



Best Interdisciplinarity-Enhancing Practices at Higher Education Institutions



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Introduction

About the e-book

This e-book presents the state of the art analysis of interdisciplinarity-enhancing practices at higher education institutions. It is a collection of comparable case studies/good practices accessible in the form of a database.

The e-book is created in collaboration with all the partners in the DT.Uni project, which made it possible to collect 42 case studies from eight different countries characterised by the presence of interdisciplinarity or transdisciplinarity and/or the design thinking approach.

During the first partner meeting in Lublin, representatives of all the partners developed and agreed upon the methodology framework for the desk study (including the detailed definition of the scope of the study; the template for a case study description; the quality and quantity of data that should be gathered; the form of the post-study report, etc.). The final version of the template for a case study description prepared by the Polish team was discussed and accepted during online video conferences. The template was designed in such a way that it could be used as an instruction for an interview if necessary.

Each partner conducted a part of the desk study considering good practices in their countries, higher education institutions (HEIs) or other institution. Finally, the Coordinator (O1. Intellectual Output Leader) integrated 42 cases into the final report which was discussed during a number of online video conferences and approved by the Advisory Committee.

Each case in the e-book has a similar structure, which enables the reader to easily compare the cases and thanks to this, the reader may find more detailed information about the cases more quickly. Each case contains a name, an abstract, a description of the type of the project (educational, scientific collaboration, commercial or social and cultural program) and the target group (researchers/academics, students or management), duration, as well as an indication of the location and institutions involved in the implementation of the project. The main part is the case description (the main goal and background of the project, information about the team, methods and identified challenges), and benefits and learning (beneficiaries of the project, innovation, values, prospects and what should be done differently). The final part contains contact details, resources and photos.

The basic criterion for the selected cases was the presence of interdisciplinarity (even transdisciplinarity) and the design thinking (DT) approach. We adopted a relatively broad, operationalised understanding of these approaches, including three dimensions - process, perspectives and thinking (proposed by the partner from TU Dresden). The levels of interdisciplinarity and DT were registered as low, medium and high. This could be a very interesting and useful tool for quick identification of a specific case due to the presence of the two approaches. The levels of interdisciplinarity and DT were registered as low, medium and high.

Interdisciplinarity does not refer exclusively to teams consisting of scientists or students from different scientific disciplines.

This individual approach also covers curiosity, knowledge and skills that transfer across the borders of all areas of study. In its collective dimension, interdisciplinarity also covers the freedom to choose the subject of research, the theoretical and/or methodological position, and even the institutional affiliation of researchers. Interdisciplinarity also characterises scientific communities that are based on open discussion and constructive criticism. In its institutional dimension, interdisciplinarity refers to the flexibility, development and respect for the principle of freedom of research as opposed to or in contrast with excessive specialisation and the bureaucratisation of science¹ (Fatyga 2014: 47).

Design thinking is understood here as a structured process consisting of stages of exploring, creating, prototyping and evaluating. The full use of design thinking means not only going through all four stages, but also participating in the process of innovating with people who have different perspectives and are able to immerse themselves and try to think like others. Other important aspects of DT are the quantitative production of ideas, unlimited thinking, elimination of barriers between scientific disciplines, the use of various tools and the generation of a wide range of ideas.

The following tables provide an understanding of the individual fields.

Levels of Interdisciplinarity

	Low	Medium	High
Process	Process is confined to a tight disciplinary framework	Processes enables working outside of the usual framework	Process is heuristic, iterative and reflexive using various tools
Perspectives	Homogeneous group regarding disciplines	Representatives from various scientific disciplines	Cooperation with external stakeholders
Thinking	Limited exchange of ideas + concepts	Exchange of ideas + concepts between project members	Incorporate ideas + concepts into one's own mindset

Levels of Design Thinking

	Low	Medium	High
Process	DT process is not part of the project	Elements of DT process present in the project	Complete DT process used for creative and innovative ideas
Perspectives	Homogeneous group	Different people with different perspectives	Participants can immerse themselves and think like others
Thinking	Mostly knowledge input for target group	Active knowledge production, small range of ideas + concepts	Participants can immerse themselves and think like others

¹ Barbara Fatyga, *Socjologia między inter- a transdyscyplinarnością*, (in:) Joanna Kurczewska, Magda Lejzerowicz (edit.), *Głosy w sprawie interdyscyplinarności. Socjologowie, filozofowie i inni o pojęciach, podejściach i swych doświadczeniach*, Warszawa: Wyd. IFiS PAN, Komitet Socjologii PAN, 2014, p.47.

The main part of each case consists of two sections - detailed case description and benefits and learning. The first section presents the main goal and background of the project, team, methods, challenges, tools, resources, and materials necessary for the implementation of the project. The second section contains information about beneficiaries, innovation, value and prospects of the project. There are also comments and good advice from the people implementing the projects.

About the cases

Project partners gathered 42 of their “Best Interdisciplinary-Enhancing Practices”. An important criteria for submitting a project as a best practice was the interdisciplinary approach, the involvement of researchers/academics/students representing various study areas. Two-thirds of the case studies (28 out of 42 total) are interdisciplinary projects while nearly half of these case studies (18 out of 42) make full use of the DT approach. Other case studies provide only some elements of DT or other approaches of activating creativity with students or researchers/academics and business representatives. Figure 1 below classifies the case studies across three areas: *Interdisciplinarity*, *Active role of students* and *Design Thinking*.

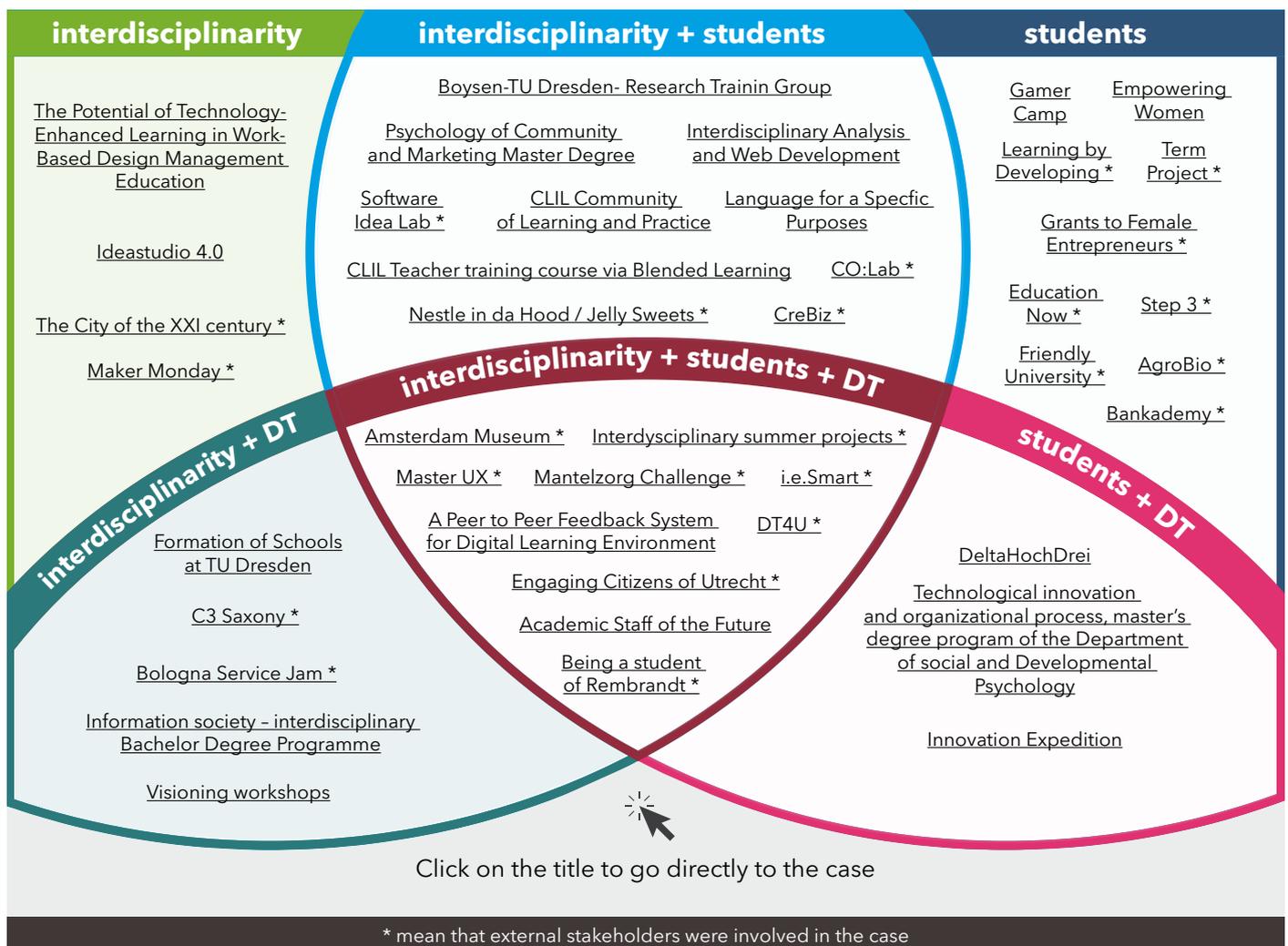


Figure 1: The DT.Uni collection of 42 case studies

The purpose of the vast majority of case studies was **education, understood broadly** (38 out of 42), whose beneficiaries were HEI students (37 out of 42). In these case studies, projects implemented for Bachelor's or Master's programmes featured interdisciplinarity and/or DT. In addition, some case studies reported on student projects based on DT, or other methods/approaches by which students became active creators (even involving external stakeholders). A few case studies were educational projects for businesses, small entrepreneurs, and ways to combat unemployment.

Case studies in which the main objective was to **cooperate with the external stakeholders** (businesses, local authorities, relatively few NGOs) **to solve social problems, design utility objects and services** using DT or similar approaches are indicated with an asterix. Whether they were educational, commercial, social/cultural programmes and/or interdisciplinary scientific cooperation, some of these projects included the participation of students.

Training projects for researchers/academics and even managers in HE aimed to increase their teaching competences so they can apply updated techniques and approaches, as well as information and communication technologies, mobility and openness to cooperate in interdisciplinary collectives comprise the final type of case studies.

In conclusion, we would like to thank all those involved in the creation of this e-book. The cases presented here provide an overview of the current involvement of interdisciplinarity and DT in the education process in higher education in the EU. We hope that the information gathered here will help to develop future education programmes that, based on innovation, creativity, freedom and subjectivity of every person and social group, will contribute to meeting the challenges of the modern world.

Agnieszka Kolasa-Nowak, Michał Nowakowski, Artur Wysocki



Interdisciplinarity + active role of students + design thinking

Artur Wysocki

Academic Staff of the Future

Akademicka Kadra Przyszłości

Extensive training project aimed at academic staff intended to improve qualifications in the field of innovative active learning methods, design thinking in teaching, scientific information management. The project is complemented by individual methodological support and coaching.



Project Type	Education
Target Group	Research

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	high	medium
Levels of Interdisciplinarity	medium	high	high

Location and Institutions Involved	
Place of Implementation	Lublin, Poland
University/Department	Maria Curie-Skłodowska University (UMCS)
Municipal Authorities/Department	-
Business Partners	-
NGOs	-
Project implemented under the Operational Program „Knowledge Education Development 2014-2020” from the European Social Fund (UE)	

Duration	01 April 2017 - 30 April 2018
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Case description

The main goal and background of the project

The idea for the project resulted from the general need for activities improving the didactic competences of the teaching staff in the field of innovative teaching skills, IT skills used in the education process, conducting didactics in a foreign language and information management.

The main goal of the project was to improve teaching skills of UMCS teaching staff in the above-mentioned areas through implementation of a series of training such as: „Learning-by-doing or active teaching methods“, „Design Thinking moderator course“, „Innovative methods of data presentation - Creating a presentation in Prezi and MS PowerPoint“, „Managing scientific information component of information competences“, „English language course (C1 level)“. An integral part of the training was the inclusion of beneficiaries with individual methodological support and a meeting with a coach.

Prior to the preparation of the application, a survey of training needs was conducted among research and teaching staff as well as a series of meetings and interviews with the UMCS teaching staff.

Team

The team preparing the application consisted of employees of the Office for Continuing Education at the Maria Curie-Skłodowska University, which was the initiator of the project. Representatives of the teaching staff participated indirectly in the team who had an influence on the substantive content of the application, i.e. the subject of trainings. To manage the project, the Project Coordinator and Reporting and Settlement Specialist were selected.

Methods

The project team worked using brainstorming, taking into account the results of the survey, conclusions from meetings and interviews with UMCS teaching staff. The preparation of substantive content has been made considering the problem from several perspectives. The project was created by a team that took into account the mission, strategic and operational goals of UMCS, as well as the academic staff themselves, feeling the need to improve their qualifications and improve teaching methods.

Challenges

The biggest challenge during the project implementation was to adjust training schedules to the time availability of all project participants (90 people). The problem resulted from the specifics of the work of the scientific and didactic staff, the necessity of their participation in the education of students, scientific research and organizational work of the university. In the end, training groups were created for all forms of support offered as part of the project, enabling the reconciliation of participation in training, with obligations resulting from work.

Another challenge was the qualification of individual training participants to the groups taking into account the level of advancement - the challenge was mainly about training in the creation of presentations in MS PowerPoint and Prezi.

In this case, a qualified and flexible team of trainers was able to adjust the content to individual groups, with the participants' level of advancement. The coaches were able to help people whose skill levels were lower than others.

Tools/Resources/Materials

The project didn't require any specific tools, materials or services.

Benefits and Learning

Beneficiaries

The project was addressed to 90 people who were the teaching staff of the Maria Curie-Skłodowska University in Lublin.

Recruitment was open, each didactic staff meeting the requirements could apply to participate in the project.

Innovation/value

According to Kamila Pękała, Project Coordinator, the most valuable value of the project was to improve the quality of education offered by UMCS, by improving teaching skills of the teaching staff in the field of broadly understood modern forms of education, and indirectly, to better adjust the UMCS didactic offer to the needs of the labor market. Thanks to the project, it became possible to popularize modern teaching methods, greater openness of beneficiaries to active methods of working with students, project thinking and cooperation between the teaching staff. The project has also become a platform for the exchange of experiences between project participants who represented different areas of education and different age groups.

The individual methodological support and work with the coach present in the project gave the opportunity to raise awareness of the importance of didactic work in the whole spectrum of duties at the work of research and teaching staff at university and the awareness of tools that can be used in personal development, beyond work.

Prospects

The project guarantees the practical use of the didactic methods learned (including the Design Thinking method) in didactic work during classes with students.

During the training, the project participants learned a number of innovative teaching methods in practice. The materials they receive will allow them to learn and use their knowledge during classes with students.

At the end of each training, the project participants anonymously completed the training evaluation questionnaire, many of them declared that they would use the methods learned in their further professional work.

What would you do differently?

In retrospect, I believe that the support offered to the project for the academic staff was very useful and significantly improved the quality and attractiveness of the classes with the students.

In the opinion of Kamila Pękala, the only thing that would require improvement is a better verification of the participants' level of advancement (eg. through the knowledge test), so that the workshop groups at the presentation training in Prezi and PowerPoint are divided according to a similar level of advancement.

Tips

- ✓ The basic advice is to refer in the process of preparing the project to the needs and expectations of potential project participants. Only this will guarantee success in the process of recruiting participants of the project and in the project's implementation.

Contacts and Sources

- <http://www.umcs.pl/pl/kadraprzyszlosci.htm>

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Isabella Wentink, André Nusselder

Amsterdam Museum

The project consisted of developing a concept for a “fun experience” in the Amsterdam Museum that would inspire visitors to take a photo of themselves with museum-related elements and to share their pictures on social media. The purpose of the project was to learn how to integrate the complexity of different stakeholders (the interests of the Museum, the needs of the diverse visitor population, the technological possibilities, the creative element etc.) into a single concept. The emphasis for the students was on the principle of abduction and hermeneutics. They had to become part of their field of research (problem space) and needed to study their objects from a dynamic approach by trying to maintain the complexity of interrelated elements and being aware of their own personal perspective.



Project Type	Education Scientific collaboration Social/cultural program Commercial
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	medium	high
Levels of Interdisciplinarity	high	medium/high	high

Location and Institutions Involved	
Place of Implementation	Amsterdam Museum
University/Department	University of Amsterdam, Information Science
Municipal Authorities/Department	-
Business Partners	Amsterdam Museum
NGOs	-

Duration	February 2017 - March 2017 (2 months)
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Case description

The main goal and background of the project

For the course Innovation and Design Thinking, the team had to develop a concept and create a prototype for a “complex problem”. She chose to participate in the Amsterdam Museum challenge because of her interest in art. She worked together with 3 other students, assembled into a group on the basis of their personal interests as well as their personal strengths/talents. The Amsterdam Museum asked the team to come up with an “experience” that would help them get more publicity by inspiring visitors to take pictures and to share them on social media.

In the end they developed a prototype application which visitors could use inside the museum. The app consisted of a map of the museum (many visitors got lost), information on the artefacts and a “picture booth” that allowed the visitors to take pictures with funny “snapchat-like” filters that could be directly shared on their social media. The team did not want to create a single concept that was supposed to apply to all, but wanted to underscore the diversity of Museum visitors. Having an application allowed them to navigate, use the picture tool and interact with the museum in their own unique way.

Team

The team itself consisted of four students from different backgrounds (psychology, information science and humanities). They were selected on the basis of their different backgrounds as well as their unique strengths that were complementary. Isabella said there was some struggle and many disputes, but that there was nevertheless a shared goal that they each wanted to achieve. In the end they were able to integrate their differences into a concept they were all enthusiastic about. They all helped develop concepts during the ideation phase, from their own specific background and interests. They also interviewed the stakeholders together in one group to ensure that they all understood the input they received and that there were no misunderstandings.

One student with a more technical background was able to do research on the technical potential of the idea, whereas another was able to build a prototype application because she had more experience than the rest. They collaborated with the director and the staff of the Amsterdam Museum. They were guided by their teacher to help them in the process, Andre Nusselder from the University of Amsterdam and his assistant Corneel den Hartogh. These collaborations went very smoothly.

Methods

The team used the method/theories they learned during the course. They tried to enter the problem space (the Amsterdam Museum) as unbiased and without any preconceived ideas as possible, to try and be open to the stakeholders’ wishes as well as those of the visitors. At the same time they were also aware of their own point of view and how they could use this to their advantage. In order to gain a better understanding of the stakeholders’ needs, interviews were

conducted with the client and museum visitors. The team developed frames in order to try and distill important recurring themes. The project turned out to be a very “wicked problem” for them because of the diversity of the audience: children, elderly, tourists of different nationalities, families, students etc. Another important method was taking “ethics” into consideration. Viewing the problem space as well as any potential concept from this perspective enabled the team to highlight one particularly important element: autonomy. They wanted to assure that when it comes to a fun visit to the museum, the concept should attribute to all the visitors in their own way. The team members were also very critical of their own ideas, and re-evaluated them many times in collaboration with the target audience to see whether they were on the right track.



During the concept development they developed a “point of view” from which they wanted to address the problem. They chose the “PoV” of an ordinary family, thereby highlighting the different needs of the individual members of that family. The ideation phase was a bit of a struggle amongst the team members, but the prototype phase and design choices went well and they were all satisfied with the result.

Challenges

The biggest challenge for the team was to try and accommodate the needs of the very diverse audience of the Museum: people from all over the world, different age groups and gender, but also the diversity within the group itself. Because of their different backgrounds, it was initially very difficult to understand each other and to work together; Isabella said:

“it was as if we all came from different planets”.

By trying to acknowledge their individual strengths, the team had initially planned to separate the tasks, but this was not possible because for each student the goal of the course was to become innovative thinkers and to leave their comfort zone. The team then decided to create more space to listen to each other, “more room for a wide range of ideas”, instead of one idea from one person becoming the dominant factor. Once there was no competition, and because there was suddenly room for all, the work became a fruitful process, and made it a fun project for all.

Tools/Resources/Materials

For their project the team used the “Appfurnace” application to build a prototype app. They used one of their own mobile phones to show the audience the application. If the app truly were to be built, the Amsterdam Museum would need to invest in a good Wi-Fi infrastructure to accommodate all their users as well as trackers for the “map” system. But given that the course revolved around the ideation and reflexive thinking of wicked problems, the implementation was not necessary.

Benefits and Learning

Beneficiaries

Isabella said she was quite happy about the result of the project, and in the end also about the collaboration with her team members. “It was a bit of a struggle, but it also taught me a lot”, she said. The success of the project was the fact that the Museum really liked the team’s idea, and realised that sooner or later they would have to deal with the importance of mobile devices for their museum. The museum appreciated all the work the students had done, helping them on their way towards this large step where people’s own technological devices will soon mediate the visit to their museum. The team knew beforehand that their concept could not easily be implemented, but because the course revolved around acknowledging and working with complex problems, they were happy that at least they had helped in grasping the complexity of this potential innovation.

Innovation/value

The biggest value for Isabella, as she worked on the Amsterdam Museum project was that it made her aware of the importance of “user-centered design”. According to her, trying to understand not only the needs of the stakeholders and clients, but also the situation and the people involved is very valuable. It requires careful consideration and it is necessary to try and put away any preconceived ideas or prejudice that you might have had in order to try and see what the situation actually is and what it requires. The methods of framing, hermeneutics, critical thinking and acknowledging wicked problems helped her to postpone her own judgement, and forced her to take the time to separate herself from the problem space, while at the same time being aware of her own personal perspective and strengths. It showed her that theory can be very helpful as it creates space for careful reflections and considerations.



Her teacher had stated that the students should not be afraid of making mistakes, and that it was worthwhile to pursue without controlling where the design process would end up. The team really liked this. It allowed them to think “big” and outside the boundaries of the current Museum situation, which in the end turned out to be helpful for the Museum in relation to future references.

Prospects

The museum was very positive about the project and the concept developed by the team. The museum even said they were going to look into the technical implementation of their concept. However, according to the directory board of the Museum, it would probably take a few more years before they would implement it, but they said that the team’s project had helped them along the way, giving them things to think about and which things to really take into consideration. They were especially interested in the things that the team had tested with their users and what the visitors expected of the Museum.

What would you do differently?

Isabella said that through working on this project she learned to work as a team. Interactions with the stakeholders and users went very well because the team had the theory and methodology to guide them. But Isabella noticed that the difficulty arose within the team itself: how did they need to interact with each other? She learned that it is really important to trust her own voice and ideas. She feels that for women, especially at the science park, this can still be somewhat of a challenge. She said that standing up for yourself in a “world” that is still dominated (even if it is just by the mere number of people) by men, can for some women, including herself, be very difficult. She learned that despite the fact that there were heated discussions and debates, this should not discourage women and herself from pursuing her own voice. Once she had learned to express her voice, she said it became also easier for her to differentiate the voices of others, and that she could learn a lot from them. She said that men tend to be quite loud about their opinions, but that she found that in the soft voices of women a lot of strength and innovative perspectives reside. She learned that there is also a large complexity in the social interactions that she sometimes had taken for granted. She said that learning to see eye to eye within the group and learning from each other was just as important to her as learning from the project itself.

Tips

For the team a point of view as the starting point for the process turned out to be very important. By choosing the user perspective early in the process, it allowed the team to focus on the target group and its needs. However, they realised that the perspective of other stakeholders and the context should also be emphasised, and therefore a right balance needs to be struck when designing for a certain goal. The team designed a solution for a wide selection of target groups. They noticed that this is especially important for museum projects, considering its diversity of visitors, each with their own needs. An additional recommendation of the team was to not allow the ideation process to be swayed by potential fear of limitations in infrastructure and other resources.

They found that it is furthermore important to bear in mind that a design process is iterative.

This would allow for the convergence and divergence of ideas. The team realised that though the research had finished, this did not mean that the design process is completely finalised. Their concept, for example, also allows for extensibility, and therefore it provides the space for the museum to further incorporate new ideas within its solution. Lastly, the team experienced that each idea is bound to be based on certain assumptions and that it is therefore important for these assumptions to be validated through user testing.

Contacts and Sources

- Website Amsterdam Museum: <https://www.amsterdammuseum.nl/en>

Respondent

The respondent's name is Isabella Wentink, one of the students of the Innovation and Design Thinking course and she participated in the Amsterdam Museum case.

Willem Duijvelshoff, André Nusselder

A Peer-to-Peer Feedback System for Digital Learning Environments

The aim was to explore how University students can be motivated and facilitated in the process of peer-to-peer feedback.



UNIVERSITY OF AMSTERDAM

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	medium	high
Levels of Interdisciplinarity	medium	medium	high

Location and Institutions Involved	
Place of Implementation	Amsterdam
University/Department	University of Amsterdam: Faculty of Science
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	February 20 th - 31 st of March 2017
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Case description

The main goal and background of the project

The problem space revolved around the digital learning environment of the University of Amsterdam. The applications students used for peer-to-peer feedback were scattered, different teachers were using different apps and the software that was in place did not support the needs of the different educational departments. The students perceived providing feedback as an unengaging task and on top of that the slightly old fashioned Blackboard software did not support their expectations, when compared to modern software tools. The decision had been made to switch from the Blackboard software to a different online learning environment called Canvas. This new environment required a freshly designed peer-to-peer feedback module.

The IT group supporting the digital learning environment project wanted to improve the online feedback experience through human-centered design and were open to new suggestions. The designated design team had the task to come up with a more engaging feedback experience, while validating their ideas with fellow students. Ultimately the IT group overseeing the project wanted to see a proof of concept in the form of wireframes and mockups of a potential digital solution.

Team

The coordinator of the course, André Nusselder, provided guidance and theoretical underpinning of the practice of innovation and design thinking. Several clients provided design briefs and students responded to the challenge that caught their interest. This way teams were formed. The main stakeholder for our team was the commissioning IT-group, overseeing the digital learning environment of the university.

Methods

The team worked according to the Design Thinking method supplemented by theories of ethics, critical thinking and framing. Readings about design ethics helped to reflect on the decisions that were made during the process. This became useful in deciding about the role of anonymity in the feedback process. On the one hand one could argue that anonymity removes the social connection between classmates, while on the other hand it might facilitate more honest forms of discussion. This ethical dimension was taken into account during research and prototyping. Through interviews and experimentation the team explored the ethical views of its fellow students regarding this matter.

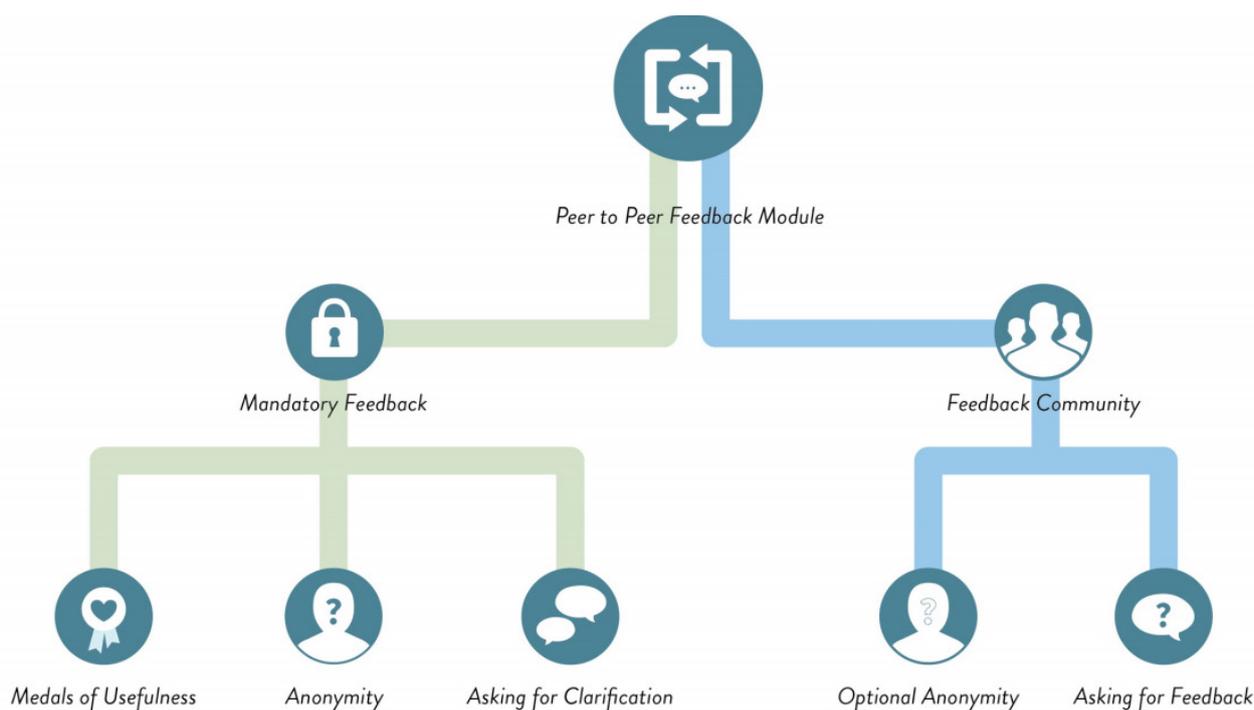
The theory of framing also played a key role. Framing is a way to create a rich and varied understanding of a complex problem. When designers create frames, they create a novel approach to the problem they face. It is a way for the team to decide on how to 'read' the situation, and at the same time it gives direction to the design process. This is closely tied to formulating a point of view which is the framing of the design challenge based on the type of users, the needs of users,

and the insights gained by the designers. The team members mapped the needs of their potential users through semi structured interviews and came to the following conclusion:

“As a student I need an environment that will facilitate easy communication between me and my classmates, inside and outside of the course context, it will engage me in the feedback process by rewarding me and it will protect my image as perceived by others.”

Critical thinking was another tool in reflecting on decision making in hindsight. A purpose that was implicit in the design trajectory from the start was the goal of being novel. Learning about creativity and the role it plays in innovation steered the team in the direction of wanting to explore new paths in the feedback process, such as the implementation of anonymity and reward systems. Reading texts about critical thinking helped to reflect on the nature of innovation.

Most importantly, the basis of the course was aided by the Designer’s Workbook from the Stanford D-school. Different phases of the design process were embedded in the structure of the course, starting off with empathizing with the user through interviews and field research. This was followed by framing and defining a point of view, ideating a solution, prototyping and ultimately testing the prototype. During working group sessions the team got the chance to independently decide on a strategy for that session, while the course provided user-centered design methods like persona creation, mind mapping and empathy mapping.



Challenges

It was challenging to generate creative solutions within the boundaries of existing IT-systems. Online learning environments in education are big and complex, and adding on to, or modifying these systems is costly and often goes hand in hand with top-down decision making. Working hard to bring the added value of the user’s/student’s perspective to the forefront was how the team tried to deal with this issue. Carefully listening to the clients’ perspective and balancing this

with insights from the field was definitely challenging. The clients weren't in need of radical, new and innovative feedback platforms. They much rather wanted a solution that provided incremental improvements on top of existing systems. Finding where the most value could be added was the crux of the research project.

It was also challenging to design a system helpful for a diverse and large user group of all the students at the university. Within limited time, the team interviewed fellow students and did experiments to test the potential role of anonymity and gamification in the feedback process. In this context, it was a barrier to infer insights from limited amount of research, as the needs of a Physics student who just moved to Amsterdam might be totally different from an Anthropology student. This notion was quite overwhelming but at a certain stage the team had to carry on and bring its insights together. Sometimes, as Willem stated, you just have to trust that the insights you have collected are sufficient, and that you can carry on and go into ideation, while returning for feedback from your users in a later stage in the process.

Benefits and Learning

Beneficiaries

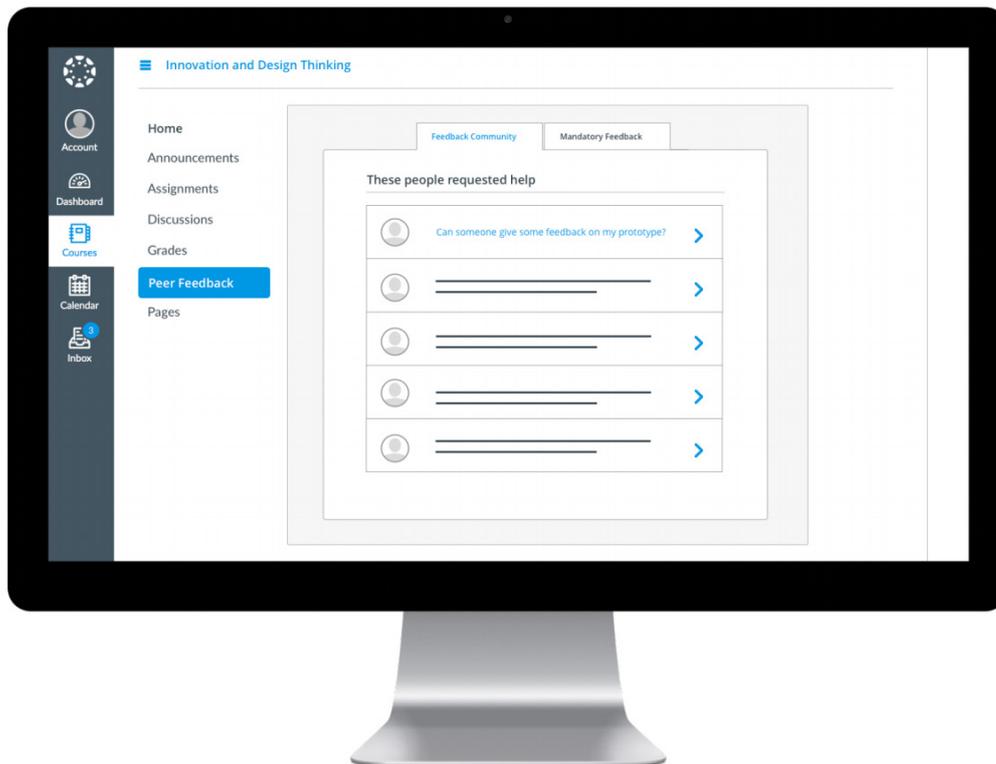
Willem:

„I definitely came to appreciate the Design Thinking method, since it gives structure to the process of creative problem solving. I also learned to keep questioning your solution while switching between convergent and divergent thinking. The theoretical framework of Design Thinking gives guidance when addressing problems. In my opinion it is not a rigid method but a set of guidelines that can help navigate complex problem spaces.“

Innovation/value

The insights into the social processes that surround giving and taking the feedback are that the students need an environment that would allow easy communication between each other, while it will engage them in exchanging feedback through means of intrinsic or extrinsic motivation. To achieve that, the team designed a template with the elements it saw emerging from its research and testing results.

There were 3 pivotal decisions the team members made in the design of the new feedback module: (1) The separation of mandatory and optional feedback, (2) the addition of anonymity and (3) the inclusion of a reward system. Since their aim was to develop the community bond within the system, they deemed it necessary to separate mandatory and optional feedback. The optional feedback concentrates on the idea of a community. The idea is that when a student has a question or needs feedback, he or she shares it and people that are willing to help will help. According to insights from the interviews, students mentioned that they would be willing to help if it comes natural and if they could help a classmate. They discovered that when the feedback is optional, people have the choice to participate and this makes them more willing to do so.



The separation of formal and informal feedback aims to boost community bonding through participation in the informal feedback part and results in an increase of knowledge sharing through intrinsic motivation. In addition, the assignment-based/mandatory feedback will be contained in an anonymous environment aiming to remove social biases. The team members were able to test their assumptions regarding the impact an anonymous environment would have in the feedback process. While the data points towards the assumption that anonymity environment would work, the data was inconclusive. Furthermore, to motivate students participating in the mandatory feedback process, they tested a virtual reward system. The results showed that students that received a virtual medal, felt appreciated and were more inclined to try giving useful feedback in their next assignment as well.

Prospects

Going from the prototype to a product or a service that is implemented in the real world is a step that isn't necessarily supported by the Design Thinking method. Limitations within organisations related to business, technology or other are always present, and generating support from stakeholders plays an essential role in the project realization. Due to the educational nature of the challenge, when the course ended, the students flocked to next challenges, courses, theses and jobs. The client on its turn showed appreciation of the delivered work, and took the task upon her to integrate the insights and work of the team into a new digital learning environment.

What would you do differently?

This question ties into the answer formulated in the previous question. There is definitely room

for improvement in the process of taking projects to the next stage. When handing over work, there is always some form of loss in knowledge. Giving students the chance to present work higher up in the organization might help to generate support. Not just a validated concept is enough in that case; shown benefits through longer lasting pilots of the solution could help making the case stronger. In the end it is the proven impact of a project that generates support. This also contributes to a more general support of the design method. A central learning is that projects in design thinking require buy in from clients and stakeholders; simply following the Design Thinking process from a booklet is not enough to create long lasting impact. Explaining, co-creating and asking for input from clients and superiors helps generating awareness of the added value of the process. Having sensibility about organizational politics helps effectively implementing concepts, a skill that needs go hand in hand with knowledge of the Design Thinking methodology.

Tips

Never underestimate the power of a conversation with users and never underestimate the power of decision makers within the organization you are working with. If you can convince the second group of power to involve the first group into the process, you are on the right path.

Another insight Willem had is that being truly innovative is hard. Innovation through design is not always about flashy or cool ideas but about creating value where it is needed most, within the constraints of the organization. This is the difference between radical and incremental innovation, and knowing which one is useful in which context is vital.

Contacts and Sources

Willem Duijvelshoff: duijvel@gmail.com / LinkedIn
<https://www.willemd.com/>

- <http://naarcanvas.uva.nl/en/news--events/interviews/interviews.html>
- <https://www.schoolofdatascience.amsterdam/news/canvas-new-digital-learning-environment-uva-vu/>

Respondent

The respondent is Willem Duijvelshoff a former student of Information Studies at the University of Amsterdam. He became involved in the project through the Innovation & Design Thinking course taught at the University of Amsterdam.

Students had equal responsibilities in the project teams, but each student brought different experiences and disciplines to the table. Willem's focus was on user experience design, whereas other students had a background in a diverse set of fields, ranging from business and psychology to game studies.

Olivier Wouters, André Nusselder

Being a student of Rembrandt

The project aimed at designing an entertaining and educational tour at the Amsterdam Museum about painters Flinck and Bol. The tour should appeal to families in specific, answering the needs of both the parents and children.



Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	medium	high
Levels of Interdisciplinarity	medium	high	medium

Participants of this project were new with regard to Design Thinking. The Design Thinking process and tools were not seen as difficult to learn or use. However, understanding and being able to use the Design Thinking mindset was a difficult challenge.

Location and Institutions Involved	
Place of Implementation	Museum Het Rembrandthuis Jodenbreestraat 4 1011 NK Amsterdam The Netherlands https://www.rembrandthuis.nl/
University/Department	University of Amsterdam - Faculty of science Science park 904 1098 XH Amsterdam The Netherlands https://www.uva.nl/
Municipal Authorities/Department	-
Business Partners	Amsterdam Museum. Nieuwezijds Voorburgwal 359 1012 RM Amsterdam The Netherlands https://www.amsterdammuseum.nl/
NGOs	-

Duration	The project started on the 5 th of March 2016 and ended on the 30 th of March 2016
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Case description

The main goal and background of the project

The Rembrandt House Museum and the Amsterdam Museum wanted to open an exhibition about the Dutch painters Gover Flinck (1615 - 1660) and Ferdinand Bol (1616 - 1680) in the autumn of 2017. The designated location for the exhibition was the Rembrandt House, where Rembrandt, the educator of Flinck and Bol, lived and worked for nearly twenty years.

The goal of the project was to present to visitors how Flinck and Bol, in their independent status, developed into some of the most influential painters of their time.

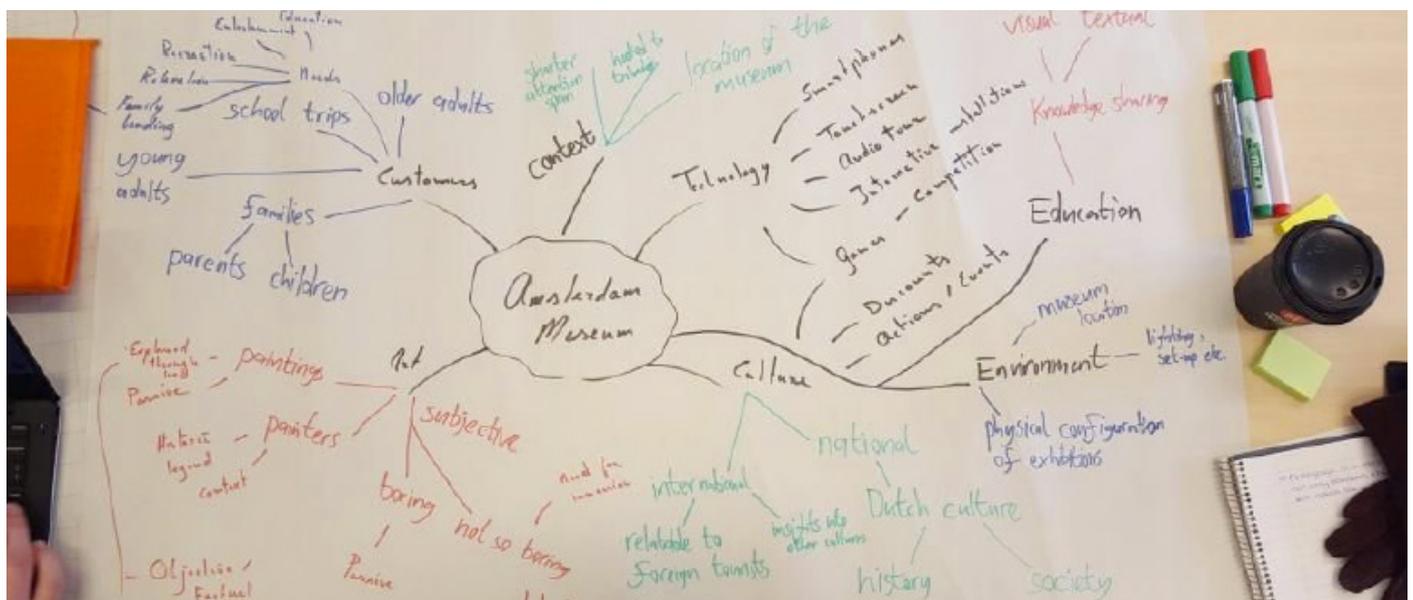
However, museums are finding it increasingly difficult to attract - new - visitors. Most information about Flinck and Bol can be found online, so there was less incentive for potential visitors to visit. Therefore, the design challenge was to design an experience about Flinck and Bol that would appeal to new visitors, families in specific. The experience should be both entertaining and educational, capable of enriching knowledge of both adults and children.

Team

The project team consists of members from two organizations.

Andre Nusselder, Design Thinking lecturer, has put together a four-man team of students on behalf of the University of Amsterdam: Olivier Wouters, Timo Landman, Milan Kovačič, and Marc Brophy. The students who participated followed the "Innovation & Design Thinking" course, but were chosen 'randomly' based on their background and skills.

On behalf of the client, the Amsterdam Museum, two persons participated: Marijke Oosterbroek as a project manager and Hester Gersonius as a communication and multimedia designer.



Methods

The project started at the same time as the “Innovation & Design Thinking” course. The Amsterdam Museum knew the students would start with Design Thinking and was curious about working with new methodologies. The students were eager to learn and use Design Thinking for the first time.

One interesting observation: all students were familiar with the concept and some of the tools of human-centered design prior to this project. However, the students were used to using instruments such as brainstorm sessions and persona’s as isolated resources rather than pieces of a bigger whole or process. Design Thinking helped with guiding the design challenge, putting the knowledge and tools of the project team to better use.

Challenges

Communication was a recurring problem.

When the team discussed an idea or concept like “adventurous”, all participants would agree with the verbal explanation. However, when the same concept was to be incorporated into the project, no one would agree with its implementation. This problem kept occurring, and shows that intangible concepts and ideas are difficult to convey.

The solution to this problem was to make things explicit and/or tangible. To do this, each participant of the group would make sketches and drawings. After the change, it soon became apparent that verbal discussions often leave - unwanted - room for interpretation.

Creating a general understanding within the project helped the team to coordinate and ensured that there was more support for proposed solutions.

Tools/Resources/Materials

The project team did not need much to gain a better understanding of the problem and the people for whom they were designing the solution. In addition to regular resources such as a pen, paper and a laptop, the project team did not need special gear to come to an innovative and user-centered solution.

The fast and experimental approach is where the power of Design Thinking lies.

Benefits and Learning

Beneficiaries

Olivier experienced Design Thinking as a win-win situation.

Designers

Design Thinking provides designers support in the form of a well-known and defined process and mindset. This makes it easier for designers to explain their choices and ideas to others, creating more support and understanding for creative processes in general.

Client

The situation of the client is also improving. Design Thinking ensures that the challenge of the client is better understood. In turn, this ensures that a better solution can be found and implemented. Design Thinking can also act as a medium through which the client and the designers speak the same language. This helps both parties to better understand each other and communicate more effectively.

End user

The end user, which Design Thinking is all about, is also benefiting. The end user is better understood and gets more opportunities to give feedback. The end result is a feasible solution that better suits the needs of the end user.

Follow-up

Design Thinking often results in a clear idea and proof of concept. Design Thinking, therefore, could be a solid foundation for following processes, like Agile and Lean.

Innovation/value

The project

The biggest added value of the project is the increased understanding on how to design an - museum - experience that appeals to both children and adults.

Being able to reframe the situation has left the biggest impression on Olivier. The project team reframed the use of smartphones, which are often accused of obstructing people from showing social behavior, to create an application that brings together families during the tour and puts more emphasis on different pieces of art.

Design Thinking

The biggest added value of Design Thinking is that a problem is addressed at its core. Generated solutions therefore have a considerable impact. Another advantage of Design Thinking is that it prevents tunnel vision, a phenomenon that Olivier often encounters in his current work.



Prospects

Olivier is convinced that Design Thinking is a must-have skill. While Design Thinking proved to be valuable, Olivier does not think that the museum will implement the proposed idea.

Coordinating management, expertise, time and budget are complex issues. This is even more true when it comes to a student project.

According to Olivier, the important part is that all stakeholders involved in this project noticed the added value of Design Thinking. Even when people have not yet been able to master the Design Thinking mindset, using the process and tools are enough to make it worthwhile.

What would you do differently?

Currently, Olivier often works with Design Thinking. He raises the following points:

- It often happens that people do not see the value of Design Thinking or do not take it seriously. Olivier wonders what the reason for this could be and what a possible solution could be. Olivier suspects that for some, Design Thinking might be too abstract or vague.
- Design Thinking is easy to learn but hard to master. Some participants underestimate how difficult it is to make full use of observations or a brainstorm session. It is important that all participants understand the tools and the method used, for example with a short briefing or example.

Tips

Olivier has the following tips for people that would like to start working with Design Thinking:

- Give a short presentation or workshop about Design Thinking. This allows people to get used to the idea of working with Design Thinking and to exchange ideas.
- Design Thinking is about inspiring each other and cross-pollination. Make sure that the team you will be working with consists of participants with different backgrounds and knowledge.
- Don't be afraid to experiment.

Additional comments

Design Thinking is often presented as the go-to solution for finding a guaranteed innovative solution. This is not the case! Using Design Thinking does not guarantee anything.

Depending on the context and the goal, Design Thinking does not always have to be the optimal approach. For example, when the goal is to explore radical innovations of meaning, Design-Driven Innovation might be a more interesting approach than Design Thinking.

Contacts and Sources

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Olivier Wouters - University of Amsterdam

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Website: <https://www.innotain.me/>

Respondent

The name of the respondent is Olivier Wouters. During the project, Olivier was a student in MSc. Information Studies (track Human-Centered Multimedia) at the University of Amsterdam. The Amsterdam Museum project was part of the "Innovation & Design Thinking" course Olivier took. During the project, Olivier was part of a four-man team that would collaborate with the two employees of the Amsterdam Museum. The four-man team consisted of students, each of whom followed the same course. The course was organized by Andre Nusselder.

Michał Nowakowski

DT4U

The aim of the project was to arrange space for creative problem solving at the Lodz University of Technology (DT4U laboratory) and to introduce the Design Thinking methodology as a subject during the course of studies to give pupils one of the most innovative tools that can easily be used in their future professional work.



Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	high	high
Levels of Interdisciplinarity	high	high	high

Location and Institutions Involved	
Place of Implementation	Lodz University of Technology, Łódź
University/Department	Lodz University of Technology
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	It lasts from February 2014
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Case description

The main goal and background of the project

The creation of workspace designed to fulfill needs to implement the design thinking methodology started in 2013. In 2012, Dorota Bociąga (PhD), inspired by her experiences at Stanford University, started the initiative to create a design thinking workspace at TUL. Through her efforts, the DT4U Laboratory has been located at the Mechanical Faculty - Factory of Engineers of the XXI century, one of the most modern facilities of Lodz University of Technology. A 120 square meter space is fully devoted to solving engineering problems in a creative way. Together with other DT4U members (including Top500 alumni and students), along with financial and personal support from the vice-rector for Education, Professor Slawomir Wiak, she managed to adapt and equip the room for the purpose of implementing projects through DT methodology.

The room has separated zones in accordance with the provisions of DT process conduction, as well as some space for individual work. Positive stimulation of the imagination is provided by the warm colors of the walls and the interior of the whole class. In order to provide a comfortable place to work for everybody, in this room standard chairs and stools are accompanied with comfy sofas and puffs.

Team

DT4U is a group of university people, who are representing various faculties at Lodz University of Technology. All of them share their extraordinary interdisciplinarity and creativity. The DT4U group integrates researchers, PhD students and students. Every day we are friends who doing our work with passion. DT4U serves TUL since February, 2014 when few Top 500 Innovators Polish Government programme alumni decided to bring their Silicon Valley experiences to polish academic environment.

Dorota Bociąga

The initiator and creator of the Design Thinking Workspace. Knowledge and first experiences in the design thinking area she reached in Hasso Plattner Institute of Design at Stanford. Since 2012, carrying on projects at the university, doing workshops, trainings and joining the DT with PBL (problem/project based learning). Currently she leads the international project DiamonDT - „Development of Innovative AcadeMy ON the basis of DT teaching” created by DT4U Team. The main scope of the DiamonDT Project is the creation of European standard for novel education path which consists of the design thinking, problem and work based learning where learning is realized “by doing” and where students solve problems coming from business. She is a lecturer of the Lodz University of Technology in the field of biomedical engineering.

Laurent Babout

An Associate Professor at the Institute of Applied Computer Science. Scientific interests embrace materials science and engineering, process engineering, tomography and image processing and analysis. He has a natural multidisciplinary approach to science and appetite to tackle challenging problems and has been naturally attracted by the Design Thinking methodology.

Robert Banasiak

The educator and the trainer. The co-founder of DT4U. A researcher at the Institute of Applied Computer Science at the Lodz University of Technology. A graduate of the Top500 Innovators program (Stanford University, spring of 2013). The main area of Robert's research and teaching are commercial applications of industrial non-invasive diagnostic systems. In particular, these are control systems, multiphase flow, gravity flow, gas-liquid and gas-granulate mixture diagnosis based on electrical process tomography systems.

Aleksandra Jastrzębska

A PhD student at Lodz University of Technology. She deals with biomaterials, protective coatings technologies and microbiological assays. Her experience in Design Thinking started in 2013, when she helped to create the DT4U workspace. First, to get the experience, she participated in workshops conducted by her DT4U colleagues (who took part in TOP500 innovators programme and learned DT at top American Universities like Hasso Plattner Institute of Design at Stanford). She also took part in Global Gov Jam where she learned how to implement service design.

Krzysztof Jastrzębski

Deals with the biomedical engineering and the manufacturing of doped carbon layers for medical implants. He has been member of the DT4U team since the beginning of workspace creation at Lodz University of Technology. He gained his soft skills experience in many fields. He mastered design thinking during many events and workshops, like e.g. Global Gov Jam. Krzysztof is also one of the teachers who holds classes of Design Thinking at the Faculty of Mechanical Engineering at Lodz University of Technology.

Dorota Kamińska

An educator and scientist who is passionate about biomedical signals processing for practical appliances. Working in multidisciplinary research group raised his interest in design thinking methodology, which she came across for the first time taking part in the project POLE in Zurich. She joined DT4U in 2013 to learn from DT4U team who had opportunity to study at Hasso Plattner Institute of Design at Stanford and other foreign Scientific Institutions.

Anna Laska-Leśniewicz

The DT4U Team Leader. She is a PhD student in materials engineering. The scientific interests are mainly connected with biomaterials and tissue engineering. She started her adventure with Design Thinking in 2014 when she joined the DT4U group, but just from the beginning she has recognized the great potential of this method to solve problems and find out new solutions for science, engineering and medicine. She gained DT experience in domestic and foreign trainings including her training period at Ivey Business School in Canada and "DT MasterClass for Tutors" at DTLab at School of Business and Economics UiT, the Arctic University of Norway. She is a great believer in the lifelong learning process, therefore she treats her activity in DT4U as continuing personal development.

Monika Malinowska-Olszowy

She is a graduate of the University of Lodz (Faculty of Management) and the Higher School of Management and Marketing in Warsaw (Political Marketing and Media). Since 2007 she works as a scientist at the Faculty of Material Technologies and Textile Design at the Technology University of Lodz, she teaches full-time and postgraduate studies. Her scientific activity is mainly focused on issues related to intellectual capital management and brand management. She is a co-founder

and a member of the interdisciplinary program of Commodities. She is also a certified trainer in the field of reconstruction of the system of education based on learning outcomes. Since 2011 she is a member of the team Commercialization in the Department of Materials, Commodity and Textile Metrology TUL.

Katarzyna Znajdek

An Assistant Professor in the Department of Semiconductor and Optoelectronic Devices at the Lodz University of Technology. Her scientific interests are focused on renewable energy, especially photovoltaics. In this field she is a co-author of two patent applications and numerous scientific papers, as well as curricula and training courses. In didactics, she teaches courses on renewable energy, photovoltaics, and flexible electronics, as well as leads interdisciplinary international projects. In the research field, she is associated with the manufacturing technologies of flexible photovoltaic cells and their integration with textile elements and items of everyday use.

Methods

Since academic year 2014/2015, Design Thinking has been an obligatory subject for students at the Lodz University of Technology. The methodology is being introduced to first year students of the Faculty of Mechanical Engineering at the course in the Materials Engineering.

Tools/Resources/Materials

In the summer months, a group of students interested in DT methodology has created a space development project with an area of over 100 square meters which was made available for the needs of the project. Thanks to the financing of the project from the reserve of Prorector for education, Sławomir Wiaka, it was possible to quickly adapt the room. Separate zones were defined in the room in accordance with the DT assumptions as well as places for own work. Positive stimulation of the imagination is ensured by the warm colors of the walls as well as the interior furnishings. For everyone to find a comfortable place to work in the room, next to the standard chairs and stools, there are also pouffes and sofas.

In the DT4U workspace, according to the idea of work with DT methodology, it is necessary to store a lot of ideas, hence the abundance of whiteboards and movable, transparent boards. To maximize the available working space, one can even write on the appropriately prepared fragments of walls.

An inherent aspect of the DT is prototyping. Hence for that purpose, the prototyping area with abundance of materials is also an essential part of the DT4U workspace. Additionally, the room is equipped with a 3D printer to quickly realize all the ideas.

Benefits and Learning

Beneficiaries

Main beneficiaries are students. The team of DT4U focuses on training new unique practical skills

by designing and introducing the implementation of Design Thinking (DT) methodology into existing education path. Within this process the following elements are realized:

- the education program including DT methodology at I and II stage of studies;
- making students more open to creative and innovative thinking formed by the DT process which is implemented in the project realization stages;
- increasing the competences of academic staff in the field of DT;
- providing students with processes allowing supplementing or increasing the level of actual knowledge in effective thinking and team thinking as well as its verification and evaluation;
- development of the infrastructural and tool facilities for the purpose of realizing education processes using DT methodology;
- enhancement of the cooperation between business and industrial parties;
- providing a spectrum of possible applications of the developed innovation in order to increase attractiveness of conducted teaching forms and thereby breaking the existing stereotypes in this regard;
- preparing professional teaching materials, helpful in academic staff training as well as a handbook of good practice in teaching and learning using Design Thinking methodology.

Contacts and Sources

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- <http://dt4u.p.lodz.pl/index.php/en/>
- <http://diamondt.eu>

Respondent

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Jessie Both, Céline van der Geer, André Nusselder

Engaging Citizens of Utrecht

University Medical Center Utrecht (UMC) and Mira Media, an NGO that uses media as a tool to enable an intercultural dialogue and social cohesion at neighborhood level, started a collaboration to improve the communication outlets of the hospital by introducing inclusive communication. The team was challenged to create a new means of communication to further increase the engagement between all citizens of Utrecht and UMC.



UNIVERSITY OF AMSTERDAM

Project Type	Social/cultural program
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	high	high
Levels of Interdisciplinarity	medium	high	high

Location and Institutions Involved	
Place of Implementation	-
University/Department	University of Amsterdam
Municipal Authorities/Department	-
Business Partners	University Medical Center Utrecht (UMC), Mira Media
NGOs	-

Duration	February - March 2017
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Case description

The main goal and background of the project

The main objective in this project was to establish a better connection between all citizens of Utrecht and the UMC. During the ideation phase, the team members came up with three main ideas, namely a fact checker, a discussion platform and a medical blog. After carefully analyzing each of the aforementioned concepts, they decided to switch focus and chose not to pursue their original ideas. Instead, according to their judgment, they assumed that citizens of Utrecht want to have a look behind the scenes of the UMC to get a basic understanding of how this hospital works. To gain a general impression of the daily lives of UMC employees, they were able to interact with the UMC by asking questions or discussing a relevant statement. This provided transparency, which would, according to the team members, play an essential role when trying to connect the citizens to the UMC while making them feel included. They deem transparency as important, because it gives the users (in this case, the citizens of Utrecht) more information, and trust. Furthermore, among better informed users, their autonomy is increased; therefore they can make better decisions what hospital to choose when necessary. This is necessary because users have the right to make free decisions and to be autonomous. In order to achieve this, it is crucial to make citizens trust the information the UMC provides. Additionally, it can also create a bonding experience between the citizens of Utrecht and the hospital. Initially, the citizens of Utrecht were not involved in a bonding experience with UMC. The hospital was not able to achieve the wanted transparency with their current means of communication. Therefore, the team felt responsible to achieve this with its concept. Also, this matter might not be as serious as people can demand transparency as can be required in information from, for example, the government. The team took responsibility for bridging this gap between the citizens and UMC.

Besides of basing their solution on transparency, the team members also based it on the value of equality. This value follows the design requirement of Mira Media, namely: Inclusive Communication, which means that every person should be treated the same and the communicator should actively make sure that everyone is reached.

With these requirements in mind, the team came up with a new concept: the 'Chatterbox'. It assumed that citizens of Utrecht would feel connected with the hospital if they got to know the people who work there. What is a better way of getting to know someone than by asking questions? As the team members believed that everyone should be able to participate, they started thinking of offline solutions. Inspired by the Babbelbox of the Dutch television show *Man Bijt Hond*, they thought they could give everyone the opportunity to participate by creating a mobile recording unit which would allow people to react to statements or questions regarding a given a medical topic. These answers and comments were then used as input for a documentary made in the hospital which was an answer to the questions posed. This allows the communication department of the UMC to regulate both the questions asked and the answers given by the employees. The documentary would then be made available both online and offline, such as on public screens in train stations and waiting rooms at the practices of general practitioners. The mobile recording unit, i.e. the Chatterbox, can be placed in multiple places in the region of Utrecht, for example a big square in the city center or in the supermarket of a small village in the province. They estimated that it should take about a month to create a documentary. The editor

of the documentary was then able to select the responses and questions of the citizens and started making a script for the documentary. After filming with the employees of the hospital, the editor was able to finish the documentary and send it to the distributors of offline/public screens and post the video online.



Team

As Jessie said earlier, the project was conducted as part of the course called Innovation & Design Thinking at the University of Amsterdam. Her team consisted out of four Human Centered Multimedia students and one Game Studies student. Each member of the team finished a different bachelor. Therefore, the team was a well-mixed group of people who, despite their global same interest in media/games, brought different views and insights to the design process.

Our course leader, André Nusselder, and the course assistant, Corneel den Hartogh, helped the team guide through the Design Thinking process. Not only did they provide us with theory, but the team felt that they were also good sparring partners in a more creative sense.

Additionally, the team was in contact with the stakeholder from Mira Media to discuss the requirements and make sure that we aligned our solution with their goals of inclusive communication.

Lastly, the team communicated with the stakeholder from the UMC, to analyse their goals and needs and try to align these with the needs of the citizens of Utrecht.

Methods

The team had eight weeks to complete the project by using the design theory Design Thinking. Every 1 or 2 weeks a step of the design thinking theory would be finished and they learned about the next design step in class. This meant that the team proceeded through the following phases: empathize, define, ideate, prototype and testing.

During the empathize phase the team created a sort of mind map to find out who is involved in this project. This resulted in an overview of all the different groups of people we had to take into consideration whilst designing, e.g. Mira Media, the communications department of UMC, doctors, patients, inhabitants of the province Utrecht, etc. To find out what the needs are of each of these groups the team conducted interviews and spread an online survey.

With these findings into mind, the team started to define the problem space by creating a theme map consisting out of the groups as defined in the empathize phase. The theme map was the result of multiple brainstorm sessions regarding the user needs.

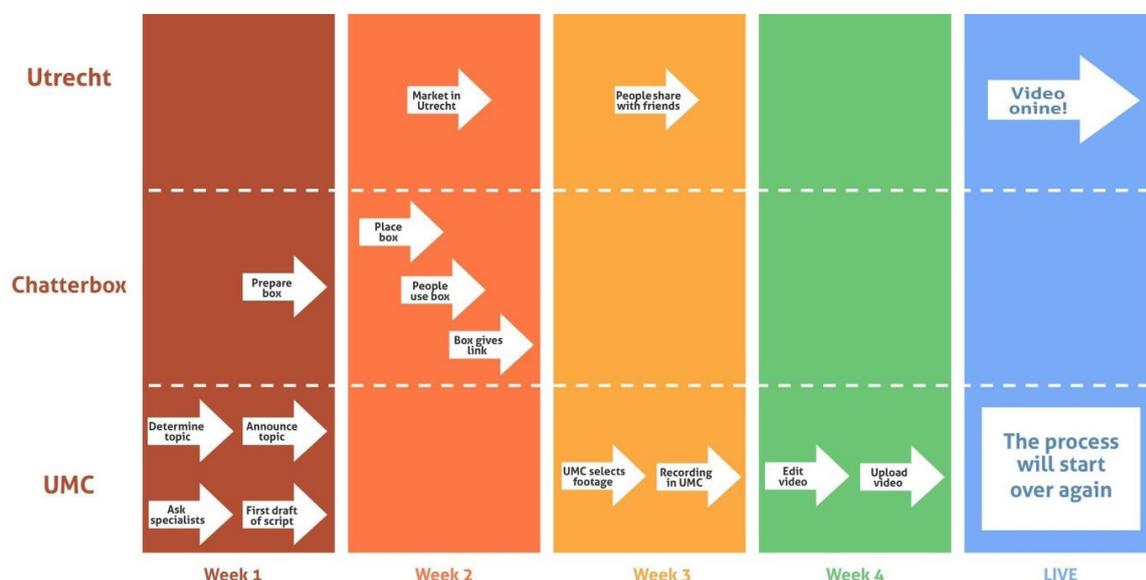
Thereafter, the team started to form an idea. It took multiple brainstorm sessions with different techniques to come up with solutions to our problem. For example, the team members did sessions in which they had to write down everything that came to mind and later formed themes to use as a starting point for a new session. This led to three value-laden ideas. However, the team did not feel completely satisfied with the outcome.

This feeling of dissatisfaction led to the decision to go back to the define phase and later ideate phase to iterate. This iteration resulted into the concept which the team presented as our end product.

The team used the prototype phase to create a 3D printed model to illustrate our concept. The prototype was supported with a concept version of a suggested time table for the concept.

Due to time constraints, the team was not able to complete the testing phase. The team visited the Dappermarkt, as this is known as the most diverse place of Amsterdam, and asked people if they would like the idea to use our concept. Ideally, the team would have made a prototype to actually test the concept. This would give insight into the acceptance of the target group, but also to see whether the other involved parties who have to work with the concept, the communications department of UMC, the staff of the hospital that have to participate, are happy with the concept.

As a form of guidance during the design process, the team made use of the Designer’s Workbook which is part of the Design Thinking for Educators Toolkit. Next to that, the team used the Bootcamp Bootleg as a resource to learn more about different forms of brainstorming.



Challenges

Jessie believes the team had two big challenges. Firstly, it had to deal with the time constraint of the semester. Not only was it difficult to keep focusing on the creative process whilst also having to finish another course, the constraint of finishing a design step every week led the process to be a hybrid between Design Thinking and the waterfall model. At first, Jessie didn't think the team really knew this was a bad thing, as it went with the flow of the course. However, in hindsight, Jessie thinks more time to really immerse into the project and being able to iterate more, could have had a positive effect on the process.

Secondly, the team actually had to deal with two clients who, it turned out, both had a different interest in the project. The team had difficulty managing expectations and to include both parties in the design process. Unfortunately, it only discovered this at the very end of the course, so there was not much time left to completely fix this problem.

Tools/Resources/Materials

Jessie explains that the team experimented with the Design Workbook and various (new) brainstorm methods. The team needed to juggle requirements between different stakeholders, which had contradicting views, so a way to prioritize this or map it was very useful. To visualize the idea, the team printed a scaled version of their prototype with a 3D printer. This helped a lot to explain the idea when talking to the clients.

Benefits and Learning

Beneficiaries

Jessie thinks that after this project the most valuable takeaway was the more in-depth knowledge about Design Thinking and the commonly used techniques related to the design process. Especially the brainstorm methods proved to be useful in following projects she worked on. But also the fact that by diving into the problem space and consciously thinking about how to empathize with the end user made her more observant in other projects. One of Jessie's team members told her that she learned that the more stakeholders are involved in a project, the more complex it gets. As a team, they think that they have all learned that they were capable of coming up with a very creative solution, which they did not expect to end up with! They think that it is nice that as a team they have gathered all the input and that they can say with confidence that it is a good, or potentially good, solution.

Innovation/value

To reach inclusiveness the team members had to deviate from a solution that would come naturally to them. The master programmes that they followed were mainly based on digital products, e.g.

apps, games or websites. For this project, they needed to come up with a product or a service that could be used by every citizen of Utrecht, despite their ability to read, their cultural background or age. The initial ideas were still based on digital products, but as a team, those solutions did not 'feel' right. The team members think this really forced them to think beyond what they already knew and to become more creative.

Prospects

If this project would proceed, Jessie thinks that it should be clear for the stakeholders what to expect from the design process. If this understanding is there, the stakeholders can participate and help to create the best product for their own clients, the citizens of Utrecht.

As a team, they think this concept has potential, but they do foresee that the concept has certain practical limitations. Even though they think their solution is great and creative, the implementation will be hard to do.

What would you do differently?

As a team, Jessie says that they had to deal with some differences in expectations regarding deliverables and the process. If the team members would do this project again, their first step would be to sit down with the clients and to find out what they already have in mind for this project. They did talk about requirements etcetera, but in the end they felt that the deliverable, a creative concept, was not accepted as a 'sufficient' deliverable. It turned out that the client had already thought of a solution of its own, which they really wanted to pursue. If a client has such an idea stuck in its head, Jessie thinks that it does not matter what you deliver, it will never be good enough as it is not what the client envisioned. The teams thinks this is a pity, as the project cost them a lot of effort, but also because they were not able to satisfy the client. Which is, eventually, the main purpose.

Tips

- ✓ Make sure that you have enough time to do all the steps of the design thinking process and their iterations.
- ✓ Make sure that all stakeholders know what to expect from the process and the result.
- ✓ Plan your time if you want to interview people, or do user-research.

Contacts and Sources

Jessie Both - jessieboth@gmail.com
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Celine van der Geer - celine.nvdg@gmail.com
Joey Schouten - joey.schouten@gmail.com
Chris Verbeek - cverbeek89@gmail.com

- https://www.scribd.com/document/347054772/Chatterbox-Project-Design-Thinking-Methodology?irgwc=1&content=27795&campaign=VigLink&ad_group=3375397&keyword=ft500noi&source=impactradius&medium=affiliate#from_embed

Respondent

Jessie Both followed, as part of her master's program Human-Centered Multimedia at the University of Amsterdam, the course Innovation & Design Thinking. During the honors program of her bachelor she was introduced to Design Thinking. She really liked this way of designing and knew she would want to become more experienced with this way of working. So when she saw the Innovation & Design Thinking course as an elective, it was an easy choice.

During this project she had two roles. She was a sort of an organizer of the group, but also played a part in the creative development of the concept. These roles came naturally to her and she felt comfortable taking up these roles during this project.

The team interviewed someone who worked with the original 'Babbelbox' concept from the Dutch TV show 'Man Bijt Hond'. The team interviewed her to gain insights in how they engaged passerby to speak in the 'babbelbox', how they came up with the statements to discuss and other practicalities. She was not further involved in the project.

The team interviewed people on the street of the Dappermarkt, to see if there was any interest in such a 'babbelbox' to discuss medical statements and learn medical topics.

Katarína Chomová

i.e.SMART

The aim of the project was to create SMART Training Network for Innovation and Entrepreneurship in Emerging Sustainable Economic Sectors. 12 partners from seven urban areas (Bratislava, Budapest, Modena, Prague, Stuttgart, Venice, and Vienna) worked together towards creating a unique, integrated and sustainable seedbed for innovation.

SMART points were truly centres where knowledge is created and translated into new products, services or processes. SMART trainers/facilitators and emerging entrepreneurs were implemented, bringing together the two major components running throughout the project: a multi-disciplinary approach to innovation and entrepreneurship, and a multi-disciplinary approach to business idea development.

Notice: The following document describes activities in Bratislava - SMART POINT BRATISLAVA.



i.e. Smart

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	medium	high
Levels of Interdisciplinarity	high	high	medium

Location and Institutions Involved	
Place of Implementation	Connect co-working center in Bratislava
University/Department	Faculty of Commerce of Economic University in Bratislava; Faculty of Management of Comenius University in Bratislava
Municipal Authorities/Department	Bratislava Municipality
Business Partners	TATRA banka, a.s.
NGOs	-

Duration	September 2012- December 2013
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Case description

The main goal and background of the project

The project i.e. SMART identified specific issues/challenges in the involved partner regions such as a lack of interest in innovation and entrepreneurship, a low survival rate of business start-ups, high youth unemployment, demographic and socio-economic brain drain, and social issues involving equal opportunities and non-discrimination.

The project developed and implemented a trans-national management structure to link the involved regions so that they can provide their citizens with exciting sustainable labour market opportunities. This was achieved through a new multi-disciplinary approach and training to innovation and entrepreneurship. In particular, this approach focused on three emerging economic sectors: Creative Industries, Green Economy, and ICT. International research has shown that these sectors will be sustainable.

Team

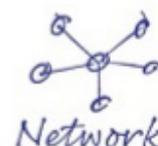
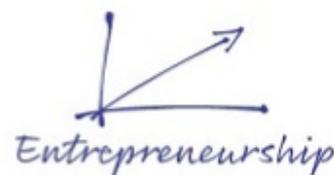
Respondents were the attended students and the interview was conducted by the main coordinators of the project - Smart Point Bratislava.

Methods

The team of students participating in the project used to have a meeting twice a week. The first meeting was at University at the same time every week, the second one depended on necessity of consultation in the company or co-working. Each of the projects had four phases: analytics, conceptual, verifying and argumentative. Each of the projects had four phases: analytics, conceptual, verifying and argumentative. In the project we used didactic method of Problem Based Learning with the elements of Design Thinking - specifically Brainstorming while searching for ideas, mind maps while solving the problem, dialogue through which students get to the result faster and incite critical thinking through simulation of a real background, where a student is in role of a banker/bank's employee and an expert is in the role of a client. Besides innovation methods, we used methods of analysis and secondary research while looking for resources.

Timeline of Smart Point Bratislava:

- September 2012 - Preparation Trainers
- December 2012 - Kick-off meeting (creation 7 interdisciplinary student teams)
- Januar 2013-March 2013 - Workshops for students' startups
- June 2013- Student's startup competition in Bratislava
- September-December 2013 - Mentoring program



Challenges

Some challenge was to change traditional, vertical hierarchy (student-educator-future employer), into the horizontal situation (equivalence, teamwork) and in that way support discussion and innovation ideas, create spatial/online platform for subjects entering the project, setting marketing communication, the goal of the student group. The project worked on a voluntary base, that means marketing communication of the project to the students was very important. Another challenge is reconciliation teams of educators and employees of the company, their goals and setting whole schedule of the project. Within educating and using new methods the biggest problem was in activity of students in which helped Design Thinking methods.

Tools/Resources/Materials

During the work, the students were using resources from the internet, the company's website and personal consultations. The space suitable for using methods of DT and PBL is established at the University of Economics. The aids we used were Flipchart, markers, papers, adhesive tapes - method of mind maps, Flipchart - method of brainstorming, projector - during presentations, colourful chalks and chalkboard and also online platform - Talentway.net.

Benefits and Learning

Beneficiaries

Benefits for the target group: student 15-30 years old.

Personal skills:	Starter business skills:	Master business skills:
<ul style="list-style-type: none"> • Self-esteem • Team-work • Presentation skills • Introspection • Self-marketing • Communication • Creative problem solving • Creative conflict management • Bringing humor and light-heartedness to business and products 	<ul style="list-style-type: none"> • Meaning - giving life personal meaning • Effective collaboration - partnering and teamwork • How to get people on board • Storytelling and presentation skills for effective pitching • Navigating ambiguity • Effective decision making • Mobilizing teams and implementing innovation • Ecological awareness • Corporate social responsibility 	<ul style="list-style-type: none"> • Ability to cope with complexity • Creative leadership skills - instill passion, gather energies towards a common vision, motivate and engage employees, build trust with employees, find shared values, shift perceptions, develop high-performance team-work etc. • Leadership presence • Strategic decision making skills • Critical thinking



Innovation/value

"I got the opportunity to be a part of Smart Point Bratislava. They were easily one of the most informative, captivating and interactive workshops I have been a part of."

Anton Kukučka, University of Economics in Bratislava

What would you do differently?

Thanks this project I have learnt what is design thinking and how it is possible to implement student innovation projects at the university and by the company).

Tips

I suppose it would be better to have Smart Point Bratislava not in co-working centre but at the universities. The workshops should be implemented into university subjects (innovation business etc.).

Contacts and Sources

Web site: <http://www.iesmart.eu/>

SmartPoints: http://www.iesmart.eu/images/3.1.3_Final_SMART_Point_Concept.pdf

Teaser trailer: <http://ie-smart.eu/teaser-trailer-for-the-eu-project-i-e-smart>

Christian Bruchatz

Interdisciplinary Summer Project for Students: Machine Handling in the year 2030 Using the Example of an Excavator

Interdisziplinäres Sommerprojekt für Studierende: Maschinenbedienung in Jahr 2030 am Beispiel eines Baggers

In this annual event interdisciplinary student groups are formed from the following disciplines: *Industrial Design Engineering*, *Digital Media Design* and a third, annually changing discipline. In 2017 the third discipline was *Construction Machines*. The goal was to explore new interaction technologies for humans in excavators.



**TECHNISCHE
UNIVERSITÄT
DRESDEN**

Project Type	Education Scientific collaboration
Target Group	Research Student Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	high	middle
Levels of Interdisciplinarity	middle	high	middle

Location and Institutions Involved	
Place of Implementation	<u>Maker Space</u> of the <u>Saxon State and University Library Dresden (SLUB)</u> - Machine room (prototyping) and seminar room (ideating)
University/Department	TU Dresden // 3 chairs from the School of Engineering Sciences: <u>Junior Professorship in Industrial Design Engineering</u> , <u>Chair of Media Design</u> , <u>Chair of Construction Machines</u>
Municipal Authorities/Department	-
Business Partners	<u>Liebherr Group</u> (Machinery producer, e.g. excavators)
NGOs	-

Duration	April 2017 to September 2017 (summer semester at TUD)
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Case description

The main goal and background of the project

With several years of good experience in performing these student semester courses (e.g. from the preceding course with "Audi" dealing with the "Future of Driving"), we have enough results to demonstrate to our new partner, e.g. demonstrators or design models.

The 2017 project was inspired by the business partner Liebherr: How could machine handling (especially handling of an excavator) be designed in 2030?

With this open approach the goal for the students was to look for problems within this framework leading to the development of at least two new ideas/concepts for the handling of an excavator (human-technology-interaction from inside/outside of the cabin). Eventually they had to choose one idea/concept to design a demonstrator, a model, and at the very end (if possible) a patent.

The time frame of 2030 allowed an open thinking without too much barriers but also asked for solutions far beyond the status quo (e.g. faster, more comfortable, more secure, more motivating).

Team

- The leadership and mentors from the Junior Professorship *Industrial Design Engineering* (university staff) supported the teams during the semester in weekly consultations and organized the whole course
- Challenge input from the machinery company *Liebherr* (3 managers from 3 plants and 1 cabin designer)
- (Unchanged) Teams of 3 participating students, each one from:
 - *Industrial Design Engineering* (being also the central mediator in the 3-person-project teams due to their close proximity to the other disciplines when comparing each other)
 - *Digital Media Design* (e.g. for 2D-interaction-prototypes and programming)
 - *Construction Machines* (e.g. for the technical background on excavator handling)

Methods

One week after the announcement of the topic the students intensively explored this industry sector at the world's largest fair for construction machines in Munich in April 2017 - including a trial where the students could dig with an excavator. From now on a strong framework supported the design thinking approach of this project in which the groups composed of interdisciplinary students had the freedom to choose the challenge and develop further results. They were tightly mentored and regular one-day consultations with progress presentations between the groups and their mentors structured the semester in a weekly rhythm. A strict set of methods (usage of templates/tools/software, visualisation suggestions to get to the point rapidly, partially refined

from generic design thinking processes from the literature e.g. BOBBE et. al. (2016)) had to be applied along the different phases: From *Analysis* (e.g. Moodboard, Personas, Use Case Scenarios, Kano method), *Definition/Synthesis* (create at least two different concepts from different perspectives and eventually choose one of them), demonstrator *Draft*, to one demonstrator *Prototype* (starting from paper and foam to click-dummies, Arduino controlled interfaces, or in the end Virtual Reality) the groups permanently iterated along the phases.

Challenges

In general, all participants had to have a basic openness to get into different disciplines. *Industrial Design Engineers* often had to mediate in their respective teams. The tight structure of the project (with a detailed timeline, clear work instructions, tasks and to achieved goals) was a big challenge and quite a big effort for all involved persons. This sometimes led to confused students, who didn't understand why they are doing this or that method to this or that deadline. The communicational effort in the explanation of each next sub-ordinate target is hard and maybe the individual progress of the teams by each task has to be made even more transparent. It is also challenging at times to merge the individual disciplinary work of different team members together to a larger successful piece.

With the limited time for completing such a challenging project it often happens that methods or tools are applied without being exact or deep enough. As an example, ad hoc Personas without referenced data from socio-scientific surveys are not very valid. Nevertheless, it often helps to advance the team concept and students become acquainted with these methods.

As one need several disciplines of students to work in such a project, it was realised as a major organisational challenge that different curricula does not fit to each other very well causing trouble for students that want to participate in such a summer project but also count the participation in their studies.

Tools/Resources/Materials

Due to material consumption it was very helpful for the demonstrators to get a 20.000€ funding by the company Liebherr. The Maker Space provided the teams with devices such as 3D printers, foam cutters or Arduinos. An existing virtual reality environment of a construction site was provided by the chair Construction Machines making it easy to implement virtual prototype models.

Benefits and Learning

Beneficiaries

The students benefited with regard to the results of their work (even with applications for patents) and - for most of the students - the new way of collaboration in a designerly and interdisciplinary way.

The outcome of the project provided a positive benefit for the company as they saw new solutions detached from their organisational blindness.

The benefit of this teaching project for the organizing team from *Industrial Design Engineering* was input for their research with possible subsequent research projects through this teaching project.

Innovation/value

- Motivating challenge input from the experience of a company (true problems)
- High level of interdisciplinarity, openness in the explored content of the chosen problems and solutions, open mindset of the involved persons
- The strict set of methods that had to be applied induced a continuous progress towards the defined milestones
- Motivated mentors and motivated students
- Extra budget for consumables/materials funded by the company, which would otherwise not be fundable with the regular university budget.

Prospects

The organizing team will continue with these successful summer projects and introduce new partners. The next topic will deal with bionic-inspired exoskeleton assistance for the dance ensemble of the European Centre for the Arts in Dresden Hellerau.

What would you do differently?

From project to project the organizing team learns what works and what does not - therefore the procedure in general becomes more robust. E.g. with improvements regarding time management (balance between pragmatism vs. quality - do not fight at the wrong construction sites) or more precise pronunciation of the next desired (physical) milestones.

In future the organising team would draw more attention to the question, "how could a transfer process be realized?" and "how could solution strategies be better documented?"

Tips

- ✓ A documentation of the whole organisation of such a project is very difficult to build up and apply somewhere else without falling back on experienced team members.

Contacts and Sources

Jun.-Prof. Dr.-Ing. Jens Krzywinski
Junior Professorship in Industrial Design Engineering
jens.krzywinski@tu-dresden.de
phone: +49 351 463-35750

Respondent

Junior professor Krzywinski leads a group of scientists. His group always looks for specialist topics to work as in-depth as industrial designers. They have good experiences with interdisciplinary projects and also use their teaching commitments for this student course to initiate new research collaborations.

- <http://technischesdesign.mw.tu-dresden.de/blog/innovatives-fernbedienungs-konzept-fuer-die-baggersteuerung/>
- <http://technischesdesign.mw.tu-dresden.de/blog/wp-content/uploads/Movable.jpg>
- http://technischesdesign.mw.tu-dresden.de/blog/wp-content/uploads/DSC_0153_gut.jpg
- https://scontent-frx5-1.cdninstagram.com/vp/1b9ddc073eeff1aa0ea4713ff3c434b4/5A-EF57B5/t51.2885-15/e35/23101894_380864072352008_7694020112159866880_n.jpg

Annamaria Recupero

Master UX

This case is about the Master UX - User Experience to show how interdisciplinary training about the design of services and ICT can be provided.



SAPIENZA
UNIVERSITÀ DI ROMA



Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	medium	high
Levels of Interdisciplinarity	high	medium	medium

Location and Institutions Involved	
Place of Implementation	Rome (Italy)
University/Department	Department of Social and Developmental Psychology - University of Rome Sapienza
Municipal Authorities/Department	-
Business Partners	Evolaris (https://www.evolaris.net/de/)
NGOs	Musei Capitolini (http://www.museicapitolini.org/en/)

Duration	20/01/2012 - 15/12/2012
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Case description

The main goal and background of the project

Master UX has been organized in order to fill the gaps in the User Experience design training in Italy. Indeed, it was the first Italian master course dedicated to such topic.

It was designed in order to cover several domains and fields of study (social psychology, anthropology, ergonomics, information technology) and provide the students with a useful and comprehensive training to develop their professional skills.

The objectives of the course were:

- to acquire specific knowledge and skills for the analysis and the design of the User Experience;
- to acquire the skills needed for the team work, to collaborate with different professional figures and co-design the Information and Communication Technologies;
- to design innovative ICT solutions by adopting the user-centered approach and the Service Design Thinking methodology.

The course (its program, activities and tools) was initially designed by a group of experts who were in charge of the modules. It was also designed according to the learning needs expressed by the students before starting the course.

Then, during the course, the activities and the timing were modified according to the progress made and demands of the students.

Team

Master UX was organized and carried out by a team with more than 15 people: in addition to the Director of the master, the teaching staff included university professors, researchers and professionals selected as experts in the domains covered by the course.

Two tutors were also included in the team, in order to support the didactic activities and the management of the course.

Furthermore, the administrative staff of the Department managed administrative procedures of the enrollment, accounting and certification.

Methods

The course provided a good balance between theory and practice: each lesson included a first part for the description and the discussion of the theoretical frameworks and perspectives, and then the students were involved in the hands-on activities using some tools.

The activities were performed step-by-step, by reaching increasingly complex goals.

The tools (i.e. Personas, Empathy Maps, Service Blueprint) were selected and used because they serve two functions:

- *Design*
They allowed to analyze empirical data about the target users, and co-design the User Experience of an ICT solution. Such solution should represent the meeting point between the business needs (expressed by the partners who proposed a real-world problem) and users' needs and wants, also considering the characteristics of the context of use.
- *Collaboration with the team members*
Because the students were divided in two teams, the tools allowed each member to be committed to the project, to share a common goal and work together to reach it.

Furthermore, the design process took advantage from the use of pictures, affinity diagrams and storyboards through which the students sketched the ideas and visually communicated the concept.

Challenges

The main challenge was integration of different perspectives, design and learning activities and tools within a comprehensive framework.

Because the User Experience design is a multidisciplinary field that gathers contributions and experts from social sciences (i.e. Psychology, Sociology, Anthropology), architecture and computer science, it requires to merge different perspectives and adapt them to a real-world problem.



Tools/Resources/Materials

To disseminate the course (before, during and after):

- web site of the course
- Facebook page

To carry out the activities:

- the room equipped with a projector, tables and chairs
- all kinds of stationery, because most of the work has been done using post-it notes, papers, colours etc.
- eyetracker and software for the prototype

Benefits and Learning

Beneficiaries

The course was attended by 10 students with different backgrounds and fields of work. They took advantage from sharing their previous experience in the field of design, and from the specific training provided by the course to enhance their knowledge and skills.

The partners involved (Evolaris and Musei Capitolini) took advantage from the Master UX because the students provided them with innovative ideas to develop their business, and to understand and meet the needs of their target users.

Innovation/value

The innovation relies on:

- integration of several theoretical frameworks, educational activities and design tools within a comprehensive training experience;
- the involvement of professors from the university and experts from companies;
- the project work performed by the students that was based on a mission, to address real-world problems and to innovate the market;
- the organized outing to join special events (i.e. design jam, conferences) and carrying out fieldwork to put the lessons learned into practice.

Prospects

The Master UX represented the starting point for further training offers proposed by the Department of Social and Developmental Psychology.

What would you do differently?

Create the connection with the master degree of Communication and Marketing Psychology in order to have more institutional resources and expand the target of participants.

Tips

- ✓ Explore the learning needs of the students to tailor the training to their background and aims.
- ✓ Timing and activities need to be flexible enough in order to adapt the program according to the needs and demands emerging during the course (i.e. an in-depth analysis of a tool).
- ✓ Involve experts who can present best practices and provide tips according to their professional experience.
- ✓ Establish partnership with organizations so to provide the students with a real-world problem to address during the design process.

Contacts and Sources

- Facebook: <https://www.facebook.com/MasterUX-176600155754128/>
- <https://www.uniroma1.it/it/node/36568>

Respondent

Annamaria Recupero is a PhD student of the Department of Social and Developmental Psychology, member of the Joint Lab IDEaCT (Interaction Design and Communication Technologies). She has been involved in the Master UX as tutor, so to support teachers and students during the course.

Rianne van der Laan, André Nusselder

The Mantelzorg Challenge

Care institutions have a large number of volunteers. They are crucial for helping others, but they consist of individuals, who are not a community and they often do not even know each other. The purpose is to get them from mostly unrelated individuals to an active, recognizable community.



UNIVERSITY OF AMSTERDAM

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	high	high
Levels of Interdisciplinarity	high	medium/high	medium

Location and Institutions Involved	
Place of Implementation	University of Amsterdam Department Information Studies
University/Department	-
Municipal Authorities/Department	-
Business Partners	Connect to Innovate
NGOs	-
Volunteers and coordinators from different caregivers institutions	

Duration	10-02-2017 till 31-03-2017
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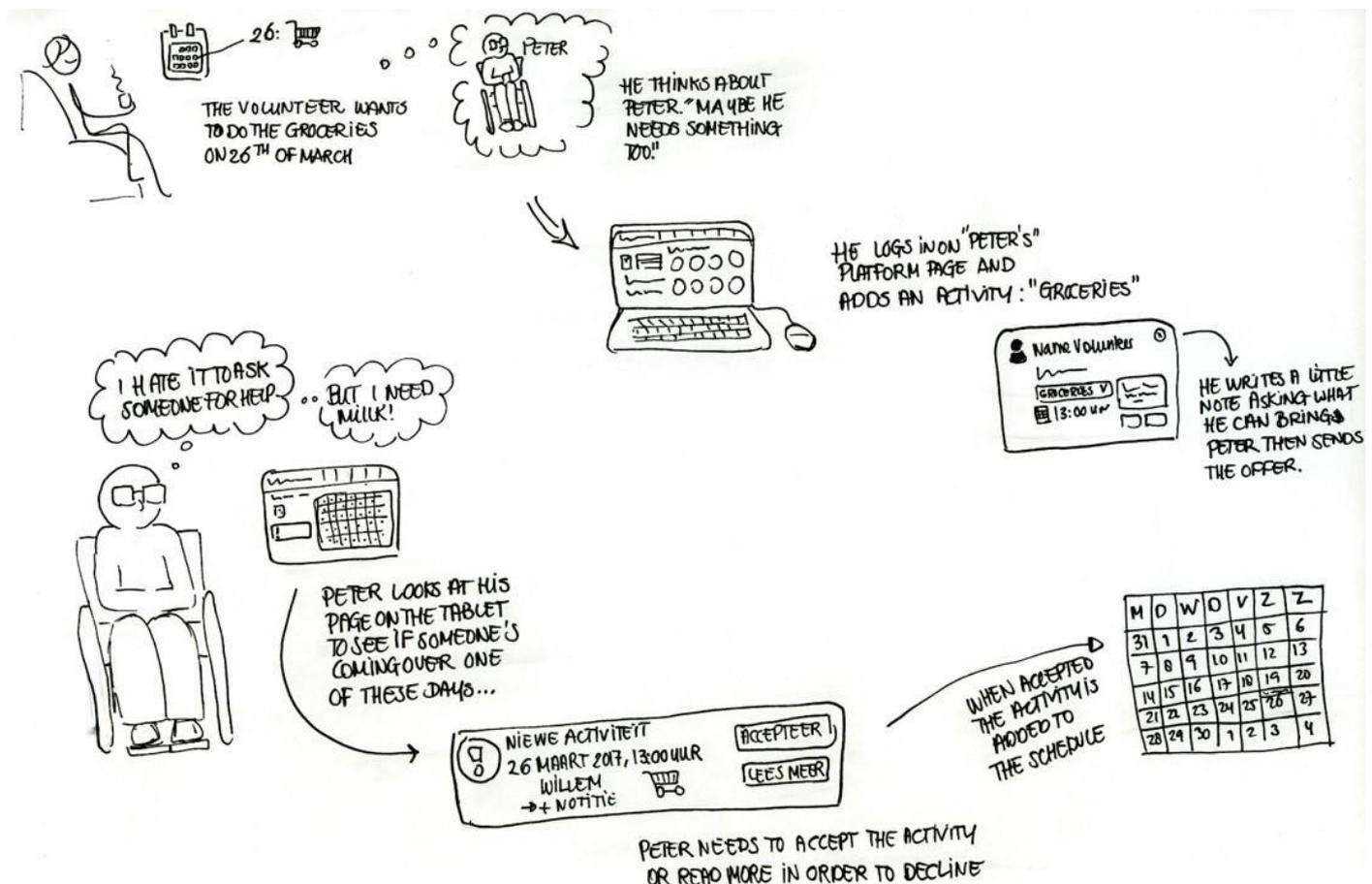
Case description

The main goal and background of the project

For the course, the team had to choose between multiple wicked problems. They chose this case because they were very interested in the social aspect of the problem. Together with their client Behzad Rezaei from 'Connect to Innovate' (who still works on this wicked problem and initially came off with the idea) they started the challenge. The whole case was focused around the vision: 'help the helpers help'. Because of all the institutions that are involved when a patient needs help, the help for a patient is not always organized efficient and effective. The team really worked on the question of how all these volunteers behind the institutions can be more visible, be able to express their opinions based on observations, and act like a community.

Team

The team consisted of four team members from two different tracks. One of the members was part of the Game Studies Track (Marco Vesco), the other three came from the Human Centred Multimedia Track (Margriet Bebnik, Gaby Eenschoten and the interviewee Rianne van der Laan). They were supported by the lecturer Andre Nusselder and their Client Behzad Rezaei from Connect to Innovate.



Methods

The whole case was focused around using the design thinking method. The design thinking approach enabled them to tackle the wicked problem of the Mantelzorg Challenge from the institutional side. The iterative process supported to approach the problem from different perspectives and finally design the 'product' they created. The product, which was a digital platform, was prototyped with mock-ups and tested with different stakeholders in order to come up with the best design.

Challenges

While the project was surrounded by the university course, there was only limited time and resources. As the interviewee also mentioned: 'designing is not the hardest part, but creating an understanding of the actual problem space is the hardest part within design processes'. But by changing views and trying to understand the problem from different perspectives, multiple possible and partial solutions could be consciously considered and weighted in order to decide which road to pursue given the limits in resources.

Tools/Resources/Materials

For the project, an online platform was build called: 'InTouch'. InTouch takes the most important stakeholders of the case into account and connects them to each other. On the platform the patient, family caregivers, all voluntary organizations and volunteers, attached and unattached are connected in a care team. This platform has community features like a log(book), messaging/ mailing and interaction by offering and accepting help.

Benefits and Learning

Beneficiaries

While the case was focused on a wicked problem, it had a lot of stakeholders, who all should benefit in some way of the solution. Although they wanted to involve all the various stakeholders in their design process, they were limited by a narrow time scope.

'We decided to involve specific stakeholders more intensively, because we desired to base our prototype on a solid foundation from the point of view of a select group of stakeholders and we realised that the stakeholders which would not be involved in the interviews/survey should be involved in future research.'

The team did a stakeholder analysis which described the stakeholders in their problem space: (1) coordinator, (2) volunteer, (3) patient, (4) family caregiver, and (5) acquaintances or people in the neighbourhood of the patient. The team focused on the coordinator and volunteers throughout the project, because the initial challenge was to support the coordination of the volunteers.



Innovation/value

Rianne believes that it was the design thinking method that really gave the project more value. 'Using the design thinking method gave us the opportunity to really involve the stakeholders in the problem space and listen to their opinions, irritations, desires, and needs.' She explains that it was the design thinking process that helped them create a real understanding of the issue that was based on actual opinions of important stakeholders from different points of view.

Prospects

While this case was part of the course, it did not have a future with this team. Nevertheless, Connect to Innovate is still working on the bigger case of the Mantelzorg challenge. The interviewee mentioned the importance of the social problem around this case: 'the world around us gets more individual every day, it is very important that we keep caring and helping each other. Even the helper who wants to help'.

What would you do differently?

'Reflect more!' was the first thing she said. During the project the function of reflection became more clear to her. Reflection is important for thinking about a concept or a situation outside the context it has taken place in, in order to see new insights in the most neutral way possible. This brings new knowledge, while reflection enables the creation of new connections with already acquired knowledge. 'It became clear to me through the learning journals I had to write that the most interesting observations were not created by the experience itself, but by the reflection upon them'.

Tips

The first thing the interviewee mentioned was the importance of staying open-minded and as neutral as possible, but also to accept one's subjectivity: 'When you are aware of your own subjectivity, you are able to stay more open-minded and 'neutral'. She explained that also the

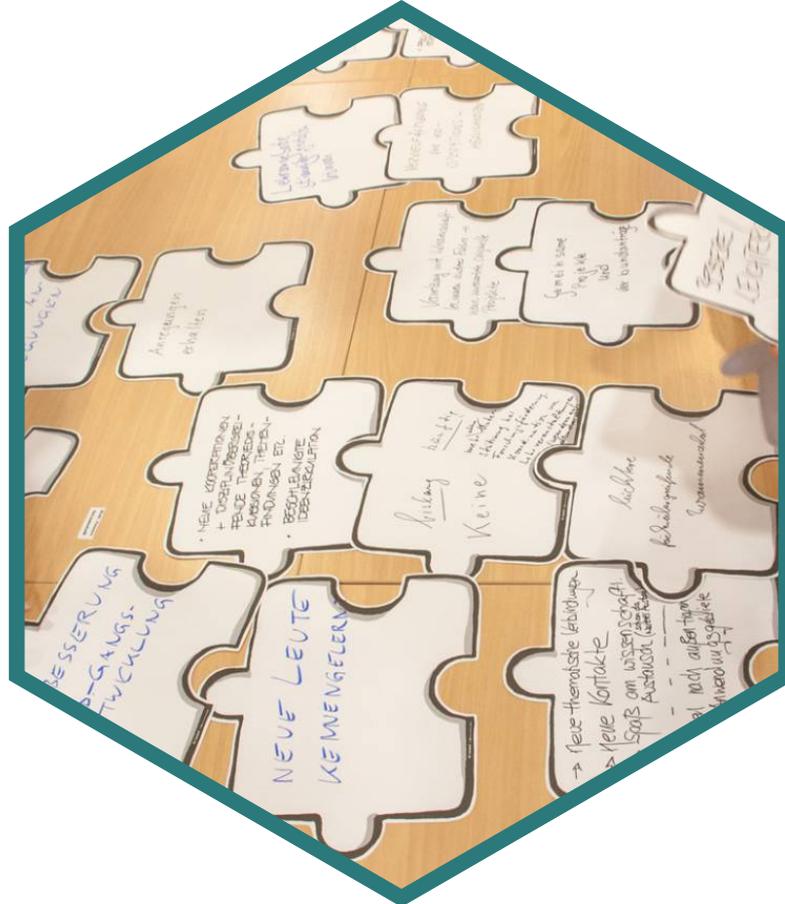
word neutral is maybe misused because in reality there is no absolute objectivity. We are always formed by our own experiences and backgrounds. Taking different points of view and just observing without immediately making conclusions helped her to think about the concept without marking her own subjectivity on it. She told about her thesis she had written in her Bachelor about the paradox of reality in movies. People are afraid that they lose their sense of reality, that they are not able to see what is real and what is not. She explained that such a sense of reality has never existed. Just like she believed that the sense of objectivity does not exist.

Contacts and Sources

- <http://www.connecttoinnovate.nl/projects>

Respondent

One of the four team members was Rianne van der Laan. At the time, she was a master student of the track Human Centred Multimedia who created this case for a course at the University of Amsterdam called: 'Innovation and Design Thinking'.



Interdisciplinarity + design thinking

Hoang C. Huynh

Bologna Service Design Jams and Service Design Challenges

Bologna Service Design Events are activities organized by Quadrante, an open non-profit association with the purpose of providing education on specific subjects and connecting companies and communities of professional to industry of Service, Strategic, Systemic Design using Design Thinking methodologies.



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



Project Type	Education Scientific collaboration Social/cultural program
Target Group	Research Student Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	high	medium
Levels of Interdisciplinarity	high	high	high

Location and Institutions Involved	
Place of Implementation	Fondazione Golinelli
University/Department	University of Bologna, Alma Mater Foundation, Bologna Business School
Municipal Authorities/Department	-
Business Partners	PRSD s.r.l., Epoca s.r.l.
NGOs	-

Duration	Usually the Global Service Jam is held between the last week of February and the first week of March. This year it will be 9-11 March 2018. Throughout the year the format is repeated outside the Global Jam community.
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Case description

The main goal and background of the project

The main focus was to create awareness on the market about the design thinking industry by providing free education for stakeholders, potential clients and prospects and also professionals.

When we started our main concern was to create a community to start talking about service design and design thinking, then we focused on creating awareness. Today, since the whole industry has gone mainstream, the aim is to contribute actively on processes and tools to further advance its maturity.

Team

The process of establishing the team was tightly based upon the admission to the open association: skill, knowledge and availability. Each member is called to contribute with his time in order to provide education (both free and paid) on specific knowledge and availability for organization and duties. Founding members were selected upon availability and knowledge basis.

Methods

Design thinking. We believe in eating our own food, so as a company, as association and as a BSJ team we recursively use design thinking and co-design tools. Whatever we fit comfortable to use, except of prototyping, which is kind awkward to do in public places and it time expensive.



Challenges

- ✓ No real issues about this: DT methodologies are a buzzword nowadays, easy to find a company and partners with interest on them. A real issues is the availability of „right“ places, flexible and large enough to work freely.

Tools/Resources/Materials

Posits, whiteboards and flip charts and pens are the basis. An open space with large surface to use (walls, halls, corridors) are great. Multifunctional spaces that allow to work independently and then gather all together in same place.

Benefits and Learning

Beneficiaries

Junior professionals that can have access to on-field knowledge and experience from more senior ones. The manager and decision makers that can understands tools, lingo, processes and realise their own quick win in their field. The industry, with the creation of new knowledge.

Innovation/value

Innovation is just connecting the dots, dots connecting each and every bit of knowledge coming from different experiences and industry creating a new layer of social wisdom, able to provide complex solutions to complex problems.

Prospects

Huge effort to sustain it in terms of organization. Sometimes we skipped a year in order to provide the attention the event deserved, sometimes we took our time to deliver the event outside the official range date.

What would you do differently?

More risk management, more segmentation of participants with events at different level of engagement.

Tips: Start, test and refine. Improvise, adapt, overcome.

Contacts and Sources

- HP: <http://www.bolognaservicejam.it/>
- HP: <http://www.design-challenge.it/>
- FB: <https://www.facebook.com/bolognaservicejam/>

Respondent

Hoang Huynh is part of the organization and a founding member of the Bologna chapter of the Global Service Jam Community along with Valeria Adani and Federico Strollo. He was part of the Rome chapter and join Valeria by chance into creating the Bologna chapter. Nothing was really planned, just sheer luck into meeting resourceful people in the Design thinking community, locally available.

Robert Fischer

C3 Saxony

CrossCluster Cooperation Saxony

An EU-project to foster cooperation between to clusters in the Saxon economy and include scientific partners in the process.



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**CROSSCLUSTER
COOPERATION**

Project Type	Scientific collaboration Commercial
Target Group	Research Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	high	high
Levels of Interdisciplinarity	medium	high	high

Location and Institutions Involved	
Place of Implementation	Saxony, mainly Dresden
University/Department	Technische Universität Dresden
Municipal Authorities/Department	-
Business Partners	Silicon Saxony Cluster, biosaxony Cluster
NGOs	-

Duration	February 2014 - January 2016
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Case description

The main goal and background of the project

- Generate at least 25 project ideas and initiate as much cross cluster projects as possible
- Develop interfaces between the different technologies and research areas: common language, spaces and work culture
- Systematic project and innovation development process + support and supervision of the process in order to enable joint cooperation

Team

- Members of the clusters biosaxony and Silicone Saxony
- Participants: (micro)biologists, software/semiconductor engineers, computer scientists, facilitators
- Team structure: at least one member of each cluster, no limit in size, self-organized teams (often times teams were tandems of two companies who had intended to cooperate beforehand)

Methods

- Development of new methods - no standardized way to cooperate across cluster as extended research and visits to similar networks in Europe unveiled
- Laboratory of Knowledge Architecture
 - Development of whole process: first contact + communication, joint project outline, incubator
 - Procedure for every team resulting in about 10-12 single events for each team
 - Project Initiation Workshops with strong DT elements
 - At least two Idea Workshops, several Post-Coachings, Voucher Counseling
 - Project development, 9 month process
 - Call for proposal (most successful projects were awarded)
 - Innovation Workshops (submitted projects are supported and structured in several sessions)
 - Voucher for most successful projects (1st place about 5000 €)
 - > Voucher provided for to book additional services (e.g. from external experts of Saxon Ministry of Economy, Labor and Transport)
 - Resource Roadmap: development of project and business plans
 - Award
 - Jury review of projects on the basis of the Resource Roadmap
 - Award: Saxon Innovation Award



Idea Call - Prestructured presentation (Workshop)
 Micropresentations (left), Table discussions (right)

Challenges

- ✓ Method was developed on the fly due to time constraints
 - At the start of the project from a methodological standpoint it was unclear how to reach the project goals (development of 25 projects)
 - Agile development: new instruments were developed on the way
 - e.g. Matching Matrix: live fill in of the matrix + analysis during the workshop in order to continue working with the results
 - e.g. Resource Roadmap: developed out of the demands, ability to plan and invest resources
 - General idea was present at the beginning (how to bring people together, develop mutual understanding and support)
 - Next steps in the different projects were strongly customer-oriented (different people, different steps)
 - Elements of quality were set, criteria for gates were set, measures were not set
- ✓ Other providers
 - Clusters provided individual group support
 - Cluster networks were used for support
 - Vouchers were used for specific demands
 - Necessary resources could be obtained (tax accountant, industrial advisor, market analysts)
 - Design Thinking aspect - have different perspectives on the topic

- ✓ User-challenge: retrieval of user information in user workshops
 - Design Thinking methods applied but emphasis/inquiry of target group form indirect sources)
- ✓ Entangled double development
 - CrossCluster projects were to be developed (25)
 - C3 Process to guide and monitor the project development had to be developed at the same time
 - Complete roadmap was not available at the beginning
 - Development often times in small steps and with workarounds
- ✓ Additional value
 - The return was less than expected
 - The companies joining the program had projects in mind beforehand
 - Joint teams did not have to be motivated to cooperate

Tools/Resources/Materials

- e.g. vouchers, services from clusters or the Laboratory of Knowledge Architecture
- tools and materials developed by the Laboratory of Knowledge Architecture during the process
- materials
 - space: 200sq. m. rooms with flexible seating, at least 50m of empty wall surface with hooks
 - lots of food on the table
 - 2-3 video projectors in the room
 - Paper from rolls, post-it notes
 - The possibility to reconfigure the room instantly
 - > Large number of workshops in one day: fast progress, quick room configuration necessary

Benefits and Learning

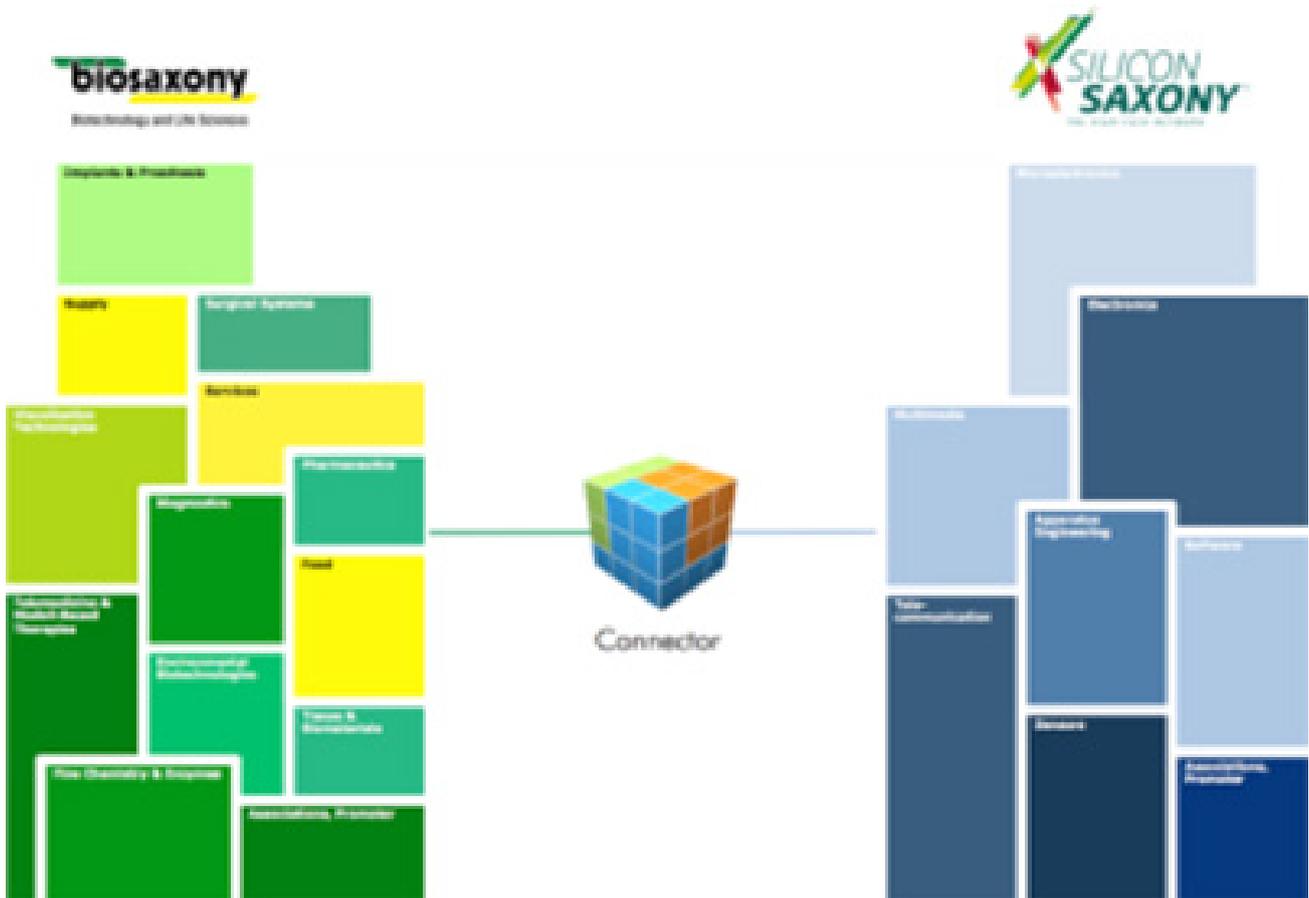
Beneficiaries

- In general: the level of inhibition towards such projects and the approach was lowered
- Saxony: new growth industry conceptually developed

- Cluster
 - Receive development funds
 - Develop new and interesting projects
 - New cohesive effects within the cluster
 - Interwork with partners from different science areas improved
 - Follow-up projects initiated
 - Voucher money received to develop experimental and risky ideas
 - 1-3 start-ups established
 - > Process of foundation was accelerated
 - > Saxon Innovation Award: visibility was increased, door-opener in EU

- TU Dresden
 - A relevant role for the scientists and creative designers
 - Connect different science areas + be productive
 - Impart knowledge about alternate project development

- Saxon Ministry of Economy, Labor and Transport
 - Cluster work is visible and not in a black box
 - Projects are capable of growth - clusters proved that they are innovative (development potential)



General structure of connecting sectors of technology clusters

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Innovation/value

- Systematic tracking of projects through every step (development process: idea + project + incubator)
- Every single method already existed (creative workshops, incubator, matchmaking) but was put together into one adaptive process
- Design Thinking process
 - Further develop from a previous work step to the following step smoothly
 - Value accumulation with each step: idea > marketable idea > productive project consortia > business plan > incubation project (start-up)
 - Complete process chain bit for bit: every development is picked up and carried to the next processing and qualification step
- Continuous presence of project partners
 - Follow the different projects as a whole group + find individual way
 - Nodal point where everyone comes together and you can compare yourself

Prospects

- Regional level: strategic relevance
 - Results and procedures are the baseline for Saxon cluster development policy
 - Co-creation of the Saxon cluster strategy - almost legislative character
- Some projects are still running as grant projects
- Scientific area
 - Possible return into scientific area
 - Laboratory of Knowledge Architecture: two follow-up projects (no grants) to upgrade incubator scenarios and change into bigger interregional ideas (Interreg Europe)
- Lessons learned
 - Everything developed on the fly - evaluation to validate outcomes and implement methods
- On a regional scale: many initiatives and requests to use such instruments (single projects but never as condensed as with C3)

What would you do differently?

- Development from project to incubation, but incubation was not funded
 - Too many projects and too little follow-up funding > establish subsequent funding
 - Think process through: what happens after the funding
 - Saxon Ministry of Economy, Labor and Transport should have done some lobby work

- Increase the number of clusters
 - Invite more clusters to participate: multi-cluster endeavour > more innovation
- Connectivity: catalyst format, there is too few of them

Tips

- ✓ Free yourself from pre-built DT-concepts
 - Good as a starting point but never lose the target group/project goal out of sight
 - Adapt and re-develop instruments, processes and tools if necessary
- ✓ Internal monitoring
 - Conduct user studies/usability studies
 - Difficult when you are the facilitator to accept an external perspective from yourself
 - Plan internal feedback loops
- ✓ Use digital tools: data analysis for documentation, and maybe during the process
- ✓ Difficult to communicate into the public: use different communication strategies
- ✓ Strengthen internal communication
 - Process with no long-term concept
 - Differences in organization culture between the clusters were adverse, thus project return was less than expected

Contacts and Sources

<http://www.c3-saxony.eu/home/>

Prof. Jörg Nönnig
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Joerg.noennig@hcu-hamburg.de

Respondent

- Jörg Nönnig
 - Professor for Digital City Science at CityScienceLab at HafenCity University Hamburg
 - Director of the Laboratory of Knowledge Architecture, TU Dresden
 - Leader of the C3 facilitator team

- Anja Jannack
 - Head of Operations and Unit Leader for Co-Creation and Visualization at the Laboratory of Knowledge Architecture, TU Dresden
 - Member of the C3 facilitator team
- Facilitator Team: support innovation by developing a cross-cluster incubator
 - Developing tools to enable cooperation between different partners
 - Developing project ideas and consortia
 - Conceptualize the incubator model to help grow ideas into projects
- Laboratory of Knowledge Architecture was invited to develop and test cross-cluster methods

Robert Fischer

Formation of Schools at TU Dresden, School of Humanities and Social Sciences

Bereichsbildung TU Dresden, Bereich Geistes- und Sozialwissenschaften

The purpose of the project is to establish core structures for five different Schools at the TU Dresden within a 5-year time frame primarily in order to facilitate the work of the scientists. The example considered here is one of the Schools - the School of Humanities and Social Sciences.



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Project Type	Education and scientific collaboration
Target Group	Research Student Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium	medium
Levels of Interdisciplinarity	medium	medium	medium

Location and Institutions Involved	
Place of Implementation	-
University/Department	TU Dresden, only members of the School of Humanities and Social Sciences
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	Grant phase: 2013-2017 Official implementation of School structure: 1 st of October 2018
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Case description

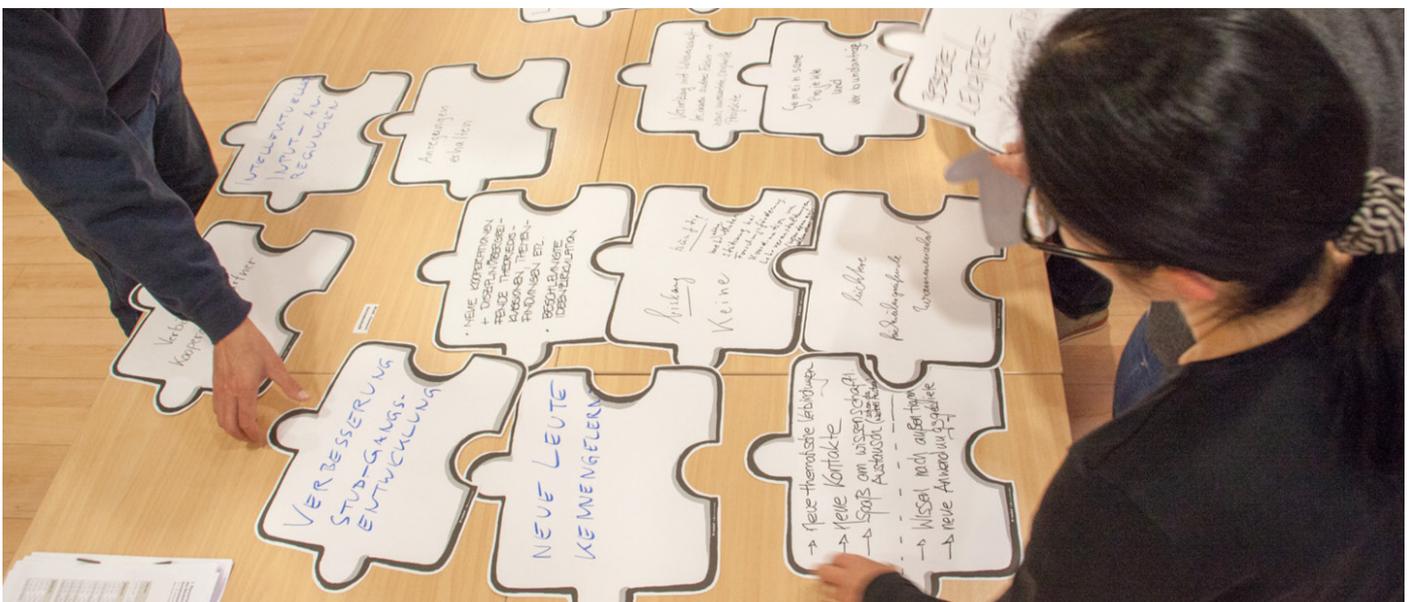
The main goal and background of the project

- Purpose
 - Formation of the School of Humanities and Social Sciences
 - The basis is the institutional strategy of the TU Dresden and the idea to develop TU Dresden as an innovative higher education institution
 - Develop new ideas in order to change TU Dresden regarding university governance
 - New Public Management as baseline concept
 - > Create more autonomy regarding the organizational structures
 - > TU Dresden usually: hierarchical, top-down structure (especially in administration)
 - > Process: create awareness in single structural units for more responsibility within a certain framework + identification with the organization
 - > Method: target agreement (how to reach the goal is responsibility of structural unit, basis: good communication between structural units and transparency)
 - > Risks like delegation, information manipulation and decision inhibition
 - > Most important: trust and identification within/ with the organization > feeling of participation may develop
- Origin/ inspiration
 - Benchmarking: e.g. University of Erlangen-Nuremberg, University of Cologne
 - Develop a unique selling point for TU Dresden
 - Anglo-Saxon university culture: schools and departments (hardly realizable in the German science system with the faculty tradition)
- Needs and challenges
 - Identity formation: usually realized via chair or institute, identity formation via faculties is difficult
 - > A better way would have been: pool institutes (not faculties) at the university according to an analysis of cooperation and contacts
 - Difficulty to group faculties in schools
 - > Faculty of Economy dropped out of School of Humanities and Social Sciences as they are more closely connected with the School of Civil and Environmental Engineering, e.g. Faculty of Transportation and Traffic Sciences
 - > School of Science is comprised of one faculty
 - > School of Civil and Environmental Engineering comprises "rest" of faculties: impression is doing wrong as some schools are hard to organized due to lack of a common history

Team

Basic principle: dialogue process between different status groups / stakeholders and operational levels

- Only few persons who continuously deal with formation of School of Humanities and Social Sciences
 - Deans (form the School Council with one speaker), e.g. manages global School budget and sets general frame
 - Coordinator, can act and implement according to the School Council presettings
- Further persons who help shape the process (motivation: transparency, academic self-administration, ability to participate although often little work is actually done)
- > Organized in Core Teams that work as think tanks
 - Structure: consciously openly arranged, everyone from the School may participate any time + experts (separate invitation)
 - Matrix organization: according to team topic different composition (scientists, administration, etc.) > vertical and horizontal connection within the school, interfaces are visible in Core Teams
 - Operating principle: similar in different Core Teams (SharePoint structure, protocols, regular meetings every two weeks, fixed facilitator, work culture is different)
 - Active and creative role: no decision-making committee, but preparation of draft proposals and concepts for the School Council
 - Four Core Teams: Research Profile Area (general research direction), Teaching and Learning, School Regulation (organization of institutionalization of School), Management
- Team Changes
 - School Council and Faculty Administrators are elected members of the School and thus change regularly
- Chance and risk at the same time, in general it is better if members are present for more than one legislative period (especially during such long-term projects)



Methods

Research Map for identifying Research Profile Areas

- Creation of mental map in cooperation with Centre for Synergy-Enhancement
 - Data acquisition: Interviews with 2/3 of the professors + information from research topics from websites
 - Data driven advantages: analysis is more objective + one gets to know the people in the school via interviews > creation of trust
 - Discursive idea (factual knowledge + cultural knowledge) what scientists (will) do
 - Imagine School as a slowly changing gestalt
 - Category creation (proved to be rather difficult)
 - Reduction of information through visualization
- Assessment-workshop: discussion of mental map of research topics
 - Great potential confirmed as one can highlight trends
 - Function highlighted: inside (Who are we and what are we doing?), function outside (display window for students and recruiting)
 - Categories were found to be incomplete > extensive online questionnaire with given categorization and open fields developed as self-assessment process to validate the data driven analysis
- Process was interrupted by structural changes within the School as the Faculty of Economy dropped out and thus changed the Research Map

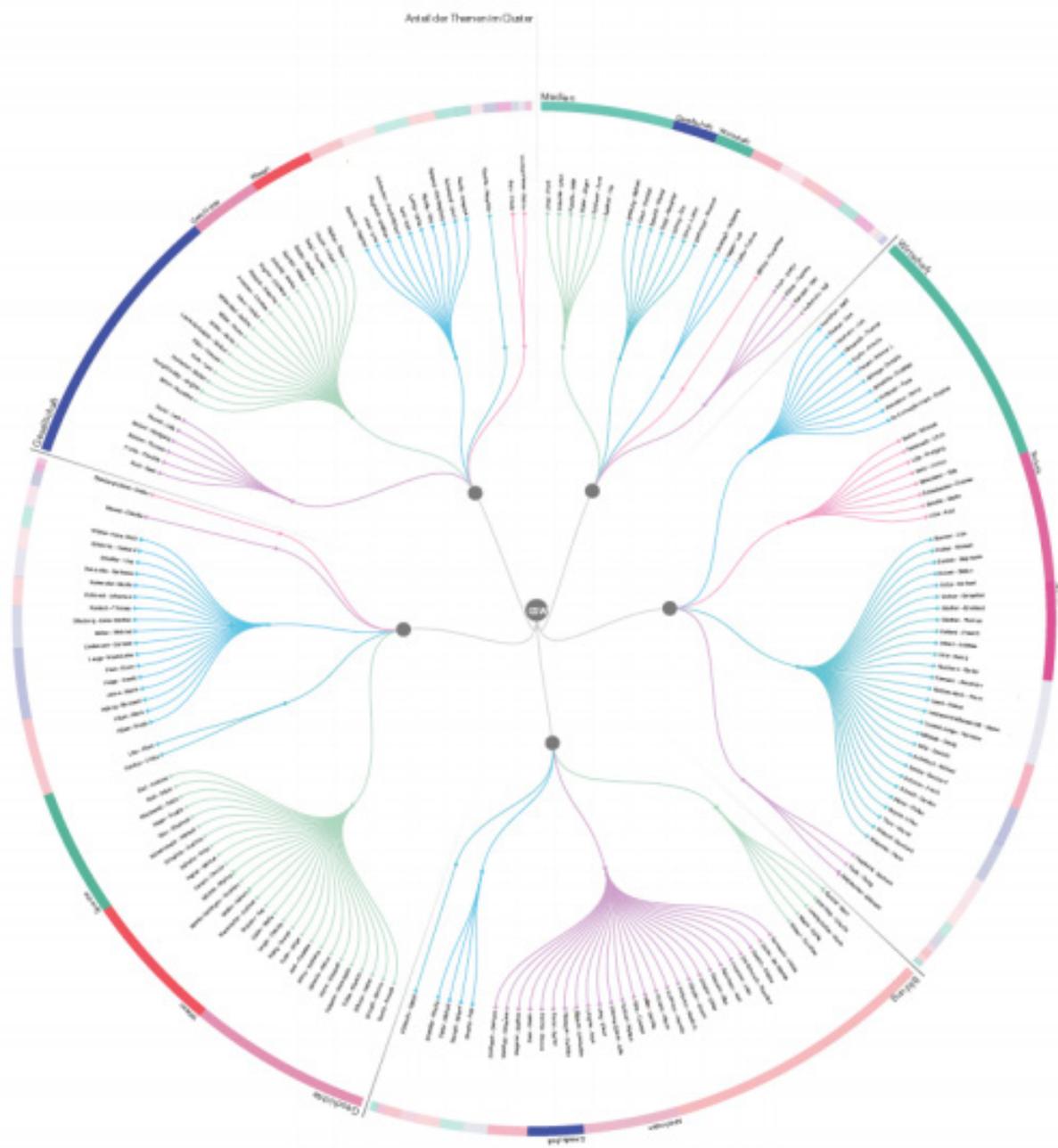
Public Relations Work: communication as method

- Inside + outside perspective
- Reflection about communication process: the basis is Luhmann's idea of organizations and Habermas' idea of discourse
- Digital newsletter: built up like a journal which acts as a decentral press organ of the School Humanities and Social Sciences
 - Target group sensitive communication and acting
 - School formation process is clear, but single ideas are presented in the newsletter > organic growth of School formation
 - Additional value is created regarding which information is actively disseminated (no gossip dissemination by chance)
 - Create a consciousness/identity within the School of Humanities and Social Sciences
- Lightning-talks
 - The idea was introduced by the scientists
 - The talk is being organized by the School of Humanities and Social Sciences, content input by the scientists
 - Kick-off speeches to vividly present one's own topic in a scientific manner, presenters are from different faculties within the School
 - Get to know each other, create aha-moment, change perspective
- Sommerfest of Humanities and Social Sciences
- IdeaStudio Human 4.0 in collaboration with the Project Scouts
- In planning: Humanities and Social Sciences Fair (similar to output of faculty of computer sciences)

In principle: try different approaches (format, methods, proposals) in order to keep open diversity

Research Map

Clustering nach Themenähnlichkeit



Philosophische Fakultät Fakultät Sprach- Literatur- und Kulturwissenschaften Fakultät Erziehungswissenschaften Fakultät Jura Fakultät Wirtschaftswissenschaften

Sinn Gemeinschaft Kommunikation Welt
Wissen Kunst Religion Bildung Gesellschaft Recht Ethik Politik Sprache Wirtschaft Medien Umwelt Technik Geschichte Methoden



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Challenges

The main challenges were changes of the School structure: The Faculty of Economics switched to a different School during the project. There is also uncertainty and disruption caused by elections of new committees every three year. In project management there is a challenge of keeping all activities alive, make rounds, stay committed. Good project management and discipline is necessary. Communication is also an issue: internal (which should be detailed and active) and external, including favourable political conditions. Last but not least the work of School Formation means working with different people with different needs which can lead to interpersonal problems.

Tools/Resources/Materials

For Research Map we needed visualization tools. Also, we had to develop an organizational frame for the get-together and exchange of ideas.

Benefits and Learning

Beneficiaries

Primarily: scientists

- Effects currently not as present, but will be foreseeable once structures are implemented
- Feel-good factor: identification with university begins (currently identification with TU Dresden is rather bad as structures changed heavily over the last years)
- Goal of School formation: science-friendly administrative structure
 - structures of facilitation supporting scientists (research and teaching)
 - enabling scientists to concentrate on their core business
 - strengthening solidarity between scientists
 - strengthening school (e.g. solving the legitimisation questions in the field proactively and self-conscious)

Innovation/value

- Diverse science community where everyone has her/his place
- Profound reorganization of TU Dresden, highly innovative in its implementation and irreversible (e.g. study regulations)
- Unique selling point + efficiency

Prospects

1st of October 2018 start of School of Humanities and Social Sciences and beginning of testing and evaluation phase. Further change will be an integral part of school as social construct.

What would you do differently?

We should have been bolder, assume circumstances and develop something new from a pragmatical basis, use diversity of the groups, leave gaps (no perfectionist attempt to completeness).

Tips

- ✓ Allow people to participate, construct open team structures, combine different methods when dealing with Research Profile Areas, test multiple event formats and let them run parallel. Do not consider the formation of the school as a closed process, but as slowly dynamic. Communication is important to foster identity formation.

Contacts and Sources

Dr. Christina A. Anders
 Executive Manager of the School of Humanities and Social Sciences
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<https://tu-dresden.de/gsw>

Respondent

Project coordinator

- Responsibility for the project progress and the project plan
- Make target groups aware of the project goal
- Prepare meetings (content and methods)
- Develop suggestions for structural changes (always in consultation with the participants)
- Realize the bottom-up process and involve as much people as possible
- Implementation of structural changes and quality management
- Constructivist project: the preparation phase is the project

Involvement in the project

- Former Project Scout (branch: Culture and Knowledge)
- Application for the position of Executive Manager of the School Humanities and Social Sciences (since 2015)

Artur Wysocki

Information Society

Spółeczeństwo informacyjne

The Information Society is one of the few interdisciplinary bachelors's degree programme in Poland implemented jointly by the Faculty of Mathematics, Physics and Computer Science and the Faculty of Political Science at the Maria Curie-Skłodowska University in Lublin. It combines two areas of education: social sciences and exact sciences.



Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium	low
Levels of Interdisciplinarity	medium	high	medium

Location and Institutions Involved	
Place of Implementation	Lublin, Poland
University/Department	Maria Curie-Skłodowska University (UMCS) Faculty of Mathematics, Physics and Computer Science Faculty of Political Science
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	From the academic year 2016/2017 (from October 01, 2016) to the present
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Case description

The main goal and background of the project

The Information Society is one of the first interdisciplinary bachelors's degree programme in Lublin and Poland, whose program concept is a response to the market demand related to technological development and the evolution of economy towards the network. The course is embedded in two areas of education: social sciences and exact sciences. It aims to prepare students for work requiring competence related to the specialized use of modern information and communication technologies (ICT), combined with knowledge and skills in the social sciences. In principle, graduates should efficiently navigate within the scope of technological knowledge (programming, IT project management, social communication) and, above all, should be able to embed it in the context of rules controlling social and cultural condition, define problems and have the ability to search for solutions. Students are also equipped with soft competences regarding negotiation and dispute resolution in the organization, intersectoral work, as well as the use of ICT tools to create the image of the institution.

Within the framework of the studies, two specializations are proposed to students: electronic administration and e-entrepreneurship.

Team

The initiator of the new bachelors's degree programme was Rector of UMCS prof. Stanisław Michałowski from the Faculty of Political Science at UMCS. In the first phase, the project team consisted of four younger scientists from the Faculty of Political Science. Initial meetings consisted of reporting and evaluating the usefulness of ideas for subjects that should enter the classroom grid. The main criterion for the assessment of the new grid of subjects was the student's interest and his satisfaction, not the interests of the Faculty's employees resulting from the need to cast classes and fill the pensum. In the next stages of work on the project, employees of the Faculty of Mathematics, Physics and Computer Science of UMCS and their course offerings were included.

The next step was a series of meetings and electronic consultations around the direction program, including with entrepreneurs, owners of IT companies, start-ups, and officials dealing with computerization of the city office. This was to verify the suitability of objects in practice and ultimately resulted in modifications to the program of the study. The whole process of preparing and consulting the program lasted almost one year. In the meantime, the program has been consulted with the Department of Education Quality UMCS and the Faculty Team on Education Quality.

The final stage, before the formal approval of the Council of both Departments, was a meeting with the so-called external stakeholders - a large group of employers and directors of Lublin institutions, who quite often came to the meeting.

Methods

The main method of work was the seminar and consultations. The completed documents were

processed together with the Faculty Team for Quality of Education and the Department of Education Quality UMCS.

Challenges

The biggest challenge was to agree on the terms of cooperation and programming decisions between the departments implementing the project and to solve practical problems such as coordinating the planning of classes in two faculties.

Tools/Resources/Materials

The project did not require any special tools or resources. Schedule of the programme required access to a large number of computer rooms, which, according to the agreement signed between the Departments, is provided by the Faculty of Mathematics, Physics and Computer Science.

Benefits and Learning

Beneficiaries

The beneficiaries of the project are faculties (their employees), the university, its students and future graduates, especially if they find a well-paid job after completing the course. In the long term, the beneficiary will be external environment. The benefits stem, above all, at the current stage of the project's duration, from opening inter-faculty cooperation and creating a platform for a real transfer of knowledge and competences between academic disciplines and practices.

Innovation/value

The interdisciplinary bachelors's degree programme „Information Society“ is - as the students say - a soft-edged IT specialist. The course is to be prepared for independent and creative identification and solving problems at the interface: society - information systems; entrepreneurship - data flow management; project work - social processes. The course combines two seemingly separated areas of knowledge and science to meet the specificity of the challenges faced by the modern information society and thus developing the labor market. An innovation is the inclusion of a mandatory Design Thinking course of 30 hours in student education already in the first semester of classes.

Prospects

The future of the project depends on the scale of success and implementation of subsequent stages of the project - student internships, internships, graduates' satisfaction, recruitment in

subsequent years, integration of employees from both departments.

What would you do differently?

According to Katarzyna Kuć Czajkowska, the co-founder and co-organizer the project, we would have to take care of a greater participation of partners from the Faculty of Mathematics, Physics and Computer Science while preparing the project again.

Tips

- ✓ The basic advice is to priority treatment of the faculty by employees of both Departments.

Additional comments

The interdisciplinary bachelors's degree programme is an organizational challenge for both Departments, but above all it is a challenge for the students who have to complete subjects from various fields and disciplines. These are difficult, requiring studies for a student who, on the one hand, must be a humanist and, on the other, orientate in exact sciences: mathematics, programming, etc.

This bachelors's degree programme requires the involvement of a large number of practitioners-lecturers (company owners, start-ups), which is for the benefit of students, but means relatively higher costs of studies for the Faculty of Political Science (the leading Faculty pays for these lecturers).

Contacts and Sources

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PhD Katarzyna Kuć-Czajkowska

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Co-founder and co-organizer of bachelors's degree programme: Information Society

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- <https://www.youtube.com/watch?v=JpkVV3c53UQ>
- <https://www.youtube.com/watch?v=ijCp7NxQvTs>
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Kathryn Burns

Visioning Workshops

To design a means of business support specifically for designer-makers and other creative micro businesses. Visioning workshops focused on addressing the difficulties faced by those running a business on their own and provided them with ways to design a better or even a new approach to business based on the design values of their products and/or services.



BIRMINGHAM CITY
University

Project Type	Designer-makers/creative businesses in the West Midlands in the United Kingdom. With support from the European Regional Development Fund and the then regional development agency Advantage West Midlands.
Target Group	Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	high	medium
Levels of Interdisciplinarity	high	medium	high

Location and Institutions Involved	
Place of Implementation	West Midlands, United Kingdom
University/Department	Birmingham Institute of Art and Design, (now Faculty of the Arts, Design and Media), Birmingham City University
Municipal Authorities/Department	-
Business Partners	Advantage West Midlands Regional Development Agency; European Regional Development Fund
NGOs	-

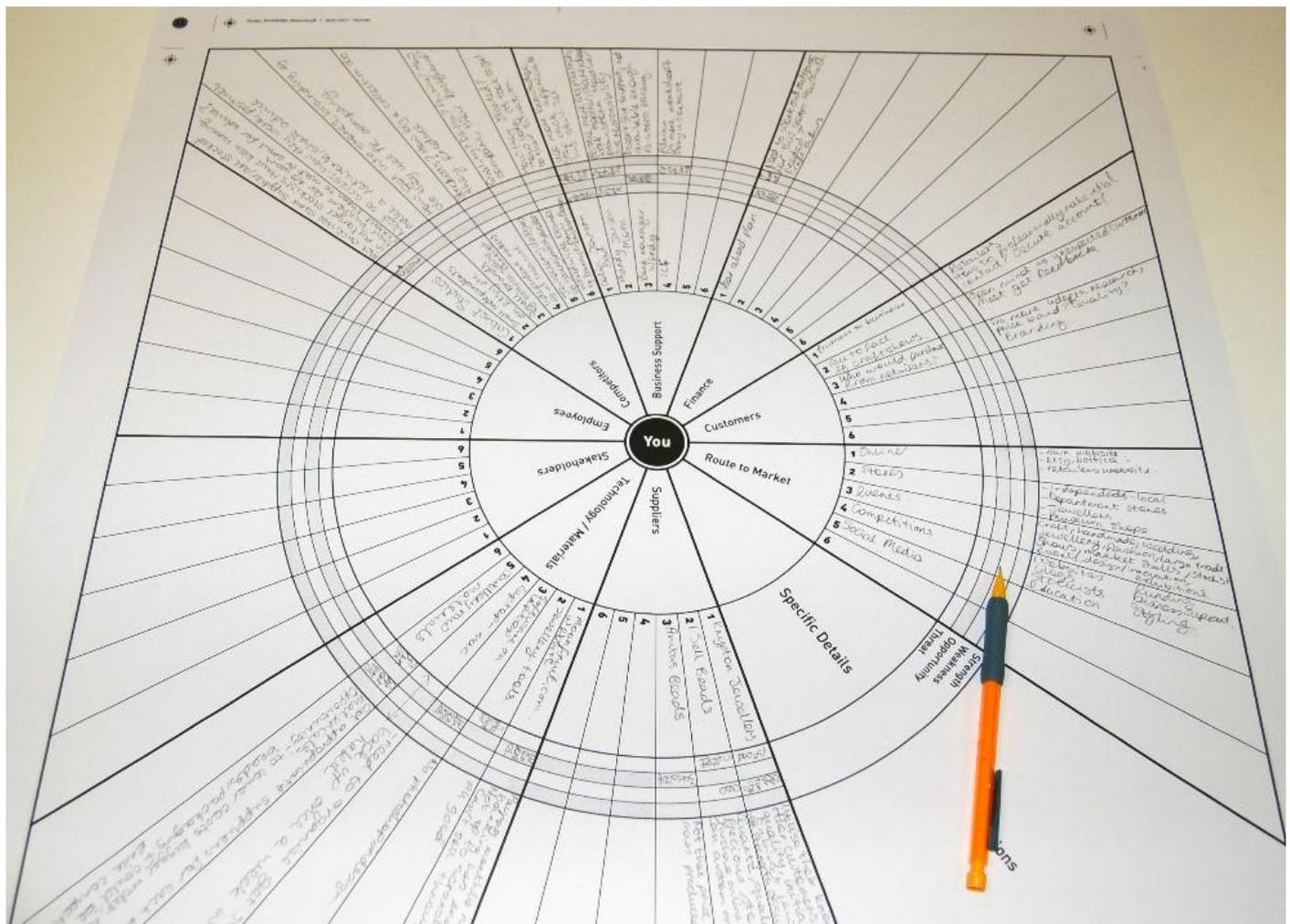
Duration	September 2009 - September 2015
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Case description

The main goal and background of the project

Kathryn Burns and her team conducted research before developing support for individual creative businesses. This indicated that while they had an undoubted passion for their products, many were inexperienced in or resistant to the practical requirements of running a profitable business. The aim was to create a programme that would foster divergent thinking and help them break down all the internal and external elements that affected their business (many of which they had never considered objectively). Then, through convergent thinking, they created a new plan to help them to improve their business performance. From the project team's point of view this had to be done while addressing the challenge of the companies' creative nature and attract their participation in the visioning workshops.

With reference to design thinking methods, the project team spent some months exploring and testing a range of tools and techniques that might appeal to designer-makers and micro businesses. A major breakthrough resulted from an article in the Harvard Business Review that advocated analysing business in terms of narrative, character and plot rather than an examination of spreadsheets and graphs.



Team

The visioning workshop programme ran in two phases 2009 - 2012 when the workshop delivery team comprised a maximum of six people. Between 2012 and 2015 usually four people ran the workshops. Professor Richard Snell, an academic and furniture designer, played a key role in creating content with the support of a team of emerging business advisers and researchers. Members of the team were assigned responsibility for the recruitment of participants and one person ran publicity, communications and social media.

Kathryn and Richard alternated the delivery of the key phases of the workshop while they and the rest of the team supported participants as they completed the practical elements of the workshop, which comprised two days, usually one week apart.

Methods

Both days of the workshop ran to a timed schedule and built around the active involvement of the participants throughout both in-group and individual sessions.

The methodology comprised an exploration of business issues with input from the team and participants. Participants were encouraged to take a design-thinking approach to their businesses using the techniques and tools described below. An underlying principle was that participants learnt from each other and had the opportunity to establish a new network of support.

All this helped participants to investigate their current business network, its positive and negative aspects, and to identify the significant parts of their business/practice, as well as gaps and shortcomings. They then moved into a phase of convergent thinking that developed potential business solutions and ways to add value and create new opportunities. Ultimately, they left the workshop with a practical action plan and the highly visual network wheel which recorded and graded strengths, weaknesses, opportunities and threats.

Challenges

Challenges include:

- ✓ building the confidence that the workshop content would be both attractive and useful to participants (here a pilot workshop helped hone delivery and activities);
- ✓ ensuring that the workshop was available to a geographically spread pool of potential beneficiaries (here the workshop was delivered in various locations around the region, often linked to local networks and associations); and
- ✓ managing group dynamics where participants may be overly taciturn or garrulous, or resistant to understanding the real challenges of making their business successful.

Tools/Resources/Materials

The project team designed its own support materials: the character map, network wheel and action timeline. It also used well known techniques such as blueprint modelling, adapted to the workshop's underpinning concept of character, story and plot as well as exploration of adding value and external trends.

Benefits and Learning

Beneficiaries

Beneficiaries were individual and micro businesses, their network of business support and other linked businesses and ultimately the region's economy. It can be difficult running a business alone and without input from others. Through the two days of the visioning workshops small creative companies had, and indeed welcomed, the opportunity to question their business with others in a similar situation and comparable traits. Regularly, a participant would conclude they had been pursuing the wrong business tactic, or even product, and would make significant changes to their company strategy.

The value of networking to these individuals is a major benefit providing on one level a sense of shared camaraderie as well as practical solutions such as identifying useful suppliers.

Innovation/value

The key innovation was to attract over 70 creative individuals to workshops that made business analysis and improvement an enjoyable process. For many of them the basics of costing, planning and selling were the least interesting part of their motivation to run their own businesses. The visioning workshops were carefully designed and structured to account for this and took a visual and creative approach to commercial planning. The innovative network wheel was of particular note.



Prospects

The visioning workshops ran successfully for nine years. With funding at an end, the programme closed and team members moved to new projects. It would still work very well as a programme.

What would you do differently?

It would have been advantageous to have enough budget and resource to run follow-up events where the beneficiaries could have reinforced their initial experience and business plans.

Tips

- ✓ Understand the needs of your beneficiaries and their likely strengths as well as shortcomings.
- ✓ Remember that your participants have a business and do not need to be patronised.
- ✓ Do not be deterred by the delivering workshops to groups of companies - the networking will come naturally with benefits for all.

Contacts and Sources

Project completed. Project Director: Kathryn.Burns@bcu.ac.uk

Respondent

Kathryn Burns, Associate Professor and Project Manager of Interiors and Lifestyle Networks. Having led a number of European-funded programmes supporting West Midlands small and medium sized enterprises, Kathryn was asked to champion a project to deliver a key strand of the regional development agency's Interiors and Lifestyle Cluster Plan.

This highlighted the economic and historic importance of West Midlands businesses - most of them small or medium-sized and including various consumer products such as furniture, ceramics, glass, jewellery and silverware, fashion and accessories as well as leather goods.

However, while programmes were quickly developed to meet the needs of larger companies, there was another group whose activities fell within these categories - individual designer-makers and creative businesses then numbering in excess of 2,000 across the West Midlands - whose support requirements differed.

For those businesses Kathryn spearheaded the creation of the visioning workshops programme.



Interdisciplinarity + active role of students

Robert Fischer

Boysen - TUD - Research Training Group

Paths to Ecologically Friendly, Safe and Competitive Energy. Technical Feasibility and Societal Impacts

Boysen - TUD - Graduiertenkolleg. Wege zu umweltfreundlichen, sicheren und wettbewerbsfähigen Energiesystemen: Technische Machbarkeit und gesellschaftliche Auswirkungen

The aim of the project is to foster the interdisciplinary collaboration between social and engineering science for junior researchers in a structured PhD program.



**TECHNISCHE
UNIVERSITÄT
DRESDEN**

Project Type	Education Scientific collaboration
Target Group	Research

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium/high	medium/(high)
Levels of Interdisciplinarity	(medium)/high	medium	medium

Location and Institutions Involved	
Place of Implementation	Dresden
University/Department	Technische Universität Dresden
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	1st Research Training Group: 2012-2015, 10 PhD students 2nd Research Training Group: 2015-2018, 11 PhD students Planned: 3rd and 4th Research Training Group: 2019-2022 and 2022-2025
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Case description

The main goal and background of the project

- Foster and publish interdisciplinary research of engineering science and social science
- Based on the ideas of the Rector of the TU Dresden and the Boysen Foundation's notion to develop and improve environmentally friendly energy systems in order to realize CO₂ reduction
- The most challenging task is to coordinate the program: find suitable and matching candidates from different disciplines, develop a common language, guide the development of the topics of the single projects so that interdisciplinary connections are possible

Team

1st Research Training Group: initiated by two professors from different disciplines (communication sciences and power engineering) within TU Dresden

- subjectively composed board of 10 professors who acted as dissertation supervisors for the PhD students

2nd Research Training Group: replacement of receded board members + additional members

- selected via ranking according to a balanced representation of different disciplines on the board

3rd and 4th Research Training Group: "call for applications" within TU Dresden planned; applicants (professors, later in the function as the supervisors of PhD-students and thus board members) apply in "cluster-groups"

- PhD students are selected via the successful applicants of the professors in accordance with their disciplines

Methods

- Lowest common thematic denominator so far: sustainability
- Initiation of cooperation between PhD students
 - Establishing of a trusting discussion culture: generate understanding, transfer of knowledge, open but respectful debate
 - Planned for the future: develop research design within the first three months as a basis for good cooperation
 - Within the first year select a second dissertation supervisor
 - Planned: building clusters where cooperation is fostered by a certain framework (similar thematic approach, same level of research (micro, meso, macro))



- Work routine for cooperation between PhD students
 - Collaborative work days: Tuesday and Thursday: regular collaborative work days are the most important as they create encounters and keep up a healthy friction
 - Weekly colloquium each Thursday before noon: presentation of projects and progress (each PhD student every two months), lecture from different discipline, work on collaborative projects (e.g. publication projects)
 - Monthly professional discussion: board professors presenting their work or invited guests giving a lecture
 - Semi-annual performance review
 - Internal two-day workshop in fall
 - Presentations for the Boysen Foundation each spring
 - Participation in the qualification program of the TU Dresden Graduate Academy or other qualification options at TU Dresden, e.g. lectures
- Organizing aspects
 - Experimental workshops with TUD-Project Scouts on what an ideal interdisciplinary graduate school would look like (e.g. small things can make a big difference, provide space for discussion)
 - Nudging: coordinator needed to keep track of the developments, function as an interface to PhD students, professors and the Boysen Foundation

Challenges

- ✓ Common office space is of utmost importance and often not easily available
- ✓ Interdisciplinarity and thematic approach
 - Thematic depth of the dissertation vs. broad approach in interdisciplinary projects (foundation of an interdisciplinary faculty with right to award doctorates or cumulative dissertation could be a solution)
 - Strain when PhD students are overly focused on interdisciplinary work
- ✓ Interdisciplinarity and publication
 - Interdisciplinary publications are difficult to realize: interdisciplinary projects take time and are more arduous (they should be part of the project planning in advance!), PhD students obtaining a doctorate cumulatively have a hard time placing the articles, e.g. inclusion of sociological examination of engineering concepts are often not accepted
- ✓ Boysen Scholarship
 - Imbalance between disciplines: engineers earn more in the industry, social scientists usually less; social scientists tend to do better with a scholarship
 - Possibility to apply for up to 6 months extended scholarship needs to be implemented

Tools/Resources/Materials

- Infrastructure: common office space and equipment (but experiments are conducted in faculty-based labs)
- Services: coordination, workshop support, TU Dresden Graduate Academy membership

Benefits and Learning

Beneficiaries

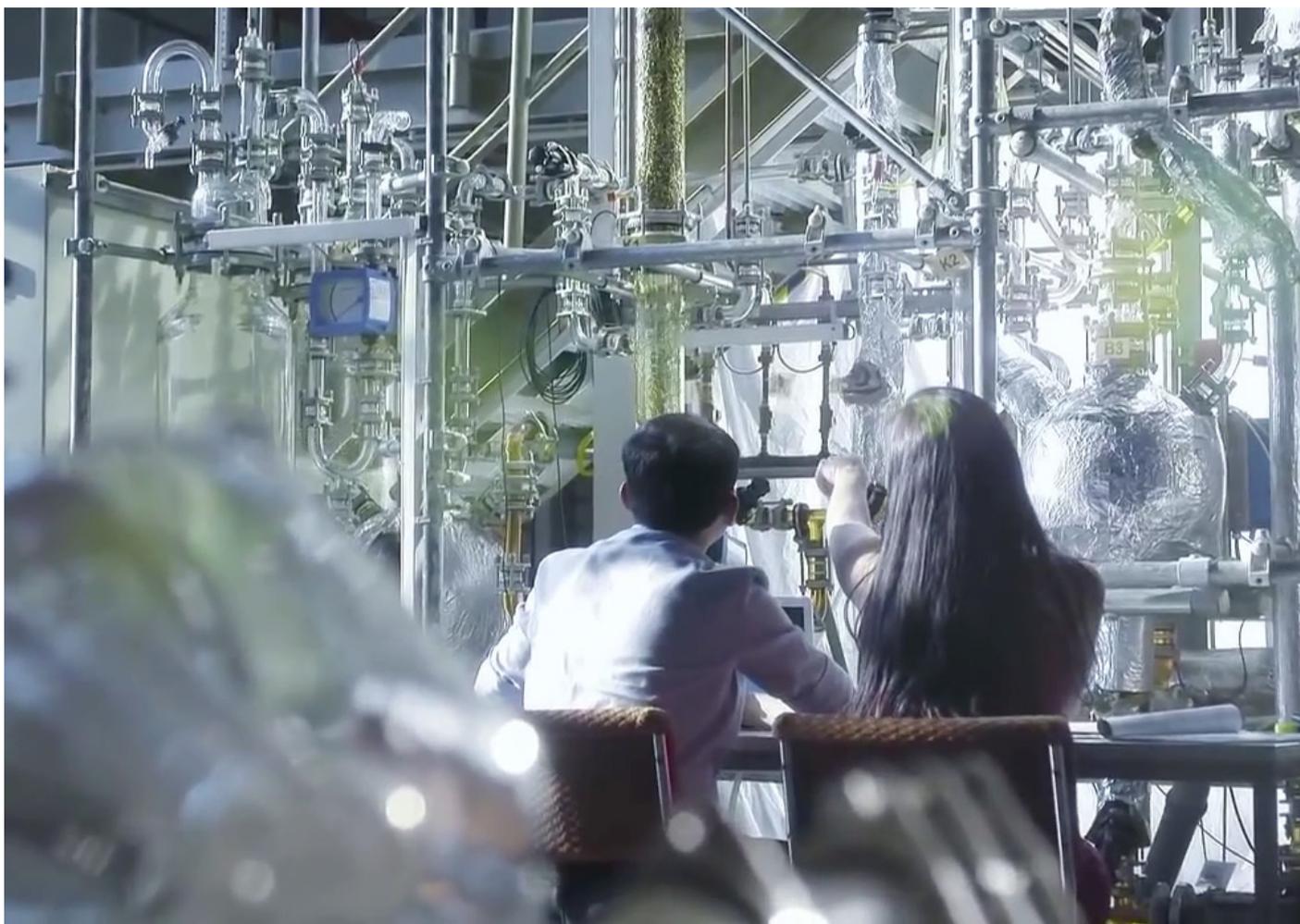
- Researchers at faculties: receive new perspectives on their discipline
- PhD students: obtain a broad network + personal advancement
- Coordinator: research management receives increased recognition, advice is valued
- Board professors: new network within the TU Dresden

Innovation/value

- Increase visibility of interdisciplinarity (1+1>2)
- Technology assessment: new technologies are assessed before they are in use
- Boysen - TU Dresden - Research Training Group as blueprint for similar projects: develop innovative guidelines for interdisciplinary projects from the Boysen - TU - Dresden - Research Training Group (theory from practice), e.g. group size, etc.

Prospects

- Future of the Boysen - TU Dresden - Research Training Group is positive since the construct is a nucleus which can be used as a blueprint
- Pioneering role of Boysen - TU Dresden - Research Training Group
 - "The best horse in the stable of Boysen Foundation" partly because of proactive reports and presentations
 - blueprint for similar work at TU Dresden



What would you do differently?

- Selection process of applicants should be more objective and transparent
- At the beginning the level of each project (macro, meso, micro) was not matching well enough with other projects
- Team applications under a tight super-topic (given or of one's own devising):
2 to 3 cluster under the super-topic > co-working is defined beforehand as interfaces are laid down more clearly in the application process (same level or same thematic frame)
- 3 months finding phase: 3 to 5 PhD students within one cluster coordinate their research design to improve long-term cooperation
- Publication topics that can be worked on
 - Joint publication of communication and political sciences as well as business studies
- Measuring of interdisciplinary cooperation
- Supervising professors are aware of their lack of cooperation but they need to actually improve their interworking

Tips

- ✓ Name issues (e.g. technical terms) with interdisciplinary cooperation and how to deal with these issues
- ✓ Make clear that all conditions are known to people who sign (e.g. financial discrepancies between assistant professor vs. fellow at the graduate school)
- ✓ Networking and joint sharpening of the concepts and the work
- ✓ Strong support from initiating professors, especially at the beginning
- ✓ The most important is: to provide shared office space, organize joint meetings, plan the topics in advance to avoid the mentioned challenges

Contacts and Sources

<https://tu-dresden.de/ing/maschinenwesen/iet/boysen/>

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<https://tu-dresden.de/ing/maschinenwesen/iet/boysen/>

Respondent

- Project coordinator who is responsible for:
 - administration
 - support of the PhD students (organization of events, consultation, education)
 - connecting the students to create a real interdisciplinary group (group work, collaborative projects)
 - relation to the Boysen Foundation, the speakers and the board
- Interdisciplinary management of research projects

María del Carmen Arau Ribeiro

CLIL Community of Learning and Practice

Many higher education institutions (HEIs) are offering courses in English to attract students and teachers for mobility and to improve their levels of internationalization. To support professors who may be required to teach in a language that is not their own (usually English), foreign language teachers - specifically English language and culture teachers in this case study - have prepared a transdisciplinary course to help develop the teaching toolkit for dealing with content and language integrated learning (CLIL) in higher education across disciplines.



Project Type	Education Scientific collaboration
Target Group	Student Teacher

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium/high	high
Levels of Interdisciplinarity	high	medium	medium/high

Location and Institutions Involved	
Place of Implementation	Guarda, Portugal
University/Department	Polytechnic of Guarda
Municipal Authorities/Department	-
Business Partners	-
NGOs	Network Association of Language Centers in Higher Education in Portugal (ReCLes.pt)

Duration	<p>The training course reported in this case took place mostly in the first semester of the 2014-2015 academic year, scheduled for just ten hours of teacher training with an additional 50 hours of intermittent collaborative work toward the implementation of a CLIL module with the teachers' respective students. The class or classes for the module were observed and evaluated by the foreign language teacher for feedforward with both the teachers and the students themselves. Overall, the full implementation spanned both semesters to include implementation and to accommodate changing schedules of dynamic teachers.</p> <p>The CLIL training course was recreated by the national team in a blended learning format that was implemented in 2016-2017 and can be consulted in Portugal's fourth case study presented for the DT.Uni project.</p>
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Case description

The main goal and background of the project

The main problem was to help teachers deal more effectively in the classroom with courses that suddenly needed to be lectured in English to deal with growing mobility and to present a profile of the school that is invested in internationalization. The potential role for foreign language teachers, who have training in didactics that could be developed across disciplines, was identified by the Network Association of Language Centers in Higher Education in Portugal (ReCLes.pt). In 2012, ReCLes.pt applied for and received a three-year grant to research and develop the *ReCLes.pt CLIL Training Guide: Creating a CLIL Learning Community in Higher Education*.

The research was carried out and the guide (Morgado et al. 2015) is available online as an Open Educational Resource. Twelve foreign language teachers who collaborated made up a transdisciplinary team from areas as diverse as Translation, Linguistics, Applied Linguistics, Literature, and Culture. The Training Guide covers classroom management techniques, learning strategies, scaffolding techniques, and terminology-based approaches to dealing with subject-specific learning (cf. Arau Ribeiro 2016b for a critical review of the results).

Team

Five HEIs in Portugal comprised the core team of foreign language specialists who were the teacher trainers with at least three years of working together on this common goal. This team was established through the collaborative work of the Network Association of Language Centers in Higher Education in Portugal (ReCLes.pt), founded in 2009.

At the local level, ReCLes.pt had researched HEIs across the country to establish the need for CLIL training for their teachers so the project had clearly defined administrative support. Without this top-down approach, teachers may not have been so willing to participate because their efforts might not be recognized.

Participating teachers were encouraged to keep records of their progress and to share the results in academic moments, including national and international seminars and conferences as well as publications.

Methods

The work method was always in favor of interdisciplinary work, which would have been true for an English teacher working with a group of teachers all from the same area of study. Since this case study involved teachers from four different areas, its nature became transdisciplinary so that all participants benefited from the interaction and sharing nature of the community of learning and practice.

Characteristics of empathizing and understanding are central to a community of learning and practice so these iterative practices of design thinking are necessarily part of the process. Such point of view contributes fundamentally to a teacher training course where the teachers themselves switch their roles and dress the part of their own students before having to actually implement their own CLIL module, adjusting their conception of how their subject can be learned as they deal with designing their own materials (which can be seen as a type of prototyping in design thinking). The classroom observation of the CLIL module sets a climate of ongoing fine-tuning and even starting over which is a characteristic of the ongoing iterations in design thinking.

Challenges

One of the biggest challenges was overcoming the divide between Language and Science so that the focus could be on communication and good teaching.

The creation of a Community of Learning and Practice, reflected in the title of the Training Guide, reinforced the equality and respect desired amongst colleagues who truly can learn from each other. This is not just about feeling good, although that certainly helps a teacher teach well. It is about teaching *through* a foreign language rather than *in* a foreign language, which is liberating for teachers who may be perfectionists or feel insecure about their language competences and makes it natural that students may even have better communicative competence than the teachers.

Another big challenge is creating a positive learning environment for the teachers working together to acquire teaching strategies that can help students learn not only the specific subject but also grow their language competences through appropriate scaffolding, applied learning tasks, and relevant and ongoing assessment and feedforward.

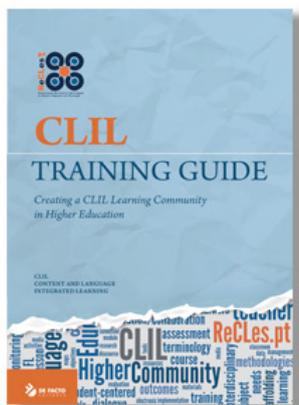
Classroom observation is also fundamental to the project to register and accompany the growth of the teacher and the students involved. While some teachers may be hesitant to open their doors to colleagues for observation, those who participated embraced the opportunity to talk openly about their experiences, both positive and negative.

Logistically, it is difficult for highly involved teachers to comply with an extra voluntary schedule (accommodating teaching schedules and office hours with administrative roles with speaking

engagements and other research responsibilities), so the one-semester plan was spread across two semesters of the same year.

Tools/Resources/Materials

The Training Guide would be an essential support, widely used in Portugal and in Italy: Morgado, M., Coelho, M., Arau Ribeiro, M. C., Albuquerque, A., Silva, M., Chorão, G., Cunha, S., Gonçalves, A., Carvalho, A. I., Régio, M., Faria, S., and Chumbo, I. (2015). CLIL Training Guide. Creating a CLIL Learning Community in Higher Education. Santo Tirso, Portugal: De Facto Editores and ReCLES. pt. <http://recles.pt/>, Tab: "Publicações".



CLIL Training Guide - Creating a CLIL Learning Community in Higher Education

The ReCLES.pt CLIL Training Guide presents the theoretical and practical basis for the creation of a CLIL Learning Community of foreign language teachers and subject teachers with the topics organized across four chapters.

Autores: Margarida Morgado, Margarida Coelho, María del Carmen Arau Ribeiro, Alexandra Albuquerque, Manuel Moreira da Silva, Graça Chorão, Suzana Cunha Ana Gonçalves, Ana Isabel Carvalho, Mónica Régio, Sónia Faria e Isabel Chumbo

Ano: Março, 2015

ISBN: 978-989-8557-50-6



Benefits and Learning

Beneficiaries

The teachers who train in the CLIL Community of Learning and Practice benefit from improving their toolkit of teaching strategies and techniques as well as improving their communicative competences in English through using the language for relevant tasks in their professional activities.

The students of these participating teachers benefit through opportunities to learn through a foreign language (English, in this case, although CLIL is not restricted to any specific language). Learning content-specific competences through a foreign language provides contexts for developing learning in both the content and in the language.

Innovation/value

The innovation is in the approach to teacher training.

Content and Language Integrated Learning (CLIL) involves foreign language teachers with teachers of any other subject, crossing Science, Humanities and Engineering with Languages in an enriching transdisciplinary community.

CLIL is a way of expanding the professional discourse on the campus.

Prospects

Student and teacher response is always positive so, whenever time permits and human resources are available, the community will be created.

It all depends on the availability of human resources. When the foreign language teacher is able to offer the training course, it has a high demand. In two versions, teachers repeated their enrollment to refresh their teaching strategies through English.

What would you do differently?

Based on this experience, the case study CLIL Teacher Training Course via Blended Learning documents the experience of taking this project into a blended learning environment across four geographically distant HEIs.

Tips

- ✓ Teacher training functions best when the administration recognizes its benefits for their respective higher education institute (HEI) and for its students. Involve your administration so that the training is tailored to specific local needs that you might not be aware of initially.
- ✓ Sometimes the classroom layout itself is not conducive to student-centered learning. The u-shaped layout was favored by some of the teachers. Others encouraged groups of tables to be pushed together, creating a dedicated learning space for the team of students. This may require extra time at the end of the lesson to put the tables and chairs back into the traditional magisterial setup.

Additional comments

Although this was a local iteration of a national project, the activity can be planned exclusively locally. The advantage of working with other colleagues from other HEIs is that the learning curve is much steeper since you adapt to the experiences shared across all of the teacher trainers involved.

Contacts and Sources

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Respondent

IPG students and teachers in the CLIL Community of Learning and Practice at the IPG School of Technology and Management (ESTG) responded to create this case study.

Four HE teachers were selected from a group of teachers who voluntarily sat for the DIALANG language assessment for evidence of their B2 level on the Common European Framework of Reference (CEFR) for languages.

Their students participated because the teacher commitment was based on following up with a CLIL module in their existing courses.

The participation in the national project was based on a formal invitation issued by the Board of Directors of the ESTG-IPG.

María del Carmen Arau Ribeiro

CLIL Teacher Training Course via Blended Learning

The purpose of this case is directly related to that presented in case study CLIL Community of Learning and Practice in Portugal with the caveat that the core foreign language teacher team was interested in the way teachers would collaborate online and face to face and to what extent the more autonomous characteristics of the b-learning context could contribute to developing competences in Content and Language Integrated Learning (CLIL).

“Many higher education institutions (HEIs) are offering courses in English to attract students and teachers for mobility and to improve their levels of internationalization. To support professors who may be required to teach in a language that is not their own (usually English), foreign language teachers - specifically English language and culture teachers in this case study - have prepared a transdisciplinary course to help develop the teaching toolkit for dealing with content and language integrated learning (CLIL) in higher education across disciplines.”



Project Type	Education Scientific collaboration
Target Group	Student Teacher

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium/high	high
Levels of Interdisciplinarity	high	medium	medium/high

Location and Institutions Involved	
Place of Implementation	Guarda, Portugal
University/Department	Polytechnic of Guarda
Municipal Authorities/Department	-

Location and Institutions Involved	
Business Partners	-
NGOs	Network Association of Language Centers in Higher Education in Portugal (ReCLes.pt)

Duration	<p>The training course reported in this case was scheduled to take place at the beginning the semester break and on through the second semester of the 2016-2017 academic year, officially scheduled for 61 hours of teacher training to include the completion of a Viewing Task Assignment for each online or a face-to-face lesson and individual or accompanied work on materials design for the implementation of a CLIL module with the teachers' respective students.</p> <p>The class or classes for the module were observed and evaluated by the foreign language teacher for feedforward with both the teachers and the students themselves. Overall, the full implementation has spilled into another academic year due to sabbaticals and changing schedules of dynamic teachers.</p> <p>This blended learning format of the CLIL training course reported in case study CLIL Community of Learning and Practice in Portugal was recreated by the national team of teachers whose HEIs belong to ReCLes.pt, the Network Association of Language Centers in Higher Education in Portugal.</p>
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Case description

The main goal and background of the project

The goal here was to understand the benefits (or drawbacks) of this type of teacher training in a blended learning format.

"The main problem was to help teachers deal more effectively in the classroom with courses that suddenly needed to be lectured in English to deal with growing mobility and to present a profile of the school that is invested in internationalization. The potential role for foreign language teachers, who have training in didactics that could be developed across disciplines, was identified by the Network Association of Language Centers in Higher Education in Portugal (ReCLes.pt). In 2012, ReCLes.pt applied for and received a three-year grant to research and develop the ReCLes.pt CLIL Training Guide: Creating a CLIL Learning Community in Higher Education. The research was carried out and the guide (Morgado et al. 2015) is available online as an Open Educational Resource. The 12 foreign language teachers who collaborated made up a transdisciplinary team from areas as diverse as Translation, Linguistics, Applied Linguistics, Literature, and Culture. The Training Guide covers classroom management techniques, learning strategies, scaffolding techniques, and terminology-based approaches to dealing with subject-specific learning (cf. Arau Ribeiro 2016b for a critical review of the results)."

Team

Four HEIs in Portugal comprised the core team of foreign language specialists who were the teacher trainers with at least four years of working together on this common goal. This team was established through the collaborative work of the Network Association of Language Centers in Higher Education in Portugal (ReCLes.pt), founded in 2009.

These teachers agreed on the structure of the lessons and the division of face-to-face (local) lessons at the beginning (to establish a sense of community of practice) and the end of the training course (to work together on refining the material design before implementing the CLIL module) and who would develop the online lessons divided into four units with four lessons each.

Methods

The work method was always in favor of interdisciplinary work, which would have been true for an English teacher working with a group of teachers all from the same area of study. Since this case study involved teachers from a number of different areas – Computer Engineering, Math, Management, Topographic Engineering, and Civil Engineering – its potential for transdisciplinary interaction could have led to more sharing within the community of learning and practice had it been better designed into this blended learning format.

The repository for completed assignments was made available across the four HEIs, with the idea that participants would check out each other's' output and the feedforward provided by the local HEI coordinator from the national core team. Most participants reported that they simply did not have time to do that but, if we had been working face to face, they understood the potential for added value.

With a better design in future versions of the blended learning project, the text from case study CLIL Community of Learning and Practice in Portugal could also be true: "Characteristics of empathizing and understanding are central to a community of learning and practice so these iterative practices of design thinking are necessarily part of the process. Point of view contributes fundamentally to a teacher training course where the teachers themselves switch their roles and dress the part of their own students before having to actually implement their own CLIL module, adjusting their conception of how their subject can be learned as they deal with designing their own materials (which can be seen as a type of prototyping in design thinking). The classroom observation of the CLIL module sets a climate of ongoing fine-tuning and even starting over that is a characteristic of the ongoing iterations in design thinking."

Challenges

The challenges that are similar in case study CLIL Community of Learning and Practice in Portugal are cited below but the blended learning format presents unique problems that may not yet have found concrete solutions. The autonomous learning at the base of the online part of a blended learning course means different timings to different participants. Out of respect for our colleagues, the core team of teacher trainers opted NOT to impose an overly rigorous timeline: the dates for release of the successive lessons were made available at the start of the course and

participating teachers were advised to keep up and submit their Viewing Task Assignments on a regular basis. This was only feasible for four of the ten trainees and, during the course of the semester, fewer were able to keep up. The climate of incompleteness began to infuse any contact among participating teachers and talk in the corridors was mostly about apologizing for the delay.

In looking for a solution, we aim to try the next iteration of this blended learning project with weekly face to face support sessions – perhaps even in a café setting – a much-loved CLIL Café was established by partners at the School of Hospitality and Tourism in Estoril (ESHTE) in the project presented in case study CLIL Community of Practice and Learning in Portugal.

Other difficulties relate to the language question. Working alone and reading in a foreign language contributes to learning the language but participants want to practice their communication to prepare for the implementation of their CLIL module, when they will be teaching their specialty area through English. Confidence rises in the constant practice that cannot be achieved in the online version as it stands. In fact, the very nature of a community encounter means that meaning is constantly being negotiated and strategies are reconsidered.

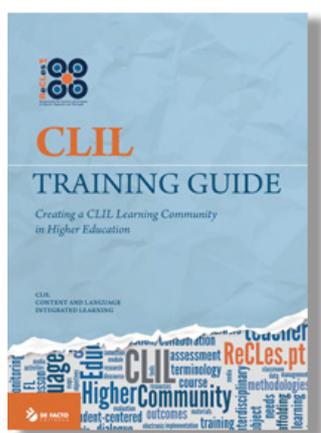
So the community spirit is also less intense through the existing blended learning format but the weekly encounters may result in an improved sense of working together and learning from each other. The opportunity to confront other perspectives, adjust your own perspective or even find more reasons to defend it which can, in turn, influence others is more intense when working physically together.

Another possible solution is to have a discussion board within the course. Written interaction can stimulate this confrontation of perspectives.

“One of the biggest challenges was overcoming the divide between Language and Science so that the focus could be on communication and good teaching. The creation of a Community of Learning and Practice, reflected in the title of the Training Guide, reinforced the equality and respect desired amongst colleagues who truly can learn from each other. This is not just about feeling good, although that certainly helps a teacher teach well. It is about teaching through a foreign language rather than in a foreign language, which is liberating for teachers who may be perfectionists or feel insecure about their language competences and makes it natural that students may even have better communicative competence than the teachers. Another big challenge is creating a positive learning environment for the teachers working together to acquire teaching strategies that can help students learn not only the specific subject but also grow their language competences through appropriate scaffolding, applied learning tasks, and relevant and ongoing assessment and feedback. Classroom observation is also fundamental to the project to register and accompany the growth of the teacher and the students involved. While some teachers may be hesitant to open their doors to colleagues for observation, those who participated embraced the opportunity to talk openly about their experiences, both positive and negative. Logistically, it is difficult for highly involved teachers to comply with an extra voluntary schedule (accommodating teaching schedules and office hours with administrative roles with speaking engagements and other research responsibilities), so the one-semester plan was spread across two semesters of the same year.”

Tools/Resources/Materials

The Training Guide would be an essential support, widely used in Portugal and in Italy: Morgado, M., Coelho, M., Arau Ribeiro, M. C., Albuquerque, A., Silva, M., Chorão, G., Cunha, S., Gonçalves, A., Carvalho, A. I., Régio, M., Faria, S., and Chumbo, I. (2015). CLIL Training Guide. Creating a CLIL Learning Community in Higher Education. Santo Tirso, Portugal: De Facto Editores and ReCLES.pt. <http://recles.pt/>, Tab: "Publicações".



CLIL Training Guide - Creating a CLIL Learning Community in Higher Education

The ReCLES.pt CLIL Training Guide presents the theoretical and practical basis for the creation of a CLIL Learning Community of foreign language teachers and subject teachers with the topics organized across four chapters.

Autores: Margarida Morgado, Margarida Coelho, María del Carmen Arau Ribeiro, Alexandra Albuquerque, Manuel Moreira da Silva, Graça Chorão, Suzana Cunha Ana Gonçalves, Ana Isabel Carvalho, Mónica Régio, Sónia Faria e Isabel Chumbo

Ano: Março, 2015

ISBN: 978-989-8557-50-6



Benefits and Learning

Beneficiaries

The teachers who train in the CLIL Community of Learning and Practice benefit from improving their toolkit of teaching strategies and techniques as well as improving their communicative competences in English through using the language for relevant tasks in their professional activities.

The students of these participating teachers benefit through opportunities to learn through a foreign language (English, in this case, although CLIL is not restricted to any specific language). Learning Content-specific competences through a foreign language provides contexts for developing learning in both the content and in the language.

Innovation/value

The innovation is in the approach to teacher training and, in this case, specifically including an online component. As in case study CLIL Community of Learning and Practice in Portugal, "Content and Language Integrated Learning (CLIL) involves foreign language teachers with teachers of any other subject, crossing Science, Humanities and Engineering with Languages in an enriching transdisciplinary community [...to expand] the professional discourse on campus".

Prospects

Student and teacher response is always positive so, whenever time permits and human resources are available, the community will be created.

It all depends on the availability of human resources. When the foreign language teacher is able to offer the training course, it has a high demand. In the two versions thus far, teachers repeated their enrollment to refresh their teaching strategies through English.

What would you do differently?

Based on this experience, this case documents the experience of taking this project into a blended learning environment across four geographically distant HEIs. To sum up the adjustments presented throughout the case, we would add:

1. Weekly encounters with the local HEI teachers (a) to contribute to the creation of a more solid community of learning and practice; (b) to provide more opportunities to use the target language; and (c) to focus attention more collaboratively on the outputs and feedforward on materials designed by colleagues from many other areas of study as a catalyst for new productive ideas.
2. An online forum for participants to interact through written English for reasons similar to those above.

Tips

The tips below are still true for this case study. Another tip specific to this case study is that the voluntary nature of the project precludes conclusions based on a training course where teachers are forced to participate. All the participants were good-natured about their involvement and those that have not yet completed the course express the desire to conclude their work and then again participate more frequently in a format that includes the weekly encounters.

“Teacher training functions best when the administration recognizes its benefits for their respective higher education institute (HEI) and for its students. Involve your administration so that the training is tailored to specific local needs that you might not be aware of initially. Sometimes the classroom layout itself is not conducive to student-centered learning. The u-shaped layout was favored by some of the teachers. Others encouraged groups of tables to be pushed together, creating a dedicated learning space for the team of students. This may require extra time at the end of the lesson to put the tables and chairs back into the traditional magisterial setup.”

Contacts and Sources

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<http://recles.pt/>

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Respondent

Again, the parts of this case study that are similar to 03 are cited below, but there are some differences. For the blended learning teacher training course, ten teachers participated. Rather than sit for an official placement of their language competence levels, volunteers were asked to self-select based on a minimum B1 level CEFR. Since only one of the teachers completed the full course, the results are based on her experience and the experience of her students with the CLIL module implemented in the 2nd semester of 2016-2017.

"IPG students and teachers in the CLIL Community of Learning and Practice at the IPG School of Technology and Management (ESTG) responded to create this case study. Their students participated because the teacher commitment was based on following up with a CLIL module in their existing courses. The participation in the national project was based on a formal invitation issued by the Board of Directors of the ESTG-IPG."

Steve Harding, Charmaine Stint

Co.LAB (Collaborative Laboratory)

Collaborative laboratory is an award-winning inter-disciplinary design and research initiative within the Birmingham School of Architecture & Design. They focus on research & design projects that seek to engage with the dynamic context of Birmingham and a broad creative network as well as explore the extremities of disciplinary boundaries - all produced through an ongoing process of collaborative practice. Co.Lab has been operational for 7 years and has to date supported 67 collaborative projects engaging with 44 organisations involving some 800 students.



BIRMINGHAM CITY
University



Project Type	Education Social/cultural program Commercial
Target Group	Research Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	high	high
Levels of Interdisciplinarity	medium	medium	medium

Location and Institutions Involved	
Place of Implementation	Birmingham
University/Department	Birmingham School of Architecture - BCU Faculty of Arts Design and Media
Municipal Authorities/Department	Birmingham City Council
Business Partners	e.g. Phillips Lighting, Ash & Lacy Building Systems, Ibstock Bricks, Saint-Gobain
NGOs	national architecture and design firms, national arts organisations (e.g. BMAG, REP), local arts organisations (e.g. DanceXchange, Eastside Project), community groups, professional organisations (e.g. RIBA)

Duration	The Co.Lab method of live student projects commenced 2011 and is ongoing within the Birmingham School of Architecture and Design.
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A selection of key Co:LAB projects to give a flavour of the approach:

BOM – Birmingham Open Media – Co.Lab helped designing the spaces for this innovative artist-led gallery in an underdeveloped area of the city. BOM is now a major arts, tech and science based venue for exhibitions and educational activity forging a new model for interdisciplinary practice.

WWW: <http://www.bom.org.uk/>
<https://birmingham-colab.org/2014/12/01/project-profile-birmingham-open-media/>
<https://birmingham-colab.org/2014/11/30/creative-occupation-a-photo-essay/>

Centrala Gallery – Co.Lab designed this gallery and event/café space in the emerging Digbeth cultural quarter. Centrala is a Central and East European Art Gallery.

WWW: <http://www.centrala-space.org.uk>
<https://birmingham-colab.org/project-profile-centrala/>

Flatpack Festival - Flatpack Palais – an alternative cinema and screen festival with a national profile.

WWW: <http://www.flatpackfestival.org.uk>
<https://birmingham-colab.org/2013/04/08/flatpack-palais-project-profile/>

Futuremakers – a summer long programme which aimed to inspire the designers and makers of the future through acts of playing, making and building.

WWW: <https://macbirmingham.co.uk/exhibition/futuremakers>
<https://birmingham-colab.org/category/futuremakers/>

Hidden Spaces – a project supported by RIBA, Associated Architects and the Birmingham post to celebrate the city's rich and diverse architectural heritage.

WWW: <http://www.hidden-spaces.co.uk>
<https://birmingham-colab.org/2014/07/16/hidden-spaces-project-profile/>

Knowledge Hub – an urban and strategic design proposal with Node Urban Design group and MArch students. The collaborative exchange resulted in the 'Knowledge Hub' – a campus where a masterplan is devised as an urban test bed for new ideas under themes of innovation, health & wellbeing, culture and enterprise.

WWW: <https://birmingham-colab.org/2016/09/30/project-profile-knowledge-hub/>
<http://www.birminghampost.co.uk/business/commercial-property/public-square-cinema-screen-part-10980634>

Team

Co.Lab was instigated by Alessandro Columbano and Mike Dring, Senior Lecturers at the Birmingham School of Architecture. It is now coordinated by Alessandro Columbano who develops its vision, curates its annual roster of projects, fosters new links and collaborations, and promotes the student and staff process.

It includes input from a range of different staff within the University, each pitching their own interests or research projects and fitting it within the Co.Lab modules at undergraduate and postgraduate level.

Partner organisations are brought in to work with the students on a project-by-project basis. Co.Lab projects cover Built Structures, Design/feasibility, Exhibitions/events, R&D, Spaces and Teaching & Pedagogy approaches.

Methods

Co.Lab takes an interdisciplinary approach to its creative process. It starts with the thinking that students and staff have a distinct disciplinary background, but with working in diverse groups which contain other backgrounds, an interdisciplinary practice emerges through the conversations and iterative design sessions.

The focus is on live projects which have a relationship with the built environment. Lecturing staff from the School have initial discussions with the client organisation and then introduce a Co.Lab student team of BCU students. The students, staff and client engage in determining the brief and work plan. This gives relevant experience of an arts-based or the 3rd sector client which enriches student experience and provides a legacy for the client.

Challenges

The challenges include:

- ✓ Securing clients who want to work in an open way and who are receptive to new ideas.
- ✓ Determining timescales to meet client and university requirements.
- ✓ Allocation of the teaching staff throughout the process - can be time intensive .
- ✓ Mentoring students to be effective in client relationships on “live” projects where specific outcomes are required (timescales for opening and fit with external constraints).
- ✓ Developing a stable but expandable teaching structure that allows students on other courses to join on a project by project basis.
- ✓ Avoidance of expectation of exploiting students’ as cheap labour.
- ✓ Encouraging external partners to value a ‘design process’ and how that can contribute to their organisation and wider society.
- ✓ Institutional pressures that conflict with the creative and logistical operation of an initiative and how it engages with students’ and staff’s time.

Hayes Bridge Project



STAGE 3 : Construction

Tools/Resources/Materials

The Co.Lab methodology has templates for engagement with clients for projects and evaluation materials. Each project is customised so it has its own infrastructure.

Its only physical tool is the website which acts as an archive of its previous projects - es exemplars - and has a blogging feature that presents the student process to the public domain.

Benefits and Learning

Beneficiaries

A key element in graduate education is providing relevance and real-life experiences. Graduates are increasingly expected to be able to demonstrate soft skills - working in teams, decision making, building empathy with clients, prioritising tasks etc.

The Co.Lab approach therefore provides a "safe" space for graduates to learn and refine these skills helping them in terms of employability.

The organisations benefit by working closely with the university in project areas which expand their organisational reach and by engaging with innovative project ideas.

Innovation/value

Innovation is concentrated in the design process of the students/staff/partner relationship - breaking down barriers to promote good citizenship through bottom-up design ideas and its impact on the community.

The power of disruption is enabled by drawing from an established network of partners to displace established practices or products when working together.

Prospects

Curate projects with a more complex make-up of interdisciplinary participants for example with the Schools of English, Fashion and Media.

Develop a web platform that presents the intricacy of the design process more clearly online.

Instigate an investment fund that promotes new design agencies to emerge by graduates to cultivate a network of innovative practices within the region.

What would you do differently?

The coordinator's role is essential to be solely focussed on an initiative like this to be able to control how it develops and how it is promoted and marketed.

Tips

- ✓ To set up a fixed structure quickly where others can follow and join in.
- ✓ Establish a key policy on the balance between pro-bono work and income-generating services – and stick with that policy!
- ✓ Establish a network of regional partners that you can draw on from time to time.

Contacts and Sources

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<https://birmingham-colab.org/>

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Respondent

The approach fits well in the university's mission to be the university for Birmingham as it focuses on live projects ensuring both relevance and legacy to the city it works in.

This relationship-building approach enables the Birmingham School of Architecture and Design to give students live experience in a professional context. The diverse range of placements enables students to consider their professional practice through working with a range of stakeholders (including arts organisations) and to therefore co-develop projects from this user perspective.

Miroslava Prváková

CreBiz

CreBiz was an experimental project aimed at connecting two different study fields - artistic (creative) and economic (business). This interconnection was carried out on a common wellness tourism platform in the form of a competition of students' diploma theses. The main objective of the project was to establish an interdisciplinary connection between the two fields of study: visual design and marketing strategies. A very important idea was to include students into the real artistic and economic praxis during their studies and to create space for teams of students for shaping real business start-up teams.



U V VYSOKÁ ŠKOLA VÝTVARNÝCH
 V F UMENÍ V BRATISLAVE
 > S V ACADEMY OF FINE ARTS
 V D AND DESIGN IN BRATISLAVA

Project Type	Education Social/cultural program Commercial
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium	medium
Levels of Interdisciplinarity	high	high	medium

Location and Institutions Involved	
Place of Implementation	Spa Vyšné Ružbachy
University/Department	University of Economics in Bratislava, Faculty of Business - Department of Marketing; Academy of Fine Arts and Design in Bratislava - Department of Architectural Design, Graphics and Other Media, Design, Visual Communication
Municipal Authorities/Department	Municipality Vyšné Ružbachy
Business Partners	Spa Vyšné Ružbachy
NGOs	-
ABC - The Academic Business Cluster is an association of legal entities, which aims to establish a regular inter-connection of the academic community with economic practice.	

Duration	02.08.2011 - 22.05.2012
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Case description

The main goal and background of the project

The artistic students were focused on creative solutions with the acceptance of economic origins. Students of economic directions were focused on developing marketing plans with the acceptance of creative solutions. The result of their papers was the set of design solutions for the complex of the spa area - design of wellness facilities, design of exterior and interior elements, design of communication tools. To the output was also included in the set of marketing strategies, market studies and research on new target markets to strengthen the market position of the spa complex in both domestic and foreign wellness tourism as well as the protection of cultural values. The main objective was to create conditions for an interdisciplinary environment combining diploma theses with artistic and economic solutions, designed for various areas of economic practice.

Problems:

1. Non-functioning Business model of the spa complex,
2. Old equipment and untapped potential of the spa complex.

Challenge:

The Interdisciplinary connection of different students (study dimension) from different study fields (education sector) with practice - the spa complex Vyšné Ružbachy (private sector). The result of this case was to design solutions of students that were directly applicable to practice (practical dimension).

Team

Students worked in four-member teams that were interdisciplinary: the students of the University of Economics in Bratislava and the students of the Academy of Fine Arts and Design in Bratislava. Each team had an assigned mentor/teacher and was communicating with the manager of spa as well. The student teams were purposefully selected, each team member was specialized in a particular area of the problem in terms of goals of the project as well as according to their field of study.

The role of the tutors was to lead the teams in a modern style, creating mixed workshops for different fields of study. At the same time, their role was to support the cooperation potential of the student teams. It was an excellent example of a direct link between the themes of the diploma theses and a real entrepreneur situation. The themes were generated from the problem resolving of this project and had from the early beginning an application dimension - to solve a specific practical need of the spa area.

The participants:

1. Students of the Academy of Fine Arts and Design in Bratislava - 2nd Grade
2. Students of the University of Economics in Bratislava - 2nd Grade
3. Lecturers and teachers from both Universities
4. Management / employees of spa Vyšné Ružbachy

Methods

The main method used in the case was the problem-based learning method. This method is a demand-oriented method (self-directed learning - SDL) in which the main issue is a specific problem (assignment, project). During the case, the students proved by themselves which theory was needed to be taught to solve the problems effectively. The set of purposed workshops were carried out and complex results were presented at the final presentations. The evaluation was focused on various abilities, it was collective and created by the teachers as well as by the experts from praxis. Problems were solved by the teams individually, under the guidance of their mentors. During problem solving students used brainstorming technique the most.

The project processing tool was a set of workshops divided into 5 parts:

1. Project Workshop - getting familiarized with major issues, discussion with the spa owners, analyzing and mapping the environment.
2. Progress Workshop - meeting teams, pedagogues and spa owners on which were the partial outputs presented by the teams followed by the discussions and the evaluations of the process by teachers and experts.
3. Project Workshop - Economic themes for artists. A meeting of the student teams with the teachers and spa owners, during which the teams presented their next progress of their projects and the direction of their final solutions.
4. Creative Workshop - Design's themes for economists. Students went to see the exhibition of the students' works at the Academy of Fine Arts and Design in Bratislava to get more familiar with the creative work in various fields of study.
5. Final Workshop - The teams presented their solutions and suggestions of the projects to the professional audience. An important part of the final workshop was evaluation of those projects with an emphasis on their availing after the end of the case. The evaluation was carried out in the form of discussions between the teachers from both universities and the spa owners.

Challenges

The biggest problem was the financial issue of the Spa Vyšné Ružbachy. The owners were very satisfied with the students solutions but did not have enough funding to implement them at that time. They have applied for a loan from bank, but the loan-taking process is not short.

Another problem was poorly functioning transport infrastructure, which is the problem of several cities in Slovakia.

Tools/Resources/Materials

Following documents have been used to solve several problems:

- complete construction documentation of the Spa complex needed for reconstruction,
- Development Strategy Plan (Territorial Plan) of Vyšné Ružbachy,
- the statistics of visit rate, the statistics of diseases healed in spa,
- human resources strategy in spa.

Benefits and Learning

Beneficiaries

Each participant had benefits from this project:

1. The students have learnt not only to work in interdisciplinary teams and to understand problems globally, but also to create a theme of their diploma thesis reflecting real needs of economic practice.
2. The teachers have learnt to work with the Problem Based Learning method, which limited the need of understanding problems from the theoretical point of view in favor of a more practical attitude.
3. The owners of the complex and visitors of the spa, who have been offered unique solutions meeting their real needs and expectations.

Innovation/value

The connection between creative students of Academy of Fine Arts and Design in Bratislava with economically oriented students of the University of Economic in Bratislava. The students together created an effective Business model for the spa complex. In the summary, the result of the project was: design and marketing strategy for product innovation, wellness tourism design, creation and commercialization of regional products, etc. which served as a basis for the creation of innovative start-up teams.



Prospects

The management has received a set of designer and marketing solutions for the development of the spa area and associated services with a new target group. These activities have been incorporated into the management plans for the renovation of the spa complex.

Academy of Fine Arts and Design in Bratislava and University of Economic in Bratislava: both of them presented the results of the project in specialized literature. They gained experience about the possible interdisciplinary connection of two different fields of study.

What would you do differently?

After the end of the case, the results were published at conferences and in reports. For the further development of interdisciplinary education, specific procedures have been proposed for the management of both faculties. For the students, a longer period of time for work would be more appropriate.

Tips

- ✓ The recommendations are better transparency and marketing activities after the end of the case. The timeframe could be set for a longer period of time and it could be more effective to think about all the financial possibilities from very beginning.

Additional comments

For operators, entrepreneurs or other entities with similar facilities/problems, it would be appropriate to use the possibility of cooperation with an education sphere.

Additionally, an interdisciplinary work creates the opportunity to gain insight into the issue from multiple points of view and professions. The interdisciplinarity in business could be established on creating an effective working team which contains workers who are able to tackle the whole issue (in most cases, they are only partial solutions - architect, constructor, economist, etc.).

Contacts and Sources

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- http://www.lifenetdesigning.info/data/uploads/krasa-vyznamu/krasa_vyznamu.pdf

Respondent

Respondents were mainly the management and the guests.

The questions for the management: What business goals do you have? What are your needs for reaching the goals? What are the expectations from the CreBiz project?

The role of Management: establish the problem, provide information, evaluate outputs and solutions from the CreBiz project.

The role of the guests: the criticism of the current status, defining the needs of guests for the modification of spa, pointing the direction for the most needed refresh of provided services, requirements for marketing and communication activities.

Noel Lopes

Interdisciplinary Analysis and Web Development

Interdisciplinaridade na análise e desenvolvimento de aplicações web

Students analyse and develop a Web application to solve real world problems (e.g. implementing software to assist yogurt production), thus effectively combining the knowledge of two different courses, Software Engineering and Internet Programming, into a common interdisciplinary assignment. In addition, their classes include seminars from other areas, such as Management, to help students understand and solve problems from an interdisciplinary perspective.



Project Type	Education
Target Group	Research

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium	low
Levels of Interdisciplinarity	high	high	high

Location and Institutions Involved	
Place of Implementation	Polytechnic of Guarda
University/Department	School of Technology and Management / Computer Science
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	Since September 2015. Still ongoing (first semester of every academic year).
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Case description

The main goal and background of the project

Throughout the semester, students have several assignments in different courses, with distinct degrees of difficulty, causing a constant shift in their attention and, in some cases, having a negative impact on the learning process. To mitigate this problem, it was decided to share assignments among different courses in the same area of study. Accordingly, a partnership between the courses of Internet Programming and Software Engineering was established, allowing students to concentrate on a single assignment (project), instead of two different unrelated assignments.

Example of a web page included in the application, developed by a student's group, for the courses of Internet Programming and Software Engineering.

Team

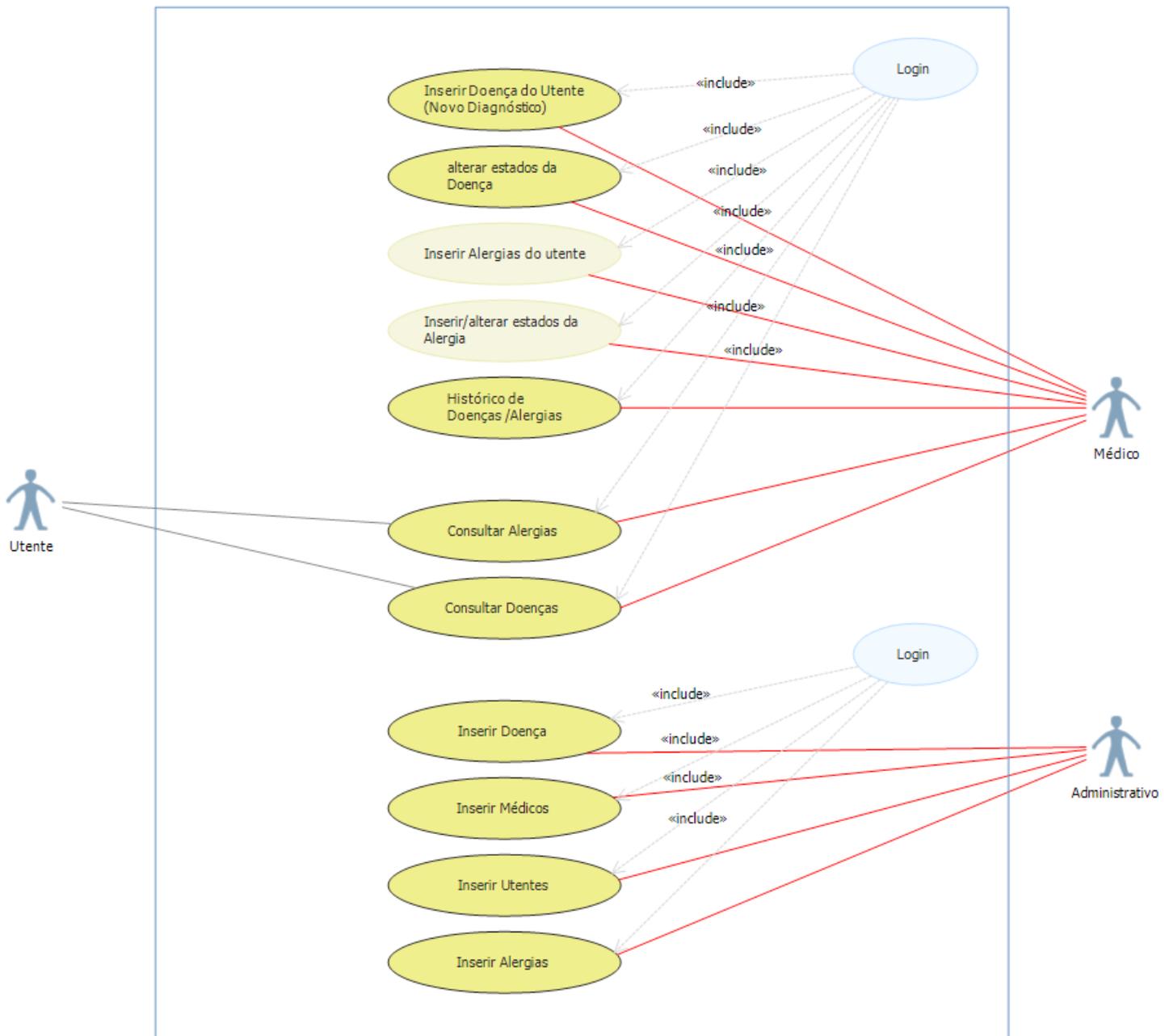
Leadership is composed by the professors of the respective courses: Maria Clara Silveira (Software Engineering) and Noel Lopes (Internet Programming). Before the semester begins, several meetings take place to define both the assignments (typically, unrelated to Computer Science, which is the students' area of study) and their scope.

Methods

At the beginning of the semester, students are divided into groups of three persons and assigned a part of the overall project. During the semester, students determine the requisites (problem analysis) and develop a web application to solve the given problem (e.g. improving the management of production at a yogurt factory through targeted software development). The problem analysis is mainly evaluated in the course of Software Engineering, while the resulting

web application is mainly evaluated during the Internet Programming course. Changes in the analysis often cause changes in the web application and vice-versa, resulting in a continuous and interactive process.

Professors regularly monitor the students' progress. The initiative also includes seminars and workshops in the areas related to the assignment. Joint classes are also promoted for moments of ongoing assessment and to further define/refine future work.



Example of a use case developed by a student's group, for the courses of Internet Programming and Software Engineering.

Challenges

The biggest problem is when students fail one course, they will typically fail the other, since the project accounts for a significant part in the evaluation of both courses.

Benefits and Learning

Beneficiaries

The main beneficiaries are the students. Having a common project in different courses allows our students to tackle larger projects, whose dimension more accurately reflects the dimensions of real-world projects. Moreover, by focusing on a single assignment (instead of on two different and unrelated ones), the students can gain a deeper/better understanding of the project, and thus improve their overall performance.

Innovation/value

An opportunity to tackle projects that resemble more accurately those they will find on the job market.

Prospects

Both professors' and students' opinions are positive so this project will continue.

What would you do differently?

We will incorporate design thinking processes and methods (starting in the upcoming academic year) to boost students' engagement and motivation as well as to create a friendlier environment towards teamwork which we hope will lead to a more proactive attitude to leadership and teamwork.

Tips

- ✓ It should be clear which project aspects are evaluated in each course and how they are evaluated.
- ✓ Note that students may sometimes misinterpret the instructions and orientations of collaborating professors. Therefore, to avoid misinterpretations, it is useful to schedule joint classes to define future work.

Contacts and Sources

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Respondent

Professors and students who became involved in the project because of the initiative of the professors involved with the support of the Department of Computer Science and the Board of Directors of the School of Technology and Management.

María del Carmen Arau Ribeiro

Language for Specific Purposes (LSP)

At smaller campuses, courses may not be tailored to just the respective study area. In this case, the English Language option was shared amongst students from three areas of study: Marketing, Management, and Accounting. Rather than a simple Business English class that could have followed a selected textbook, the course was tailored in each iteration to deal with new and complex problems developed by the students themselves whose overlapping interests and other more holistic understandings were developed in this transdisciplinary context.



Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium/high	high
Levels of Interdisciplinarity	high	medium	medium/high

Location and Institutions Involved	
Place of Implementation	Guarda, Portugal
University/Department	Polytechnic of Guarda
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	These courses took place over two decades with new iterations each semester.
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Case description

The main goal and background of the project

At a small campus in Portugal, the English Language option was shared by three areas of study. The project is primarily based on creating a community of practice with students, where learners feel welcome to participate and where they participate fully, measuring their progress regularly through the accomplishment (or lack thereof) in their communicative efforts, experimenting with a variety of strategies for listening, speaking, and writing until they find an approach that works.

Team

The English language and culture teacher was responsible for these mixed level courses with mixed areas of study and created this solution to a situation that could have been disappointing to some students who wanted to study exclusively in their area.

The approach was approved by the respective coordinators of the study areas so that there were no surprises at an administrative level.

Methods

An important component here is redirecting learner attention to the need to ask good questions (which is at the heart of design thinking as well) to favor communication.

Encouraging learners to think of themselves as language users is also helpful because we are all users of language - whether native or not. By equalizing the participation in any interaction, there is a positive impact on self-image and self-competence which, in turn, increases participation levels for all students involved and helps erase affective barriers to communication in the foreign language classroom.

Challenges

- ✓ The initial feeling from the students is that they would prefer the comfort level of a specific course dedicated respectively to English for Marketing, or English for Management, or English for Accounting. When they understood that they would have the opportunity to develop their assignments focusing on their specific areas within the greater context of learning with each other, they were prepared to accept a more holistic approach.
- ✓ The key is to focus on working together. The position of the teacher as a facilitator for learning who focuses on asking questions and rewarding curiosity while continually assessing and giving feedforward is essential. The approach cannot work under the hand of a punishing lecturer.

Benefits and Learning

Beneficiaries

Specific education benefits for students include “critical thinking skills and the toleration of ambiguity to the recognition of bias and the appreciation of ethical concerns” (Arau Ribeiro 2016a: 1).

More generally, the language use is more spontaneous and realistic with a focus on communication rather than accuracy in terms of grammar. In addition to written communication, which can be individual or on behalf of a group but always submitted for feedforward from the teacher, spoken English can include non-linguistic cues and negotiation of meaning amongst speakers with differing concerns and perspectives.

Student skillsets develop beyond the perceived limitations of their areas of study and they begin to understand the holistic nature of the real world. Working from several possible angles and a diversity of strengths expose all those involved to greater learning opportunities.

There are benefits for the teacher as well, since you always learn something new when you do not know all the answers in advance.

This is also an advantage for the students who have failed before and are taking the course again. Instead of repeating chapters in a book, they deal with new iterations of the project and interact in new contexts with new colleagues from the various areas of study.

Innovation/value

The innovation is in getting out of the textbook. Although Business English textbooks can be great sources of inspiration, real life projects with complex problem solving are always more up to date and relevant for the students.

Prospects

Currently the teacher who created this project is involved in other projects and no longer teaches in these specific study areas but, through publications and speaking engagements, it is likely that others have built upon this enriching experience.

What would you do differently?

Since each iteration is differently impacted by the previous knowledge of each of the students, each time is necessarily different. Best practice involves a lot of outside reading and consultation with experts and professionals for the language teacher to keep up with students who are specializing in different areas.

Consulting issues with a multinational team where one could present their own real problems would be an added value, now made possible through telecollaboration. It is likely that finding a company that would be interested in working with students in English could be more difficult in a country where English is not the native language.

Tips

- ✓ The temptation to use just the Business English textbook may be great but the rewards for the interested teacher are greater. Tapping into students' growing competences in their specific areas of study is a rich source of learning.

Additional comments

The project also works with just two areas of study. The interdisciplinary work is not just the sum of two parts; it is rather a different level of integration where the component boundaries break down.

Some of the teachers in specific areas of study felt threatened by the relevance of the language course. Direct meetings with key figures (Department Coordinators and Coordinators of the area of study) are recommended. These teachers can even suggest relevant topics that will contribute to more overall learning throughout the study area.

Contacts and Sources

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Respondent

The teacher involved is reporting on this case study based on student feedforward and self-assessment before and after the course.

Agnieszka Malgorzata Jarossová

Nestle in da hood, Jelly Sweets

Project 1: Develop a simplified business plan and marketing study for „NESTLÉ corner” at the university. Project 2: Develop a simplified marketing study for the new “JOJO product” (sweets).



Project Type	Education Commercial
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	low	low
Levels of Interdisciplinarity	low	low	medium

Location and Institutions Involved	
Place of Implementation	NESTLÉ SLOVENSKO s. r. o
University/Department	Department of Marketing, Department of Commodity Science and Product Quality, Faculty of Commerce, University of Economics in Bratislava
Municipal Authorities/Department	-
Business Partners	NESTLÉ SLOVENSKO s. r. o
NGOs	-

Duration	The project ran from 13.09.2017 to 15.12.2017.
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Case description

The main goal and background of the project

Problem

- *Project 1:*
Create at the university space that can attract student attention to build awareness of NESTLÉ. This space must be financially profitable. It was necessary to suggest how a space could look, where it could be placed and what NESTLÉ products would be available for students.
- *Project 2:*
Develop a marketing study for a new jelly candy product containing 35% less sugar.

Main goal

- *Project 1:*
Based on available data, develop a business plan and marketing study for „NESTLÉ corner“ which will include simple visualization of this space, analysis of profitability, technical and spatial possibilities, possibilities to use for other activities - tasting new products, expected traffic.
- *Project 2:*
Based on the available data, develop a marketing study that will include an analysis of market opportunities, selecting at least one target market for which the product strategy, price level, and sales support for the channel will be determined.

The idea came from NESTLÉ.

Team

Only students were members of the team. The projects were a teamwork. Students before starting work on the projects completed the META test to determine team roles. After test, they were matching themselves to teams based on the results of the META test. In each team there would be people with specific characteristics: a team player, a developer and ideologist, an analyst, and a motivator.

Employees of the Department of Marketing and Department of Commodity Science and Product Quality acted as tutors. In addition, employees from the Trade marketing department of the NESTLE company participated in selected classes, and gave students valuable tips. Their remarks focused on selecting solutions and refining ideas. They pointed out errors and directions of further improvement of the project.

Methods

Students met from 1 to 2 times per week for approx. 3h at the university for three months, where they divided tasks between themselves. Each team had 4 people. In addition, they communicated

with each other using specially developed software called TALENTWAY (shared information they obtained). The project used the following methods: Model Project based learning (project-based teaching and project management as a didactic method mainly for tasks that are time-limited), Team-based learning (Teaching based on team cooperation), Business-based learning (training to support development, business skills, organization of presentation). Students, based on brainstorming, worked out problems. The implementation and evaluation of the project took place in four stages: (analytical, conceptual, verification, acceptance). Additionally, in the last stage, the given problem solution was assessed by NESTLE employees. For the evaluation of the project, an OCTO model (objectivity, complexity, team work, outputs) was used.

Challenges

- ✓ The students performed tasks for the company for the first time. The main problems related to the realization of projects included: problems with obtaining necessary information, analyzing and selecting them, focusing on many solutions instead of one (the most optimal one), problems justifying the choice of a given solution. Another problem for them was presenting the output before the unfamiliar professionals. Students also needed to carry out the research themselves (questionnaire and talks with competitors) to obtain the necessary information, which was sometimes very problematic. Based on comments from tutors and practitioners, as well as their own ideas, students have overcome the problems.

Tools/Resources/Materials

The company provided students with several documents which were very useful for them and concerned: budget for the implementation of tasks, shopping behaviours of Slovak consumers (GFK report), information on sales volume in thousands of EUR and sales volume in thousands of units for individual months for different product brands or price offers of POS materials. Additional information needed to carry out the tasks was obtained by the students from other sources. The teachers also provided students information and case studies on marketing communication and marketing strategy.

Benefits and Learning

Beneficiaries

Beneficiary of projects are both the students and the company.

The students, because, they had to prepare a quality presentation that was supposed to contain the solution to the individual issues defined in the assignment - communication activities, timetable, estimated budget based on our documents and reasons for choosing the ideas that had to be supported by the documents (project 1). The presentation has included target markets (including why), product strategy and product price level, target group definition, communication

channel suggestions, ways and communications activities, sales support timetable and estimated budget based on our materials (project 2). All solutions had to be justified. Students worked in teams with very different types of personalities.

The company, because it has received solutions to its tasks. The company could select the most effective ones and implement them in selected distribution channels.



Innovation/value

For students: meeting people from business, solving real problems in existing companies, working under pressure and with stress during the presentation. In one team, the students have also proposed a new closure of the packaging for JOJO sweets.

Prospects

The company's employees said that they would use selected solutions proposed by students as part of the projects in practice.

What would you do differently?

Students find out how below the line (BTL) advertising campaigns work and what is needed for monitoring them. Worked in teams whose members had very different types of personalities.

Tips

- ✓ Every team has to have a different task, to avoid the risk of some students inventing solutions that are copied and improved by others.

Contacts and Sources

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Respondent

As part of the "Foodie club" (subject "Professional practice") students of the third year of study at the University of Economics in Bratislava (Slovakia) following study programs Business in trade, Entrepreneurship in tourism and services, International Business participated in the projects.

Marino Bonaiuto

Psychology of Communication and Marketing Master Degree

Corso di Laurea Magistrale in Psicologia della Comunicazione e del Marketing

The master's degree in Psychology of communication and marketing aims to prepare graduates who will be able to exercise high-level professional activities in all areas for which social-psychological communication processes are central and have strategic relevance in relation to the company, market and contextual-environmental dynamics. In particular, the master's degree aims to design, conduct and evaluate, together with other professional figures, participatory processes to take shared decisions on communication and marketing issue in a range of possible contexts, and the ability to conduct operations in the field in full professional autonomy and establish an equal collaboration with other professional figures. Moreover, since the degree is part of the Psychology category master degrees, the professional figure resulting from this master is able to apply, according to the law requirements, for the Italian Professional Association of Psychologists (Ordine Professionale degli Psicologi), and therefore to develop her/his career in any of the psychological fields (organizational, clinical, school and development, etc.); as well as to continue her/his education with specialization schools, PhDs, second order masters.



SAPIENZA
UNIVERSITÀ DI ROMA

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium	medium
Levels of Interdisciplinarity	high	high	high

Location and Institutions Involved	
Place of Implementation	Rome (Italy)
University/Department	Sapienza University of Rome, Department of Psychology of Development and Socialization Processes
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	The master's degree program of Psychology of Communication and Marketing is carried out every year.
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Case description

The main goal and background of the project

Master's Degree Program in Communication and Marketing Psychology aims to prepare graduates who will be able to exercise high-level professional activities in all areas for which the psychological-social communication processes assume centrality and strategic relevance in relation to the corporate, market and contextual-environmental dynamics.

In particular, the master's degree aims to acquire the following skills:

- mastery of the knowledge bases, methods and techniques of the social-psychological communication processes, such as to allow planning and direction of investigations concerning various areas of communication (institutional and social communication, communication of business, advertising, electoral and political communication, environmental communication, artistic and museum communication, communication in the entertainment sector, etc.);
- ability to plan, conduct and evaluate, together with other professional figures, participatory processes aimed at taking shared decisions for the design and management in various areas;
- ability to design communication programs and campaigns also through ICT, with particular reference to the implications and the social-psychological aspects;
- ability to conduct operations in the field in full professional autonomy and to establish an equal collaboration with other professionals.

The course aims to provide the tools for understanding the basic mechanisms of communication in its various application areas through training activities that characterize a wide spectrum of scientific disciplines of psychology (Social psychology, Work and organizational psychology, Psycho-dynamic psychology and Psychometrics and data analysis techniques applied to marketing).

The course also offers similar training activities in a wide range of sectors which are relevant for communication, with an integrated approach which embraces different disciplines: Cultural Anthropology and ethnography, Sociology of Cultural Processes, Economics, Neurosciences.

The final objective will be the formation of highly competent and competitive psychologists for the national and international labour market, able to adapt their skills / knowledge to the different contexts that the labor market can provide.

Team

The course is organized and carried out by the Professor together with the tutor, in addition to the staff of the Department in charge of the administrative and didactic procedures.

When it comes to the students trying to obtain the master's degree, a solid basic preparation in the scientific-disciplinary sectors is required as a prerequisite for characterizing and similar or complementary training activities planned in the legal system.

Methods

Each course has a different approach. usually the professor has a series of lectures, with the support of slides and textbooks. Sometimes guests are invited to talk about topics concerning the course.

The course includes the presentation and discussion of theoretical frameworks and models, as well as hands-on activities to apply the knowledge acquired.



The course is divided into two years with the first year mainly dedicated to the acquisition of theoretical knowledge and methodological skills for psychological research and professional work in the field of communication and marketing.

The first year courses are aimed at providing all students with an advanced knowledge of aspects related to economic psychology and consumption, persuasion and social influence, developments in neuromarketing, technological innovation and organizational processes as well as to new media and web marketing.

Other courses are dedicated to the acquisition of theoretical-methodological skills in the fields of communication ethnography and psychosocial techniques of organizational research.

The goal of the second year is to provide knowledge, models, tools and skills related to communication in specific contexts: advertising, political, organizational and marketing.

The second year of the course is organized to offer advanced courses mainly in the first semester in order to allow students to complete the final exam, which can also be achieved with a period of two / three months in EU and extra-EU countries.

Challenges

To deal with this challenge, during the course, the students were provided with examples of activities to perform and the outcomes to reach.

Furthermore, the course requires commitment and effort to perform the activities and reach the final outcomes, also by using different ways compared to traditional lectures. Thus, the students deal with time management for the courses included in the semester.

Tools/Resources/Materials

To carry out the activities foreseen by different courses, some equipment and tools are needed, such as the room equipped with a projector, blackboard, tables and chairs.

Benefits and Learning

Beneficiaries

The course is attended by about 70 students of Psychology of Communication and Marketing. They can be considered a homogeneous group, even though they come from different bachelor's degree programs and/or different cities and previous academic environments (where they did their BA degree).

Innovation/value

The added value of the degree course depends on the interdisciplinary nature of the courses that comprise it. The course also offers similar training activities in a wide range of sectors in which communication can be declined, with an integrated approach that embraces different disciplines: Cultural Anthropology, Sociology of Cultural Processes, Economics, Neurosciences, Psychology of Work and Organizations. The course stimulates the critical and autonomous judgment that will enable students to evaluate the scientific validity of the results obtained from research in the field of communication and marketing psychology.

These activities proposed annually by the degree course will allow students to apply theoretical knowledge on the territory in all the socially relevant contexts. This degree course is the only one present in Italy with these specific characteristics.

Prospects

At the end of every course, the students are invited to provide their opinions about their learning

experience course: expectations, learning needs, opinion about the organization of the activities etc. This feedback is used to adjust the course for the next academic year.

What would you do differently?

Increase practical activities and training for students, as well as external contributions from practitioners and former students who entered the labour market.

Tips

- ✓ Expanding resources and methods to facilitate communication between students and teachers.

Contacts and Sources

Website:

<https://corsidilaurea.uniroma1.it/en/corso/2017/psychology-communication-and-marketing>

Facebook:

<https://www.facebook.com/PsicologiaComunicazioneeMarketing/>

Respondent

Vice president: Renata Metastasio (Sapienza University of Rome, Italy)

Natália Gomes

Software Idea Lab

Laboratório de Ideias de Software

The purpose of the project is for students from diverse areas of study to work in real-world problems (presented as a case study), obtained from companies/organizations, giving them the opportunity to identify, explore and prototype innovative solutions. The project puts teams of students (typically with 4 or 5 elements) up against each other in a friendly competition, offering them opportunities to network, collaborate and investigate in an interdisciplinary way.



Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium	medium
Levels of Interdisciplinarity	medium	medium	medium

Location and Institutions Involved	
Place of Implementation	Polytechnic of Guarda
University/Department	School of Technology and Management / Computer Science
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	Each year, during a whole semester.
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Case description

The main goal and background of the project

The project aims to use software modeling techniques to solve a real-world challenges proposed by organizations (enterprise or no profit). The general objective of the project is to involve students with real technological and interdisciplinary problems.

The challenge is to develop new academic ways of presenting problems to students and to develop innovative and interdisciplinary approaches to tackle and solve problems. By involving diverse study areas, learners apply their minds together to solve concrete problems and explore new solutions.

Team

Leadership: Professors and organizations

Participants: Students organized in teams of 4 or 5 elements

Professors monitor the teams' progress regularly, putting new questions and offering feedback and help to improve the solutions found.

Methods

After consulting an organization/business to gather possible challenges, professors present their problems (users and needs) to the students. Students then choose the problem that they feel is more interesting. Groups are then assembled taking into account not only student's preferences but also with interdisciplinary in mind. In the next phase, students analyze the problem, identify the objectives, users, actors and requirements (functional and non-functional) of the system (e.g. define the main functionalities of the software, the objectives, alternatives and constrains).

At a later phase, students must design the solution, using a software development methodology. Moreover, they must design diagrams with the purpose of visually representing the system along with its main actors, roles, actions, artifacts or classes, to better understand, alter, maintain, and document information about the system.

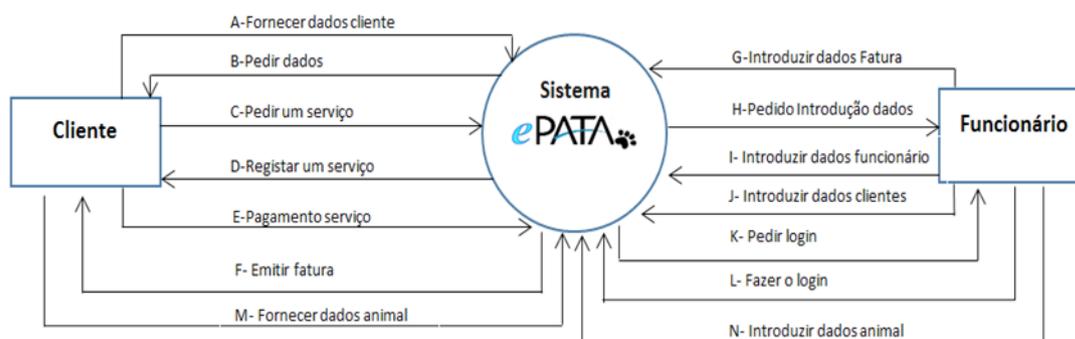


Figure 1. Example of a system's context diagram created by students.

Following the design, students must prototype, the system to check the customer's requirements or feasibility of some design decisions.



Figure 2. Example of a system prototype developed by students.

Finally, each team must present the solution.

To have effective teamwork, communication is fundamental. Moreover, team members must work together to meet their goal through cooperation and collaboration.

Challenges

Students who participate on the project must be motivated and be able to communicate with the rest of the group for project updates, questions, ideas and general input. Students must also respect every aspect of other member's in the team.

Teamwork requires effective collaboration; each person must figure out how her skills and talents fit with those of the other team members.

Tools/Resources/Materials

Computer, tool case (e.g. draw.io, Microsoft Visio) presentation software, such as Microsoft PowerPoint, paper and pen/pencils.

Benefits and Learning

Beneficiaries

The main beneficiaries are students, who put into practice many theoretical aspects learnt in different courses. They gain extra knowledge and skills that can be applied to solve future problems (both academic and professional). The activity is captivating and meaningful to students who participate in this real-life contact with business projects.

It is also possible that the organizations will benefit from the solutions found, getting new perspectives from the young generations.

Innovation/value

An opportunity to tackle true projects that more accurately resemble those they will find on the job market. Moreover, students obtain interdisciplinary skills.

Prospects

Professors' and students' opinions are positive so this project will continue.

What would you do differently?

Incorporate Design Thinking methodology.

Contacts and Sources

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Respondent

Students, professors and technology services companies contributed to this description. Students identify a solution for a problem presented.



Interdisciplinarity

Michał Nowakowski

City of the XXI century

Miasto XXI wieku

The aim of the project was to diagnose the most important issues (political, social, cultural) in the city, as well as to create - as a specific remedy - a forum for discussion and cooperation between representatives of various practices and discourses „implemented” within urban policies.

Another aim was to search for a model of civic participation and social involvement in co-creating the urban public space (also in its symbolic dimension), as well as using the city space to implement activities conducive to its development and social change.



Project Type	Education, Scientific collaboration, Social/Cultural program
Target Group	Student, local activists, social researchers, representatives of municipal institutions dealing with social participation

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	high	medium
Levels of Interdisciplinarity	high	high	medium

Location and Institutions Involved	
Place of Implementation	Lublin
University/Department	Marie Curie-Skłodowska University: Faculty of Political Science, Department of Philosophy and Sociology of Politics
Municipal Authorities/Department	“Labyrinth” Gallery
Business Partners	-
NGOs	Association of Good Social Practices “Change”

Duration	May - December 2015
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Case description

The main goal and background of the project

The initiator and coordinator of the project was a researcher of local activism, urban movements and civic culture, sociologist and political scientist, Agnieszka Ziętek employed at the Department of Philosophy and Sociology of Politics MCSU and a member of Association of Good Practices "Change". She noted the need to create a forum for the exchange of knowledge of people dealing with urban issues in Lublin.

The project included four goals:

1. diagnosis of main problems in the city (mainly social, spatial, relational/communicational),
2. creation of a platform, a place for meetings, information exchange and establishing cooperation between researchers, scientists, theoreticians and practitioners, activists and municipal officials dealing with broadly understood urban topics, and
3. organization of workshops increasing competences in the field of social participation, local activism, participation in the decisions of local authorities
4. development of a catalog of good practices in this area

Team

The main organizer of the project was the Association of Good Practices „Change”. The project involved political scientists, sociologists, cultural experts, representatives of the so-called urban studies, theoreticians and practitioners: city activists, representatives of non-governmental organizations from all over the country, and employees of the city office (culture department, department of social participation). Researchers from the Department of Philosophy and Sociology of Politics (MCSU) as co-organizer were responsible for logistic and organizational support (providing place for panels, promotional and informational activities). The project's originator and coordinator, Agnieszka Ziętek, used a grant application from the city office to prepare guest invitation, organization of lectures and workshops, discussion panel, reports for the city office and other documentation. The co-organizer was also the municipal cultural institution "Labyrinth Gallery" - it provided organizational support (a place for some panels and workshops, promotional and informational activities). The next co-organizer, City Hall, offered it's patronage and supported the project financially.

The project consists of three main parts:

- the conference "City of the 21st century: Theory and practice"
- a series of workshops
- a panel discussion

Methods

The project took shape during several meetings, during which the most important urban issues and the largest deficits of local participation were identified. These arrangements were the basis

for the conference program and ideas for workshops that would fill the gaps. Meetings were also devoted to consultations with workshop leaders.

Among the guests, outstanding specialists, theoreticians and practitioners, dealing with the broadly understood subject of urban studies were invited to the conference: academic lecturers from the largest academic centers in the country (including Prof. Ewa Rewers, Dr. Paweł Moźdzyski, Dr. Przemysław Pluciński, Dr. Katarzyna Kuć-Czajkowska, dr Joanna Hołda, dr Joanna Wórzeczka, dr Paweł Kubicki, dr Agnieszka Michalska-Żyła, dr Maciej Rajewski), as well as social activists and representatives of municipal institutions (Marcin Skrzypek, Hanna Gill-Piątek, dr Justyna Syroka, Alina Czyżewska).

Mainly practitioners were in the role of leading workshops and panelists (Marcin Skrzypek, Hanna Gill-Piątek, Joanna Wórzeczka, Alina Czyżewska and Michał Karapuda - the town hall, the culture department and Piotr Choroś - the city's participation office).

Challenges

The biggest challenge was the financial services of the project: settlements, invoices, etc. The second challenge was reporting which is quite difficult and time-consuming.



Benefits and Learning

Beneficiaries

In addition to researchers and practitioners, the beneficiaries were students and inhabitants of Lublin who, through participation in panels and workshops, had the opportunity to learn about urban issues, meet and cooperate with representatives of various organizations, activists, etc.



Innovation/value

The most valuable element of the project was meeting researchers, scientists and practitioners, exchange of experience, information, etc.

Prospects

The project is completed.

Tips

- ✓ Perhaps better „use” of what has been worked out, said, e.g. in the form of gathering and consolidating good practices - unfortunately this was missing.

Contacts and Sources

Project coordinator:

Agnieszka Ziętek, PhD

originator and coordinator of the project

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Facebook: Miasto 2.1. Kultura-edukacja-partycypacja

<https://miasto21wieku.wordpress.com>

Robert Fischer

IDEASTUDIO Human 4.0

IDEENSTUDIO Mensch 4.0

IDEASTUDIO Human 4.0 focused on establishing interdisciplinary projects at the intersection of engineering and humanities with a focus on the legal frame. The goal was to create a unique selling point of the TU Dresden in this research area.



**TECHNISCHE
UNIVERSITÄT
DRESDEN**



Project Type	Scientific collaboration
Target Group	Research

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium	high
Levels of Interdisciplinarity	medium	medium	medium

Location and Institutions Involved	
Place of Implementation	Dresden
University/Department	TU Dresden, School of Humanities and Social Sciences, School of Engineering Sciences
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	Spring 2017 and ongoing
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Case description

The main goal and background of the project

Identified problem

- Creation of the basis and strengthening competencies for interdisciplinary cooperation
- Information basis for university-wide competencies in the field (full-scale university TU Dresden has great potential for multiple projects in the research area)
- Establishing a topic that was overlooked so far
 - Joint perspectives on the topics "work 4.0", "industry 4.0" and especially the legal frame
 - Lifting the topic as a future research area of TU Dresden in this highly interdisciplinary field

Main focus

- Identify new cooperation and initiate projects
- Strategic positioning in the (inter-)national research landscape

Project inspiration

- Analysis of German universities who positioned themselves in the research area although they lack expertise in certain areas
- Increase visibility of TU Dresden in the research area (conferences, fairs)

Needs and challenges

- Finding a title which addresses every discipline in the project ("human" for humanities, "4.0" for engineers) created tension
- Challenge of interdisciplinarity, acceptance of other disciplines
 - find a common language
 - attend to this challenge in the workshops, translation of facilitator

Team

There were several participants in the project:

- Project Scouts: concept and realization
- Laboratory of Knowledge Architecture: 2nd-4th workshops
- "Institutional Strategy" event management team
- Participants from the Schools of Humanities and Social Sciences as well as Engineering Sciences

Team process:

- Invite colleagues from different structure units at an early stage for resource planning
- At a later stage Laboratory of Knowledge Architecture supported the project regarding the methodology of the workshop

Methods

Workshops had three rounds:

- 1st round: introduction and presentation of one's own work
 - Pecha-kucha format (time limits, max. 15 people)
 - Facilitators note down main thoughts on a partition wall + clustering
 - Presentation of wall at the end of pecha-kucha format + discussion about the clustering
 - Main questions of the group are visible + intersections
- 2nd round: generate more input about the competencies of the group
 - Knowledge market: partition wall with portraits of each person
 - Fill-in format with partly open/partly closed questions
 - Short self-presentation by each person
 - Gallery walk during the break
 - Speed Ideation: develop joint project ideas in 15 minutes
 - Fill-in format with personal information, title, idea sketch, rating options
 - First two rounds partner matching per chance, 3rd round partner matching according to wishes
 - Presentation of ideas + clustering + gallery walk with dot rating for liked ideas
- 3rd round: Idea consolidation: developing ideas until continuation in a project is possible
 - Grading which projects are feasible, eligible for grants and make sense for joint research
 - Smaller groups and events to develop ideas
 - Minimize frustration as projects can flourish (research, teaching, development of a unique selling point: legal consequences of digital development)

Challenges

- ✓ Choice of location to make participants experience the world of other disciplines
- ✓ Choice of suitable participants to make the meeting worthwhile for the others
- ✓ Appreciative social intercourse
 - Intervention of the facilitator in case of undercurrents
 - Clarifications when discipline-specific terms or concepts are used

Tools/Resources/Materials

- Infrastructure: Meetings took place at special alternating locations according to the participating parties
 - 1st meeting in a CAVE (room for automated virtual environment), experience that mechanical engineering is not only about screws
 - 2nd meeting was scheduled at the library (venerable place)
- Materials such as fill-in formats for matchmaking or knowledge market
- Event management (stand-up display, catering) for the first venue
- Methodology by the Laboratory of Knowledge Architecture
- Seed Grant resource

Benefits and Learning

Beneficiaries

- Scientists: get to know each other and broaden their horizon
- Deans develop their schools: e.g. elaborate on trending topics and develop the organizational structure
- University directorate: input to modernize research according to actual needs
- Increase of visibility of research of School of Humanities and Social Sciences
- Project Scouts: get to know the researchers and their research topics

Innovation/value

- High-level support by Deans and School speakers,
- Every event produced results which were used in the next meeting > every level of the project produced additional and relevant results that increased cooperation (introduction > idea activities > Seed Grants)
- Creation of an autonomous research field of the TU Dresden as an international unique selling point (only few universities can occupy the field in such depths)
- Beginning of the first interdisciplinary cooperation (grant applications) after 9 months

Prospects

- Belayed start in some research fields
- Project approach can be used as a blueprint and is usable for other interdisciplinary research topics
- The continuing structure is to be considered positive (grant start followed by consolidation of projects)
- Goal: continuing cooperation in a central structural unit

What would you do differently?

Start earlier as some of the topics already went off (digitalization of industry complexes)



Tips

- ✓ Tool: invite an artist who may reflect or irritate - idea was dismissed due to difficulties (positive experiences in other projects)
- ✓ Adaptation of methodology: sticking to the method is not always positive, adaptation according to the participants, adaptation according to workshop process (time management, etc.)
- ✓ Different service personnel: apart from the facilitator, someone who knows the topic but who is not involved too deeply so that s/he can engage in creative thinking easily, someone who is open, has recognized the potential and makes them visible (idea facilitator with subject specialization, e.g. Project Scouts)
- ✓ Regarding the topics use cross-cutting issues to create synergies
- ✓ Rating of project ideas by participants or external experts (e.g. from companies)
- ✓ Create a private atmosphere to minimize inhibitions to present ideas, e.g. engineers do not like to write down their topics or ideas spontaneously
- ✓ Mixed teams
 - Bring methodological competence into the team
 - Do not use methods for the sake of the method but because you need it

Contacts and Sources

<https://tu-dresden.de/forschung/services-fuer-forschende/project-scouts/aktuelles/IDEENSTUDIO-Mensch-4.0>

Respondent

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<https://tu-dresden.de/forschung/services-fuer-forschende/project-scouts/kontakt>

Role of the interviewee

- Project Scout, roles for conception and facilitation (together with the school of Engineering and Humanities and Social Sciences)
 - from the second to fourth workshop the Laboratory of Knowledge Architecture were involved with design methods

Origins of the project

- Project Scouts identified competences but missing cooperation in the research area "human 4.0"
 - Reducing prejudices, especially in the school of Humanities and Social Sciences
impression of an auxiliary science to the engineering sciences
 - Protagonists of schools involved did some probing beforehand
 - Specific invitations to form a core group, later expansion regarding participants

Alexa Torlo

MakerMonday

MakerMonday is essentially an open innovation monthly event which focuses on encouraging and supporting multidisciplinary team-based problem-solving ways of collaborating to tackle dynamic challenges in a 'lab' environment. It brings together creatives, technologists, artists and curators and offers inspiration and space to share new thinking and prototype ideas.



BIRMINGHAM CITY
University



Project Type	Education Social/cultural programme
Target Group	Researcher Student Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium	medium
Levels of Interdisciplinarity	medium	medium	medium

Location and Institutions Involved	
Place of Implementation	STEAMhouse
University/Department	Institute for Creative Innovation (iCI)+, the Faculty of Arts, Design and Media (ADM)
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	<p>MakerMonday is a unique opportunity to put BCU at the forefront of interdisciplinary experimentation, technology and artistic development.</p> <p>It aims to foster a community (with an international reach) of fresh thinkers and creative collaborators across disciplines, linking practice to the social and economic needs of the city (challenge-based), to test new ideas and find low cost solutions.</p> <p>MakerMonday is ongoing and takes place every last Monday each month since 2014.</p>
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Case description

The main goal and background of the project

MakerMonday stemmed from BCU's Cross Innovation Interreg Europe project, a programme which promotes collaborative and user-driven innovation across sectoral, organisational, technological and geographic boundaries. Its focus rests on policies and support measures that enable cross innovation and creative spillovers between creative sectors and other industries.

About: <http://www.cross-innovation.eu/about/>

As the result of the Cross Innovation activity, the team noticed the increasing importance of the process of open innovation, especially as we strive to generate new ideas in a time of global uncertainty (Collaborative Economy, Nesta 2017).

MakerMonday brings creatives, artists and technologists together to develop ideas through open innovation and collaboration. MakerMonday draws on the rapid growth of cheap computing, such as the Raspberry Pi, prototyping tools, such as 3D printing and modern projection techniques such as telepresence. Developing and maintaining this ongoing activity helps to build collaboration and learning between the participants to deliver new creative technology projects.

MakerMonday involves a range of collaborators from across the city and the wider West Midlands region. Collaborators are often artists but also technologists, each working with a range of innovative technologies across their own discipline and engaging with other disciplines. At each monthly event, an expert presents their own specialism and then shares techniques through a workshop. Planned themes include: virtual reality, holographic projection, development with Raspberry Pi and using EEG brain sensors and will align to the STEAMhouse key areas of focus including automotive, creative & digital, health and advanced manufacturing.

Maker Monday encourages a mix of specialisms to come together such as architecture, digital, design, music, engineering, the arts, social sciences and life sciences and provides an opportunity to work with modern prototyping tools that are currently shaping a new technological landscape, enabling them to innovate and solve real-world problems.

Team

Maker Monday was designed by a team based at BCU's Research, Innovation and Enterprise department specializing in cross innovation.

In June/ July 2014 staff of the department ran a highly successful project called Interactivos? Birmingham in partnership with Sampad, Midland Arts Centre (mac) Birmingham, the British Broadcasting Company (BBC), and Medialab Prado in Madrid. The focus was on bringing together artists and digital developers within a theoretical framework, combining contributors from the cultural and digital sectors from Birmingham, the West Midlands region, UK-wide, Europe-wide, and international, to work collaboratively over a two-week period on developing innovative digital solutions to artistic/creative ideas.

MakerMonday has a similar collaborative concept to Interactivos? and it additionally offers the benefit of being a monthly event and it involves a range of collaborators from across the city, both national and international. At each monthly event, we invite experts to present their own specialism and then share techniques through a short workshop.

Methods

MakerMonday offers a collaborative, supportive environment, in which participants share ideas and skills to produce work of artistic or social value.

The approach involves multi-disciplinary team-based problem-solving 'hacks' to tackle dynamic 'challenges' in a 'lab' environment to further develop ideas generated by this interdisciplinary working.

MakerMonday is enabling a range of options to be highlighted for early stage innovations. A sense of curiosity and open-mindedness is important for all participants.

The approach enables the team to assemble key individuals around specific challenges and to plan accordingly.

Innovation is by its nature a non-linear process. By adopting an approach which has a broad but specific methodology, the team can plan a programme of interventions.

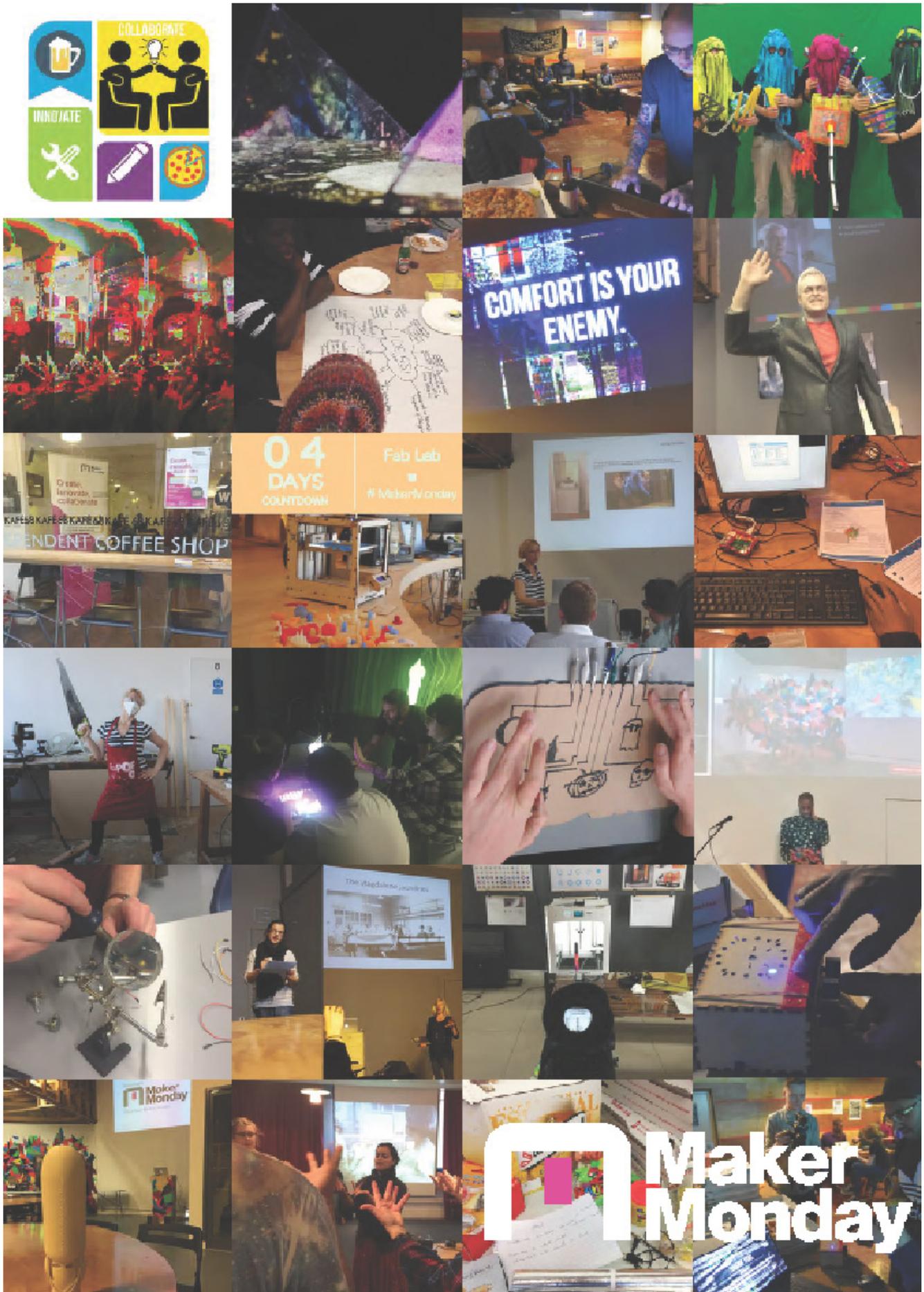
Challenges

- ✓ MakerMonday pilot was successfully run for 5 months. However, the problem is that to date the project has largely attracted a university user group of mainly students and small-sized businesses focused on technical and creative sectors, alongside a growing number of artists, many of whom have less understanding of the technical potential of their work despite them wanting to engage. The project development team believe that a deeper collaborative approach with arts organisations and artists will have a greater impact on the creative processes, and support the generation of new ideas, innovation, and skills development.

Tools/Resources/Materials

MakerMonday is a fairly low cost activity; to date events have taken place at local arts organisations, maker spaces, cafes. From 2018 events will be hosted at the STEAMhouse building, a new maker space for the city of Birmingham.

There was an initial cost to support access to low cost technology such as Raspberry-Pi, Google Cardboard etc. Often the lead expert will bring along their own resources such as SAMlab, LEGO etc.



Benefits and Learning

Beneficiaries

Maker Monday is a creative, collaborative innovation network, based in Birmingham since 2015. It brings creatives, technologists, artists, students and curators together to make innovative projects of artistic merit and social benefit. It is a never-ending hack.

Innovation/value

For BCU MakerMonday activity including:

- A vehicle to enable quality research papers to encourage practice-based learning
- Developing better links with students, identifying collaborators, speakers, mentors & experts for upcoming activity
- Driving forward our open innovation ethos, working cross-faculty to ensure we increase our engagement using our internal resources to best effect
- Curriculum Development - embedding innovative/cross-sector collaboration processes such as MakerMonday into academic courses
- Increased community of individuals interested in pursuing similar practices in the future
- Supporting participants to develop their skills
- Increased interest in collaborative inter-disciplinary work

Prospects

The MakerMonday model has been an important driver for the STEAMhouse project, a new collaborative enterprise hub aimed at encouraging the arts, science, technology, engineering and maths (STEAM) sectors.

The MakerMonday network has been established in Birmingham since 2015. By running this event in STEAMhouse it will provide a platform for entrepreneurs to develop new thinking, prototypes and to feel part of the community of STEAM thinkers, responding to the new economy.

STEAMhouse is a unique new space for innovation focused around interdisciplinary collaboration. Powered by Birmingham City University, workshops and events allow participants to share and develop their ideas with experts from many different backgrounds. Users of the space will have access to co-working space, fabrication workshops, plus advice from experienced technicians. There is also business advice and a small number of grants to fund materials for early stage prototypes.

What would you do differently?

Develop a more strategic focus as part of the initial planning stage for processes in place to access funding opportunities in order to support ongoing prototyping by the participants. The MakerMonday Commissioning Project worked well because it had a grant (from Arts Council England) which allowed artists to develop their ideas further and work in collaboration across sectors.

The aim of the Maker Monday Commissioning Project (MMCP) was to bring together ambitious and creative individuals within a growing and connected community of fresh thinkers and creative collaborators, and extend value to the successful MakerMonday programme for artists and those operating within the wider creative sector.

The programme was aimed at artists, creative professionals in art and design, performing arts, and participatory arts, programmers, hackers, developers and coders, and film and video makers and delivered four new commissioned pieces of work between September and December 2016; each of the 4 funded artists were supported with a mentor to support their development and ensure high quality results.

The artists appreciated the structure and format of the project in allowing them the funding, spaces, networks and collaboration to exercise ideas that may have been in their infancy, whilst imposing deadlines and events to structure it around. One way of addressing the value of the project was to ask what this piece would have looked like without the opportunity afforded by MMCP, given that many of the artists used MMCP to address a work in early progress. Artist 3 said: "I've got lots of other projects. They'll happen in time. It would have looked half finished, not being pushed into a finished thing. It's focused me." Artist 1 similarly said it had "spurred me on". In this respect then, the artists have had to develop additional skills in developing and planning their work which might not be so commonly addressed in their everyday practice.

The learning from this project clearly points towards ensuring processes and procedures are in place which apply some pressure in setting out objectives, deadlines and public presentation of work clearly at the start of the project - this is helpful in focusing the artist's efforts. Proposals and project design should continue to be clear in setting out such objectives.

Tips

- ✓ Find a space [to hold the event] that welcomes collaboration and work with open-minded people [across a wide range of sectors/backgrounds] with a desire to try new things
- ✓ If people are protective about IP then this open innovation activity is not for them!
- ✓ If people are closed it can cause unnecessary tensions and lack of participation and flow of ideas

Contacts and Sources

Twitter: @Maker_Monday

Instagram: @makermonday

Caroline Norman, MA Ed, SFHEA, Programme Director, MA Design Management

The Potential of Technology-Enhanced Learning in Work-Based Design Management Education

From the perspective of a designer working with other designers, what is commonly described as design thinking is inherent in the approach to the work. This case study gives an account of the introduction of technology-enhanced learning (TEL) as a means of enhancing engagement (and avoiding disengagement) of work-based learners. What might be interpreted as 'design thinking' was the iterative approach common to designers, involving experimentation, 'doing', trying, reviewing, being creative and being prepared to get it wrong with occasional crashing and burning.

While conflicting views around the role of TEL are valid, universities need to reconcile institutional conservatism with their ability to innovate, alongside addressing the resistance of some academics to new ways of working. The opportunity to capitalise on technology-enhanced learning lies in the student experience, educational value and the development of well-supported, online learning frameworks.

Building on previous research into the value of master's level work-based learning in design management, this case study focuses on a (TEL) pilot conducted within a design management master's programme that offers work-based learning (WBL) alongside the more traditional full-time mode of study. The TEL was designed to enhance the student experience and extend the reach of work-based learning.

While there is a strong case for designers to acquire business and management skills, design education and early design careers focus on the practical aspects of design and offer limited opportunities for professional development.

Work-based learning is well suited to the learning styles of designers. When combined with recent developments in TEL, work-based learning provides universities with an opportunity to support designers' professional development.



BIRMINGHAM CITY
University

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	low	low
Levels of Interdisciplinarity	medium	low	medium

Location and Institutions Involved	
Place of Implementation	Birmingham
University/Department	Birmingham City University
Municipal Authorities/Department	Birmingham
Business Partners	-
NGOs	-

Duration	The pilot activity took place during the 2014/2015 academic year.
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Case description

The main goal and background of the project

The aim of the pilot was to test the potential of new online technology as a means of enhancing learning quality and extending the geographic reach of Work Based Learning (WBL) for designers and design managers.

The online learning pilot was conducted with students and academics engaged on the Master's in Design Management at Birmingham City University and built on previous research into the postgraduate education in design management, which linked WBL with the acquisition of strategic business skills and knowledge (Norman and Jerrard, 2012).

The course has delivered both full-time and WBL for over ten years with both cohorts studying alongside each other. Attendance in person is expected of all students so WBL students are required to negotiate a proportion of time away from work, which limits prospective students' access to the course.

Prior to the pilot the course had already established online support for learning and teaching via the University's virtual learning environment (VLE) called Moodle. The pilot focused on the introduction of web conferencing software and video chat platforms suitable for use on computers, tablets and mobile phones.

The pilot was designed to test these new online learning technologies, their potential to enhance the student learning experience and extend the geographic reach of WBL for design managers, to evaluate both staff and student experiences of TEL whilst also considering the institutional and technological challenges.

The research context focused on the demand for design management skills, the nature of design education and careers, the challenges designers face in acquiring management skills and the value of WBL in designers' professional development.

The research was action based with UK-based teaching staff and students located in Europe, North America and Africa collaborating in the implementation and evaluation of the pilot. The research looked at the opportunities and challenges provided by technological change in higher education before reporting on the staff and students' experiences of the pilot.

Team

The participants were two academic staff who were part-time lecturers familiar with the University's VLE Moodle but inexperienced in other online learning technologies.

The student participants were eight full-time campus-based students and eight WBL design practitioners located in the UK, Europe, North America and Africa.

The project was led by Caroline Norman, Course Director for the Master's in Design Management.



Methods

The research set out to evaluate the staff and student experience, whilst exploring institutional and technological challenges (Sidawi, 2013), as well as convenience and flexibility, educational and social value (Gosper, et al 2008).

The team employed the principles of action based research, a practical, problem-solving approach well suited to education where 'research is directed towards greater understanding and improvement of practice over a period of time' (Bell, 2003, p.10). Action research enables practitioners to introduce changes to their practice, evaluate these and implement findings through an ongoing, cyclical process.

Staff and students collaborated in the evaluation of the technology-enhanced (TEL) learning both formally and informally throughout the pilot, with findings being implemented as appropriate.

The pilot was conducted over one year and prior to this involved staff in the research of online learning technology over a period of six months. TEL was then introduced at the beginning of the academic year with campus-based lectures, seminars and workshops made accessible online.

Classes were run by teaching staff and sometimes involved guest speakers, with students attending both in person and online. The timetabling of classes was optimised to accommodate different time zones and where possible, classes were recorded and made available online after the event. Shortly after the introduction of online classes, online discussion groups and group tutorials were also introduced for WBL students.

Qualitative and quantitative data were collected throughout the pilot with triangulation achieved by gathering data through a range of methods and sources. These included documentation generated by the staff, informal discussions with both staff and students, and semi-structured interviews with ten of the participating students (five full-time and five WBL) after six months of online learning. The interviews were recorded and subsequently transcribed for analysis.

The research was conducted with the informed consent of the staff and students within the ethical guidelines of research at Birmingham City University. The ethical approach was designed to ensure the anonymity of individual participants and included the dissemination of findings.

Challenges

One of the key drivers for this project looked at how Universities were responding to change.

The higher education landscape is always rapidly changing with universities responding in different ways to technological opportunities, including TEL, and more recently the global economic downturn (according to the Higher Education Funding Council for England (HEFCE), there has been an overall drop in postgraduate numbers since 2011, this reflects HEFCE's (2013) view that flexible delivery is becoming increasingly important).

One of the biggest obstacles was the lack of knowledge/experience of TEL at the university. Internal infrastructure meant that the IT and Educational Learning & Teaching departments were

separate departments, as a consequence it was extremely difficult to find support staff who had the knowledge and also the time to support the team to develop the TEL activity. The university is still some way behind where some other institutions are with TEL activity. The team approached this pilot with a shared view to test out what might be possible with current IT provision and to hopefully provide feedback to internal teams which might help to develop TEL activity in the future.

The pilot was ambitious and at times the introduction of TEL was overwhelming for the staff. This was due to time limitations, lack of technological know-how and the absence of online learning infrastructure. Despite this, both WBL and full-time, campus-based students reported positive experiences, they valued the flexibility provided by online learning, the educational and social learning value.

Staff described the challenge faced in the absence of an online learning framework and their own lack of specialist IT knowledge and experience. While they had found considerable literature concerned with online learning, they were unable to identify sources of guidance on specialist software and learned through online searches, discussion groups, commercial web sites, participation in training offered by software providers and experimentation with interested colleagues within the University.

As universities face increasing financial pressure, potential resistance is reinforced by fears that technology is being used as a means of cost saving, along with the potential impact on teaching staff, academic quality [issues which should be addressed at institutional level], as well as the issues facing teaching staff directly such as academic quality and technological challenge.

Academic rigour and quality needs to be maintained when delivering content using TEL.

There is clearly scope for a wide range of perspectives and these are likely to reflect individual approaches to pedagogy. Newton (2013) advocates online learning, describing rigorous academic standards and quality controls, with highly engaged students in employment who are 'quick to grasp theory and see how it can be put into practice', (Newton, 2013, www).

The availability of online learning does not always exclude lecture attendance as students describe contact with their lecturers and peers as valuable. In the case of lecture recordings intended for remote students, the technology is reported to blur the boundaries between remote and campus-based students who also make use of TEL for revision.

To ensure the successful adoption of TEL and avoid the disengagement of academics, universities need to acknowledge that staff and students are not always technically savvy and provide appropriate resources and support. This in turn poses challenges for IT departments in terms of staying abreast of technological change and resourcing support. Universities also need to be prepared to deal with a wide range of practical issues that impact on the adoption of online learning such as global time zones, student commitments and the practicality of synchronous delivery, selecting appropriate online technology and support and resources - 24/7 provision requires 24/7 technical support.

Whilst TEL is changing the ways universities operate and students learn, it is important to recognise different technologies' strengths and weaknesses and the scale of infrastructure required to support the adoption of these technologies.

Tools/Resources/Materials

Preparation for online learning:

Staff explained that the motivation for the pilot arose from the advent of MOOCs, the recognition that more accessible technology was becoming available and TEL potential to provide for a 'better alignment with employer needs' (Dua, 2013).

Prior to the pilot, one member of staff had experimented with lecture streaming over the Internet but this had been unsuccessful as the IT department was unable to support web casting. The staff had become frustrated with the University's slowness to innovate (Thomas, 2014) and were concerned that an opportunity was being missed.

The pilot was a small scale, course-led initiative with the specific aim (Hammersley, et al. 2013) of improving the student experience and extending WBL's geographic reach. Led and implemented by the staff, there was no institutional or cost-saving agenda so resistance on these grounds was not evident. However, the staff were aware of intellectual property issues and potential sensitivities around recording of the lectures (Gosper et al 2008).

Two types of specialist online software were identified. The first was web-based lecture technology (WBLT) such as Panopto, designed to live stream, digitally record and store lectures for distribution via the web as a *one-way* medium delivering audio, video, presentation material such as PowerPoint and other visual content captured on camera. The second was web conferencing or 'webinar' software such as GoToTraining, WebEx Training, Adobe Connect and the open source Big Blue Button, designed to share and record real-time events, offering two-way communication. Web conferencing software shares voice, video, presentation material and text based chat, creating virtual classrooms where participants can raise hands, answer polls, work in breakout groups and take over as presenters.

As two-way communication and the creation of a virtual classroom were seen as essential to the learning experience, the staff chose to focus on web conferencing software.

In deciding on an appropriate software provider cost proved a key factor. The costs associated with implementing web conferencing software were found to vary and depended on a number of scale-related factors. Over and above the cost the staff encountered an array of IT and user-related factors for consideration including:

- Responsibility for hosting
- Compatibility with university systems
- The requirement for IT involvement and resources
- Functionality across operating systems, desktop and mobile devices
- The number of participants supported
- Ease of operation
- Quality and availability of training
- Reliability
- 24/7 support
- Synchronous and asynchronous learning features
- Support for different file types
- Ease of editing recordings



Benefits and Learning

Beneficiaries

Building on previous research that identified the value of WBL for design management, this pilot set out to test TEL as a means of making professional development more accessible to those in design practice.

Whilst case study research does not aim to generalise findings, the pilot highlights the potential of new developments in TEL. More specifically for the professional development of designers, the pilot draws attention to the opportunity for higher education to contribute to design practitioners' lifelong learning.

The pilot highlights the investment involved in implementing new approaches to learning. The pilot also draws attention to the collaborative approach and the supportive environment this created for the staff, enabling them to explore the technology and take risks.

Educational and social learning value:

The staff were impressed by the levels of student engagement and interaction online. They also described the challenge of designing meaningful learning experiences, particularly where classes were seminar and workshop-based:

"Some of our classes worked better than others for the online students. Our starting point when planning a class was still campus-based. Some of the web conference classes took some organization to make them work well and time was an issue."

With experience, the staff found they were able to run straightforward classes with confidence, but they felt that if they had more time, they could be more imaginative and create better classes. Reflecting on the pilot to date, the staff believed they had reached a point where they could develop several different 'models' or formats for classes that would help to make the planning of online and campus-based learning easier. The staff also observed some unexpected and worthwhile outcomes.

The staff noticed in some cases that online students would be running their own text-based discussion in parallel with the class and these added value as both the staff and the fellow students were able to draw upon them.

If there was only one staff member running the class, keeping track of the online students was difficult, so the staff started to ask the students in the room to keep track of the online text chat, which made the students feel more connected.

As the pilot progressed and the staff enjoyed positive feedback from the students, they reported increasing confidence in operating the web conferencing software. The staff recognised that their lack of technological skills required them to be comfortable with a degree of risk and learning by doing (Kolb, 1984), but they still found some experiences quite stressful. However, they reported that the collaborative nature of the pilot and the students' involvement had created a positive environment which:

"Allowed us to learn together and gave us permission to get it [the technology] wrong provided the content was still good."

The staff sometimes experienced stress over technological challenges and were concerned about the impact on the student experience. Students were far less concerned and surprisingly relaxed, they took the view that technology problems are to be expected and are part of everyday life. Where the staff worried about the quality of sound and video recordings, students were generally satisfied with recording quality and were more interested in seeing all their classes recorded and made available online.

All of the WBL students described a positive experience of the online classes. Their views mirrored Gosper, et al. (2008), identifying flexibility, convenience and the scope to achieve a work, study, life balance as a priority. One student took the view that attendance online was of equal value to attendance in person and didn't feel any difference between being there in person or online. Students also adopted their own flexible approaches to TEL, for instance if work commitments meant it was not viable to actively participate in a class, they would still connect online and simply listen in.

When asked about their overall experience of online classes, both full-time campus-based and WBL students were very positive. The campus-based students felt they added value to the course and the shared learning experience with one international student observing:

"Love it! Very good, I could have taken the whole course this way."

All of the campus-based students interviewed felt they benefitted from increased exposure to the more experienced WBL students and the discussion they generated during online classes.

Campus-based students also found the online recordings valuable, despite the relatively low quality and lack of editing, using them to revisit and gain greater understanding.

As a means of evaluating how students viewed the relative value of learning from attendance in person, online and via Moodle, the students were asked to weight the three components of their learning by apportioning 100 per cent across the three. Responses varied by individuals and their circumstances, overall WBL students attributed 25% of their learning value to online learning with campus-based students attributing 14%. All students placed high value on attendance in person. Moodle was valued particularly highly by WBL students. Whilst the student sample was very small, the findings begin to demonstrate the blurring of boundaries between the full-time campus-based and WBL students, as described by Gosper, et al. (2008).

Table 1. Students' views on relative value: learning in person, online and via Moodle.

	Online	In person	Moodle
Full-time students	64%	14%	22%
Work-based learning students	41%	24%	35%
All students	52.5%	19%	28.5%

The students took a flexible approach to their learning. Where internet access was not an issue for most, two of the more remote WBL students occasionally suffered from unreliable internet connections, which was the cause of frustration. In these cases they relied more heavily upon the access to recordings of classes and the accompanying narrative provided on Moodle. In contrast, one WBL student who lived within commuting distance preferred to attend in person, but also appreciated being linked to other WBL students online.

All the WBL students valued the sense of involvement and connection the TEL provided. Google Hangouts were seen as a valuable way of staying in touch, particularly during periods of independent study where they might otherwise feel isolated. Staff also appreciated the social engagement arising from the introduction of video chat, contrasting previous years' experiences of limited contact with the WBL students with the opportunity for regular connection between the staff and the students across the globe:

'Before we settle down to work we'll chat about the weather and plans for the weekend with one student sitting in shirt sleeves whilst another has a snow scape as a backdrop.'

Where one-way technology might not support the important social opportunities identified by Sandel (2014), the two-way technologies Adobe Connect and Google Hangouts were consistently described as valuable to the development of the learning community.

Innovation/value

The value of work-based learning:

As the pilot ended, the staff expressed the view that their experiences had exposed them to the advantages of TEL, that these had far outweighed the disadvantages and that they intended to continue to support the course using the technology.

WBL is an established mode of study that enables practitioners to develop their skills and embed lifelong learning behaviour whilst remaining in full-time practice.

The growth in WBL has its critics who question its quality and where it sits in relation to training. What distinguishes university-based WBL from training is the assessment of learning and the award of credit, both of which are subject to academic regulation and quality assurance processes (Hammersley, Tallantyre & Le Cornu, 2013).

WBL supports lifelong learning by bringing together the learner, academia and the workplace, it provides learners and their organisations with accredited programmes of study. These enable the development of individual learning plans that meet learners' personal and work related needs (Boud & Solomon, 2001). Most importantly, WBL facilitates meaningful learning by merging theory and practice, knowledge and experience (Raelin, 2008).

WBL is well suited to design careers and designers' experiential learning preferences where learning involves practice, observation, conceptualisation and experimentation (Kolb, 1984). Practicing designers who have studied design management via WBL have reported significant changes in their approach, being more business-oriented and better placed to understand the business context (Norman & Jerrard, 2012).

Whilst WBL has been available for some time, recent advancements in TEL have created the opportunity to enhance the student experience and make WBL more accessible geographically.

Prospects

Subsequently the team have adopted all of the technologies for MA Design Management and have continued to experiment, learn and refine the way they use TEL. And now that MA Design Management is also delivered in Hong Kong (on a 50:50 teaching basis) the team use TEL extensively with two benefits:

- much greater engagement and motivation between staff and students
- fewer teaching visits to Hong Kong than the team would normally need if they did not use TEL. For instance they now assess some student presentations online, hold face-to-face tutorials, and have run workshops remotely.

A further example is the **Lancaster Design Jam** where the team collaborated in June 2017:

Led by Imagination Lancaster, the Design Jam 2017 involved a collaboration between Lancaster University, De Montfort University and Birmingham City University (BCU). Designed to develop and support collaborative, design-oriented research and teaching links, the Design Jam 2017 involved a range of guest speakers and workshops, providing BCU MA Design Management students with the opportunity for collaborating across a range of multi-disciplinary activities. As a direct result of the teams' experience in Technology Enabled Learning (TEL) they were able to extend the collaboration to their Hong Kong students in real time.

As in the original pilot, having decided what they wanted to achieve, the team implemented activity using learning from the pilot project, applying and extending it. Working with colleagues who had no experience of webcasting before the actual event was an iterative process of trial

and error. The team were able to more readily resolve challenges and problems which occurred because of the pilot programme experience. The event worked really well and benefitted significantly from the Hong Kong students' involvement.

What would you do differently?

For institutions approaching TEL, the creation of a supportive institutional environment would seem a priority, with provision of infrastructure, expertise, time for staff learning and a safe environment in which to experiment.

TEL strategies which focus on educational value may be more likely to overcome universities' inherent conservatism. The greater conviction of those already experienced in TEL would suggest there is value in facilitating early adopters, both staff and students, and enabling these to become the champions for online learning.

Ensuring the provision of TEL is factored into the course review and validation process.

Contacts and Sources

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Respondent

The process involved running classes with academic teaching staff delivering content utilising online learning tools for MA design Management students who participated in online learning sessions as part of the pilot programme.

A Senior Fellow of the Higher Education Academy, Caroline is Programme Director for Birmingham City University's Master's in Design Management which operates out of both the UK and Hong Kong. As a highly respected course within the field of Design Management, this multidisciplinary programme has pioneered work-based learning and has links with many external businesses and organisations.

Caroline has a strong interest in management within the creative industries, the relationships between designers, business and higher education. Her research and publication include design management, work-based learning and technology-enhanced learning.

With over 20 years' experience in design and brand consultancy and over seven years as Managing Director of Boxer, a division of The Marketing Store Worldwide, Caroline's career embraces design and business management. Caroline has worked with a wide variety of private and public sector clients, SMEs and national brands including Aga Rayburn, British Airways, Golden Bear, Halfords, Nurofen, Southwestern Bell, Swish Building Products and Vantage Pharmacies.

Caroline's expertise covers: Work-based learning; Technology-enhanced learning; Design management and process; Multidisciplinary design; Design strategy and analysis; Creativity and innovation; Design thinking; Design and brand consultancy; Marketing communication; Design business management and profitability; Creative people management, mentoring and coaching.

Caroline Norman presented her paper 'The Potential of Technology-Enhanced Learning in Work-Based Design Management Education' which outlined this pilot study and associated research at the LearnxDesign - The 3rd International Conference for Design Education Researcher, Chicago, Illinois, USA, 2015.

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Active role of students + design thinking

Robert Fischer

DeltaHochDrei

DeltaHochDrei is a structured incubator program where upcoming startup-teams may apply to further develop their business idea of a software product. Several teams have joined to experience the process and feedback each other.



dresden | **exists**
WISSEN. GRÜNDEN. UNTERNEHMEN.

Project Type	Education
Target Group	Research Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	low	high
Levels of Interdisciplinarity	high	low	medium

Location and Institutions Involved	
Place of Implementation	TU Dresden
University/Department	Startup-service dresden exists, TU Dresden
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	Fall 2015 until 2019
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Case description

The main goal and background of the project

DeltaHochDrei supports students, graduates and employees from TU Dresden realizing software-based business ideas. At the basis there are three core ideas to ease the way into a start-up:

- secure: risks are uncovered and experiences exchanged
- lean: agile management components to reach set goals
- fast: customer-centered development to make the product ready for market quickly

The idea arose from within dresden|exists to optimize the consultation process from one-on-one consultation to a bundled teamwork effort putting a focus on knowledge and experience exchange between the different teams and more goal-oriented work.

Team

The core team is formed by the members of dresden|exists who are all experienced in formation of companies and have backgrounds from different disciplines such as: media IT, economics, business administration. For certain elements of the program (agile project management, software quality management) external consultants support the program - this is advantageous for an independent perspective on the incubated projects.

The teams participating in the program have already been formed before they come into the program. They have to apply for it. Most of the team members are engineers or computer scientists. Half the teams have at least one team member who has business experience. Team language is usually German. The teams are not changed during the course but there are delegates from other teams who come into the team for intense feedback.



Methods

Several teams come into the 2-phase program going through the process and exchanging ideas and experiences.

1st phase: boot camp

- 12 weeks, 10 teams and 8 workshops
- Workshops usually last ½ to 1 day
- Input workshops from consultants with connected outcome workshops where results are presented in moderated feedback rounds
- Pitch-day: peak of the boot camp where the idea is presented to experts (other start-ups, companies, business experts)
- Knowledge exchange is an integral part of the boot camp

2nd phase: acceleration

- 10 months, 5 teams, iterative process
- Consultation is more focused on subject-specific aspects
- Design Thinking Process
 - Applying methods/concepts that are helpful for the process and later on
 - > Divergent thinking: further develop ideas in a structured way
 - > Customer-centered: interaction with customer
 - > Interdisciplinarity: teams are mixed during the workshop; knowledge exchange is highly valued by participating teams, language is usually not a problem as the topic (software development) is rather homogeneous
 - > Doing instead of thinking
 - > Concrete methods (mostly with templates from [d.school, Stanford, USA](#))
 - o Brainstorming - Selection
 - o How might we?
 - o Interviews in combination with What? How? Why?
 - o Prototype for Empathy
 - o Testing with users
 - o I like, I wish, what if
 - Add-on workshop "software product" where a demonstrator is prototyped and evaluated in the DemoDay-workshop
- Input regarding legal, tax and insurance advice
- Network setup with business partners
- Continuous moderated feedback from experts
- Implementation is not as rigorous as in the boot camp: teams pause or discontinue

Challenges

The participants have to be persuaded that the establishment of an intensive feedback culture is beneficial for all participants of the program.

The structure of the input workshops and the corresponding outcome workshops in the boot

camp phase had to be reorganized according to the topics as some results could not be achieved on such short notice.

Tools/Resources/Materials

- Space: participating teams may use within the premise of a large software corporation:
 - Big workshop-room and co-working space
 - Individual office space for 1-2 teams
 - Most of the teams have a university background and are most likely to have adequate work spaces
- Wall, paper, post-its
- Team-tools, organized by dresden|exists
 - Kanban board (DeltaHochDrei uses Trello)
 - Chatrooms for daily communication (DeltaHochDrei uses Slack)

Benefits and Learning

Beneficiaries

dresden|exists: more teams can be supported and more intensive exchange within and with the teams in less time is possible

Teams:

- Experience an iterative process together
- Gain insights on customer-driven product development
- Create subnetworks
- Not only consultancy but also relevant knowledge input
- Establishment of a systematic startup-approach through the structured process, distinct time management, orientation and planning

External feedback rounds:

- Many ideas from many teams bundled in half a day

Innovation/value

- Better structured and more efficient process of startup-establishment
- Knowledge exchange and network creation
- Knowledge input + consultation
- State-of-the-art methods for lean and user-centered product development



Prospects

This is the 5th round of the program. Financial basis is secured via the higher education and research organizations who support dresden|exists. It is a defined program module within dresden|exists and is most likely to be continued after 2019. The business model and product development is regarded as positive. A new further area will be the transfer from software to life science area - here is the regulatory system of the health insurance of interest and costumers and users are not the same people.

What would you do differently?

Changes were made particularly in the concept:

- Boot camp topics were broadened due to information needs of participants
- Not all topics can be realized in the way to have an input workshop and one week later an outcome workshop dealing with the results of the practical implementation
 - Maybe consumers cannot be reached within a week or the customer is a company (change in methods - hypothesis)

- Boot camp duration was extended
 - More time between input and outcome workshops
 - Matrix-thinking: think about the whole system, some areas need more time than others

Tips

Expectation management: participants need to be motivated and concept needs explanation

- Concept as methodological case, program as sign and no taxi - get started more easily
- Expectations are high regarding minimizing one's own contribution
- Teams discontinue also because expectations were too high about the "structured program"
- This is also a Marketing topic for us organizers: If the team communicates honestly, they may not be as successful

Feedback culture: advantage of knowledge and experience exchange is not foreseeable for everyone right away.

Plan in more time: teams usually need one year after boot camp

Contacts and Sources

Respondent

Dr. Frank Pankotsch, Manager of dresden|exists

- Studies of industrial engineering
- Worked as consultant and wrote his PhD thesis on „capital investment enterprises and their portfolio companies“
- Assistant professor at the chair of entrepreneurship and innovation
- manager of dresden|exists and self-employed start-up consultant

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<https://www.dresden-exists.de/index.php?id=10>

Lubica Knošková

Innovation Expedition

The purpose of the project is to learn how to apply Design thinking method in the very early stages of product creation starting from trends recognition and consumer monitoring via own observation, combining creativity and innovation tools by students.



Project Type	Education
Target Group	Student Management - teachers

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	low	medium
Levels of Interdisciplinarity	medium	low	high

Location and Institutions Involved	
Place of Implementation	-
University/Department	University of Economics, Faculty of Commerce
Municipal Authorities/Department	-
Business Partners	-
NGOs	-
Project results are in the form of new product ideas as potential input for businesses.	

Duration	Ongoing - every winter semester for master degree students
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Case description

The main goal and background of the project

The main goal of the project is to use design thinking method for developing students' experience in teamwork and project work to enhance innovative ideas.

Team

Students of marketing and sales management master program.

Methods

We used the methodology of Design Thinking. The student teams of approx. 20 participants are divided into sub-teams of 4-5 people with the task to search for megatrends in different areas (lifestyle, consumer behavior, technologies, environment, society). The sub-teams, after finalizing their findings, do the presentations to a whole team of 20 participants. Based on the findings, the brainstorming with the whole team is organized. The teacher serves as a facilitator, explains the principles of brainstorming, and the students come up with their ideas. One of the students writes down all their findings. After the brainstorming the students decide what opportunity to follow in their project and they decide also about the members of the team. Then the teams work individually on their opportunity. After analytical work the product innovation is proposed in the elevator speech. Feedback of all teams to the teacher. Strategic positioning, placing new product on the market is developed.

Challenges

- ✓ The biggest challenge is to reach diversity. For that reason it would be worthwhile to involve product design students from the Slovak Technology University. The challenge lies in organizing the lessons during the semester and time planning.



Tools/Resources/Materials

Some infrastructure would be helpful: creative set up of the venue, canvases, colored papers, website.

Benefits and Learning

Beneficiaries

Students – learnings, real achievements in case of interest in their proposed innovations. University – creating innovation spirit. Businesses – unhiding new innovation opportunities.

Innovation/value

Creating innovation spirit in students, in University, learning and experiencing Design thinking Innovation process.

Prospects

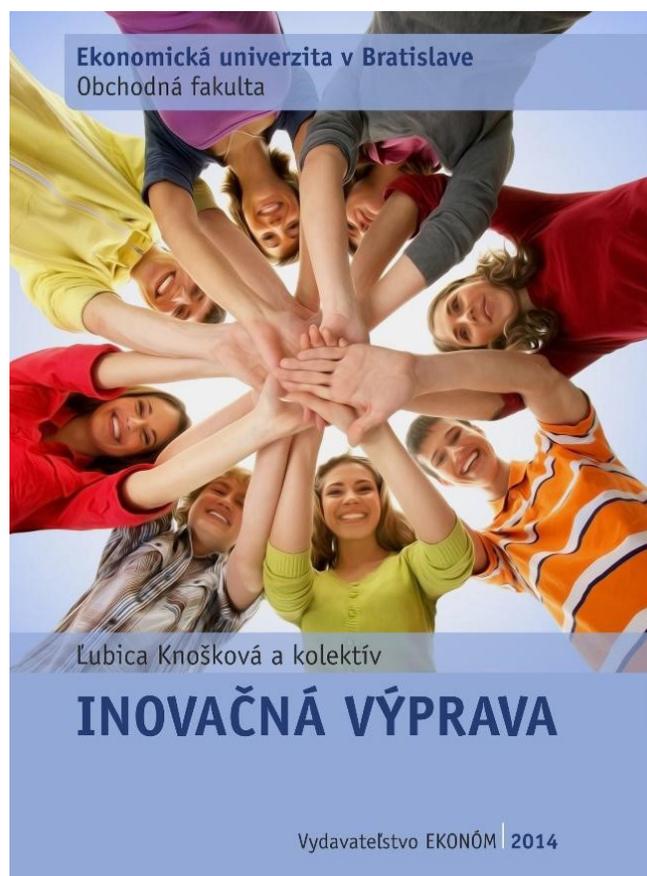
We are planning to set up a connection with businesses to interlink students' innovative ideas with business to materialize creative outputs as business opportunities.

What would you do differently?

Have more interdisciplinary participants from the beginning of the project.



Contacts and Sources



Textbook for students of secondary schools – published printed.



Methodical guide for teachers CD

Annamaria Recupero

Technological innovation and organizational process

Innovazione tecnologica e processi organizzativi

The following case describes the university course about the Service Design Thinking, addressed to the students of Psychology of Communication and Marketing.



SAPIENZA
UNIVERSITÀ DI ROMA

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	high	low	high
Levels of Interdisciplinarity	medium	low	medium

Location and Institutions Involved	
Place of Implementation	Rome (Italy)
University/Department	Department of Social and Developmental Psychology - University of Rome Sapienza
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	23/10/2017 - 18/01/2018 The course is carried out every year, as part of the master's degree program of Psychology of Communication and Marketing.
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Case description

The main goal and background of the project

From 2015, the course “Technological innovation and organizational process” has been included in the master’s degree program of Psychology of Communication and Marketing.

The main objectives of the course are:

- to acquire specific knowledge and skills for the analysis of the User Experience related to technological services in several domains;
- to develop skills needed for the collection and analysis of empirical data;
- to design innovative ICT solutions by adopting the user-centered approach and the Service Design Thinking methodology.
- re-design of an ex existing service which fails to engage the users.

The learning outcomes also include skills related to communication, collaboration, creative thinking and teamwork.

Indeed, the students are invited to work in small teams (4-5 people) and their goal is to design an innovative solution to address the problem expressed by a business partner.

Team

The course is organized and carried out by the Professor together with the tutor, in addition to the staff of the Department in charge of the administrative and didactic procedures.



Methods

The course includes the presentation and discussion of theoretical frameworks and models, as well as hands-on activities to apply the knowledge acquired.

The methodology the students adopt is the Service Design Thinking: they design the innovative service so to create value both for the target users and the provider. To this end, students perform a qualitative research (mainly through observations and interviews) in order to identify and analyze the users' characteristics (motivations, needs, preferences etc.). Such deep understanding represents the starting point for the user-centered design.

The path includes some steps and activities:

1. Analysis of the business case proposed by the partner
2. Benchmarking to identify the best practices in the domain
3. Identification of the target users and collection of data about their characteristics, mainly through interviews and observations
4. Data analysis using Empathy Map, Personas and Mental Model
5. Insights about design opportunities and brainstorming to generate ideas
6. Elaboration of the concept using Elevator Pitch, scenarios and storyboard, User Journey, Service Blueprint
7. Final presentation of the project and discussion with the business partner.

The tools used for the elaboration of data about the users (Empathy Maps, Personas and Mental Model) allow the students to empathize with the users' world and gain insights and ideas, while the tools used to elaborate the concept (Elevator Pitch, scenarios and storyboard, User Journey, Service Blueprint) require to define and structure the ideas.

Challenges

Considering that the students are new to the design of ICT and the Service Design Thinking, the challenge comes from the introduction of new perspectives and activities. To deal with this challenge, during the course some case studies are presented to provide the students with examples of the activities to perform and the outcomes to reach.

Furthermore, the course requires commitment and effort to perform the activities and reach the final outcomes, compared to a traditional lecture. Thus, the students deal with time management for all the courses included in the semester.

Tools/Resources/Materials

To carry out the activities, some equipment and tools are needed:

- the room equipped with a projector, blackboard, tables and chairs
- stationery (papers, post-it, drawing materials) to sketch the ideas
- template of the design tools (i.e. Personas, User Journey)

Moreover, some tools are used to share information (Facebook group) and documents (Google Drive).

Benefits and Learning

Beneficiaries

The course is attended by about 50-60 students of Psychology of Communication and Marketing. They can be considered an homogeneous group, even though they come from different bachelor's degree programs. They benefit from the course by acquiring expertise which they can apply to several domains (i.e. tourism, e-health, e-commerce etc.), and by developing vocational skills.

Innovation/value

The added value of the course relies on the hands-on activities the students perform in teams. In this way, they can better understand and practice the Service Design Thinking, based on a real business case proposed by a partner.

Prospects

At the end of the course, the students are invited to provide their opinions about their learning experience course: expectations, learning needs, opinion about the organization of the activities etc. This feedback is used to adjust the course for the next academic year.

What would you do differently?

We need to find ways to foster the divergent thinking and challenge students' creativity.

Tips

- ✓ Instead of proposing unquestionable models, the suggestion is to stimulate the discussion about the framework and the methodology. This fosters the students to integrate other concepts and theories from different perspectives and disciplines, and borrow the practice.

Contacts and Sources

Facebook page: <https://www.facebook.com/MasterUX-176600155754128/>

Web site of the Department: <http://dip38.psi.uniroma1.it/en>

<https://corsidilaurea.uniroma1.it/it/node/2287114>

Respondent

Annamaria Recupero is a PhD student of the Department of Social and Developmental Psychology, a member of the Joint Lab IDEaCT (Interaction Design and Communication Technologies).

She is involved in the course as a tutor in order to support the students during practical activities.



Active role of students

Paulína Krnáčová

Agrobio Club

Agrobio Club represents a platform focused on cooperation between academic sector and practice in the field which relates to agriculture and food industry. The aim is also to apply theoretical knowledge of marketing, innovation, consumer behaviour, project management, commodity science, product management in above-mentioned field by students.



Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	low	medium
Levels of Interdisciplinarity	medium	medium	medium

Location and Institutions Involved	
Place of Implementation	Faculty of Commerce, University of Economics in Bratislava
University/Department	University of Economics in Bratislava, Faculty of Commerce
Municipal Authorities/Department	-
Business Partners	Local winemakers, wineries, wine wholesale
NGOs	-

Duration	Agrobio Club was established in 2012 and activities have been carried out every academic year since. In order to reach the main objective of the club - the connection of students (theory) with practice, we chose an interactive form of education vastly different from the typical ways and forms of connecting theory with practice that our teaching staff is used to (such as developing term papers, practical examples, case studies, video projections, problem solving and so on).
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Case description

The main goal and background of the project

The club activities are primarily created for the students of the Faculty of Commerce who can concentrate on the specific field of their interest and can confront their theoretical knowledge with practical experiences of business representatives. The club activities are generally carried out in the form of workshops and team projects. Members of the club can create their own thesis titles and write the chosen theses with the help of teachers or economic (business) experts. The main objective of the club is to connect students with practice. Students can gain a firsthand experience of working in the area of trade, merchant tactics, sales tactics, marketing skills, risks of entrepreneurship, but also in order to apply the theoretical knowledge in work experience.

Team

Agrobio club consists of three groups of participants:

- *Supervisor*
A teacher / leader of the club who is responsible for coordination and management of all activities, creates content of the workshops, set aims and tasks; and helps students to solve problems, advises them just in the case of any complications, questions or problems.
- *Students*
Students represent sales representative of winemakers, become active participants that are responsible for carrying out all activities. Since 2013, more than 150 students have participated in club activities.
- *Partners/Business representatives*
Winemakers with whom students cooperate; lead selected workshops for students. By present, 40 winemakers and 1 wine distributor have participated in the club activities, majority of them cooperate with students when organizing the final event - winefest.

Methods

The club activities are generally carried out in the form of workshops and team projects. We apply project-based learning with limited elements of design thinking. Brainstorming is the most used method for searching of best solutions. The basis of the club activities is organising workshops led by experienced specialists in cooperation with the club's supervisor. During the term, we organise a series of workshops for students, where we gradually introduce them to all necessary knowledge for organising an event. Since the work on the project is team-oriented, during the first workshop we test the students in order to discover their abilities and aptitude for working in a team. Then, according to The Belbin Team Roles Model, we create teams of four and/or five members each. Each team is represented with all groups of roles (action-oriented roles, people-oriented roles, thinking-oriented roles). Subsequently, the students are informed about the task and objectives they need to implement during the term.

Challenges

In our opinion the biggest challenge is to step out of the comfort zone and bring something new (i.e. new teaching method). Sometimes it might not be understood very well, especially by colleagues that are used to teach in traditional way.

Tools/Resources/Materials

Students apply theoretical knowledge in the practice. They use typical literature sources as well as experiences of winemakers. The final workshop - event Winefest of the agrobio club is organized in special event place that has to be booked before the event. Based on students' preferences we organize field trips to the local winemakers or prestigious wineries from our region. During the final event students usually use promotional materials of wineries and/or winemakers with which they cooperate (banners, brochures, glasses, ice, cheeses, fruits, cookies, cakes, etc.). During educational process - workshops we use flipcharts, colour markers, papers, adhesive tapes, notebooks, data projectors.



Benefits and Learning

Beneficiaries

The main beneficiaries of the agrobio club are students. Participation of students in the club activities brings them the following benefits: (1) enables to develop their communication and negotiation skills, assertive communication, abilities to make deals and trade, (2) requires interest from the students in gaining enough information about defined topic and tasks; (3) gaining practical information and experience based on face-to-face communication, meetings or even excursions to business entities they work with, eventually taking part in events organised in the wider area; and (4) application of theoretical knowledge from marketing, tourism, business economics, planning, project management, etc. gained during their studies, (5) networking and new contacts.

Innovation/value

We selected some opinions of students that participated in Agrobio Club:

"I did not expect so much as it was offered. I was satisfied."

"Very good event and many good points to the faculty and event. Super!"

"I would not change topic of the club activities... It is necessary to go on!"

"The workshops - interesting, they were super!"

"The event - excellent, could be organized on a regular basis."

"The event - funny, finally something practical and different one."

"Absolutely great event at the faculty, creative expression of students and not memorizing of theory!"

Prospects

We are going to continue the activities of the club/project.

Tips

- ✓ At first, explain students the principles of the project-based learning to avoid misunderstanding their role in education process and set aims and tasks of the project precisely and strictly for students to understand what is their role or responsibility.

Contacts and Sources

FB page: <https://www.facebook.com/agrobioklub/>

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Respondent

At the end of every term we conduct survey focused on evaluation of students' satisfaction with selected aspects of the agrobio club: topic of the club, team work, supervisor, the role and activity of each student in the team, event and benefits for participants. Students (participants of the club) can express their own suggestions how to improve club, what are the most important pros and cons of the club for them.

Veronika Nekolová

Bankademy

The project is focused on a close interconnection of theoretical and practical knowledge at banking and business field. The project has been realized at University of Economics in Bratislava. Two faculties and the business partner Tatra banka, a.s have participated in the project.



Project Type	Education Commercial
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	high	medium
Levels of Interdisciplinarity	medium	high	medium

Location and Institutions Involved	
Place of Implementation	University of Economics in Bratislava, Tatra banka a.s.
University/Department	Department of Marketing - Faculty of Commerce; Department of Banking - Faculty of National economy; University of Economics in Bratislava
Municipal Authorities/Department	-
Business Partners	Tatra banka a.s.
NGOs	-
As part of cooperation with business practice, the University has signed an agreement with one of the largest banks in the Slovakia - TATRA banka, a.s.	

Duration	The project ran from 20.02.2017 to 25.5.2017
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Case description

The main goal and background of the project

The main goal of the Project was to create a platform where subjects from different environments can meet (corporate environment, academic environment). Another goal of the Project is to educate and prepare the students of relevant departments for the entry into the practice through involving the company into the education process. The main problem is the lack of practical preparation of students after graduating bachelor or master degree. The idea came from the educators from Faculty of Commerce at University of Economics in Bratislava. The inspiration for the project is the lack of practical education and preparation of graduates for the entry into the labour market, the need of practical education and searching for new talents among students. In the project we worked with a group of 23 students, while every team has been working on two thematic areas - corporate and project financing.

Team

23 students, two pedagogues and four experts from the Company participated in the project. There were 23 students working on the Bankademy Project. Ideally, one team is made of four students of Faculty of National Economy and Faculty of Commerce. Tatra banka's experts took care of each project individually and consulted assignments. A team of experts has been created as well to cover each thematic area that students need to understand to manage their assignment. The educators had an important task as well. They were the mentors throughout the whole project.



Methods

Within the project, the team of students used to have a meeting twice a week. The first meeting was at University at the same time every week, while the second one depended on necessity of consultation in the company or co-working. Each of the projects had four phases: analytics, conceptual, verifying and argumentative. In the project we used didactic method of Problem Based Learning with the elements of Design Thinking - specifically Brainstorming while searching for ideas, mind maps while solving the problem, dialogue through which students get to the result faster and incite critical thinking through simulation of a real background, where a student is in role of a banker/bank's employee and an expert is in the role of a client. Besides of innovation methods, we used methods of analysis and secondary research while looking for resources.

Challenges

Challenges in the Project in context of hierarchy were upset out of vertical situation (hierarchy perception (student - educator - future employer) into the horizontal situation (equivalence, teamwork) and in that way support of discussion and innovation ideas, creating spatial/online platform for subjects entering the Project, setting of marketing communication, the goal group student. Project worked on a voluntary basis, that means marketing communication of the project to the students was very important. As the next challenge I consider reconciliation of teams of educators and employees of the company, their goals and setting whole schedule of the Project. Within educating and using new methods, the biggest problem was in activity of students in which helped methods of Design thinking methods.

Tools/Resources/Materials

During the work the students were using resources from the internet, the company's website and personal consultations. Space suitable for using methods DT and PBL is established at University of Economics. The aids we used were Flipchart, markers, papers, adhesive tapes - method of mind maps, Flipchart - method of brainstorming , projector - during presentations, colourful chalks and chalkboard and also online platform - Talentway.net.

Benefits and Learning

Beneficiaries

Students benefitted by acquiring practical knowledge, an opportunity to practice networking, an opportunity to get a job or support creative thinking. The company gained prestige, an opportunity to employ students, was able to search for talents and reduce the risk of fluctuation. University had an opportunity to gain prestige, practice co-working, and create assignments with practical application.

Innovation/value

Interdisciplinarity - connecting more faculties - Faculty of National Economy and Faculty of Commerce, connecting students with the practice, creating spatial (spaces at University of Economics) and online platforms (talentway.net) to connect subjects (educator, student, company). Innovation in the sphere of education - using didactic method of Problem-based learning.

Prospects

Project is sustainable and already continues for the third semester. We are planning to expand the project into other universities.

What would you do differently?

Because the project is sustainable, we consider it well set. There are three levels defined in the project: manager (by the university and by the company), marketing (by the university), and expert (by the university and by the company).

Tips

It is a necessity to define common goals and create a team in the project. It would be proper to study didactic methods of Problem Based Learning and Design Thinking. In the case of the company, they should have an interest in filling jobs by the students involved in the project and the profile of the student should be ideally suited for nesting of such an employee in the company. It is appropriate to subdivide responsibilities for each part of the project. The project should be ceremoniously closed, for example by diplomas for the students and optionally some other motivational rewards, for example an opportunity to get a job. There should be allocated financial resources on the Project - by regional/European structure or sponsoring by the company.

Contacts and Sources

Web:

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- <https://nhf.euba.sk/verejnost/aktivity-a-podujatia/664-bankademy-2017>

Bog: <https://www.talentway.net/finale-korporatnej-bankademy-2017/>

YouTube: <https://www.youtube.com/watch?v=SCK99Xz-m5M>

Email: maria.siranova@euba.sk , veronika.nekolova@euba.sk

Newspaper article: published:

ADE Experimental educational methodology of project-based learning at the University of economics in Bratislava / Peter Filo, Veronika Nekolová, Jozef Orgonáš. In Journal L'Association 1901 „SEPIKE”. - Poitiers : L'Association 1901 „SEPIKE”, 2015. - ISSN 2196-9531. - No. 11 (2015), pp. 26-30.

Respondent

Students/Company

Kári Joensen

Education Now

Menntun núna - í Norðvesturkjördæmi

The purpose of the project is to raise the level of education in the Icelandic labour force, with the north-western Iceland region in particular because it has faced unemployment and depopulation. But at the same time, there is a persistent shortage of workers with vocational or technical training.



Project Type	Education Social/cultural program
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium	medium
Levels of Interdisciplinarity	medium	high	low

Location and Institutions Involved	
Place of Implementation	The Westfjords peninsula in north-western Iceland
University/Department	Bifröst University
Municipal Authorities/Department	Farskólinn-miðstöð símenntunar á Norðurlandi vestra, Fræðslumiðstöð Vestfjarða og Símenntunarmiðstöðin á Vesturland
Business Partners	-
NGOs	-
Other	Associate partners; FRAE (The Education and Training Service Centre (ETSC)) and IDAN Educational Centre.

Duration	The project started in June of 2013 and ended in March 2015.
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Case description

The main goal and background of the project

The main problem was that a large proportion of workers in the target region had low education, and those faced higher risk of unemployment. Those were also particularly vulnerable in times of economic turbulence in terms of their socio-economic status. At the same time, businesses in the region were facing a shortage of skilled labour.

The main goal of the project was to raise the general level of education of the workforce in north-western Iceland and to reduce the proportion of workers that had only completed a lower secondary education.

As part of the collective bargaining agreement reached between the main organizations of the Icelandic labour market in 2011, the government declared that it would initiate or fund programs to support labour market institutions and education. It was agreed by both sides of the labour market and by the public authorities that part of the resources should be allocated towards raising the general level of education of the workforce and reducing the proportion of workers that had not completed 3rd to 5th level education (see definitions of level by ISCED). Two regions were chosen for pilot programs, one in an urban area (Breiðholt, a district in Reykjavík) and the other, a more rural, and sparsely populated region in the Westfjords of Iceland.

Team

An agreement was made between the Ministry of Education and Culture and Bifröst University where Bifröst would lead the project in the north-western constituency of Iceland. A project committee, chaired by the rector of Bifröst University, included five other members who represented the following stakeholders; municipalities, upper-secondary schools, vocational schools, Iceland's main labour association and employers' association. The staff of the project was a team of four persons nominated by the project committee, one from Bifröst (representing the university level) and three from regional centres for vocational education.



Methods

Reports on the overall economic and social statistics of the region were already in place when the project started. The first steps involved a more concentrated collection of data, through interviews and surveys with both employers and employees in various sectors. Actions to enhance the educational offer and support services were formed based on that data. Hundreds of interviews conducted, allowed the team to incorporate diverse perspectives into the work and put together a multi-faceted enhancement plan.

Tools/Resources/Materials

A large number of interviews was conducted to map the need for vocational education within businesses in the region. A significant proportion of the workforce in the region are non-native speakers of Icelandic, many of whom have prior education from their home country that they are not utilizing to its full extent due to the language mismatch. To be able to reach this group during data collection, a Polish speaker was hired to conduct interviews in Polish. Many interviews were also conducted in English.

Benefits and Learning

Beneficiaries

The main objective of the project was to raise the level of education, in particular for those with low formal education. The implementation of the project itself directly resulted in some 135 individuals enrolling in educational programs within 11 different schools, colleges or universities. These individuals are (after graduation) in a stronger position on the job market, earning potentially higher wages and enjoying more job security. By learning the Icelandic language, some workers of foreign origin will be able to better utilize their education or training that they may have obtained before.

In the longer term, there is now a stronger infrastructure in place, for instance, to guide and support people who are looking for a job.

Innovation/value

One sustainable outcome of the project is an initiative called “the travelling training manager” (fræðslustjóri að láni) where businesses are offered free consulting services from an education and training expert. The expert interviews some or all staff members of a workplace and proposes an education and training plan.

It was interesting to hear that during initial stages, both employers and employees were reluctant to point out specific areas for improvement and commonly claimed that things were “good enough” and that there was little need for further training. As the project then progressed, there was a shift in that consensus for both groups. Managers became more willing and interested in acquiring training for their staff, and employees saw this as a way to grow in their current roles. Both groups became more open to these opportunities.

Prospects

The project has ended, but it would be interesting to revisit this and estimate the impact that it had on the workers and the region. As mentioned above, some of the products/outcomes are still in operation, being managed by the participating regional training centres.

However, funding is not secured for repeating the large-scale mapping of the workforce that took place.

What would you do differently?

The demand for vocational training and education seems to have increased and managers are more inclined now to invest in their human resources. But what was interesting to see when first interviews and outreach were made, was that the most common reply was that there was little or no need for training. In general, things were good enough. Similar answer came from the staff members, when they were interviewed.

Contacts and Sources

<http://www.menntun-nuna.is/node/11>

<https://www.facebook.com/Menntun-nuna-i-Norðvesturkjördæmi-602421419826501/>

Memo proposing the agreement between the government and labour market associations (in Icelandic): <https://www.stjornarradid.is/media/velferdarraduneyti-media/media/fretta-tengt2013/Stjornvold-og-adilar-vinumarkadarins---minnisblad.pdf>

Interim reports from the project, only available in Icelandic:

- <http://www.menntun-nuna.is/node/11>
- http://www.bifrost.is/files/skra_0065837.pdf
- https://www.bifrost.is/files/skra_0066085_.pdf
- http://www.bifrost.is/files/skra_0066014_.pdf
- http://www.bifrost.is/files/skra_0066015.pdf

Final report (in Icelandic): http://www.menntun-nuna.is/sites/default/files/Greinargerð%20lok%20tilraunaverkefni%202015%20final_0.pdf

Respondent

Sigurborg Þorkelsdóttir, from the Westfjords Life Long Learning Centre, the organization that managed the project in Ísafjörður and its proximate region. She has been active in regional development and adult education in the region for a number of years. She is a certified coach and has worked with businesses in various sectors, offering consultation on continuing education for staff.

Hulda Ingibjörg Rafnarsdóttir, Sigrún Lilja Einarsdóttir

Empowering Women (EW)

Máttur kvenna

EW is an 11-week ongoing educational programme, taught twice a year; in autumn and spring semesters at the Department of Continuing Education, Bifröst University, Iceland. The main aim of the programme is to empower women and their networks, and encourage them to start or expand their own businesses and thus have a positive effect on local economies, particularly in rural areas of Iceland.



HÁSKÓLINN Á BIFRÖST
BIFRÖST UNIVERSITY

Project Type	Education Social/cultural program
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	low	medium
Levels of Interdisciplinarity	low	low	medium

Location and Institutions Involved	
Place of Implementation	Bifröst, Borgarbyggð, Iceland
University/Department	Bifröst University (BU) - Department of Continuing Education
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	EW is a 11-week on-going educational programme, taught twice a year; in autumn and spring semesters at the Department of Continuing Education, Bifröst University, Iceland.
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Case description

The main goal and background of the project

EW is an 11-week management course for women and their entrepreneurial initiative. Many of the women who have finished this programme have decades of business experience, without having a basic education in management. The aim is to a) empower women and make them more capable of running their businesses; b) increase profitability of companies; c) strengthen the local economy in the rural regions of Iceland in the fields and sectors that are most likely to establish economical and societal growth; d) create more jobs in rural areas and encourage more variety in terms of job opportunities for women in zones where economy is based on male-dominated sectors; e) impact local economies by positively affecting growth and f) promote women's network among entrepreneurial women who are either in the start-up phase of their business or searching for ways to expand it even further. There are no specific entry requirements. All women are accepted, regardless of former education and experience.

Team

The idea for EW emerged in the fall of 2003 when the former Rector of BU and an analyst of the University Research Centre presented a paper at a conference and exhibition series held by The Icelandic Women's Right Association, The Women's Association of Iceland, The Women's Fund of Labour and the Employment, and Equal Opportunities Council of The Icelandic Regional Development Institute. The programme was launched in 2004 with the support from the Ministry of Industry, but for the last 12 years it has been solely run by the Department of Continuing Education Education at BU. Teachers in EW are all professionals in their field and have extensive experience in teaching at the university's primary education, as well as practical experience in business management. The teachers are also experienced in teaching in distance learning programmes at BU, which requires teachers to have a very clear syllabus, to respond to students' inquiries about the study material and particularly projects and assignments. Every course is evaluated in an online survey conducted through MySchool, which is the online learning platform. In the period 2014 - 2017, the average score in the teacher's and course evaluation was 4,3 (of 5).

Methods

During the preparation of the conference in 2003 (see above), an idea was created for a course for women, which had the main goal of supporting and strengthening women's workplaces, in the hope that more jobs were created particularly in regions where the gender gap was evident (in terms of salaries and job opportunities). Hence, the designing of the course was more or less based on existing research on women's participation in the workforce, innovation and entrepreneurship, based on a feasibility study in cooperation between several stakeholders (see Team). Hence, Design Thinking was not used. The programme EW is an eleven-weeks course with five two-weeks business modules, each with four to five lectures and two to five projects. Students additionally attend two workshop weekends at the BU campus.

The modules are the following:

- Information studies;
- Accounting;
- Finance;
- Business start-ups and different form of business enterprises;
- Marketing and sales technique;
- Communication skills and strategies;
- Study techniques;
- Creative management;
- The entrepreneur.

Challenges

'The biggest challenge in the beginning was to get EW into BU online learning system and the university registry. It was a challenge to have the programme accepted and acknowledged by BU executive board. In addition, students from EW are graduated in a separate ceremony and it took quite an effort to get BU rector to participate in the graduation. Furthermore, during workshop weekends, EW students were lower in the hierarchy in terms of accommodation. Fortunately this has changed.'

One of the challenges referred mainly to measure the indirect effects of the programme. A survey was conducted in 2014 (unpublished) among women who had finished the course since it was established in 2003. A survey was sent to 500 women on 4th of September 2014, but only 67 replies were received. Most of the respondents had graduated from EW in 2013. The majority of respondents claimed that they had not been given a raise or an increased responsibility or a higher position at work and that they did not consider launching new businesses. The most important aspect in their mind was that they claimed the programme had increased their self-confidence. Asked whether the programme had encouraged them to seek further education, 43% agreed and 46% disagreed. The overwhelming majority considered the modules in the programme to be both useful and helpful for their professional development. When asked which aspects they would have wanted more training in, 46% mentioned personal skills and communication, 27% strategy and management and 24% project management. Since this evaluation took place, the programme has been developed to respond to some of this critique. It must be taken into account that a) the response rate of this survey was low (and a relatively short period of time since the majority of respondents graduated has passed) and b) more than 50% of the women did not have university education and perhaps that fact might be the leading cause for limited occupational mobility in their workplaces. The total of 41 women who started in EW have continued their studies and enrolled for bachelor degree at Bifröst University. Furthermore, we know of examples of women who have managed to get higher salaries and promotions in their work (although the statistics are not clear on this).

Tools/Resources/Materials

This learning programme required an online learning platform - MySchool - which is an Icelandic software programme used by Bifröst University. Furthermore, the students benefit from the excellent teaching facilities at BU and the campus provides accommodation and meals during the workshop weekends.

Benefits and Learning

Beneficiaries

The main beneficiaries are women in all ages, mainly from the age of 25-60. Some of the women have long-term education and are either thinking about establishing their own businesses or have considerable experience in business management, but lack training and knowledge in management. Other women have little formal education, and no education in business management and are seeking to add to their knowledge to improve their skills and competences. Around 1000 women have graduated from EW from 2004. More than 50% of the women are from the rural areas of Iceland, or abroad, which is notable since around 63% live in Reykjavík and Southwest Constituency (Statistics Iceland, 2018). Furthermore, local economies, specifically in rural Iceland, are also among the beneficiaries.



Innovation/value

Recent research have demonstrated that even in Iceland, which is on top of the Gender Gap Index (Global Gender Gap Report, 2017), women still struggle with the glass ceiling within companies and institutions - even though they are more qualified and better educated than some of their male counterparts who happen to get promoted instead. However, increased confidence and empowerment is necessary for women still in 2018. EW has proven to be sometimes the first stepping stone for women to get out of the comfort zone and get the encouragement to seek further education.

'The biggest value for students in the EW programme is the enhanced network. The emphasis on 'soft skills' results in higher student satisfaction. Following the development of the curriculum, the focus has shifted more towards entrepreneurship, by emphasising basic skills in starting up own companies and small businesses. Next step is to evaluate further students' perspectives towards workshop weekends and the programme will be developed in line with the development of the field of entrepreneurship.'

Prospects

'The future of EW is bright. I can sense that there's an increased interest in EW, after a short period of decline after the financial recession. It's important to re-evaluate the curriculum to ensure that the programme's aims are in line with the development of the society. The emphasis on entrepreneurship turned out to be a valuable addition and in the future, women entrepreneurs will be a bigger part of the teaching team.'

Recent statistics demonstrate that women are still in the minority of entrepreneurs in Iceland. According to Statistics on Women Entrepreneurs in Iceland (2014), published by the European Commission, around 33% of all entrepreneurs were women, who constituted of around 8% of the total work force. Most of women entrepreneurs worked full time but 28% of them worked part-time on their startups. Most of the female entrepreneurs were in the professional, scientific and technical sectors and wholesale and retail. Sectors with the lowest ratio of women entrepreneurs were construction, transportation and storage. It is interesting to note that women entrepreneurs were generally younger and with a higher level of education than male entrepreneurs. Hence, the importance for continuing education in terms of empowering women is an on-going project and not about to decrease in the future.

The idea of EW was expanded and 'exported' to Tanzania, where Bifröst University, in cooperation with Tanzanice Farm, a local company in Bashay Village (specialising in organic fruit and vegetable production and tourism), established courses for local women in order to empower them to establish their own small businesses and to develop their business ideas. So far, three courses have been conducted and BU plans to apply for an Erasmus+ grant to proceed with the project, was external funding is needed (see www.womenpowerafrica.org).

Another spin-off project would be to develop EW for migrant women in Iceland. This idea has been presented to the rector and financial manager of Bifröst University. The aims would be similar, but more focused on empowering migrant women and their particular situation in the Icelandic labour market and a special focus on soft skills.

What would you do differently?

Based on the histories and our talks with students, they have provided positive feedback on the value of EW. From the beginning, emphasis was placed on reaching women in rural areas and now 13 years later the focus is still on reaching these women. The curriculum has been revised, but emphasis is still placed on soft skills.

Tools/Resources/Materials

This learning programme required an online learning platform - MySchool - which is an Icelandic software programme used by Bifröst University. Furthermore, the students benefit from the excellent teaching facilities at BU and the campus provides accommodation and meals during the workshop weekends.

Benefits and Learning

Beneficiaries

The main beneficiaries are women in all ages, mainly from the age of 25-60. Some of the women have long-term education and are either thinking about establishing their own businesses or have considerable experience in business management, but lack training and knowledge in management. Other women have little formal education, and no education in business management and are seeking to add to their knowledge to improve their skills and competences. Around 1000 women have graduated from EW from 2004. More than 50% of the women are from the rural areas of Iceland, or abroad, which is notable since around 63% live in Reykjavík and Southwest Constituency (Statistics Iceland, 2018). Furthermore, local economies, specifically in rural Iceland, are also among the beneficiaries.

Innovation/value

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'One of our teachers, Sírý Arnardóttir, is a well-known media entrepreneur in Iceland. She starts the first day of the workshop weekend and her programme on confidence, appearance, speaking in front of others and how to finish a job interview (and ask for higher salaries) was a complete hit. In programmes like this, the wow-factor is crucial. This approach is something we will emphasize more in the future.'

Although emphasis is placed on teaching business courses, self-esteem, self-confidence and networking are very important factors in the course. Teachers on working weekends emphasize these aspects of the program. Inquiries have increased regarding the availability of comparable courses in English to meet the needs of women with low skills in Icelandic. The course is expected to be on schedule in the spring of 2019. Women Power course in Tanzania needs to be reviewed and it is expected that in the future the course will be offered to the women in Bashay Village.

Tips

- ✓ 'It is very important to note that the women who attend programmes like EW have often been in the workforce for a long time and haven't attended any study programmes for years. Hence the step to enter EW is quite big - specifically for those women who have only finished mandatory primary education. Their biggest challenge is often the guilt of leaving their home during the workshop weekends, to take time away from their family to study - and the guilt of enjoying themselves. It is also interesting to note how irrelevant their background really is - they seem to be dealing with the same challenges, regardless of educational and socio-economic background. My advice for similar programmes is to emphasize networking and empowerment - every programme like this should start with an intensive module that deals with empowerment and constructing self-confidence and positive self-identity.'

Contacts and Sources

Empowering Women (EW) Educational Programme
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 Tel: +354 433 3000
 E-mail: simenntun@bifrost.is
 Webpage: <http://www.bifrost.is/namid/simenntun/mattur-kvenna/>

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- FKA - Association of Women Business Leaders in Iceland: <https://www.fka.is/english/>

- FREE - Rural Women in Business: <http://ruralwomeninbusiness.eu/>
- Statistics Iceland: <https://www.hagstofa.is/>
- The Global Gender Gap Report 2017: <https://www.weforum.org/reports/the-global-gender-gap-report-2017>
- Women Power Africa: <https://www.womenpowerafrica.org/>

Respondent

Hulda Ingibjörg Rafnarsdóttir is the director of Department of Continuing Education. Her role is primarily to be a coordinator for the programme. Hulda has BA in Education and a diploma in Cultural Management. She has worked at Bifröst University since 2006.

'I had been involved in teaching for many years, specifically at a primary school level. I wanted a change and a break from teaching and seek further education. While browsing BU website, I saw an ad for the position of director of the Department of Lifelong Learning. The EW programme caught my attention, particularly its structure and the emphasis on empowering women. So instead of applying for admission as a student, I applied for the job.'

Agnieszka Kolasa-Nowak

Friendly University

Przyjazny Uniwersytet

The aim of the project was to build a support network for students with mental health difficulties, to promote good practices and popularize knowledge about mental health, to conduct interdisciplinary research on mental problems in the academic environment.



Project Type	Social/Cultural program
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	-	-
Levels of Interdisciplinarity	high	high	medium

Location and Institutions Involved	
Place of Implementation	Marie Curie-Skłodowska University, Lublin
University/Department	Marie Curie-Skłodowska University: Team for Disabled Students, Office for Student Affairs, Academic Support Center, Department of Philosophy and Sociology, Department of Psychiatry at the Lublin Medical University, Office for Persons with Disabilities at Warsaw University, Institute of Psychiatry and Neurology, Warsaw
Municipal Authorities/Department	Health Department at the Lublin City Office
Business Partners	-
NGOs	Lublin Association for Mental Health Protection, Lublin Association of Families „Sanity”

Duration	2013-2016
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Case description

The main goal and background of the project

Main focus was a lack of systemic assistance for students in mental crisis, or with behavioral disorders. The goal was to deliver a comprehensive knowledge and competence to students about the techniques and methods of dealing with everyday problems. The idea came from the Team for Disabled Students at the Office for Student Affairs. There was a need for new innovative way to provide psychological support for the students.

Team

Three persons (originators and coordinators of all actions) and division of tasks: 1. Professor of philosophy and cognition science and also a medical doctor by education - preparation of the programs, creator of ideas 2. Coordinator in the Team for Disabled Students and PhD student at Faculty of Pedagogy - formal matters, administration. 3. PhD student at Faculty of Philosophy and Sociology, coach - information policy, marketing.

Methods

Work style: partner work, regular meetings, discussions over new projects, joint decision-making.

Challenges

- ✓ Organizational difficulties
- ✓ Financial support
- ✓ Necessity of inventing new ideas, new projects after the previous have become less popular
- ✓ Division of tasks was based on autonomy of each partner, so there were some difficulties in achieving the common ground

Tools/Resources/Materials

Rooms for conducting seminars, meetings and workshops. One of the initiatives - psycho-cinema: screening of films in the cinema room, rental of the movies.

Benefits and Learning

Beneficiaries

Students of the MCS University gained knowledge how to deal with psychological problems, how to solve the troubles with interpersonal communication. University teachers learnt how to react to students' problems, how to support them.

Innovation/value

The main value was preventive and educational potential of the project. Making connections between academics, therapists and students. During conferences they combined scientific discussions with interpersonal skills, workshops and trainings. Finally they developed procedures for helping students in crisis. Brochures and comics for students and teachers have been published containing basic information and advice on mental hygiene and mental health hazards.

Prospects

This project ended after three editions. The promoters were tired, run out of new ideas, and had to return to their professional duties. The project engaged them (at least 2 person) on purely voluntary basis. The new project "Dobre Życie" (Good Life) is dedicated for students and university teachers (workshops and trainings on professional burnout, interpersonal communication, therapeutic group) and is based on foundations made by Przyjazny Uniwersytet.

Tips

- ✓ Encourage to search actively for partners, to look outside the university structures for people or institutions open to participate in this kind of project. The informal relations are of much help.

Contacts and Sources

- <http://www.umcs.pl/pl/przyjazny-universytet,8041.htm>

Zespół ds. Obsługi Osób Niepełnosprawnych UMCS
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20-036 Lublin
phone 081 537 58 90

Respondent

Andrzej Kapusta, Professor of Marie Curie-Sklodowska University, a co-founder of the project and a member of the three-person team. He was the author of the first edition of the project, and of many initiatives in the project, active for all three years. As a professor of philosophy and a psychiatrist he wanted to make use of his competences and contacts with medical environment to establish a network to support students with mental problems.

Zuby Ahmed, Charmaine Stint

Gamer Camp

The case study explores the combination of: design processes used to make videogames, experiential teaching techniques within a Problem-Based Learning environment and gamification to understand People/Process/Product as core pillars which facilitate games design, so that a number of different techniques could be applied to undergraduate and postgraduate teaching contexts.



BIRMINGHAM CITY
University

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	low	medium
Levels of Interdisciplinarity	medium	low	medium

Location and Institutions Involved	
Place of Implementation	Birmingham City University
University/Department	Faculty of Arts, Design & Media
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	<p>An initial pilot programme of activity was undertaken during 2010 as part of Zuby Ahmed's PhD research (University of Salford).</p> <p>The findings from the pilot activity were further developed and successfully ran a revised programme of course delivery during 2015-2016 (BCU, Birmingham). Currently under review and re-development, this experimental teaching technique will be further revised with a view to embedding it into the new 2 year fast-track undergraduate Video Game programmes:</p> <ul style="list-style-type: none"> • BA Video Game Design and Product • BA Video Game Art • BSc Video Game Development <p>All three programmes converge within a number of practice-based modules, where the students create video games (o incorporate this new approach to delivering the curriculum for the academic year 2018/19).</p>
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Case description

The main goal and background of the project

Central ideas/focus of the experiment and the 'problem':

The problem addressed during the 2010 study focused on the fact that in previous academic years large numbers of Level 4 students [at Salford] had shown a lack of meaningful learning during class participation and consequently impacted on their ability to adopt higher learning outcomes at early key stages of their level 4 development.

- The focus/goal of the experiment was to use a modern-day motivational technique: **Gamification married to a large group technique:** Syndicate Groups to rapidly encourage Undergraduate Level 4 students to cognitively move beyond surface learning, and adopt more meaningful learning.

The Learning Objectives were to:

- Demonstrate creative & technical ability in relation to a set brief
- Demonstrate design skills in relation to a chosen subject area
- Synthesise a variety of ideas to produce a design that demonstrates original work
- Present a design project in a written form and discuss the final outcomes
- The Gamification Technique applied was a 'Reward Schedule'; *"this is the timeframe and delivery mechanism through which rewards (pop-ups, points, prizes, level-ups, etc.) are delivered (Raynor, 2011). This experiment used Fixed Ratio Reward Schedules; "these are rewards which are given after a number of actions are completed". There were three main components in the reward schedule based on:*
 - Prerequisite; what needs to occur to receive the reward,
 - Response; the presentation of the reward,
 - Reinforcer; the appropriate reward for the prerequisite (these are either momentary or persistent)" (Raynor, 2011).
- The large group technique used was 'Syndicate': *"teams of students working in parallel on the same task. They might be designing something, analysing a problem or case, studying a text or artifact, or preparing a proposal or bid"* (Gibbs, 1995).

The context in which the central ideas/focus were intended to be used:

- In Semester 1 the students studied 'Design Theory Fundamentals'. This module, according to Bloom's taxonomy is Knowledge and Comprehension-centric, the summative assessment was based upon listing, defining, discussing and reviewing Game Design theories. The Semester 1 module lays the foundation for a sister module in Semester 2 - 'Design Practice Fundamentals', students were asked to start to apply what they had learned, by working iteratively on a weekly basis in class towards a key summative assessment, which is project driven, assessed formatively at milestones, for completion and delivery at the end of Semester 2. A project-driven assessment is centred on practical demonstration of the knowledge instilled from 'Design Theory Fundamentals'.

- '*Design Practice Fundamentals*' is project-driven, showing an inherent need for the students to quickly grasp increased levels of cognitive complexity within higher learning outcomes which are ingrained within the module.
- The context in which the central idea is intended to be used is to actively encourage/motivate students' needs & wants (Race's Learning Model) on a continual basis using Reward Schedules. This should rapidly progress students from the Learning Outcomes instilled '*Design Theory Fundamentals*', and move them towards the more cognitively complex, higher level learning outcomes in '*Design Practice Fundamentals*'. The Reward Schedules system additionally rewards the students for adoption of more meaningful learning. Class participation focused on experiential learning, demonstrating student's grasp of the higher learning outcomes, and assignment milestone deliveries which demonstrated their ability to galvanise their knowledge and further demonstrate more meaningful learning through exploration and 'doing' (which according to Race leads to 'Digesting'). This moves away from rote learning to deep learning (*Rote versus Meaningful - Kolb*) to facilitate larger groups of students to attain higher grades within the module. In addition the experiment also promoted intrinsic and extrinsic motivation as the rewards themselves were intrinsically aligned with the Module, yet governed by extrinsic factors.
- As a means of gauging whether any of the Level 4 students possessed higher cognitively complex knowledge within demonstration of the learning outcomes, students were also asked to demonstrate some form of Evaluation knowledge.

The experiment:

The experiment date was 27/01/10, 10.00am-13.00pm, carried out at the University of Salford on Level 4 students studying on BSc Computer & Video Games Course, on the Level 4 Semester 2 Module '*Design Practice Fundamentals*'. The number of students present was 22. Over the 3 hour period, students were told about the **gamification system** and placed into Syndicate groups to answer 4 questions focused upon structured Application, Analysis, Synthesis, and Evaluation. The experiment used the gamification technique called 'Reward Schedules' to reward students for:

- Their attendance in Session 1,
- Their participation and demonstration of the higher learning outcomes within a Syndicate Problem-Solving task (this task provided the foundation for the main summative assignment).

The lecture structure adopted a number of interactive lecture techniques to actively engage the students on a prolonged basis over the course of the session.

Team

- Pilot study (University of Salford, 2010) - 22 Level 4 undergraduate students with 1 academic tutor [Zuby Ahmed] to deliver the experimental session.
- Revised study (Birmingham, 2015/16) - a range of undergraduate games developer students plus 3 academics delivering the course: Zuby Ahmed, Zafar Qamar, Mike Villiers-Stuart, Iain Harrison, Shaun Magher.
- Undergraduate students were supported by 1 Post-graduate student as a group leader for the group work sessions.

Methods

The aim of the course at Salford University where the original Pilot Experiment took place was underpinned by the elements of design thinking:

- To foster an awareness of the importance of the theory underpinning design process
- To equip students with the ability to creatively express ideas through design theory
- To develop the ability to communicate using a variety of methods
- To develop students' technical ability in professional design planning

The 2015/16 study was determined by applying gamification techniques to the learning process based on Product Development Stages:

- Concepting & start of pre-production
- Pre-production & start of production phase 1
- Production phase 1 & start of production phase 2
- Production phase 2 & Alpha refinement
- Alpha refinement & Beta refinement
- Beta refinement & Final content completion

Challenges

Challenges associated with the Pilot Study (Salford) included:

- ✓ Facilities were not fit for purpose, for example the classroom set for the session required the students to have access to working presentation software as part of the Syndicate task deliverable.
 - Solution 1: Contact IT Services for a fix within an allotted timeframe.
 - Solution 2: Relocate to another appropriately equipped classroom/laboratory.
- ✓ Students may not take the gamification element seriously and continue to disengage within the session.
 - Solution 1: Highlight the importance of the achievements to individuals should they disengage and also the potential awards on offer.
 - Solution 2: Identify any potential content which students are disengaging within the session and then use the rest/break periods to have a short-burst discussions with them to identify any problems and solutions.
- ✓ Students in small or large numbers may not grasp the more complex cognitive higher learning outcomes instilled within the questions prepared for them in the Syndicate task.
 - Solution 1: For individuals/small groups of students, the tutor should intervene and answer any questions/deal with any issues as and where appropriate during the task.
 - Solution 2: For large groups of students, the tutor should place those students into a 'Fishbowl' for a short burst discussion to kick-start the creative process in tackling the task.

Tools/Resources/Materials

The experiment took place at the University of Salford, School of Art & Media, Centenary Building using a full computer suite with 30 seats, 30 Apple Mac Computers, full projector and screen facilities, and the Module Content delivery method was MS Powerpoint via Projector.

Benefits and Learning

Beneficiaries

Findings & evaluations:

The beneficiaries were the Level 4 students and the academic who ran the experimental session.

The following reactions and feelings were felt by the tutor:

Excitement

- Thinking about implementing the gamification system for the first time,
- Carrying out the experiment itself.

Anxiousness

- As to whether or not the students would be receptive to the gamification system, as it was introduced to them for the first time,
- Whether the Syndicate Group Task would be the best method to facilitate the progression and demonstration of the more cognitively complex higher learning outcomes,
- Whether the system would work over the course of the 10 week implementation period
- Carrying out the experiment itself thinking whether or not it would be met with success.

Delight

- As the students expressed their satisfaction and excitement of the gamification system,
- As the students presented their findings which demonstrated that they had a firm grasp of the more cognitively complex higher learning outcomes.

Evaluation of the experiment:

Positive factors

The experiment was a huge success:

- 81.8% of the students actively engaged effectively within the class participation task (Syndicate Group Task),
- students demonstrated their grasp of the more cognitively complex higher learning outcomes within the Syndicate Group Task, which showed they had worked effectively within the session learning objectives,
- 100% satisfaction expressed by the students for numerous points, including their thoughts on the gamification system (in helping to provide motivation) and also the Syndicate Group Task (in helping to acquire and demonstrate knowledge).

Negative factors

As 18.1% of the class were absent, these students:

- missed the opportunity to achieve the highest rankings within the gamification system,
- missed the first Syndicate Group Task, so the next time that this task was performed as part of a future session, they needed to ensure they were familiarised with the format of the task in advance.

Analysis of the experiment:

The following points are analytical anchors:

Timings:

- disrupted by the projector not working
- had to reduce the amount of breaks planned
- had to reduce the lecture and focus on key points
- Breaks helped - Added to energy levels and kept students motivated and enthusiastic

Student participation:

- Enthusiastic - the gamification process and the rewards / Syndicate Group Task, drove synergistically intrinsic and extrinsic motivation levels (Hertberg & Maslow),
- During the task, there were a few instances when some of the more quieter students took a back seat and the more vocal students drove their Syndicate Groups,
- The parameters within the task ensured that all students had to present findings so ultimately every student had to participate within the task planning, formulation and presentation of findings - the experiment results showed that the Syndicate Groups on the whole were migrating successfully towards a Convergent style, moving from Abstract Conceptualisation to Active Experimentation (Kolb),
- Giving students a time index as they progressed through the task accentuated degrees of stress which in some cases accelerated their progress in completing the task. In others, certain students latched onto the stress, however due to the nature of the syndicate groups working together towards the same goal, this meant that the other students who were more task-driven than emotionally-driven, pulled other students back in to focus upon the task in hand, preventing them from exerting themselves in an unproductive emotional manner.

Moving forwards, the application of the experiential teaching techniques combined with gamification will benefit programmes which allow practice-based elements to be incorporated within their curricula. Furthermore, the structural processes used with the context of a game design can also benefit postgraduate and doctoral researchers, by understanding and considering the application of tiered processes of design, to demonstrate and re-iterate research findings.

Innovation/value

Session Delivery - the Salford Pilot 2010 was delivered in such a way that it fitted in line with Race's Model of Learning.

The first session initiated them doing something practical and digesting the knowledge and

experience within a syndicate task. This allowed students to establish a bedrock of knowledge and skills for tackling the summative assignment, adhering to the module's more cognitively complex higher learning outcomes.

The syndicate groups presented findings to the class, which then allowed the module tutor to deliver comments, thus giving the students feedback.

Since the initial pilot the learning has been further developed and rolled out across the Gamer Camp Modules IE Game Development Modules 6 & 7 Interactive Entertainment Production during the academic year 2015/16 at Birmingham City University (BCU).

The application of experiential teaching techniques combined with gamification provides innovation within programmes which allows practice-based elements to be incorporated within their curricula. Currently within the context of BCU's 2 year fast track programmes, this experimental teaching technique will be further revised with a view to embedding it into the new 2 year fast-track undergraduate Video Game programmes:

- BA Video Game Design and Product
- BA Video Game Art
- BSc Video Game Development

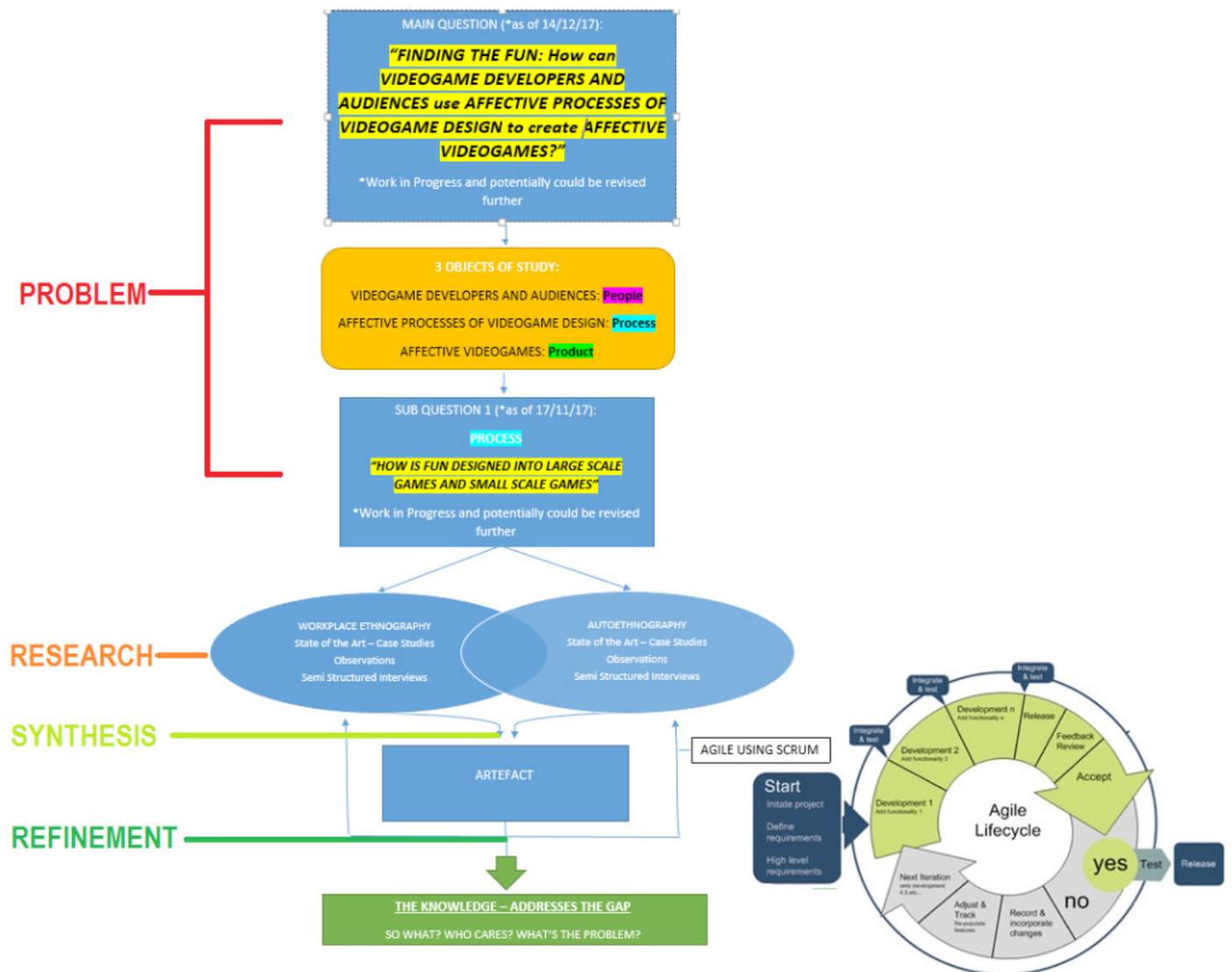
A point of innovation occurs when all three programmes converge within a number of practice-based modules, where the students create video games within short development cycles, from 4 to 6 weeks.

Innovation is evident in considering the adoption of a video game design methodology which is applied to doctoral research/PhD, so that working iteratively within the contexts of the Workplace Ethnography and the Auto Ethnography, researchers can potentially create an Artefact or a series of Artefacts. This would require using the Cyclic Process of Iteration within both Agile Project Management using Scrum, whilst following the 4-tiered Process of Design (Problem, Research, Synthesis, Refinement).

This cyclical process of design, where each sub-process leads to the next, or as and where necessary leads back to the previous, will allow for flexible and reflexive practice to continue, so that reflections at the end of each sub-phase can potentially inform the next phase with appropriate knowledge.



This reflective data is valuable to understand if and how a cyclical process of design can be improved, whilst also potentially reinforcing the process with gamification methods such as compulsion loops and reward ratios as and where appropriate, especially by analysing each phase within each cycle, henceforth, potentially gamifying the methodology of doctoral research/PhD:



Prospects

Conclusions from the 2010 pilot:

- The gamification system helped the groups to talk and promoted their motivation and energy levels within the first week. As the system itself was designed to promote intrinsic motivation yet governed by extrinsic factors (Hertzberg 1959) (Maslow 1943), the students expressed 100% satisfaction with the system itself.
- The syndicate group task was a fast and efficient activity-based research, with 81.8% of the students actively engaged. It also allowed for the students to critically reflect upon the work that they have done and look at things from different perspectives, this then facilitated their grasp and demonstration of the more cognitively complex higher learning outcomes (application, analysis and synthesis, Bloom 1956).

- As the session's activities had strong practical/vocational elements combined with a focused tutor/lecturer-led teaching session, it showed a combination of students expressing a desire to learn and immediately practice and digest their newly acquired knowledge (Race). This drove deep, explorative learning within the context of the experiential session plan and group activity (Kolb 1975). Rewards included introductions to Industry Practitioners and also the ability to join Industry Networks, to further enhance the students' transitioning into professional practice.

Specific conclusions & recommendations

Using Driscoll's method of reflection to consider specific conclusions and recommendations:

- **What:** An effective combination of a group lecturing technique married to a gamification system can be achieved to motivate and to provide incentive to students, to move to the next cognitive level of learning, whilst working within an experiential learning environment.
- **So What:** Whilst there was a great deal of initial planning and foresight/due diligence that had to take place before the systems and sessions could be delivered, when they were met with great success.
- **Now What:** Having utilised this combination at Level 4, the system, techniques and session plans can be embedded in many different modules within Higher Education (from levels 4-6 at undergraduate level and also from level 7 onwards at postgraduate/doctoral/research levels) within experiential learning environments.

What would you do differently?

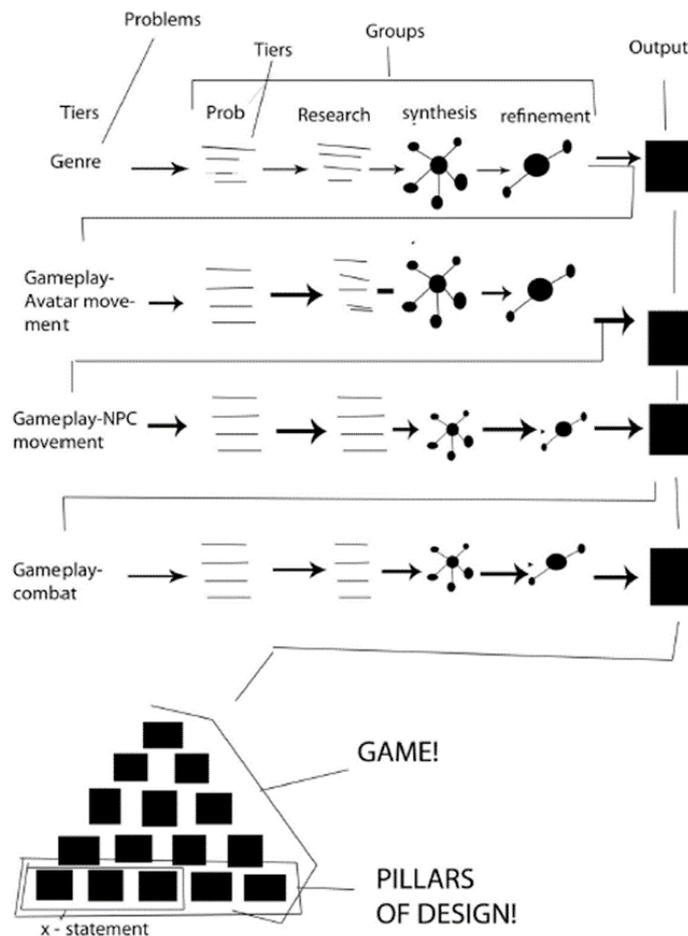
- There can be resilience to adopting a system like this with certain academics, as the workload required to set up, maintain and support the system is time-intensive. However once adopted, the time required becomes less intensive and the results become increasingly successful.
- Furthermore, specific adoption within University-Wide E-Learning Tools could facilitate these systems further on a university-wide scale, however the interdependencies on University IT departments would then need to be considered and managed appropriately.

Tips

- ✓ Consider
 - The overall programme structures; aims, outcomes and employability opportunities
 - Module Structures and timings within the Programme(s)
 - Specific Teaching and Learning strategies appropriate to the Modules
 - IT and E-Learning Support
 - Gamification Rewards, which could include introductions to Industry Practitioners and also the ability to join Industry Networks to further enhance the students' transitioning into professional practice.

Additional comments

Model used to support the 2015/16 Birmingham pilot:



Contacts and Sources

Respondent

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Kári Joensen

Grants to female entrepreneurs (AKS)

Atvinnumál kvenna og Svanni - lánatryggingasjóður kvenna

The role of AKS is to support entrepreneurial activities of women, to increase their labour market participation and to reduce unemployment. Among the more specific challenges that the fund should address are to increase women's access to financial resource, to increase the number of women who are business owners or executive managers and to encourage marginalised groups (e.g. immigrants) to become more active members of the economy.



HÁSKÓLINN Á BIFRÖST
BIFRÖST UNIVERSITY



ATVINNUMÁL KVENNA
STYRKIR

Project Type	Social/cultural program Commercial
Target Group	Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium	high
Levels of Interdisciplinarity	medium	medium	medium

Location and Institutions Involved	
Place of Implementation	Iceland
University/Department	-
Municipal Authorities/Department	The Directorate of Labour in Iceland, sub-unit called Grants for women entrepreneurs
Business Partners	-
NGOs	-

Duration	Ongoing since 2011. Grants are awarded once per year, application deadline is February 1st each year. The project was previously run in the years 1998 to 2003.
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Case description

The main goal and background of the project

According to data, labour market participation of women in Iceland is consistently lower than that of men. In the 1920s through 1960s the imbalance was such that less than 40% of women took part in the labour market while for men, the proportion exceeded 80 and even 90 percent. Over time, this imbalance has decreased but women are still consistently less active in the labour market. In the year 2016, labour market participation by individuals aged 16-74 was 80% for women and 87% for men.

The role of AKS was, and still is, to support entrepreneurial activities of women, to increase their labour market participation and to reduce unemployment. Among the more specific challenges that the fund should address are to increase women's access to financial resource, to increase the number of women who are business owners or executive managers and to encourage marginalised groups (e.g. immigrants) to become more active members of the economy.

Team

One project manager who oversees day to day operations. Board of directors, three persons, one from each of the fund's main benefactors, i.e. the Ministry of Welfare, the Ministry of Industries and Innovation and the Municipality of Reykjavík. The board is responsible for rules and regulations regarding loan guarantees, and also sets specific priorities for each of operation.

Challenges

- ✓ The program is very reliant on political support. It was initiated by the Ministry of Social Affairs, the Ministry of Industries and the City of Reykjavík in 1997, and was operational by 1998. During the times of cutbacks in public funding to many programs in 2008-2010, this particular program actually got a slight boost in funding as it was seen as important for the struggling labour market.

Tools/Resources/Materials

Most importantly, this initiative is fully reliant on external funding, and currently receives an annual contribution from the public budget. The grants that are awarded each year are not expected to be repaid, so these need to be refinanced every year. The latter funding mechanism, the loan guarantees, need starting capital, and could then hypothetically be sustainable, as long as no defaults occur. But it is the nature of start-up financing to see some businesses default while other grow and prosper.

Benefits and Learning

Beneficiaries

They target group are women who are willing to start an entrepreneurial career or business in Iceland. In 2017, AKS administered a survey sent out to the recipients of grants during the years 2011 through 2016. When asked if they would have gone ahead with their start-up idea if funding from AKS had not been made available, 41% of respondents answered that it would have been unlikely. Some 92% of respondents said they were pleased with the services offered by AKS, and 74% claimed they were happy with the amount they had received (22% moderately happy, and 4% unhappy). The impact of the initiative is perhaps best measured by looking at how many businesses have ceased, and how many are still operating. From the grants awarded in the years 2011-2012, 68% of projects or businesses are still operating some 5-6 years later (62.5% for grants awarded in the period 2013-2014). Considering the entrepreneurial nature of the businesses and projects that AKS is looking to support, these figures seem to suggest a lasting impact.

Innovation/value

In addition to the financing side of the program and job growth, another benefit - also very important for sustainability and societal impact - is the network created among grant recipients. Women who take part in the support network and events provided by AKS and its partners form connections and learn from each other about how to run a business. They are able to share experience and receive advice from the others.



Prospects

The AKS financing scheme has now been operational, albeit having gone through various organizational changes, since 1991. The program relies on a regular (annual) contribution of funds, particularly as regards the grant scheme, which funds have been thus far provided by public authorities. Funding is in line with laws that aim to reduce persistent gender imbalances in the labour market, and has not been a source of disagreement between politicians. As such, sustainability hinges on this political support.

Tips

- ✓ The program can easily be transferred to a different country or region if such a commitment to funding is in place. The loan guarantees are perhaps even easier to set up financially, since these require starting capital that can then be recovered should the program be terminated (apart from any losses that are realised due to defaulting start-ups). But given the nature of lending to small entrepreneurial businesses, the loan guarantee fund would require contributions to maintain its viability and offset the occasional loss due to businesses that default.

Contacts and Sources

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Respondent

Ásdís Guðmundsdóttir, Sociologist. Project manager at the Directorate of Labour in Iceland, and is responsible for the daily operation of the fund. She works closely with the three members of the board of directors for the loan guarantee fund.

Jón Freyr Jóhannsson

Learning by Developing (LbD)

The LbD operating model is defined as working-life oriented. The teachers, students, experts and clients work together in a real working-life related research and development projects based on topics from two or more courses. Students work (relatively) independently on the projects and accumulate useful experience. The key element is that the students lead the way as much as possible. They must work with instructors and outside parties depending on the nature of the project. This should enhance their critical thinking and problem-solving skills. In projects like that, formal project management is essential. This combination requires that the students (and teachers) use their many transversal skills and get to know and train even more of that kind.



HÁSKÓLINN Á BIFRÖST
BIFRÖST UNIVERSITY

Project Type	Education Social/cultural program
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	medium	medium	medium
Levels of Interdisciplinarity	medium	high	medium

Location and Institutions Involved	
Place of Implementation	Bifröst, Borgarbyggð, Iceland
University/Department	Bifröst University (BU) - Department of Continuing Education
Municipal Authorities/Department	-
Business Partners	Different each time/each team
NGOs	-

Duration	It is a 9-week ongoing programme, carried out once a year during summer term (May/June) at the Department of Business (participants from other departments are welcome), Bifröst University, Iceland.
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Case description

The main goal and background of the project

Bifröst University has been working with Laurea University of Applied Sciences (Laurea UAS) in Finland on some projects and one of them has been supported by Laurea UAS in applying in some form their method "Learning by Developing" (Raij, 2007).

Laurea's Learning by Developing (LbD) operating model fits well within the teaching methods used at Bifröst and its emphasis on students working relatively independent in groups on practical and often real projects.

Team

At the beginning a team consisting of 4 teachers, the director of academic services, the vice-rector and several students worked on the details of implementing the LbD methods in the summer term of 2012.



Methods

The LbD operating model is defined as working-life oriented. The teachers, students, experts and clients work together in real working-life related research and development projects.

Students work (relatively) independently on the projects and accumulate useful experience. The key element is that the students lead the way as much as possible. They must work with instructors and outside parties depending on the nature of the project. This should enhance their critical thinking and problem-solving skills. In projects like that, formal project management is essential. This combination requires that the students (and teachers) use their many transversal skills and get to know and train even more of that kind.

The first implementation took place in the summer of 2012.

Three courses, Service management, Marketing, Project Management, 6 ECTS credits each, with the addition of 2 ECTS part for the "conference" were combined into one course/project. Students got 20 ECTS credits for the work on the project.

Before the course/project started, the team had several meetings discussing how to proceed with it. The teacher responsible for the project management part met with each student as well as teams as they formed.

For documentation purposes there were some taped interviews on the expectations for the course. Several students were interviewed, all four of the teachers and the vice rector.

At the end of the project there were meetings with all the stakeholders discussing the progress of the project. Again, the project manager met with each student as well as the teams talking about the lessons learned.

The course topics (marketing and service management), indicated the topics of the students' projects and project management acting as a "backbone" in the process.

During the project's duration of 9 weeks the students had to manage several tasks:

- Peer-to-peer teaching. Every student took part in a peer-to-peer teaching where they were responsible in pairs for a particular topic within the scope of the original courses that the project was based on
- Each student was a member of two project teams, different students, different project, different company they worked for/with
- Formally representing the projects at the end of the course
- Managing the projects based on some established project management methods
- Planning the use of resources, mostly students' time as well as the time they could use of the teachers' time and the time with those representing the companies they were working for

Challenges

- ✓ Some of the students were sceptical of this process, some of them stated clearly at the beginning that they would prefer an "old fashion course with normal teaching and learning".
- ✓ Some students went as far as stating that they were forced to take part in the project as there was no feasible alternative for them on the summer term. This was partly true as some of them had to either take part or skip the summer term.
- ✓ The process was new to all the members of the team, including the teachers and those working in administration.

Tools/Resources/Materials

This learning programme required an online learning management system (LMS) - MySchool - which is an Icelandic software programme used by Bifröst University.

The teachers and students were responsible for putting their material on the LMS system.

The students had to use some established form of project management methods.

Benefits and Learning

Beneficiaries

The main beneficiaries are the students and the companies they worked for

Innovation/value

Bifröst University was trying a new way of educating the students, with more participation and responsibility from the students. It was also a new and novel way for BU to work with stakeholders such as companies and institutions in the neighbourhood

What would you do differently?

Each time there are some changes made to the process based on experience of this method. Last summer term there was no such project for the students due to changes in curricula.

Contacts and Sources

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References:

- Rajj, K., 2007. Learning by Developing. Helsinki: Edita Prima Oy.
- Rajj, K., 2014. Learning by Developing Action Model. Helsinki: Laurea Publications.

Marino Bonaiuto

STEP3

The project was an international scientific and educational event. Its participants were 60 PhD students (and/or graduate students and/or post-docs) and about 10 well-known scientists, all people with environmental psychology background and selected from all over the world on the basis of their CVs. The students were supervised by the renowned scientists. The main scientific area was environmental psychology, namely the discipline studying people-environment relationships, person-place reciprocal influences, and the crucial human dimensions and human factors helpful for sustainability, with interdisciplinary attention.



SAPIENZA
UNIVERSITÀ DI ROMA



Project Type	Education Scientific collaboration
Target Group	Research Student Management

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium/high	high
Levels of Interdisciplinarity	high	medium/high	high

Location and Institutions Involved	
Place of Implementation	Alghero, Sardinia island, Italy
University/Department	CIRPA (Center for Interuniversity Research in Environmental Psychology) through the Head Office at Sapienza University of Rome (Department of Psychology of Development and Socialization Processes) together with the Local Office at the University of Cagliari (Department of Education, Psychology, Philosophy). In collaboration also with Roma Tre University and Tor Vergata University (both in Rome); and with University of Sassari.
Municipal Authorities/Department	Municipality of Alghero (SS)
Business Partners	Modis (IT company); KlimaHaus CasaClima (Building company); Ecophon Saint-Gobain (Building company)
NGOs	-
CRiMM (Centre for Research on Mobility Models); TESIS (Interuniversity Research Centre on Technologies and Systems for Health); Faculty of Architecture at the University of Sassari; EC 7th FP BIOMOT.	

Duration	from June the 29 th to July the 4 th , 2015
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Case description

The main goal and background of the project

The event followed the classical format for such kind of events which had been formerly organized twice in different countries (respectively The Netherlands and Denmark). The event's structure is based on 5 groups, each one comprising about 10 (in this case 12) young researchers (typically but not necessarily PhD students) coordinated by one or two well-known scientists. A student's background in psychology, and particularly in environmental psychology, was highly preferable and recommended. In fact, each workshop was focused on a concrete relevant sustainability problem, thus realizing 5 workshops, each one lasting one week with daily work. The workshops were organized as parallel sections besides some plenary ones. 5 main partner sponsors were envisaged, one for each workshop. Each workshop partner sponsor's main role was to offer patronage and sponsorship for the workshop's week, formulating a specific theme problem which has to be real and relevant for its own organization and business. This was achieved via some preliminary contacts with the STEP3's Organizers and with specific workshop's coordinators. Then STEP3's first day (Monday 29 June 2015) featured a brief presentation by each workshop's partner sponsor to the workshop's members, in order to introduce the theme or problem, so that during the week the team could develop a research project proposal to address the specific theme or problem. On STEP3's last day (Saturday 4th July 2015) each workshop gave a plenary presentation about its own results, addressing both the audience and the workshops partner sponsors' representatives.

Finally, if a workshop partner sponsor agreed and found it useful, a site visit could be realized separately for each workshop, either at the workshop partner sponsor organization's place, or at an agreed site selected to be helpful in order to introduce the specific theme or problem. Such a field visit had been realized during one of the days just during STEP3 since provided the place to visit could be reached within half-day's travel from the STEP3 venue. The possibility of such visits had been assessed by the Organizers according to the sponsors' opportunities. A half-day Italian and International round table was also organized the day of the STEP3's official closing in order to present its results but also to offer an opportunity for a broader discussion on related themes.

Moreover, the following week (6-10 July 2015) workshops' results had been presented in Milan at a round table as a parallel satellite event to the European Conference of Psychology (www.ecp2015.it), inside the [EXPO2015](#), in agreement with the EXPO Scientific Committee. All STEP3 participants were of course warmly suggested to consider their participation in the ECP2015 given the theme, but also the temporal and spatial synergy among the two events: in fact, the fastest Sardinia-Milan connection is a direct one-hour flight, which can also be found at low cost rates. Further information about ECP2015, EXPO and STEP3 synergies were available at info@cirpa.it.

Team

The participants were 60 PhD students (and/or graduate students and/or post-docs) and 10 well-known scientists, all people with environmental psychology background and selected

from all over the world on the basis of their CVs. The students were supervised by the renowned scientists. The main scientific area is environmental psychology, studying people-environment relationships, person-place reciprocal influences, and the crucial human dimensions and human factors helpful for sustainability, with interdisciplinary attention.

Methods

The event's structure was based on 5 groups, each one comprising 12 young researchers (typically but not necessarily PhD students) coordinated by one or two well-known scientists. A student's background in psychology, and particularly in environmental psychology, was highly preferable and recommended. In fact, each workshop was focused on a concrete relevant sustainability problem, thus realizing 5 workshops, each one lasting one week with daily work. The workshops were organized as parallel sections, besides some plenary ones. 5 main partner sponsors were envisaged, one for each workshop. Each workshop partner sponsor's main role was to offer patronage and sponsorship for the workshop's week, formulating a specific theme problem which had to be real and relevant for its own organization and business.

Challenges

- ✓ *Financial challenges*: dealt by exploiting many different networks to reach the necessary budget.
- ✓ *Logistic challenge*: dealt by exploiting the local institutional network.
- ✓ *Scientific staff challenge*: dealt by exploiting several academic networks (mainly, CIRPA and IAAP).
- ✓ *Personnel staff challenge*: dealt by involving as much temporary academic young personnel as available as well as by involving personal contacts.
- ✓ *Stakeholders challenge*: dealt by contacting as many old contacts as well as profiting of any new contact was created in the 18 months before the event.

Tools/Resources/Materials

It required a lot of Tools, Resources, Materials.

Financial resources had been raised by involving several funders, stakeholders, etc. (<https://sites.google.com/a/uniroma1.it/step3/partners-and-sponsors-7>); as well as the participants' fees (<https://sites.google.com/a/uniroma1.it/step3/application2>).

Logistic resources had been raised by involving both the local University and Faculty of Architecture; as well as local bodies and authorities on the basis of scientific and political local networks (e.g., a hospital, a natural park, etc. for relevant site visits which were necessary for some of the workshops).

Technical tools had been either brought by the main organizers or offered by the local organizers or local authorities.

Materials were offered by the organizers or by supporting stakeholders. Special services were paid for (e.g., accommodation, catering, etc.).

Benefits and Learning

Beneficiaries

All 60 participants in terms of their formal and substantial scientific CV, as well as in terms of networking and both personal growth and enrichment.

All scientific teachers in terms of their formal and substantial scientific CV, as well as in terms of networking and both personal growth and enrichment.

All sponsors and stakeholders in terms of their visibility and their new ideas received from taking part in the activities and networking.

The local organizers and institutions and places and locations in terms of their national and international visibility.

The main organizers in terms of their national and international reputation and visibility, as well as in terms of the management experience and competence.

Innovation/value

The scientific advancement of 60 young researchers.

The scientific ideas co-created with external stakeholders which might have taken some innovative ideas as a take-home message.

The possibility of creating future team groups for developing further scientific projects and other outputs (presentations, publications, etc.).

Prospects

The event had been keeping momentum of the format, that is, it contributed to continuing its history which in fact went on with a subsequent 4th edition 2 years later, and its 5th edition (each time in a different country). The event we organized is still regarded as one of the best editions, and probably is still the one with the highest number of participant (and with a relevant number of persons who applied to participate but were not selected).

What would you do differently?

We would avoid some errors in organizing some activities in the social programme due to unsatisfying standards of some local organizers; also we would improve the programming of more extra social activities in the free time to involve all participant in a more systematic way.

Tips

- ✓ To raise as much funds as possible; to structure many social free time activities; to closely check the activities and services given by catering and accommodation.

Contacts and Sources

- <https://sites.google.com/a/uniroma1.it/step3/home>
- <https://docs.google.com/viewer?a=v&pid=sites&srcid=dW5pcm9tYTEuaXR8c3RlcDN8Z3g-6M2E2ZDFiOWE3Zjk4MWJkYw>

Respondent

STEP3 Director: Prof. Marino Bonaiuto (CIRPA, Sapienza Università di Roma, Italy). He had been involved in the project by being asked by former organizers and creators of the format.

Jón Freyr Jóhannsson

Term project

Misserisverkefni

Each student at undergraduate level is supposed to take part in two Term Projects during the study at Bifröst. Students work independently in groups on a subject matter of their own choice, groups can be interdisciplinary. Through this project work, they gain training in independence and receive experience in research that deepens and improves their methodological proficiency. Projects are adapted to the group's field of study.



HÁSKÓLINN Á BIFRÖST
BIFRÖST UNIVERSITY

Project Type	Education
Target Group	Student

Levels	Process	Perspectives	Thinking
Levels of Design Thinking	low	medium	medium
Levels of Interdisciplinarity	medium	low	medium

Location and Institutions Involved	
Place of Implementation	Bifröst, Borgarbyggð, Iceland
University/Department	Bifröst University (BU) - Department of Continuing Education
Municipal Authorities/Department	-
Business Partners	-
NGOs	-

Duration	Term projects take place in the summer term
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Case description

The main goal and background of the project

Term projects are a good way of putting to test theories and methods with skills already acquired, transversal or not. But not less important they also foster learning of formal and informal transversal skills. Students develop their abilities to set up and complete projects that address important topics within the field. They cultivate their cooperative and teamwork skills in working on a multifaceted project and develop independent, critical thinking in relation to topics in the field. Learn to present analysis, criticism and appropriate solutions within a theoretical and applied framework. Students obtain some general research training even though the term projects are mostly practical real live projects.

Team

The staff from academic services and the deans of faculties lead the work. Each year the process is evaluated, and changes made if needed, with input from the students and the staff.

Methods

The Term Project is run in the summer term (usually in May). Each student at undergraduate level is supposed to take part in two Term Projects during their study at Bifröst. The students work independently in groups on a subject matter of their own choice and the groups formed can be interdisciplinary. Many of the projects are in cooperation with some outside stakeholder, companies or institutions. Through the project work, they gain training in independence and receive experience in research that deepens and improves their methodological proficiency. Projects are adapted to the group's field of study.

In the middle of the spring term (March) students form groups for the Term Project. The groups can be interdisciplinary. The groups are supposed to consist both of the students working for the first time in Term Project as well as some that have participated before, a total of 4-6 students. The groups apply formally on the formation of the group as well as applying for a tutor, which they may or may not receive. They send in an application for the content of the project which can be either research-based or practical real-life projects. They must send in a draft of the project plan which has to contain information about the company or institution they are working with if this kind of cooperation within the project exists.

During the summer term they perform the formal work within the project. They are of course encouraged to start the background work much earlier, but they are in charge of the process (within the limits of the summer term). They will apply some formal methods of Project Management, some detailed planning, managing resources and also more "soft" skills such as team management, resolving conflicts, having formal project meetings often including stakeholders from outside the school as well as documenting the processes and keeping timesheets of their work, which they will have to produce for assessment of the course.

Plans made during the projects and all changes to them are also documented. Each student will after the completion of the two Term projects be equipped with documentation of performing a fairly detailed and complex project. As not to repeat the same process and applying the same methods in the two term projects each student completes, there are different topics of Project management covered in alternate years.

Term projects assessment consists of several elements. One is that the students must present their project under very formal circumstances and strict agenda. Even though the "defence" is a very formal procedure, the group has also the possibility to present their project in their own way. Some use videos, mini-seminars or other innovative ways of presenting. Their videos are often some kind of a video documentary of their work, but some use this media in other ways.

The term project groups have no guarantees that the outside parties they want to involve will take part in the way they want, so they must negotiate with them usually without the university acting as an intermediary party. They must find ways of negotiating, sometimes some of the group members have the necessary skills for that, but if not, they have an opportunity of acquiring valuable experience, and useful transversal skills.

Challenges

For the students to work in a group with a real-life project under time pressure is a challenge. Most students say that the Term Projects are the most demanding and challenging work they undertake during their undergraduate program, but also the ones that they learn the most from. Each year the process is evaluated, and changes made if needed, but the care is taken that the main characteristics are kept.



Benefits and Learning

Beneficiaries

The students benefit the most, but in many cases outside stakeholders, companies or institutions, benefit from this program. For Bifröst University it is also a way of promoting the school and the the s students, and also to have positive effect on the local community.

Tips

- ✓ Each year the process is evaluated, and changes made if needed.

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- DT4U
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- Academic Staff of the Future
- Information Society

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Case:

- Psychology of Communication and Marketing Master Degree STEP3

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Case:

- Bologna Service Design Jams and Service Design Challenges

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Case:

- Technological innovation and organizational processes (Psychology of Communication and Marketing Master Degree)

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Case:

- Master UX
- Technological innovation and organizational process

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- Master UX
- Technological innovation and organizational processes (Psychology of Communication and Marketing Master Degree)

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Case:

- Interdisciplinary Summer Project for Students: Machine Handling in the Year 2030
Using the Example of an Excavator

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Case:

- Formation of Schools at TU Dresden, School of Humanities and Social Sciences
- C3 Saxony. CrossCluster Cooperation Saxony
- Boysen - TUD - Research Training Group. Paths to Ecologically Friendly, Safe and Competitive Energy. Technical Feasibility and Societal Impacts
- IDEASTUDIO Human 4.0
- DeltaHochDrei

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Case:

- Advisory Committee (Feedback)

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Case:

- Engaging Citizens of Utrecht

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Case:

- A Peer-to-Peer Feedback System for Digital Learning Environments

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Case:

- Amsterdam Museum
- Engaging Citizens of Utrecht
- A Peer-to-Peer Feedback System for Digital Learning Environments
- Being a Student of Rembrandt

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Case:

- Amsterdam Museum

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Case:

- Being a Student of Rembrandt

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Case:

- Engaging Citizens of Utrecht

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Case:

- The Mantelzorg Challenge

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Case:

- S i.e. Smart

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Case:

- Nestle in da hood, Jelly Sweets

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Case:

- Innovation Expedition

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Case:

- Agrobio Club

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Case:

- Bankademy

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Case:

- CreBiz

About the project

This publication is a part of the Erasmus+ project **DT.Uni. - Design Thinking Approach for an Interdisciplinary University** (project no.: 2017-1-PL01-KA203-038527), which aims to develop innovation in HEIs. The project is coordinated by [Maria Curie-Sklodowska University in Lublin](#) (Poland) in cooperation with seven partners: [Birmingham City University](#) (United Kingdom), [Bifröst University](#) (Iceland), [Instituto Politécnico da Guarda](#) (Portugal), [Sapienza Università di Roma](#) (Italy), [Technische Universität Dresden](#) (Germany), [University of Economics in Bratislava](#) (Slovakia), and the [University of Amsterdam](#) (Netherlands).

The overall objective of the project is to enhance the level of interdisciplinarity at higher education institutions by using a bottom-up approach, i.e. supporting students, researchers/academics and management staff in developing their ability to think divergently, creatively and in a designerly way (according to the design thinking approach). Through engagement with DT, learners can more easily transition from passive consumers of knowledge to active producers of innovation. The challenge is to accelerate and broaden the exchange of skills and opinions amongst divergent areas of study. Other goals are:

1. achievement of relevant and high quality skills and competences,
2. supporting innovation and creativity, through partnerships and inter- and transdisciplinary approaches, and strengthening the role of higher education regionally,
3. promoting internationalisation, recognition and mobility, supporting changes in line with Bologna principles and tools.

The project combines two widely appreciated and increasingly popular approaches:

1. Interdisciplinary education - explaining phenomena, solving problems, or creating products;
2. Design thinking - understood as a particular style of innovative problem solving,

Participants (researchers/academics, management staff, and students) will:

- improve other transversal competences, including creativity, adaptation to rapidly changing circumstances, social development teamwork, flexibility, 'learning to learn' competences and a better perception of their own ability to solve problems;
- find greater satisfaction and motivation in daily work/study;
- gain more competence in communicating in a foreign language (especially English) ;
- develop their intercultural (communicative) competence (IC and ICC);
- improve their digital competences;
- acquire a greater understanding of social, ethnic, linguistic and cultural diversity;
- increase their sense of initiative and entrepreneurship;
- strengthen positive attitudes towards collaboration across the European Union.

To summarise, the DT.Uni project will bring the following benefits for the particular target groups each of which will have the opportunity to participate in locally organised and international workshops:

1. Researchers/Academics - increased motivation to engage in interdisciplinary endeavours and to teach students accordingly (research-oriented teaching).
2. Management staff - this group will develop such skills as the ability to think in a divergent, creative, innovative and interdisciplinary way, which is a core point of the project, become more open to changes in HE and develop their intercultural competences.
3. Students - the general benefit for this group will be the adjustment of skills and competences to the requirements of the knowledge based economy.

Joanna Górka

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Website: www.dtuni.umcs.pl

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