Teaching Innovation Projects in Universities at Tampere

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New skills expected from future professionals (1/2)

- Creativity and innovativeness
- Willingness and ability to work in a new way
- Business, service, technological and design skills
- Usability of technology and productization
- Risk management and an engineer’s ability to see things three steps ahead
- A sense of responsibility and ethics
- Internationalism
- Understanding of differences in people as potential
- Ability to network
- Collaboration, Shared expertise
New skills expected from future professionals (2/2)

- Collective learning and facilitating skills
- Ability to learn by doing.
- Problem-based thinking, reflection of own activity
- Ability to communicate own expertise to others
- Ability to stand stress and uncertainty
- “Super individuals” are not needed – it is essential that the necessary competencies are found in teams and networks.

Therefore: A new project work course concept that aims at learning how to innovate in multicultural collaboration
Background

• In Tampere, the focus has traditionally been towards educating industrial practises and tools for students.
• Based on the input from the industry Hermia Ltd. started to develop Demola model in 2008 to create an environment for university-business co-creation and innovation education for talented students.
• Development was a co-operative effort of Hermia Ltd, companies, universities and city of Tampere.
• Tampere University of Applied Sciences (TAMK), Tampere University of Technology (TUT) and University of Tampere (UTA), started in 2010 discussions with Demola to organize a common course, Innovation Project.
• The first course was organized in fall 2011.
Demola – an inspiring working environment
Main learning goals of the Innovation Project

After completing the course a student is expected to be able to

• participate in a multicultural and multidisciplinary team that creates a demo or a prototype of a product, service or other innovation
• understand basics of good project working practices, project scheduling and reporting
• apply agile project practices, design and product research methods in project working and
• present project outcomes orally and in writing.
Course basics

- The course is given twice in an academic year (Sep-Dec, Feb-May).
- Students from TAMK, TUT, UTA can apply for projects using Demola’s enrollment form.
- Preceding studies: At least 50 ECTS studies in major subject.
- All teams have 3-6 students from different universities with varying backgrounds (arts and media, computer science, interactive technology, management, pedagogy,…).
- All teams have 1-3 exchange students, working language is English.
- Students get 5-10 ECTS credits.
- Projects are supervised by Demola facilitators and teachers.
- Project partner comes from the client’s organisation.
- There are no traditional lectures, teams work for their project.
- It is possible to participate in workshops (agile development, gamely concept design, service design, user experience, performing skills,…).
• Project duration: 4 months.
• Teams work almost daily at Demola and meet their partner weekly.
• Other project activities: project plan review, 2-3 iteration reviews, final meeting, NABC elevator pitches, workshops and some free-time activities.
• Team writes a public project blog.
Statistics – fall 2011

- >150 students, 35 projects, a project took about 500-700 hours.
- Project types
  - Service (12/35)
  - Application (9/35)
  - Game (7/35)
  - Information systems (3/35), presentations (3/35) and technical infrastructure (1/35).
- Expected level of the outcome:
  - Prototype (17/35)
  - Demo (8/35)
  - Concept designs (5/35)
  - Released product (5/35).
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Traditional project work course</th>
<th>Innovation Project course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty, risk level</td>
<td>Moderate risk</td>
<td>High risk, high uncertainty</td>
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<tr>
<td>Scope</td>
<td>Defined</td>
<td>Defined</td>
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<tr>
<td>Mental focus</td>
<td>Processes, routines, execution</td>
<td>Substance, business</td>
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<td>Main quality factors</td>
<td>Fulfilling customer needs, total quality of action, re-usability of results</td>
<td>Value and re-usability of concept, new possibilities – creative thinking, product potential</td>
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<td>Relation to tradition, rules, thinking patterns</td>
<td>Follow rules, use heuristics</td>
<td>Break rules, think differently</td>
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<tr>
<td>Main reusable result</td>
<td>Product, documents</td>
<td>Idea, conclusion, principles</td>
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<tr>
<td>Lifecycle emphasis</td>
<td>All equally</td>
<td>Concept, fuzzy front end feasibility study, proof of concept, marketing</td>
</tr>
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<td>Working environment</td>
<td>Closed, homogeneous, one culture, team work alone</td>
<td>Open space, networking, heterogeneous, multicultural, international, all teams in one space</td>
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<tr>
<td>Communication</td>
<td>Inside team, rhythmic with teacher / long cycle</td>
<td>Inside team, between teams, short cycle with customer/partner, networking</td>
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<tr>
<td>Language</td>
<td>Native language</td>
<td>English</td>
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<tr>
<td>Product rights</td>
<td>Customer</td>
<td>Team</td>
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<tr>
<td>Skill set</td>
<td>Systematic project work, professional action, development &amp; research methods, teamwork</td>
<td>Problem solving, teamwork, creativity, handling uncertainty</td>
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<td>Learning experience</td>
<td>Project work, project management, how methods and theory work in practice, teamwork</td>
<td>Project work, team work, potential of creativity, intercultural working</td>
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Experiences – students

• Students saw their Demola project and the course as an empowering new way to work, learn and challenge their self in the course of their studies.
• Students had especially seen the new way of working compared to traditional working methods as important learning experience.
• Students had never before had this kind of opportunity to work in such multicultural and especially multidisciplinary teams with real life problems.
• The main learning experiences that the students point out from the projects were: realizing their own value as a member of a team (empowerment), multicultural cooperation and team working skills, practical skills and working experience and entrepreneur mindset.
Experiences – project partners

• Feedback collected from the project partners gave us a bit of insight that the learning process in the Demola projects is not one sided!
• The project forces the partner to take some distance from their own technologies and see them more objectively and critically.
• Students can be really creative when the project is facing problems, team members had professional skills in spite of the fact that they were students.
• Based on the feedback all of the project partners would recommend Demola projects to other companies.
Experiences – teachers

- There were roughly 15 teachers involved in project supervision.
- The main positive experiences that teachers reported were possibility to “work differently outside university” and having cooperation with other teachers and companies.
- Students working in heterogeneous and multicultural teams were also seen as a motivating force to creativity.
- Teachers reported some problems in course organization and teaching. Some teachers felt that their role in the project is not clear and that “having too many teachers for a project is a waste of resources”.
- Because Demola was located in the center of Tampere, commuting to Demola and back took time from teachers.
Conclusions

- Although the first course implementation had organizational problems, all parties saw numerous benefits from collaboration.
- The course will be continually improved together with teachers and Demola staff.
- The learning goals can be seen to be reached by all students who completed the course based on students’ and companies’ feedback and teachers’ views.
- In future, the Innovation Project course provides an excellent platform to analyze and improve methods of teaching and to facilitate innovativeness in student teams.
Questions?

Some useful links

- **http://www.demola.fi/academy** (Information on available projects, workshops, etc.)
- **http://www.uta.fi/sis/yhteiset/innovaatioprojekti/index.htm** (a sample course home page from UTA)
- **http://wiki.tut.fi/InnoPilotti/Materiaalipankki** (Guidelines for teachers, students and partners). Materials are developed by the InnoPilotti educational institution co-ordination project, financed by the European Regional Development Fund and universities.

- Thank you!