# INTENSIVE CAMPUS-WIDE INNOVATION WEEK AND IT'S IMPACT ON STUDENT ATTITUDE TOWARDS AND INTENDED LEARNING OUTCOMES AIMING AT ENTREPRENEURIAL MINDSET

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**Abstract:**
*Entrepreneurship is universally recognized as an important component of economic growth. To be an entrepreneurial university, the organization has to adopt entrepreneurial pedagogy. The purpose of this article is to describe an application of Design Thinking Methodology (DTM) implemented during an Intensive Innovation Week (IIW) at JAMK University of Applied Sciences, Finland. Approximately 600 students participated in the IIW week which was implemented as a multi-modal and multidisciplinary group activity. The aim was also to discuss the achieved learning outcomes and suggest areas for possible improvements.*

*This study uses mix-method research. Quantitative data was collected from two surveys, ex-ante (sample 204) and ex-post (sample 412) the IIW. Qualitative data consisted of written reflective evaluations (all the participants).*

*Empirical findings from quantitative data show that IIW had a significant influence on students' abilities and attitude towards entrepreneurship and from qualitative data that IIW had a positive effect on entrepreneurial skills, methods and mindset.*

*This paper makes original contribution in that the DTM was applied by majority of students throughout the University. The findings encourage universities to implement DTM in order to enhance the link between entrepreneurship and innovation in higher education and universities of applied sciences in particular.*

**Keywords:** O31 - Innovation and Invention, L26 - Entrepreneurship

## Introduction

JAMK University of Applied Sciences may well have been the first higher education institute in Europe to implement an *Intensive Innovation Week* (IIW) during which Design Thinking Methodology (DTM) was applied by students throughout the campus. Our first aim was to describe an application of DTM during the innovation week. The second aim was to discuss the learning outcomes of using the DTM. The third aim is to suggest areas for improvement.

The strategy of JAMK states that it has "a strong track record in quality of education, internationalisation and promotion of entrepreneurship". Following the strategic guidelines the curriculum of all JAMK programs was developed in 2013. Profiles and focus areas are presented in detail in the Figure 1.

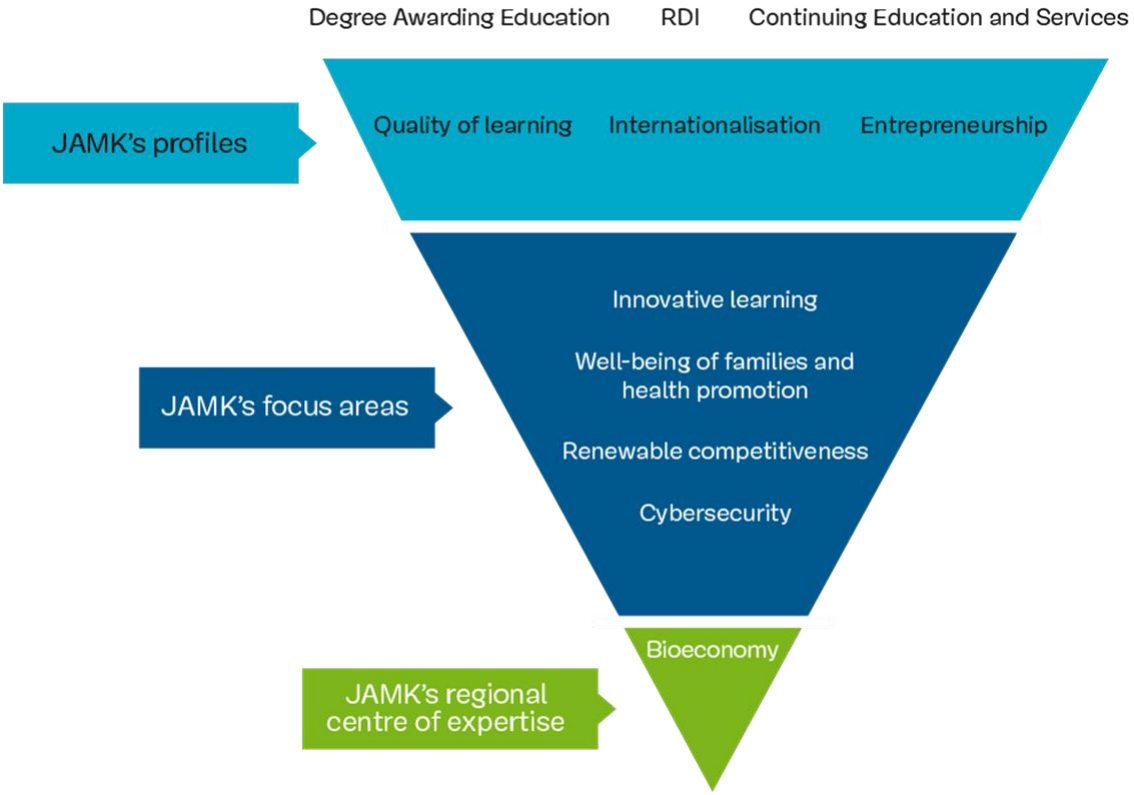


*Figure 1: Profiles and focus areas of JAMK University of Applied Sciences*

One implication was that all JAMK 1st year students should take an Entrepreneurship and Innovation course as compulsory basic studies. Students can proceed from this course unit (5 ECTS cr) to JAMK's other entrepreneurship development course units. These include e.g. Pre-incubator, growth entrepreneurship and Schauman Service Factory. Schauman Service Factory is a functional environment designed for entrepreneurship and innovations at the JAMK University of Applied Sciences. The course unit is implemented by JAMK Generator's entrepreneurship coaches together with the school's entrepreneurship experts.

The course includes the IIW as an initiative transcending boundaries between fields. Students learn innovation practices by combining the customer viewpoint (customer case) and business viewpoints (business case). During the IIW, the students do not participate in any other tuition and learn in practice how to use the user-oriented problem solving methods. This gives tools for development projects in the labor market and their own business activities.

The IIW was implemented as a multimodal and multidisciplinary group activity which included the development of innovation ideas. The first day of the week was devoted to introducing the DTM. The case was then presented by real company representatives. The idea behind the orientation was for students to take a dive into an intense development work, not restricted to the usual office hours. Throughout the week, the students met coaches and detailed, written instructions were provided. The detailed schedule including the time that students met the coaches can be seen in the Figure 2.

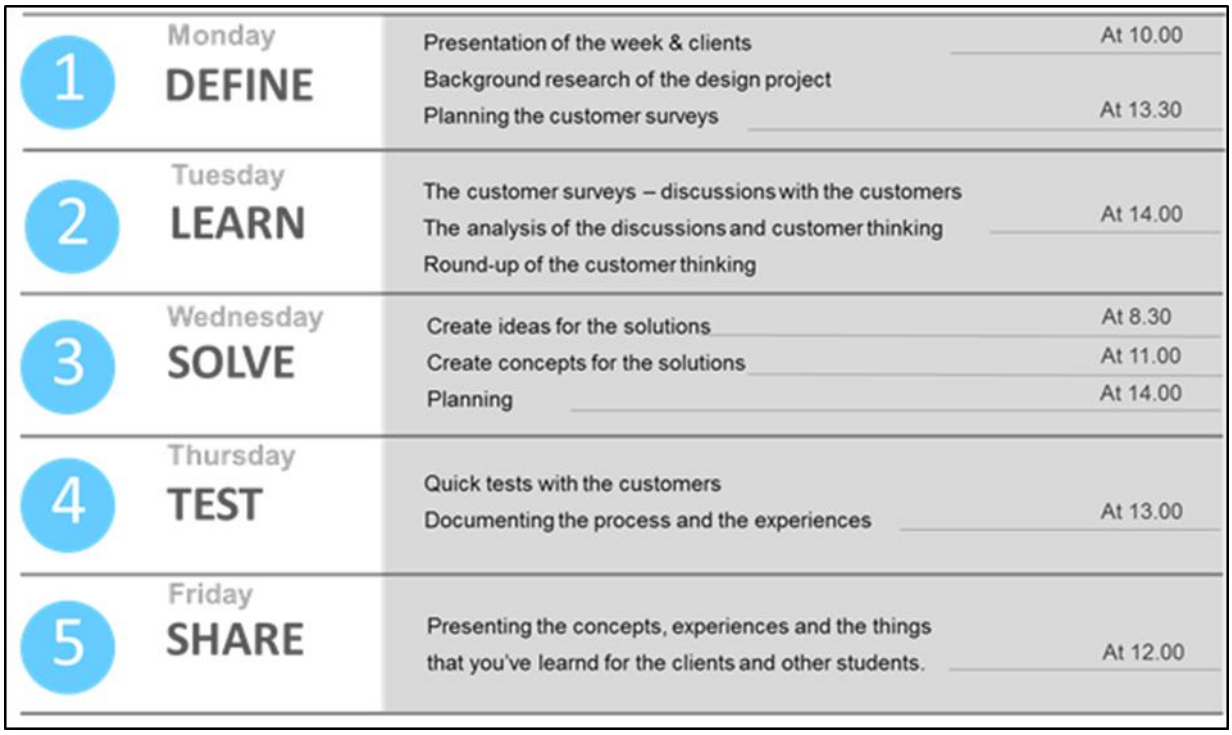


*FIGURE 2: Schedule of the JAMK Intensive Innovation week*

The Design Thinking was introduced to students as a concept and method to solve real-life problems. Finally, instructions for the final presentations were given. On Friday afternoon the developed and customer-tested concepts, experiences and all the things that the students had learned were presented to the case company representatives. In presentations, using images, videos, sound clips in addition to text was encouraged. The case company representatives did not have to prepare for the presentations although they were instructed to give immediate feedback to the students.

## Theoretical background

### *Learning*

Erik De Corte (2011) defines learning as an active/constructive, cumulative, self-regulated, goal-directed, situated, collaborative and individually different process of meaning construction and knowledge and skill building. He underlines constructive, self-regulated, contextual (situated) and collaborative parts.

Constructivist approaches of learning have become a base for active constructing of knowledge and skills through reorganization of learner existing mental structures (Tynjälä 1999). The role

of the student has changed from passive audience to active player.

That implies that inclusive involvement of students in the learning processes is done in relation to the social, contextual and cultural environment (Corte 2011). To learn about the customer point of view the researcher should explore users in their real life settings (Blank et al 2012).

In self-regulated learning process the learners are active participants. They are involved metacognitively, motivationally and behaviorally so that they are able to encode, recall and comprehend information (Vanderstoep et al 1996). To become a lifelong learner student should assume responsibility for her/his own growth. They must be able to manage and monitor their processes of competence building. In effective learning process the learning is done by distributed activities, not alone (Corte 2011). Learning has a collaborative nature.

JAMK Innovation week is designed to be constructive. In every phase students are able to use their earlier knowledge to use in problem solving and building own competence. Used method is an application of human-centered problem solving processes to real world problems. Every student is expected to be able to empathize with character of a user. They are doing the customer interviews in real context outside of classrooms. No one is learning alone. It becomes a distributive process among interdisciplinary student groups.

### *Interdisciplinarity and multidisciplinarity*

Frameworks and processes for interdisciplinary teaching and learning are critical because entrepreneurial work in real-life business environment crosses typical academically created boundaries of educational structures. (Johnson et. al., 2006). What is a true interdisciplinarity and why should it be promoted and used? Reflecting the ideas of Richter and Paretti (2009) it can be coined to processes where individuals coming from different domains work together in order to identify, integrate and value multiple perspectives and on an "each one teach one" way learn from each other, simultaneously reshaping their own understanding and own practices. According to Richter and Paretti (p. 31) learning in an interdisciplinary way goes beyond different individuals adding their own content to the common pool, but understanding and integrating new values and approaches in problem-definition and problem-solving is also vital.

Putting up new interdisciplinary educational processes and structures is by nature of high effort, but can also yield substantial results, as McClelland and Kleinke (2012) point out based on their experience of Multidisciplinary Learning at University of Detroit Mercy and their analysis of the process and its outcomes. They name as basic factors causing the demand for higher effort issues such as different perspectives to the whole situation, different ideas on how to solve the challenges, different professional language and communication styles etc. It is worth noticing that, like in case of JAMK´s innovation week, these challenges requiring high effort are also linked to the faculty members of different disciplines trying to create and facilitate a unified effort, since the freshman students are just shaping their discipline-based identity and are not yet fully baptized to their discipline´s dominant approaches and language.

As a proof of substantial results achieved in their implementation of multidisciplinarity – in their case mixing nursing and engineering students - McClelland and Kleinke list gained experience of bringing each student´s and each student cohorts unique skill sets to a bigger entity, learning how to build relationships, working with other people and utilization of collaborative expertise in creating joint outcome.

The impact of multidisciplinary learning processes in fields of Innovation and Entrepreneurship does not only affect the students involved. As reported by John-David Yoder (2012) when looking at the practical experiences and conclusions of multidisciplinary workshops arranged at Ohio Northern University to create mindset of entrepreneurship across disciplines: 80 % of the faculty members were satisfied with the workshop experience and 85 % were likely to recommend such a workshop to a colleague. Thus, involving a large number and a big variety of faculty members as learning facilitators in processes such as JAMK´s Innovation Week is likely to have a wider and longer-lasting impact, since the created mindset has potential to travel to other standalone courses´ syllabus. The results – dissemination of innovative and entrepreneurial mindset, growth of Innovation and Entrepreneurship activities, and positive transformation of syllabus and curricula – should be assessed with a long time span. Yoder sites the co-founder of KEEN network (Keen Entrepreneurship Education Network): "We won´t know for decades whether or not we have been successful".

Some researchers use different words to describe the "substantial results achievable" proposed (see above) by McClelland and Kleinke. In United States, the National Survey of Student Engagement reports that **High-Impact learning practices** can be identified (bolding by the authors of this paper).

The NSSE 2010 report states that special undergraduate opportunities such as learning communities, service-learning, research with a faculty member, study abroad, internships, and culminating senior experiences are called high-impact practices"

As can be seen from the NSSE´s statement above, learning practices having high impact are numerous and very different in the way they are implemented and according to the stage of the studies. However, different high-impact practices share several traits: "They demand considerable time and effort, **provide learning opportunities outside of the classroom, require meaningful interactions with faculty and students, encourage interaction with diverse others**, and provide frequent and meaningful feedback. Participation in these practices can be life-changing." (NSSE 2010, 22).

The empirical evidence gathered before, during, and after JAMK´s first Innovation Week indicate that this new learning practice has already shown some of its potential of being a High-Impact practice affecting students, faculty, and external stakeholders.

### *Entrepreneurial pedagogy*

To be an entrepreneurial university the organization has to adopt entrepreneurial pedagogy methods. It is not so much about knowing as it is about doing. Not what students know but do and not what teachers know but enable others to do (Weimer 2013). Karen E. Wilson (2013) says that entrepreneurship has never been more important than in today's environment. It has important role to renewing economic growth and creating jobs, to inspire solve global challenges and translates innovation into new companies.

For the university to be an entrepreneurial Wilson (2013) suggests that different kind experimentation is needed. This means willingness to test, learn and adapt new concepts. By active and concrete work the university is able to connect to the local development ecosystem. Entrepreneurship is action oriented and in this way the learning process should be as well. This means new kind of teaching and learning methods. To engage all students into entrepreneurship it should be embedded into the curriculum at an early stage of higher education with extra-

curricular activities. New models for universities and students are needed.

Totally new business, products and services are not able to be just designed. These have to be created by iterative testing and doing loops (Blank 2012, Tuulenmäki 2012). To create new start-ups is vital to raise awareness of entrepreneurship, provide role models and create a safe environment to make experiments and tests (Cooper et al 2013).

IBM (2013) report based on over 4000 face to face interview with international C-suite argues that a role of user is getting stronger. According to the report, 60% of C-suite expect that their enterprises will be more open to users.

## Implementation and research method

The learning outcomes are assessed in relation to the competence goals for the course. The course assessment criteria are active participation, assessed completion of learning tasks, and exercises.

Secondly, as part of the course requirements an individual assessment task was given to students. The content was the following:

> *Instructions for the assignment to be done after the Innovation Week – Individual Task*
> - *Search the internet for information about similar concepts: are there happenings such as our Innovation Week out there in the wide world?*
> - *Compare the findings and your participation in the Innovation Week. Are there any similarities/differences? Your own experience of the Innovation Week?*
> - *Document your comparison as text, images, pictures, drawings, audiovisual material – or as a combination of all these – whichever way is natural for you!*

Following Johnson et al. (2007, 129) mix-method approach, both quantitative and qualitative approach was judged to be the most appropriate in order to answer the research question: "What are the learning outcomes from using the Design Thinking framework during the "Intensive Innovation week'?" Mix methods research often provides the most informative, complete, balanced and useful research results. Mix method research relies on qualitative and quantitative viewpoints, data collection, and analysis in order to address the research question (Johnson et al. 2007, 129). Thus, qualitative methodology is well suited since the intention was to approach people i.e. students and the way the construct their learning. Qualitative methods are associated with exploring the social reality from the point of view of those in it (Patton 2002). In addition, quantitative methodology is well suited since the intention was to check if IIW has an impact on students (attendees) entrepreneur abilities and attitudes toward entrepreneurship.

The data was collected mainly from two sources: individual reflection evaluation, which students wrote as a task after the IIW and through an innovation week survey. In the beginning of the week, all students were asked to answer an online Webropol questionnaire (204 answers in the beginning of the week). A similar questionnaire was asked to be answered after the IIW (412 answers).

Thematic coding was used for qualitative data analysis, as recommended for large amounts of data. The themes were parallel to learning outcomes. Additionally, concurrent use of data reduction, data displays and conclusions drawing were used for data analysis.

## Results

The following sections present the findings based on quantitative and qualitative data analyses regarding the four learning outcomes.

### *Intended learning outcomes as variables*

To assess respondents attitudes toward entrepreneurship four variables have been introduced further denoted as Q1, Q2, Q3, and Q4. These variables were measured on five point Likert-like scale (five points from 1 to 5) and they respond to items in questionnaire, respectively:

- Q1: Student demonstrates an ability to manage him/herself in an entrepreneur-like way in a customer-oriented group
- Q2: Student knows how to identify needs in customer-service situations and services and know how to develop these into product opportunities (or business opportunities)
- Q3: Student knows and is capable of using (some) creative problem-solving methods
- Q4: Student recognizes and understands his/her own capacities and attitudes concerning entrepreneurship

To reflect a general idea behind each item and enable more comfortable description this items were labeled as follows:

- Q1: Internal entrepreneurship
- Q2: Skills
- Q3: Methods
- Q4: Entrepreneurship orientation

We wanted to find out if Innovation Week has an impact on students' entrepreneur abilities and attitudes toward entrepreneurship. Abilities were measured using variables: Q1, Q2, Q3 and attitudes was supposed to be reflected by Q4. Students were questioned in two rounds named as Before and After (respectively 204 and 418 respondents) and taking place before and after the event. To check if the event had an impact, results of this two rounds were compared and differences in mean values of variables were tested for statistical significance. Additionally we wanted to establish if items Q1, Q2, Q3 constitute a good measure of entrepreneurial abilities. It is done by calculating Cronbach's alpha coefficient.

### *Results from quantitative analysis*

First we checked descriptive statistics to have a general view on item's values and asses a reliability of the data (Table 1). Data were of sufficient quality and capacity, with value range for all items from 1 to 5 showing that the entire range of possible answers were represented in the data captured for each item.

*Table 1: Descriptive Statistics*

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Q1 Internal entrepreneurship | 622 | 1,0 | 5,0 | 3,416 | ,8673 |
| Q2 Skills | 622 | 1,0 | 5,0 | 3,450 | ,8184 |
| Q3 Methods | 622 | 1,0 | 5,0 | 3,379 | ,8345 |
| Q4 Entrepreneurship orientation | 622 | 1,0 | 5,0 | 3,614 | ,8277 |
| Valid N (listwise) | 622 | | | | |

We also check distributions of each variable for each round (Figure 3). Distributions seem to be only slightly skewed and variances have similar magnitudes, what can be seen in the Table 3 (appendix). Mean value for every item is seems to be higher after the event than before.

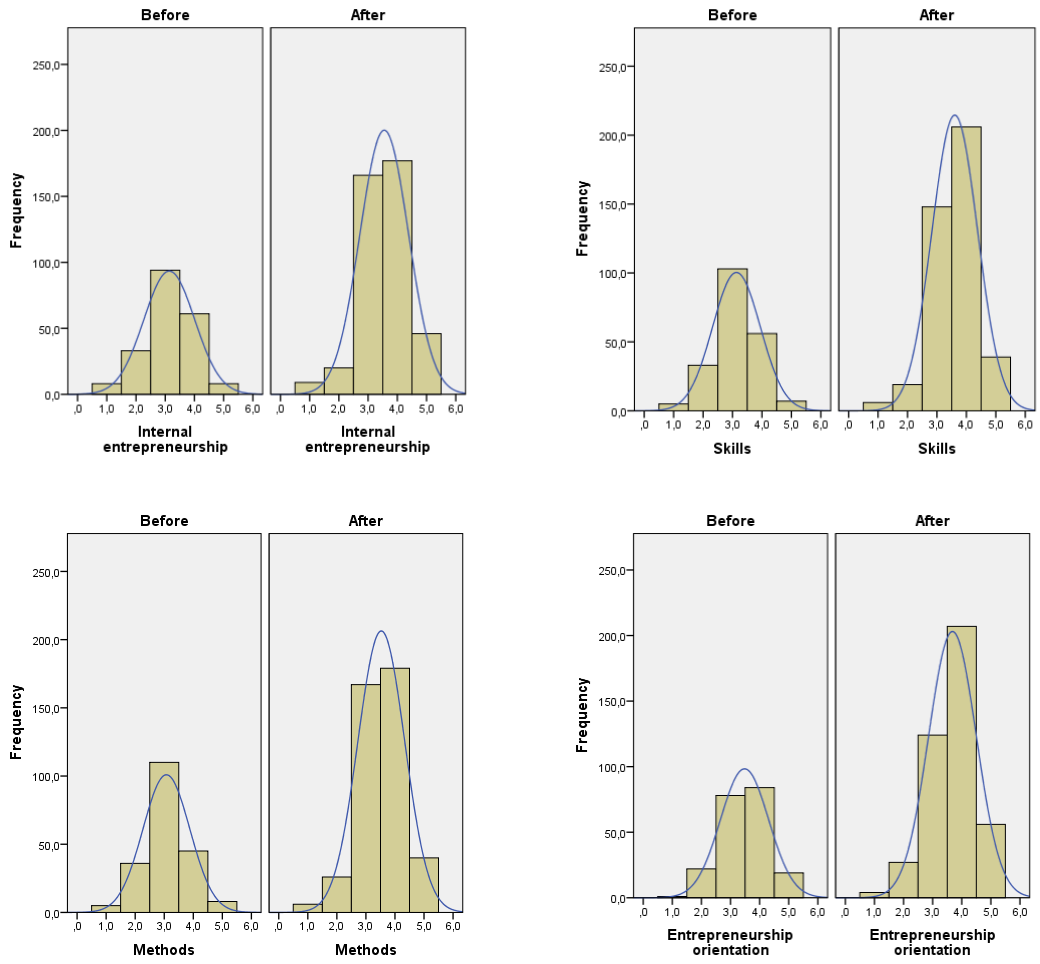


*Figure 3: distributions of four variables (derived from learning outcomes)*

Using t-test of equality of means (see Table 2) we checked if this differences in means were statistically significant. This test gives the same result as ANOVA analysis for two categories (we had two categories for each item).

*Table 2: Independent Samples Test*

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | |
|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference |
| Q1 Internal entrepreneurship | Equal variances assumed | ,706 | ,401 | -5,750 | 620 | **,000** | -,4154 |
| | Equal var. not assumed | | | -5,662 | 386,954 | **,000** | -,4154 |
| Q2 Skills | Equal variances assumed | 1,269 | ,260 | -7,024 | 620 | **,000** | -,4729 |
| | Equal var. not assumed | | | -6,923 | 387,930 | **,000** | -,4729 |
| Q3 Methods | Equal variances assumed | 9,291 | ,002 | -6,602 | 620 | **,000** | -,4552 |
| | Equal var. not assumed | | | -6,607 | 403,599 | **,000** | -,4552 |
| Q4 Entrepreneurship orientation | Equal variances assumed | 1,039 | ,308 | -2,832 | 620 | **,005** | -,1990 |
| | Equal var. not assumed | | | -2,824 | 400,045 | **,005** | -,1990 |

For all items (Q1, Q2, Q3, Q4) we had very low empirical significance level (Sig. (2-tailed) column in Table 2) so for each item we rejected the hypothesis that means Before and After were equal.

It shows that the event (Innovation Week) had a significant influence on attendees' abilities and attitude toward entrepreneurship. As means After are higher than means Before (Table 3) we can say that we observe a shift towards higher values of self-assessed entrepreneur traits reflected by items Q1, Q2, Q3, Q4. The Innovation Week had a positive effect on internal entrepreneurship, entrepreneur skills and methods, and entrepreneurship orientation.

*Table 3: Descriptive Statistics*

| | STATUS Before or After | | Statistic |
|---|---|---|---|
| Q1 Internal entrepreneurship | ,0 Before | Mean | 3,137 |
| | | Variance | ,759 |
| | | Skewness | -,271 |
| | | Kurtosis | ,055 |
| | 1,0 After | Mean | 3,553 |
| | | Variance | ,694 |
| | | Skewness | -,405 |
| | | Kurtosis | ,631 |
| Q2 Skills | ,0 Before | Mean | 3,132 |
| | | Variance | ,657 |
| | | Skewness | -,135 |
| | | Kurtosis | ,180 |
| | 1,0 After | Mean | 3,605 |
| | | Variance | ,604 |
| | | Skewness | -,508 |
| | | Kurtosis | ,813 |
| Q3 Methods | ,0 Before | Mean | 3,074 |
| | | Variance | ,650 |
| | | Skewness | ,036 |
| | | Kurtosis | ,364 |
| | 1,0 After | Mean | 3,529 |
| | | Variance | ,653 |
| | | Skewness | -,313 |
| | | Kurtosis | ,386 |
| Q4 Entrepreneurship orientation | ,0 Before | Mean | 3,480 |
| | | Variance | ,684 |
| | | Skewness | -,148 |
| | | Kurtosis | -,281 |
| | 1,0 After | Mean | 3,679 |
| | | Variance | ,674 |
| | | Skewness | -,470 |
| | | Kurtosis | ,298 |

Items Q1, Q2, Q3 were supposed to measure the entrepreneurial abilities. To check reliability of this measure we calculate Cronbach's alpha coefficient. Cronbach's alpha have a sufficiently high value 0,759 and thereby confirms usage of this items to reflect entrepreneur abilities.

It is worth adding that some of the researchers treat the Likert scale variables as ordinal variables not as scale variables as above. In this attempt for each item one needs to aggregate answers into two groups: answers 1 and 2 create a one group showing lower than neutral assessment, and answers 4 and 5 create a second group showing higher than neutral assessment.

Answers 3 are neglected. Then the comparison between this two groups of ordinal variables is performed by the adequate methods (cross tabulation and chi square test). The results of this type of analysis are the same as our former findings showing significant shift from relatively lower assessment before to higher assessment after for all items. This confirms our findings that the Innovation Week had significant and positive impact on applicants' perceived attitude towards and perceived learning outcomes related to entrepreneurship.

***Results from qualitative analysis***

Here we present the findings based on the analysis of students' answers on open questions and assignments given after the innovations week. Most of the quotations are translated from Finnish.

Q1. Student demonstrates an ability to manage him/herself in an entrepreneur-like way in a customer-oriented group

For this study, we identified seven main constructs for understanding the concept of an "entrepreneurial-like way". The selection of these constructs is based on suggestions in the literature (e.g. KEEN 2014; Littunen 2000) of how an entrepreneurial mindset is defined. These constructs helped guide the analysis of the first learning outcome

**First construct**: effectively collaborate in a team setting.

According to the students on the whole, their experiences of team work were positive. They enjoyed getting to know students from other programs, they were able to identify the other students as a source of learning and their contribution to the final outcome. Especially it was emphasized that a group was able to produce more innovative propositions to problematic issues. Although many of them agreed that in advance they had serious doubts, the week went better than expected. However, only a few assessed their own impact on team collaboration. In addition, it was suggested that the group members could learn more of each other before the first day. It is also noteworthy that negative comments were few.

> *"I gained a lot of insights and learned many new things through other members of the group" (translation)*
>
> *"I also sometimes like to work alone because then I am responsible for everything and I get graded as an individual, but this week made me realize what a team is capable of."*

**Second construct:** apply critical and creative thinking to ambiguous problems

Many of the students highlighted that supportive team spirit had effect on their critical and creative thinking in a positive way. They were also able to identify the importance of the process and Design Thinking concept.

> *"I felt like opportunities were everywhere."*
>
> *"The concept also proved to be very successful and we ended up with unexpected solutions." (translation)*

**Third construct:** construct and effectively communicate a customer-appropriate value proposition

The findings based on this data indicate, that the customer viewpoint remained distant. Quite many of the students did not mention the role of customer at all. Nevertheless, the importance of customer becomes evident in some answers. The extract below indicates that customer orientation has improved, even the more detailed description lacks from the data.

> *"Part of the concept stages seemed unnecessary but a detailed description of the target person turned out to be quite useful, although we wondered at the time, what the idea here is." (translation)*

**Fourth construct:** persist through failure to learn what is needed to succeed

Although the data overflows with positive experiences, on the whole the descriptions reveal that students have experienced the moments of uncertainty at some point. Some even describe that they were almost sure that they are not able bring the task to a conclusion. In order to overcome the difficulties, some students emphasize the importance of team coaches and the divisions of tasks.

> *"Especially the task where we had to each come up with 100 ideas for the company in a few hours seemed impossible."*

> *"When the task was divided, luckily for me, into smaller parts, I began to believe in our possibilities." (translation)*

**Fifth, sixth and seventh construct:** effectively manage projects and apply the commercialization process, demonstrate voluntary social responsibility and relate personal liberties and free enterprise to entrepreneurship

When interpreting the data, majority of the students were committed to project and team work. The importance of time- and self-management was highlighted. One of the reasons for this appears to be that the task came from real-life and was practice oriented. The following extracts by different students describe quite well how intensively the students were involved during the week.

> *"Throughout the week the ideas and creativity were spinning in my head." (translation)*

> *"I like this learning style because you get to decide the timetables and way of work." (translation)*

> *"In my opinion, it was very meaningful that we handled a practical, real-live case." (translation)*

However, not all students were satisfied. The criticism was mainly directed towards waste of time. This implies that not all students felt that they learned during the week.

> *"Due to this futility we had to freeze the other, a lot more interesting, school stuff." (translation)*

Q2. Student knows how to identify needs in customer-service situations and services and know how to develop these into product opportunities (or business opportunities)

Contrary to expectations based on the quantitative analysis, the findings based on qualitative data did not indicate that students learned much, how to identify the needs of customer. Many of the students did not mention customers at all. The minority mentioned and described the concept testing process and what were their feelings in the situation. Only a few suggested that the testing was useful in developing the concept. The extractions below are among the few from the whole qualitative data

> *"Also the process included testing the concepts."*
>
> *"Customer interviews were quite a challenge for myself. Approaching strange people and talking to them is a huge leap from your comfort zone." (translation)*
>
> *"Although a small-scale testing gave some understanding of functionality of the concept, we could have conducted more of them." (translation)*

Q3. Student knows and is capable of using (some) creative problem-solving methods

The most striking result to emerge from the qualitative data is that students remembered so well the use of Post-it notes. They were mentioned in most of the self-assessment reports. The most common photograph was also about the huge amount of post-it notes.

> *"The situation required one way or another idea generation, actually it can be described as must-innovation. However, I think our group wondered too much whether the ideas were realizable, which limited the discovery of the most innovative ideas." (translation)*

As the above remark suggests, idea generation is difficult. Overall, it can be said that although the students know their limitations in using creative problem-solving methods, they do not express spontaneously the need for methods. What is noteworthy that some students recognize that the source of ideas is from current experiences and knowledge which may hinder the generation of new ideas. However, the findings of the study indicate that the need for learning and applying those methods is apparent.

Q4. Student recognizes and understands his/her own capacities and attitudes concerning entrepreneurship

In general, Intensive Innovation Week confirmed the existing perceptions of student's capacities and attitudes concerning entrepreneurship.

> *"I agree with: we had an entrepreneurial mind-set during the week and I think it will continue in a way that we see more opportunities now all around us. Also creativity, confidence and admitting failure were thought that I also had during and after the week."*

Many students seem to learn something new which they described for example as *"very stimulating and energetic".* Some students state that they gained self-confidence. Some admitted that they learned to accept failures in order to move on. All in all, most of the

comments were positive.

> *"I felt that during the week I became bolder." (translation)*

The challenge for many students, however, was the feeling of stress. Tight schedule and result orientation created pressure.

> *"I felt that this week was the most stressful experience that I have had in a long time. In such a short period of time, we needed to accomplish so much, too hard to me as to others." (translation)*

## Conclusions

The present article has discussed the learning outcomes of the Intensive Innovation week. The learning outcomes were derived from some of the JAMK University of Applied Sciences focus areas and serve as the integral element of the curricula design and implementation. In order to reach the objectives, an application of Design thinking concept was decided to be the framework of implementation. The aim of this study was to understand the achievement of the learning outcomes. The chosen viewpoint was an individual's, i.e. student's perception of their learning.

According to Greensted and Hommel (2014, 20), intended learning outcomes (ILOs) are a statement of what student will know and be able to do at the end of the course. Findings of this study suggest that students have mainly reached the ILOs during the IIW. The findings of this study confirm that IIW has enhanced students' knowledge and understanding of entrepreneurship and creative problem-solving methods (Q1, Q3 and Q4). Moreover, the results indicate that students have demonstrated their ability to manage themselves in an entrepreneur-like way in interdisciplinary groups. Furthermore, they are able to use creative problem-solving methods.

However, it seems possible that the IIW did not to any great extent enhance students' knowledge how to identify needs in customer-service situations nor how to develop these into business opportunities (Q2). However, it is important to bear in mind the possible bias in these responses, since students reflected their overall perception of the week. It is possible, therefore, that this particular learning outcome was just not on top of their minds.

The results from both the qualitative and quantitative data suggest that IIW had a positive effect on participants' perceived attitude and perceived learning outcomes related to entrepreneurship. Based on the qualitative data, it is difficult to say if the motivation to become an entrepreneur was strengthened or weakened.

The Innovation Week was a sizeable experiment with 600 students actively engaged throughout the process. Concept works well and now we have experience how to improve working methods in order to achieve intended objectives. Moreover, the results of this study will help us to ensure consistency and develop the implementation.

The IIW as such was a proof-of-concept of adapting DTM to large university course content. The next IIW takes place on spring 2014. We will continue our research on the link between innovation and entrepreneurship phenomena and how to apply best theories and practices during intensive innovation weeks in the future.

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