CREATIVE DESIGN THINKING AS A MANAGERIAL APPROACH

Professional Paper

Sanja Rocco, M.Sc.
Zagreb School of Business, Zagreb, Croatia
sanja.rocco@vpsz.hr

Summary

The paper deals with design thinking concept in education. Design orientation has been identified as a factor integrating decisions at different levels of an organization, involving customers (Bloch et al., 2003; Moll et al., 2007). It represents an organizational vision and includes the set of conscious, reflective and creative ways of conceiving, planning and artful making of products and services that generate value for customers and enable them to engage in their individual or social endeavors, whether these are utilitarian, functional, material, communicative, symbolic, or experiential (Venkatesh et al., 2012). It can also be described as a managerial strategic approach based on choosing design as a source of competitive advantage (Borja de Mozota, 2003). Previous studies also point out that design oriented companies are more open to creative managerial design thinking. The methodology of solving problems through design thinking methods has been accepted from business, where numerous organizations used it to increase their innovativeness and business success, to educational system where some of the leading design, as well as business schools adopted it as a teaching method. Design thinking methodology is human-centered, open-minded and integrative. The benefits of a multi-disciplinary approach and design thinking in business have been specially recognized among influential educational institutions in the world (USA, Europe, South Korea, China). However, design thinking as a new managerial approach is still not implemented enough as a course in educational programs of Croatian schools and universities.

Keywords: design orientation, design thinking, education, managerial approach, Croatia

1. Introduction

The paper deals with design thinking concept as an innovation-oriented approach, a method adopted from the design field, which appears to be successful, not only for solving managerial

problems, but also for educating future managers and entrepreneurs in a creative way, with different positive outcomes, such as encouraging interdisciplinary approach, high motivation of students, promoting teamwork and thinking creatively, out of the box.

Design as a tool for innovation has been broadly accepted and developed rapidly in recent years, resulting notably in concepts such as strategic design, design management and design thinking (Mapping of Design Policies, 2011, 10). The scope of design management ranges from the tactical management of corporate design functions and design agencies, including design operations, staff, methods and processes - to the strategic advocacy of design across the organization as a key differentiator and driver of organizational success. The tools and philosophies behind the design approach (so called *design thinking*) are seen as a valuable method of the managerial decision making process in a wide range of areas, from strategy to operational level. *Design thinking* can also be explained as using design methods or even designers' sensibility to solve general business problems (Brown, 2009; Martin, 2009). Design methods can be successfully applied to improving processes and strategies as well as new product development. The focus on the customer gives design a more and more important role; it becomes very efficient when integrated in all levels of the company and the potentials of design need to be taken into account by marketing scholars as well as by managers (Rocco, Pisnik, 2014, 180)

When we take conscious action, we do so on the basis of how we see and understand the world. Different viewpoints, therefore, give rise to very different actions, and each of these is rational according to the viewpoint that encourages and justifies it. If we want to act creatively, it follows that we have to think creatively. Learning to think differently, to inhabit different viewpoints, is not easy. The educational system, which is often said to be about absorbing structured chunks of information that can then be reproduced in examinations, can constrain creativity. For whatever reason, very few managers find it easy to think in different ways about the operations and organizations they are responsible for and, as a result, they manage in predictable and restricted ways (Jackson, 2003). For Borja de Mozota and Peinado (2013, 4), *design thinking* should enable managers to appropriate themselves a set of attitudes and tools that will give them access to creativity. The reason is that, unlike managers who have been trained essentially through case-studies' method by applying linear logic, designers are trained in observation techniques, experimentation and continuous testing of their ideas.

Many managers have become so analysis focused that they have forgotten that the best data in an uncertain environment comes from real world trials, not extrapolation of history. Tools like journey mapping, assumption testing, rapid prototyping or customer co-creation that structure

this process are essential. Learning only occurs when we step away from the familiar and accept the uncertainty that inevitably accompanies new experiences. Innovation means moving into uncertainty (Liedtka, 2011).

The main contribution of this paper is to introduce design thinking as an innovative educational instrument of entrepreneurial education. As an approach, *design thinking* taps into capacities we all have but that are overlooked by more conventional problem-solving practices. Not only does it focus on creating products and services that are human centered, but the process itself is also deeply human. Design thinking relies on our ability to be intuitive, to recognize patterns, to construct ideas that have emotional meaning as well as being functional, and to express ourselves in media other than words or symbols. Nobody wants to run an organization on feeling, intuition, and inspiration, but an over-reliance on the rational and the analytical can be just as risky. Design thinking, the integrated approach at the core of the design process, provides a third way.

The *design thinking* process is best thought of as a system of overlapping spaces rather than a sequence of orderly steps. There are three spaces to keep in mind: inspiration, ideation, and implementation. Think of inspiration as the problem or opportunity that motivates the search for solutions; ideation as the process of generating, developing, and testing ideas; and implementation as the path that leads from the project stage into people's lives (Brown, Wyatt, 2010).

Unlike critical thinking, which is a process of analysis and is associated with the deconstruction of ideas, design thinking is a creative process based around the construction of ideas. Not allowing judgments, design thinking eliminates the fear of failure and encourages maximum input and participation. Non-routine, out-of-the-box ideas are welcome, since these often pave the way for the most creative solutions. Every individual is a designer, and design thinking is a process of applying design methodologies to miscellaneous life situations (Ilipinar, Johnston, Montaña, Spender, Truex, 2011).

2. Entrepreneurship Education and *Design Thinking*

The entrepreneurial and managerial domains are not mutually exclusive but overlap to a certain extent (Kuratko, 2005, 581). Solomon, Duffy and Tarabishy (2002) conducted one of the most comprehensive empirical analyses on entrepreneurship education. A core objective of

entrepreneurship education is that it differentiates from typical business education. Business entry is fundamentally a different activity than managing a business (Gartner, Vesper, 1994). Entrepreneurial education based on experiential learning should include skill-building courses in negotiation, leadership, new product development, creative thinking, and exposure to technological innovation (McMullan, Long, 1987). Solomon, Duffy and Tarabishy (2002) conclude that pedagogy is changing based on a broadening market interest in entrepreneurial education. New interdisciplinary programs use faculty teams to develop programs for the nonbusiness students, and there is a growing trend in courses specifically designed for art, engineering, and science students (Kuratko, 2005, 584). New types of learning tools are business plans, student business start-ups, case-studies, practicing entrepreneurs as guest speakers, interviewers and consultants, visits and field research etc. It has to be mentioned that there are positive initiatives of implementing similar learning methods in Croatian management and entrepreneurship educational system, such as Case Study Competition, Smartup, or Dubrovnik Summer School, led by the student associations e-Student, AIESEC and HSA, founded at the Faculty of Economics and Business, University of Zagreb. Entrepreneurship is new and it is about continual innovation and creativity. According to Kuratko (2005) it is the future of business schools and it should begin to move into a leadership role. Today, the words used to describe the new innovation regime of the 21st century are: *dream*, *create*, *explore*, *invent*, *pioneer*, and *imagine*! Entrepreneurship educators must have the same innovative drive that is expected from entrepreneurship students (Kuratko, 2005, 591).

Design thinking methodology has been accepted and improved by many high quality top ranked educational institutions in different regions, not only in the design field, but in business and entrepreneurship education as well, applied as a creative teaching method and also as an innovation tool for managers. Some of these institutions include the University of Stanford California School of Business, d.school at Hasso Plattner Institute of Design, StRotman School of Management in Toronto, HPI School of Design thinking in Potsdam Germany, Parsons the New School for Design in New York and Paris, the Aalto University in Helsinki Finland and the University of St. Gallen Business and Management programs in Switzerland.

The management discourse of '*design thinking'* became a trend, yet far from a single meaning. Rather, the concept of *design thinking* seems to consist of different streams that are united only because they are not analytical. Though it is understandable that many people would like a clear-cut definition of design thinking, such a quest for unity is counterproductive for the

academic development of the area that we believe it deserves *Design thinking* is often equated to creativity: sometimes the popular version '*design thinking*' is presented as a way to make managers think more creatively. But being creative is only part of the competence and practice of the designer's work (Johansson-Sköldberg et al., 2013).

Thinking like a designer can transform how you develop products, services, processes and even strategy. Common characteristics of design thinkers are empathy, integrative thinking, optimism, experimentalism and collaboration (Brown, 2008). The methodology of solving problems through *Design Thinking* methods spread from business, where numerous organizations used it to increase sales and profitability (Ward, Runcie, Morris, 2009), to academia when some of the leading design, engineering, and business schools adopted it as a teaching method. More recently, *design thinking* has been used by educators to improve school layouts, teaching (Cankar, Deutsch, Zupan, Setnikar Cankar, 2013) and course design.

Several mindsets have also been identified as an important part of *design thinking* methodology (Brown, 2008; Fraser, 2007; Nussbaum, 2004; Rauth et al., 2010). In particular, *design thinking*:

- is human-centered: people are the source of inspiration and focus of problem solving;
- is mindful of process: design thinkers employ an iterative methodology to explore numerous possible solutions and learn from failures;
- is empathetic: to successfully solve an individual's problem, that individual's feelings, thoughts, and attitudes must be observed, experienced, and understood;
- includes storytelling: an important tool with which to communicate observed user needs;
- has a culture of prototyping: the process is experimental and iterative, builds on past experience, and tests intermediate solutions;
- is biased toward action: all skills and tools should be practiced;
- includes radical open-minded collaboration among disciplines: multidisciplinary teams will produce better results if Design Thinkers have the ability to build on ideas of others;
- includes integrative thinking: using abductive reasoning (Martin, 2007) dramatically improves existing products;
- is optimistic: establishing there is always a solution;
- challenges constraints and supports creative solutions: obstacles and constraints need to be challenged in order for creative and sometimes highly unorthodox solutions to succeed.

3. Entrepreneurial Education in Croatia

Most countries in Eastern and Central Europe have experienced their own individual models of transition from a centrally planned system to a more or less liberalized market economy, and these different pathways of entrepreneurship development in the various post-communist countries have led to different results (Berkowitz, Jackson, 2006; Smallbone, Welter, 2001; Estrin et al., 2010). A research focused on mapping entrepreneurship education in higher education institutions from the 22 European countries in transition found out that best coverage of entrepreneurship-oriented teaching among countries in the region was in Slovenia and Croatia, followed by the Baltic States, the Czech Republic and Slovakia. Among the Southern European countries the coverage of entrepreneurship teaching was much lower. The results of the analyses indicate that in general, entrepreneurship-oriented education is much better developed in private schools and in those public universities established since the mid-1990s. An entrepreneurship orientation is stronger in smaller institutions. This could be explained by the higher flexibility of private and smaller new public institutions of higher education, which allowed them to introduce a clearly formulated movement towards education that favors the entrepreneurial mindset (Entrepreneurship and Higher Education, 201).

In the qualitative research conducted during 2014 by the author *design thinking* as a creative method of decision making was one of the key elements to evaluate design orientation of a company. The face to face interviews were undertaken with five art directors and five top managers to see if these two groups of experts have different opinion, as well as to examine the questions in the questionnaire for future quantitative research. While *design thinking* was given the maximal value on a five-point likert scale by all the five art directors, it has not been recognized as much important by all the five interviewed managers (with the average score 3,5). During the informal conversations, managers defined design as “the essence of success in entrepreneurship”, still most of them mentioned design in the context of the first impression, “a key for attracting customers”, or as “the visual expression of a brand”. It has to be pointed out that these five managers were chosen from successful, more design oriented Croatian medium and large sized companies. However, this situation could be expected, knowing that future managers do not learn about design tools nor design thinking methods in Croatian higher education programs. According to the research undertaken in marketing and management departments at Croatian faculties of economics or business schools in the period from 2007 to 2008 by the author, there were no such courses in their programs. This could be the main reason

for the fact that they are not well informed about the design potential, but also that they have a different approach to thinking and different priorities than designers (Rocco, Hodak, 2013, 528). When analyzing the perception of *design thinking* as a method, according to the conversations with Croatian managers and marketing experts, it seems that they need further explanation of the term and its meaning in the process of decision making. Most managers are sceptic and refuse to consider *design thinking* as a serious managerial method.

3.1. Case Study: FELU Slovenia

The educational systems of Eastern European countries began including entrepreneurship education in their curricula only after these countries transitioned from the socialist system to market economies in the late 1980s and early 1990s (Zahra, Welter, 2008). During this period, entrepreneurship programs were established in several Slovenian universities, including the Gea College and University of Ljubljana, in response to the need and demand for entrepreneurial training following the economic collapse of many large firms and the increase in incorporated businesses and sole proprietorships (Drnovsek, Glas, 2002). Slovenia had few academics in entrepreneurship in the eighties, but through collaborations with American and other foreign scholars, the Faculty of Economics at the University of Ljubljana (FELU) developed undergraduate and graduate entrepreneurship programs with support from entrepreneurs, policy makers, personnel from small business support organizations, and scholars (Drnovsek, Glas, 2002).

Although it would not be appropriate to compare Croatia with other developed European countries, such as Great Britain, France, Italy, Switzerland or Finland, the comparison with Slovenian higher education is relevant because of their similar history, until recently belonging to the same country - Yugoslavia. A case study from the Faculty of Economics at Ljubljana University (FELU) was presented by a team of teachers who also actively participated as authors in the project of redesigning the faculty entrepreneurial program. In the period from 2006 to 2014, FELU iteratively redesigned an undergraduate course for 3rd year students entitled *Entrepreneurial Project* using a Design Thinking framework (Zupan, Svetina Nabergoj, Stritar, 2014). Like the other FELU entrepreneurship courses, the course, which enrolls approximately 80 students per year, originally had a business plan-guided design. The teaching staff involved in the *Entrepreneurial Project* course, saw a need to redesign the course to improve students' entrepreneurial skills with a stronger focus on applied business practices.

The program and methodology of the course was based on Stanford d. school. Until 2014, FELU redesigned 5 undergraduate and graduate courses which applied *Design Thinking* as a teaching methodology or teach *Design Thinking* as a problem solving approach. The course redesign process repeated each academic year from 2006-07 to 2013-14. New components were added to the course content and structure, according to the student feedback, the key benefits and key problems of the course identified by the teaching staff.

During 2014 a qualitative case study of the *Design Thinking* approach used to improve the undergraduate *Entrepreneurial Project* course at FELU has been undertaken by a group of teachers, with the purpose to explore how the course evolved and which are the benefits and challenges to using *Design Thinking* for course development. Data have been gathered from two sources: first, interviews with faculty members involved in designing and teaching the course, and second, review of class documentation including syllabi and class materials.

An early evaluation by Drnovšek and Glas (2002) found that the number of students enrolling in the graduate level entrepreneurship program at FELU was rising, but there was not enough innovation in teaching methods. Students were disoriented by the incoherent use of different teaching approaches and the classes were too focused on lectures and written seminar work. Another study of the undergraduate entrepreneurship course revealed that the program had no influence on the students' intentions to start their own businesses (Stritar, Drnovšek, 2006). To develop a comprehensive curriculum and teaching methodology before the 2006-07 academic year, the teaching team had to understand the needs and opinions of different stakeholders in entrepreneurial education including students, educators, and seasoned entrepreneurs. Over a period of three months in 2006, the teaching team conducted a series of interviews with students, ran weekend workshops with faculty members and entrepreneurs to help map the skills and behaviors needed in successful entrepreneurship, and tested the exercises they developed to train skills and mindsets. At the same time as gaining insights from prospective users, the teaching team also studied and analyzed best practices and key findings from other schools that were applying similar pedagogical approaches. Stanford University's pedagogical practices in particular served as a model for the FELU entrepreneurship program. Stanford's Institute of Design, known as the "d.school" provides a curriculum on the use of design thinking for producing creative solutions to the most complex challenges, and Stanford's "REDlab" conducts research on the use of *Design Thinking* in K-12, undergraduate and graduate educational settings.

The ***define*** phase of the *Design Thinking* process was characterized by the identification of key problems with the current course content and structure. In the first academic year 2006-07, the teaching team structured the course around hands-on team projects. Teams of 3-5 students (self-selected) worked on four different entrepreneurship projects that involved developing a new consumer product. Unlike previous courses, there was no textbook or structured content. The course method was, from the beginning, aimed at self-learning and experiential learning. In years following, the faculty changed the content and structure of the course to test new ideas. The students were increasingly encouraged to work on meaningful projects, public presentations, use of modern technologies and to work intensively for shorter periods instead of sporadic work during the whole semester. Students were also increasingly given a choice on how to run their projects.

Faculty members visited various conferences where they improved their knowledge about recent developments in novel entrepreneurship pedagogies. On the other hand, it was often a challenge to identify the cause of the key problems, like low student motivation.

The ***ideate*** phase of the *Design Thinking* process was characterized by the teaching team identifying and theorizing lessons learned based on the key benefits and key problems identified through the student feedback. Many of the course components came from ideas and practice used in other universities. Although not a perfect process, the teaching staff as a group did the ideation, and they felt the collaborative brainstorming process helped produce new ideas that might not have been created by individual teachers.

The ***prototype*** phase of the *Design Thinking* process was characterized by the teaching team implementing new course content and structure each year. When changing the course content and structure, the teaching team attempted to address some or all of the key problems and lessons learned from the previous year.

To address main problems that the student teams did not have an adequate mix of different skills and the use of pre-established project ideas kept learning focused on solving problems of existing ventures, faculty recruited students from other disciplines to the course, in order to create well-rounded teams, and teams were also able to come up with their own project ideas. From 2008-09, the course also included individual projects, so that students had more freedom to work on their own ideas. In 2011-12, the faculty chose to test a new structure, with half of the course devoted to a more traditionally designed course with seminars and written work and the other half devoted to three projects that all the students were required to participate in. In

order to improve student motivation and build on entrepreneurial training in 2013-14, the course introduced an FELU "Startup Weekend". During the event, the whole faculty was transformed into a startup accelerator, with open access to prototyping workshops. From the feedback at the end of the 2013-14 course, the faculty found student motivation during the Startup Weekend was very high and felt the event produced promising team results. Therefore, the faculty plans to continue this practice in future (Zupan, Svetina Nabergoj, Stritar, Drnovšek, 2013).

The case study presented the methodological steps of *Design Thinking* and its benefits and challenges for entrepreneurship courses. From the methodological perspective, the application of the *Design Thinking* methodology to course design does not require fundamental changes in the way courses are currently designed, but it offers an additional set of approaches that might greatly improve the process. Most importantly, it enables course designers to develop in-depth understanding of how students interact with the course content and structure, which can result in course designs that are more successful in achieving their goals and more satisfactory to all stakeholders. It also provides constant motivational triggers for further pedagogical development of the lecturer, which prevents monotony that often occurs with courses at the university level.

3.2. Case Study: Entrepreneurship in Applied Arts and Design, Croatia

A case of new entrepreneurial program development is to be presented here, as a good attempt towards design thinking approach implementation in Croatian higher education practice. The new project, *"Development of Bachelor Degree Program – Entrepreneurship in Applied Arts and Design"*, has been developed in the 2014/15 period at Croatian University of Applied Sciences - VERN, financed by structural instruments of the European Social Fund. The new undergraduate study program is a result of Vern's collaboration with two partner institutions: Vaasa University of Applied Sciences from Finland and the Association of Former Students of the Applied Arts and Design School in Zagreb – UBU, which lasted for eighteen months. During this period they successfully realized the following project activities: assessment of needs and analysis of the current situation on the labor market in the field of applied arts and design, training sessions for high-school teachers, training for Vern employees on the methodology of Croatian Qualifications Framework and three documents as the basis of a new study program - Occupational Standards, Qualification Standards and the Curriculum for a new study program. The future study program integrates arts, science and technology, applying the

methodology of design thinking as the key approach (source: http://www.vern.hr/english/news/novosti/successful-ending-of-an-eu-project-of-design-and-development-of-new-study-program, 17 April 2015). However, as the program *Entrepreneurship in Applied Arts and Design* is still in the initial stage, waiting for the approval of the Croatian Agency for Science and Higher Education, it cannot be compared with other programs, because there are no output results of the educational process yet. The project is mostly focused on artists and designers, giving them essential knowledge and skills for managing their own artistic projects and leading their careers. Hopefully, Vern should in future also apply the same teaching methodology and problem solving to other, existing undergraduate and graduate management and entrepreneurship programs of its University.

4. Conclusion

This paper deals with design thinking as a new interdisciplinary approach, a creative method and a successful tool in management and entrepreneurship education. Although there are formal courses of design thinking at the Zagreb School of Economics and Business and at the School of Design, University of Zagreb, to the author`s knowledge, in most Croatian higher education institutions, for managers and entrepreneurs, design thinking has mostly been lectured as an informal method incorporated in other courses, but still not as an educational method. The paper addresses the positive results given by the research efforts undertaken at the Faculty of Economics, University of Ljubljana, where design thinking has been implemented since the 2006-07 academic year.

An obvious limitation of this paper is the case study descriptive methodology, which cannot provide reliable information about the broader context and generalize the results to other experiences. However, case study methods can produce rich insights and can contribute to the cumulative body of knowledge. As the next step, further field research should be undertaken for a proper comparative analysis of higher education curricula in Croatia.

The moment is right for a significant evolution of entrepreneurship education in Europe – between the growth of new private universities, the reform of existing universities as a result of the Bologna process, and the high level of interest in entrepreneurship by students, universities and other stakeholders. Europe has the unique opportunity to learn from models around the world and focus on integrating the most relevant and high-quality practices into its higher

education institutions. The major problem in Central and Eastern European as well as other transitional countries is the lack of qualified teachers. Educational programs that train future entrepreneurs in the various stages of new venture creation are almost nonexistent (Zahra, Welter, 2008, 187).

Of course, entrepreneurial skills are learned in different ways and methods. Some are best learned by doing and observing others. However, training of future entrepreneurs should also include interactive as well as creative methods, introducing new topics. Governments, having an important role in the education systems of Central and Eastern Europe, remaining mostly traditional teacher-centered and inert, should support faster changes. The research results indicate that, in general, entrepreneurship-oriented education is better developed in the newly established institutions of higher education. New private business schools were often established by benchmarking and implementing fundamental principles of successful Western school programs, using their experience. Their main strategy is teaching not only theoretical but (more importantly) practical skills. The value of design thinking in business is receiving more and more recognition and is being promoted increasingly outside of the design schools (at university level). The benefits of design thinking in business have recently been specially recognized by rapidly developing Asian countries such as Singapore, Hong Kong, South Korea and, finally, China. These countries developed their models of education by analyzing and implementing the experience of the best North American and European educational institutions and by further developing them (Mapping of Design Policies, 2011).

Courses based on design thinking give motivated students a chance to experience entrepreneurship in action and can be considered an upgrade to existing entrepreneurship programs (Zupan, Svetina Nabergoj, Stritar, Drnovšek, 2013). It also provides constant motivational triggers for students to find creative solutions for managerial problems to be solved. The education quality of entrepreneurship is the most important prerequisite for Europe's competitiveness, innovation and economic growth, enabling innovative culture. Croatia, as a new member of the European Union, should be aware of the importance of education, especially in the field of entrepreneurship, and keep up with new trends in management, providing students with knowledge and skills necessary for innovative competitive solutions. Although new initiatives exist, there is space for further development of programs and implementation of new creative methods, such as design thinking, in higher education curricula.

5. Reference List

- Berkowitz, D. & Jackson, J. (2006). Entrepreneurship and the Evolution of Income Distributions in Poland and Russia. *Journal of Comparative Economics*, 34 (2), 338-356.
- Bloch, P. H., Brunel, F. F. & Arnold, T. J. (2003). Individual Differences in the Centrality of Visual Product Aesthetics: Concept and Measurement. *Journal of Consumer Research*, 29 (March), 551-565.
- Borja de Mozota, B. (2003). *Design and Competitive Edge: A model for design management excellence in European SMEs*. Université Paris X Nanterre - Reprint #02ABOR88. First published in Design Management Journal Academic Review, 2 (2003).
- Borja de Mozota, B. & Peinado, A. D. (2013). *New Approaches to Theory and Research in Art & Design lead Educational Programs - Can "Design Thinking" sparkle new answers to old problems?* CAA Conference – New York.
- Brown, T. (2008). Design Thinking. *Harvard Business Review*, June, 85-92.
- Brown, T. & Wyatt, J. (2010). Design Thinking for Social Innovation. *Stanford Social Innovation Review*, 32 (Winter), 31-35. Retrieved from http://www.ssireview.org/articles/entry/design_thinking_for_social_innovation.
- Cankar, F., Deutsch, T., Zupan, B. & Setnikar Cankar, S. (2013). Schools and promoting innovation. *Croatian Journal of Education*, 15 (2), 179-211.
- Drnovsek, M. & Glas, M. (2002). The entrepreneurial self-efficacy of nascent entrepreneurs: the case of two economies in transition. *Journal of Enterprising Culture*, 10 (2), 107-131.
- Estrin, S. & Mickiewicz, T. (2010). *Entrepreneurship in Transition Economies: The Role of Institutions and Generational Change*. IZA DP No. 4805. Retrieved from http://core.ac.uk/download/pdf/6515627.pdf.
- Fraser, H. M. A. (2007). The practice of breakthrough strategies by design. *Journal of Business Strategy*, *28* (4), 66-74.
- Gartner, W. B. & Vesper, K. H. (1994). Experiments in entrepreneurship education: Success and failures. *Journal of Business Venturing*, 9, 179–187.
- Ilipinar, G., Johnston, W. J., Montaña, J., Spender, J. C. & Truex, D. P. (2011). Design Thinking in the Postmodern Organization. *China-USA Business Review*, 10 (11), 1203-

1212. Retrieved from http://www.academia.edu/3649482/Design_Thinking_in_the_Postmodern_Organization.

- Jackson, M. C. (2003). *Systems Thinking: Creative Holism for Managers*. John Wiley & Sons Ltd.
- Johansson-Sköldberg, U., Woodilla, J. & Çetinkaya, M. (2013). Design Thinking: Past, Present and Possible Futures. *Creativity and Innovation Management*, 22 (2), 121-146.
- Kuratko, D. F. (2005). The Emergence of Entrepreneurship Education: Development, Trends, and Challenges. *Entrepreneurship: Theory & Practice*, 29 (5), 577-597. Retrieved from http://www3.uma.pt/filipejmsousa/emp/Kuratko,%202005.pdf.
- Liedtka, J. (2011). Learning to use design thinking tools for successful innovation. *Strategy & Leadership*, 39 (5), 13-19. Retrieved from http://dx.doi.org/10.1108/10878571111161480.
- Martin, R. (2009). *The Design of Business: Why Design Thinking is the Next Competitive Advantage*. Cambridge MA: Harvard Business Press Publishing.
- McMullan, W. E. & Long, W. A. (1987). Entrepreneurship education in the nineties. *Journal of Business Venturing*, *2*, 261–275.
- Nussbaum, B. (2004). The power of design. *Business Week*, 17 (2), 86-94.
- Mapping of International Design Policies and Strategies for Leading Design Schools and Research Institutions (2011). The Danish Vision Committee "DESIGN 2020", Quartz+Com, for the Danish Enterprise and Construction Authority and the Danish Ministry of Culture 2011. Retrieved from www.quartzco.dk.
- Moll, I., Montana, J., Guzman, F. & Praallada, F. S. (2007). Market Orientation and Design Orientation: A Management Model. *Journal of Marketing Management*, 23 (9), 861-876.
- Potter, J. (Ed.) (2008). *Entrepreneurship and Higher Education*. LEED, OECD.
- Rauth, I., Köppen, E., Jobst, B. & Meinel, C. (2010). *Design Thinking: An Educational Model towards Creative Confidence.* Paper presented at the Proceedings of the 1st international conference on design creativity ICDC 2010, Kobe.
- Rocco, S. & Hodak, M. (2013). Innovation by Design: Bringing Design into the Focus of SMEs. Proceedings e-book, 23th CROMAR Congress *Marketing in a Dynamic Environment – Practical and Academic Insights* (pp. 521-536). Lovran, Rijeka: University Library.

- Rocco, S. & Pisnik, A. (2014). Developing a Conceptual Model of Relationship between Market Orientation and Design Orientation (pp. 177-184). 5th EMAC Regional Conference, University of Economics in Katowice - Poland, Book of Proceedings.
- Smallbone, D. & Welter, F. (2003). Institutional Development and Entrepreneurship in Transition Economies, paper presented at ICSB 48th World Conference - Advancing, Entrepreneurship and Small Business, Belfast (Northern Ireland), 15-18 June.
- Solomon, G. T., Duffy, S. & Tarabishy, A. (2002). The state of entrepreneurship education in the United States: A nationwide survey and analysis. *International Journal of Entrepreneurship Education*, 1 (1), 65–86.
- Venkatesh, A., Digerfeld-Mansson, T., Brunel, F. F. & Chen, S. (2012). Design orientation: a grounded theory analysis of design thinking and action. *Marketing Theory*, 12 (3), 289-309.
- Zahra, S. & Welter, F. (2008). Entrepreneurship Education for Central, Eastern and Southeastern Europe, Entrepreneurship and Higher Education, (Potter, J. (Ed.)), Ch. 7, OECD.
- Zupan, B., Svetina Nabergoj, A., Stritar, R. & Drnovšek, M. (2013). Part III. 13. Action Based Learning for Millennials: Using Design Thinking to Improve Entrepreneurship Education. In: Doyle E., Buckley P. & Carroll, C. (Eds.), *Innovative Business School Teaching: Engaging the Millennial Generation*, Routledge.
- Zupan, B., Svetina Nabergoj, A. & Stritar, R. (2014). *(Re)Designing an entrepreneurship course using Design Thinking: a case study of a novel course (re)Design approach*. EBR 2014 Ljubljana (full paper gained from the authors).
- Ward, A., Runcie, E. & Morris, L. (2009). Embedding innovation: design thinking for small enterprises. *Journal of Business Strategy*, 30 (2/3), 78-84.