

INNOSTUDIO ENVIRONMENT AND INNOVATION PROCESS AS AN INTEGRATED CORE FOR DESIGN EDUCATION

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ABSTRACT

The design departments and D'ART Design Resource Centre in the North-Karelia University of Applied Sciences Finland have a combined development service for SME: s and a way of teaching design called INNOSTUDIO®. This concept forms an environment for the support of innovative processes, process structures and various innovation methods. The process structure and method development aims especially at promoting multidisciplinary innovation so that typical iterative design processes and visual design methods help in sharing expert knowledge from different disciplines. INNOSTUDIO® provides learning environment for the students with involvement on real life product and service development projects. INNOSTUDIO® concept forms the core of a new English taught Industrial Design Innovation programme in the University.

Keywords: Multidisciplinary innovation, design process, visual methods

1 THE ROOTS OF THE INNOSTUDIO CONCEPT

The design departments in the North-Karelia University of Applied Sciences Finland and D'ART Design Resource Centre (www.dart.fi) have developed a combined innovation service and a way of teaching design. This concept lately named INNOSTUDIO® for fast innovation processes has been especially used for the product development purposes of SME: s. Innovation is conducted via intensive group work that produces lots of ideas in a few working days. All the innovation sessions are especially tailored to meet the requirements of the customer and at the same time they are used as a part of product development teaching for the design students.

The use of these sessions in the North-Karelia University of Applied Sciences started year 2000 supported by benchmarking collaboration with Scuola Italiana Design Rovignon workshop (www.scuolaitalianadesign.com). With the history of more than six years of different innovation camps and sessions in North-Karelia the concept was selected 2005 as the best practice of the last period EU projects in the Eastern Finland. This led into the INNOSTUDIO® development for a registered name and service concept at the end of the year 2005.

D'ART Design Resource Centre is a part of art and design departments in the North-Karelia University of Applied Sciences. It organizes project collaboration with the companies to support design teaching with the real life product development cases. INNOSTUDIO® forms a platform for the services that D'ART Design Resource Centre is offering and also a platform for the teaching in design. The design departments in the North-Karelia University of Applied Sciences have nourished practical project based learning with real company cases as a main approach for the design process and skills

for about ten years. D'ART Design resource Centre was established for this purpose, for the purpose of fertilizing regional design knowledge and especially for the purpose of regional design support for the companies.

2 MULTIDISCIPLINARY INNOVATION AS A SERVICE AND LEARNING TOOL

Innovative product development with the purpose of producing new products, communication and service concepts for companies needs holistic process structure. Innovation process is currently an important meeting point for different professionals and their expert knowledge [1]. The practice of multidisciplinary product development has become more and more common and necessary to serve the SME: s' design and marketing needs in an integrated way. This has been recognized in Finland in the national Design Projects of 2000 – 2005 especially by the Finnish Funding Agency for Technology and Innovation [2]. One of the main tasks appointed to the applied universities by the law in Finland is the regional development work. Many of the projects in SMS: s and regional public services are not solvable through one professional knowledge area and they require multidisciplinary approach.

The models of integrated product development describe design as the professional area that makes the ideas of different professionals concrete. Through this synthetic nature of design and the experience of innovation teaching the design department was asked to take the role in the North Karelia University of Applied Sciences year 2005 of organizing development projects applying multidisciplinary innovation sessions. This request was also connected to the development of English taught programmes where the combination of design, business and other disciplines becomes normal practice in teaching.

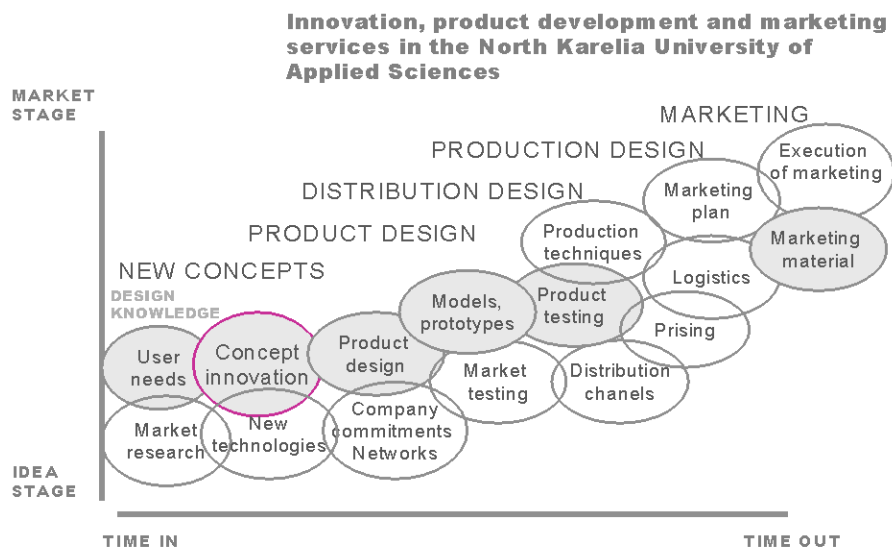


Figure 1. Integrated innovation and product development service and teaching model

The above presented process description emerged through discussion and tryouts of multidisciplinary product development. The integration looks at the possibilities of leading a multidisciplinary innovation process with designers, business people and engineers combining different expertise in the different stages of the process. The learning from a real life multidisciplinary process can be organized through innovation sessions combining the different student groups in different stages of the process. Process model is important tool for planning at which stage of the process the innovation sessions are useful and applicable as learning and working method.

One of the practical projects year 2005 consisted of wood product concept innovation camp with wood technology students, international design and technology students and design students. The regional wood technology centre project managers participated as clients who took part in briefing and assessment of results. Market feasibility point of view was recognized through the participation of principal lecturers of marketing and international business in the assessment in different stages. The design students carried on the best concepts in the design and prototype courses. The wood technology centre managers the best prototypes and these were then presented for further development to the participating companies in a business growth programme.

The multidisciplinary approach brings the various social questions into the innovation process by points of view from different disciplines. For the students there is huge benefit in meeting people with different perspectives that force them to look at the development problem from different angles. The student feedback has been that through the multidisciplinary work they perceive their own expertise better in the different phases of the product development process. The students also felt that it is important to prevent the birth of too strong borders in the study phase so that as professionals you are able to work fluently together in the typical cross disciplinary project society.

With the multidisciplinary work also many problems emerge. The issues of joint timetables seem to be the main practical hindrance. The idea of real life project based learning requires joint hours where the innovation sessions are possible for the students and teachers from different educational programmes. In a university this means that project-based curriculum should cover all the disciplines working together and joint timetable agreements must be planned in advance for the meeting sessions.

The problem of who is used to joint and shared idea generation type of work is an issue especially with other than design students. Orientation to innovative work is needed also for the teachers of different disciplines. Intrinsic motivation for the joint task needs also careful preparation. The tasks in different sessions should be planned so that different expertise and skills are useful or they should be divided inside the multidisciplinary group so that everyone has an input possibility. The business students are not used to drawing and the technical students are not used to brainstorming or expressing vague ideas visually. Each discipline has different strengths.

The difference in skills became evident with the students own division of work in multidisciplinary groups. Collaborative innovation included a project innovating mine tourism activities and service models for families and school children for the year 2015. This innovation process was carried out with design, visual art and tourism students. In one of the groups the students themselves made the decision to share the work so that the design and visual art students made persona design type of visualisations of the different types of families visiting the area and the tourism students supported this work with creating user stories including the services that the families would need to full fill their needs and wants.

3 THE STRUCTURE AND METHODS IN THE INNOSTUDIO CONCEPT

INNOstudio® is a service and facilitation concept to support the innovative processes especially in the initial phases of product and service development. The INNOstudio® concept can be applied for strategic development of organizational models, product development and cultural production projects. It can be used also to help the development of design management, brands and visual marketing communication. INNOstudio® methods are suitable for sharing ideas in multidisciplinary innovation workshops. INNOstudio® offers also possibilities of learning and testing innovation methods to company staff in addition to the teaching services inside the university.

INNOstudio® environment means a virtual and concrete environment offering orientation to innovation, different innovation process structures and methods and flexible working spaces. This concept of INNOstudio® provides an open learning environment for the students with constant involvement on processes where the students and specialists from different professional sectors meet. Innovation structure and methods integrate together the core of professional design knowledge and the professionally necessary collaborative skills. Advantages are numerous: experience from real multidisciplinary cases, briefing and assessment from the companies and often a continuation of the whole process after the innovation sessions. This provides possibilities to see the whole development process in a rather swift schedule and in the scope of the design courses.

The analytic descriptions of the design and product development processes emphasize the iterative process structure, where idea generation, feedback, analyzing the situation and knowledge are in the constant variation each on their turn. This reflective variation in iterative processes is inbuilt into the structure of the innovation sessions and thus the sessions support constructive learning of the iterative thinking and working. The INNOstudio® structural facilitation means innovation sessions for different purposes at the different stages of the product development process. Strategic development and user information understanding lead to sessions of brand and product or service concept development. These then lead to sessions of product and service design and to the different visualizing and prototyping possibilities. Inside every session the structure must be arranged in the suitable order where the necessary idea generation, incubating, analyzing, assessment, focusing and choice parts of the session change. Producing multidisciplinary innovation process of shared information with specialists from different professional sectors is not without problems. These problems can be avoided with suitable structure for the sessions and using various methods in sharing and working with the information.

Methods supporting the innovation sessions are numerous. Future orientated methods such as scenarios, future theories and trend information are important in the beginning of the development process. Also user orientated methods including user information in different forms, user participation and user analyses have to be considered in the first phases. User testing is a suitable tool as soon as there is something to test. Innovation methods applied in the different idea generation phases include different brainstorming techniques and the different sort of visual generation possibilities. Idea generation takes into consideration mental imagery processes, associations, association chains, metaphors and metonyms and the processes of using different senses. Visual methods are used in sharing values, feelings, experiences, ideas, mental images and maps. The different methods can form a succession that builds up certain goals, for example the

idea generation through user empathy. In the earlier described wood product concept generation future user trends, user groups and use purposes were used and built into celebrity user personas for the purpose of innovation.

Although innovation camps and shorter sessions have become popular service and there are already many practical management examples the structure and methods require continuous research and development. Further development is necessary both in the scope of process and session structures and in the innovation methods used. There are discussions and workshops with the teaching staff about which session structures and methods they find useful. The structures and methods found useful are preserved in a databank for further use. There is also an ongoing work in the creation of digital visual library for providing easy access visual material for the sessions. The continuous research aims at studying the functionality and inspiration possibilities of certain design based innovation methods in a fast, intensive and integrated innovation service. There is an ongoing search for good practices in using the different methods and visual means of design as a support for integrated innovation. Especially multidisciplinary sharing of thoughts in an understandable way requires new approaches. There are signs that the means of design can be of help in producing shared expert understanding from different professions especially by providing understandable visual information and results. In addition, the further development of the produced ideas need more support. This can be arranged for example by developing quick user analysis and testing methods.

4 FORTHCOMING ENGLISH TAUGHT DEGREE PROGRAMME IN DESIGN INNOVATION

INNOstudio® based working will form the core of the forthcoming English taught design degree programme in the University. This programme in Industrial Design Innovation is based on the current notion that design thinking and human-centered approach have meaning across a broad range of industries and problems. This notion is a relevant in a society where the shift is from products to services and the importance of innovation is growing. [3] The meeting and innovation with people from business, engineering, tourism and healthcare broadens the understanding that design draws from. The programme will provide confidence to use innovation and design skills: idea generation, user understanding, analyzing, problem definition, conceptualization, synthesis and prototyping on product design also on non-obvious problems such as private and public services, organizational work of strategies and systems.

The purpose is to use the INNOstudio® tools and environment as means of navigating and tackling problems and models in various fields of business and different sort of organizations, also public sector. The multidisciplinary innovative work helps to explore and make even ill defined problems tangible for the client. Innovation is about defining a rich enough problem space for creating of fresh ideas, innovative and also appropriate solutions. The aim of this design education is still to focus in creating tangible outcomes if not only traditional three dimensional products of different materials. The outcomes of the innovation and design work can be products, action and service models and services, virtual visualization, environments, spaces, and integrated experience scaffolds.

This design programme is executed together with the International Business programme in the North-Karelia University of Applied Sciences. Joint business and design management teaching, collaborative project work with the companies and innovation sessions will be held together with the international business students. The project work will consists of regional development work, Russian market and other global markets providing cultural challenges in design. In addition, a winter school in St.Petersburg

offers the real life possibilities of Russian collaboration. Also international exchange is included in the programme. Interested educational partners are welcomed in the form of international exchange and working in joint collaborative innovation projects.

5 LESSONS LEARNT

Practical project based learning with real company cases is the main approach for the design process and skills in the North-Karelia University of Applied Sciences. This is not an easy choice because of the staff and work it demands from the D'ART Design Resource Centre in marketing and organizing the projects with the companies and collaborative partners. INNOstudio® innovation concept looks promising in that it is appealing to the clients and forms a structure and method platform for the services for regional companies as well as a platform for the design pedagogy.

The practice of multidisciplinary product and service development is necessary to serve the SME: s' design and marketing needs in an integrated way. The synthetic role of design in the product development process has driven the INNOstudio® to meet the demands of supporting integration of different disciplines in innovation and product development. This innovation process gives a possibility to educate the different professional roles needed in the different phases of the development process and the interaction between expertise areas.

Multidisciplinary innovation for product and service development provides a teaching tool for collaborative work that is useful in understanding what your own expertise is in the different stages of the process and what other knowledge and skills are necessary. Working together with different disciplines helps students to answer to the demand a wider perspective of the functions of society and human factors that seems to be necessary in the future product, service and experience concepts. It replaces the need for different creativity hats in the process. This teaching meets the requirements of the knowledge and skills of the future design professional that is able to draw together in a tangible form the knowledge from many different disciplines. The iterative process typical of the design and product development process is inbuilt into the structure of the innovation sessions so that they work as constructive teaching tools.

INNOstudio® concept offers structure and methods for the multidisciplinary innovation process. Lot of the process descriptions and methods used are typical design tools. Multidisciplinary innovative work, sharing of thoughts and results in an understandable way demands further development of good practices in using the methods and visual means of design to support integrated innovation. The INNOstudio® work consists of gathering innovation process structures and suitable methods. Especially the new English taught programme in Industrial Design Innovation has these structures and methods and the integrated innovation as the core of the teaching and provides possibilities of collaborative work in INNOstudio® concept development.

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