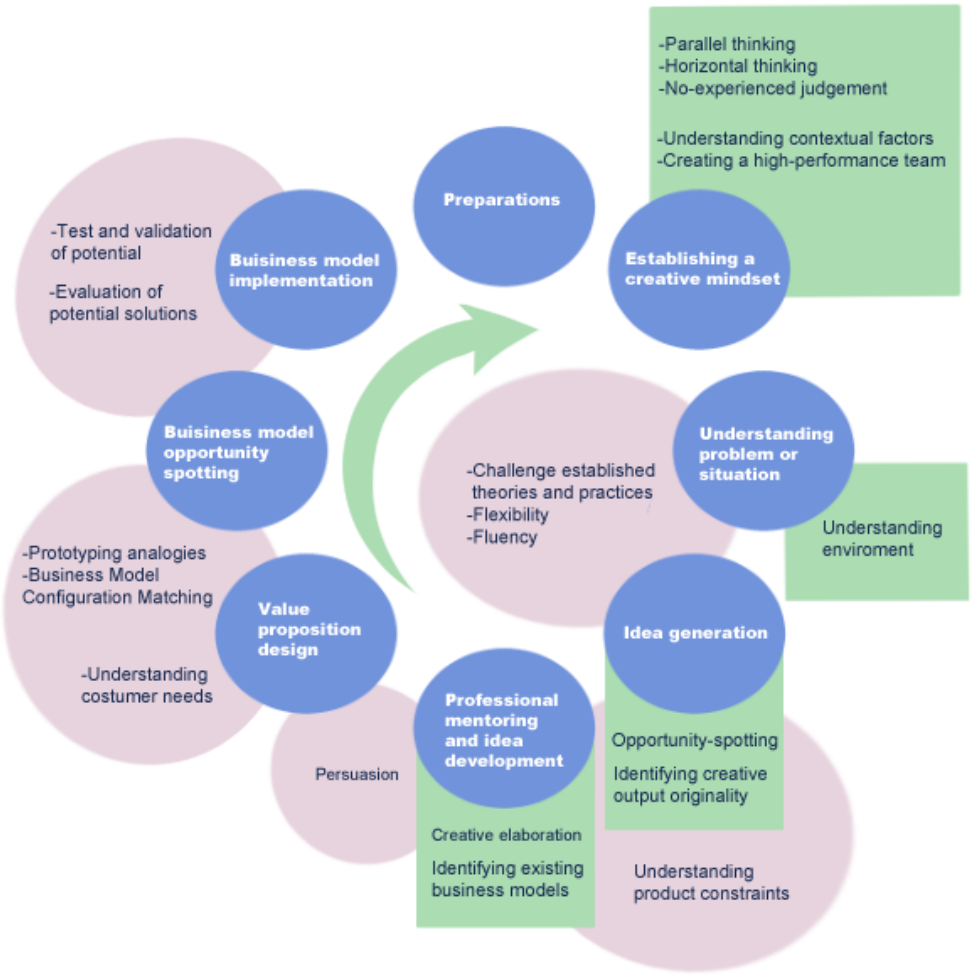

Figure 1: Necessary skills related to the eight phases.

A future teaching module may be designed around this 8-phase process model for developing original and useful business models with the following set of skill-variables:

1. Preparation, no key skill in focus
2. Establishing a creative mind-set, key skills are *parallel thinking, horizontal thinking, no-experienced judgment, understanding contextual factors and creating a high-performance team.*
3. Understanding problem or situation, key skills are *understanding environment, challenge established theories and practices, flexibility and fluency.*
4. Idea generation, key skills are *challenge established theories and practices, flexibility, fluency, identifying creative output, originality, opportunity-spotting and understanding product constraints.*

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5. Professional input and idea development, key skills are *understanding product constraints, creative elaboration, identifying existing business models and persuasion.*
6. Value proposition design, key skills are *persuasion and understanding customer needs.*
7. Business model opportunity spotting, key skills are *understanding customer needs, prototyping analogies, business model configuration matching, evaluation of potential solutions and test and validation of potential.*
8. Business model configuration, key skills are *evaluation of potential solutions and test and validation of potential.*

The teaching module should make sure that the students are trained in their skill variables to a level where they will be able to apply them at will or command – not just as a tool or technique – but rather as a second nature, as a way of being. The same is the case for the 8-phase process model. It should be trained to a level of becoming an integrated part of everyday reflection – in other words, a way of thinking. The educational module can be divided into the following three dimensions of learning:

1. *Methods*. This dimension includes tools, techniques and process structures aimed facilitating and evaluating original thinking both in the form of creative methods and business model method. In this part the focus of learning will be on developing and understanding and learn how to use the 8-phase process model as well as learning the 22 variables as tools. This will give the students a "toolbox".
2. *Personal development.* This dimension relates to guiding the students on how to train the creative and business model skill variables. In this part the focus of learning will be on the embodiment of the 8-phase process model and the 22 skill variables as a second nature: a way of thinking and being. This will give the students a creative and business model mind-set.
3. *Impact*. This final dimension concerns the ability to apply the tools and their new creative and business model mind-set to make an original and useful business model and to start making an impact in the world by performing it in an existing organization or in a new venture.

Implications and conclusions

This paper argues for the combination of the two different fields; 1) creativity training and 2) business modelling, into a new conceptual model for original and useful business modelling. The findings in this paper are relevant for educational and training institutions looking to strengthen their current or future education in entrepreneurship, intrapreneurship or innovation management. However, they are also relevant for firms with an interest in creating original and useful business models.

The three identified dimensions of learning are present across the 8-phase process model as well as among the 22 variables. The *methods* dimension includes tools, techniques and process structures aimed at facilitating and

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evaluating original thinking both in the form of creative methods and business model method. In this part the focus of learning equips students with a set of entrepreneurial skills, i.e. a "toolbox" from which to use in later ventures after their education (Galloway *et al.*, 2005). On the *personal development* dimension, we suggest not only developing students' understanding about entrepreneurship and enterprise as suggested by Hartshorn (2002) and Rae (2007) but also that this relates to guiding the students on how to continuously train their creativity and business modelling skills. This will give the students a creative and business model mind-set for life, in turn affecting the *impact* dimension. Impact is related to motivating the students to go out and apply the tools and their new creative and business model mind-set to create original and useful business models and to start making an impact in the world by starting up their own businesses (Gibb, 1999).

Creativity is typically assumed to be a resource factor in business modelling processes because many recent models such as the Business Model Canvas (Osterwalder & Pigeur, 2010) are based in design thinking (Brown & Katz, 2011). However, this paper illustrates that creativity is not a homogenous variable. In fact, there are 11 different types of creativity, variables that all need to be trained in order to substantiate a business model development process. Similarly, the process of business modelling is not a homogenous variable either. Even though existing research acknowledges that in the process of a start-up the entrepreneur should return continuously to the business model (Verstraete & Jouison-Laffitte, 2011), it has not to date been made explicit what this precisely means. In this paper 11 different types of business modelling skillsets were identified, relating to various stages in a start-up process.

As such, this paper also provides an important contribution to entrepreneurship education, by providing a model that helps to structure and organize the skillsets needed at certain stages of a start-up process. This awareness is important for improving venture creation programs such as those studied by Lackéus and Middleton (2015). However, this contribution holds equal importance for entrepreneurs, intrapreneurs, businesses, venture capitalists and incubators looking to improve the probability of success for their respective business ideas and business opportunities. Future research should focus on assessing the effects of training the creativity and business modelling skillsets identified in the present paper.

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