

“DESIGN WITH SOCIAL IMPACT”– international project (2015-2017)

Project partners:

Zurich University of the Arts, Switzerland (ZHDK)

School of the Arts and Design at the University of Nairobi, Kenya (StAD)

Faculty of Mechanical Engineering at the Sts Cyril and Methodius University of Skopje, Macedonia (FME)

BIO VISION, SWISS CONTACT (Swiss NGOs)

PREDA PLUS, IME

The program was funded by MERCATOR FOUNDATION from Switzerland

1. Introduction

International projects are always great opportunities for educational institutions to share the experience and to spread the novel approaches and methodologies. The Faculty of Mechanical Engineering and the School of the Arts and Design at the University of Nairobi, Kenya, got a great chance two years ago to become partners at the project “Design with social impact”, initiated by the Zurich University of the Arts, Switzerland. The meetings, research sessions and workshops in the frames of the project were great possibility for the participants to share the educational experience in three different countries, with different design backgrounds (product design, graphic design, interaction design and architectural design).

The main goal of the project was to spread the concept of social design in Macedonia and Kenya through training of the teaching stuff to develop and implement educational formats suitable for working on social-environmental and ecological challenges in cooperation with organizations (NGOs) in the field. Ethnographic research, co-creation and design thinking are some of these methods.

During the period of two-years (10.2015–10.2017), three workshops were performed with students from partner-schools in Macedonia, Kenya and Switzerland. They worked together in international and interdisciplinary teams, cooperating and co-creating with stakeholders and project partners on selected topics in the context of social design and international development. BIO VISION and SWISS CONTACT, two Swiss NGO’s, as project partners, supported the program with their expertise, know-how and network and allowed students to work on real cases in the field. They provided connections between educational institutions and local communities in Macedonia and Kenya. The project partners acted as mentors and critical observers who made evaluation of the methods and approaches used within the program.

Why we (FME) decided to accept the proposal for cooperation?

The concept of social design is not well known and practiced in Macedonia. Starting from the fact that Republic of Macedonia is a country with considerable economic problems, high unemployment rate, low value and quality of products and brands, as well as huge number of socially marginalized people that need help in solving existential problems, the participation of our Faculty in this project might contribute to:

- get deeper understanding among the young designers for the social problems and the potential of the design and science to contribute in such problems solving;
- learn how designers from other societies/cultures attempt to solve problems in their societies;
- share knowledge and skills with other participants in the project and the community;
- develop new visions, ideas and methods for solving problems through design;
- improve the current study program, project work and student practice.

2. Implementation of the project

The project was implemented on two levels: education and research.

The educational level was realized with realisation of three workshops with mixed students' teams. The first one took place in Zurich with mixed teams of students from Switzerland and Kenya. The second one was held in Skopje with students and teaching staff from Macedonia and Switzerland. The final workshop was realized in Machakos, Kenya, with participants from all of the three involved universities.

The research level was fulfilled by the research team from ZHDK under the leadership of prof. Michael Krohn. The impressive amount of documentation collected during the workshops (video materials, photos, students' projects) were an important base for research oriented to improve the social design concept as a design research method. The researchers from other two universities gave a contribution for this level as well. Younger researchers from Skopje and Nairobi got an excellent chance to select topics for their master thesis based on the experience and knowledge about social design research methods, gained through the participation in the project.

Level education - workshops

Workshop 1

"Planting seeds of design in local, organic agriculture", Zurich, April 2016

The first "Design with Social Impact" Workshop named "Planting seeds of design in local, organic agriculture" took place in Zurich, Switzerland. Students from The School of the Arts and Design (StAD) at the University of Nairobi in Kenya and from Zurich University of the Arts (ZHdK) worked together on developing innovative and user-centred solutions to local organic farmers using participative methods and by applying a social design approach. The outcomes of the 4-week interdisciplinary workshop were not only physical and systematic solutions for organic foods, but also strategies on where and how design can be a tool for change.

More about the projects on: <http://dwsiswitzerland.tumblr.com/>

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The members of the teaching staff and the students from the Faculty of Mechanical Engineering from Skopje (FME) were involved in the second (Skopje, May/June 2016) and the third workshop (Machakos, Kenya, April 2017).

Workshop 2

"Projects for Macedonia – learning from each other", Skopje, May/June 2016

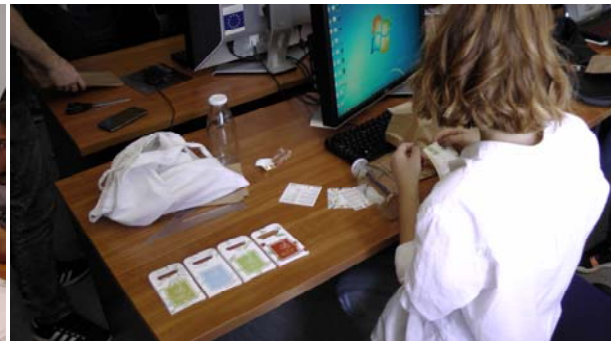
The second workshop was realized in Skopje in the period of three weeks (May/June) 2016, under the name "Projects for Macedonia – learning from each other". The students from FME, with the backgrounds in industrial design and industrial engineering and management, worked together with the students from Zurich University of the Arts, with their background in Style & Design.

International and interdisciplinary teams of students from Switzerland and Macedonia, under the supervision of teaching staff from Zurich and Skopje, worked together for solving of problems recognized and offered by SWISS CONTACT. Projects for Macedonia were focused on a number of business cases designed for the actual situation in Macedonia.

Students from Zurich and Skopje started to work together in 8 mixed teams. All of the teams were consisted of: 1 design student from Zurich, 1 design student from Skopje, 1 management student from Skopje, 1 observer student from Skopje. After the first field trip many problems were recognized and the teams were transformed into 4, according to the similarities between the topics.

The main objectives of the workshop were:

- inter-cultural and trans-disciplinary collaboration;
- research, analysis and conception for the development of realistic business cases;
- conceptions for identity, branding, communication, product and infrastructure design;
- formulation of business strategies for the realistic economic situation;
- ethnographic study of design methodology and processes.



Short description of the projects:

Project 1: New interpretation of Macedonian tradition

The research in Debar area conducted the conclusion that a comprehensive documentation of traditional handcraft could be the base to build up the project. A visit at the National Museum of Macedonia gave input for a catalogue of traditional handcraft, including patterns, colors, materials and techniques mainly in the field of textiles.

With the aim of motivating people to express their own creativity and the interest for re-interpretation of traditional textile products, a concept for a workshop and meeting point has been developed. In the workshop people can experience printing and weaving, as well as exchange ideas and buy material or literature about Macedonian handcraft. Two main DIY-products were offered: a kit with a weaving frame and a box with stamps for printing traditional patterns.

CONCEPT

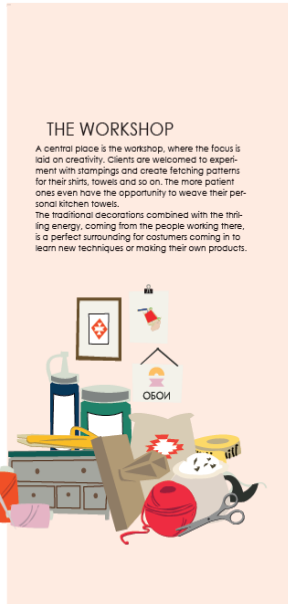
5 FACTS ABOUT MACEDONIAN TRADITION

1. Unmarried women used to wear white headscarves, while married women wore black ones.
2. Older women wore the same garments as the married women but they were worn-out.
3. No special attention was paid to children's dresses.
4. Girls started to wear clothes characteristic of the grown-ups after the age of 10-12 years.
5. During the mourning period women did not roll up their sleeves.



THE SHOP

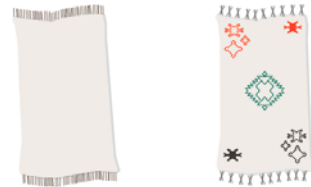
The shop with its sitting place and the library is the ideal spot for inviting visitors to linger a little longer. This is also the place where customers can buy the weaving and stamping kits, blank t-shirts for stamping, magazines and books that are related to traditional topics.



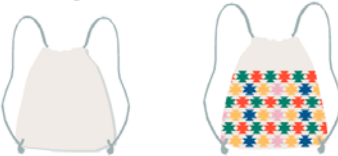
THE WORKSHOP

A central place is the workshop, where the focus is laid on creativity. Clients are welcomed to experiment with stampings and create fetching patterns for their shirts, towels and so on. The more patient ones even have the opportunity to weave their personal kitchen towels. The traditional decorations combined with the thrilling energy, coming from the people working there, is a perfect surrounding for customers coming in to learn new techniques or making their own products.

towel



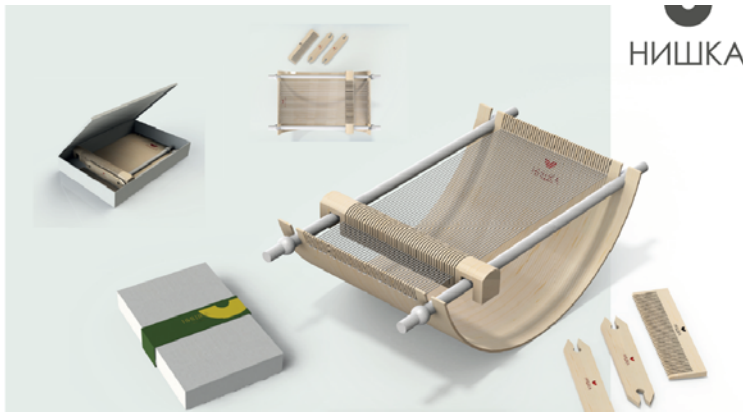
back bag



scarf



t-shirt



Project 2: A brand for natural Macedonian food

Organic and bio food are considered to be luxury in Macedonia. A number of interviews with consumers, as well as with retailers in this sector, indicated that an information program about natural, healthy food will be needed to educate conscious consumers about the benefits of natural food.

Based on this background the concept for a sample product line for natural food has been defined. Herbs grown in the Macedonian mountains are the basis for this product line. The cultivation of natural herbs could be an additional income for small farmers in the mountain areas and at the same time a product with potential for export. The product line for teas is a prototypical sample for natural cultivation, faire-trade, Macedonian natural resources and an economic income. The new brand and its educational promotion of the tea products will, in the future lead to other similar product offers.



front page

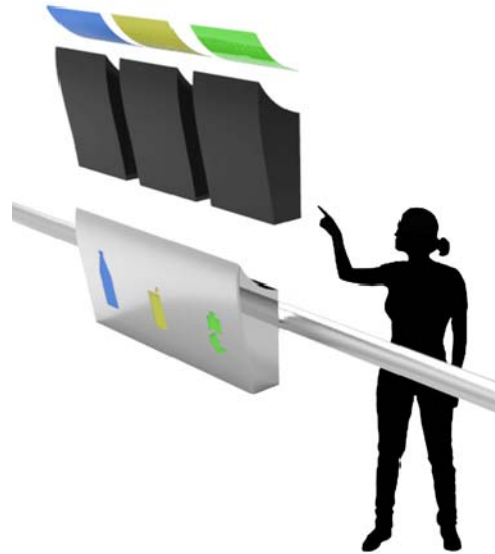


back page

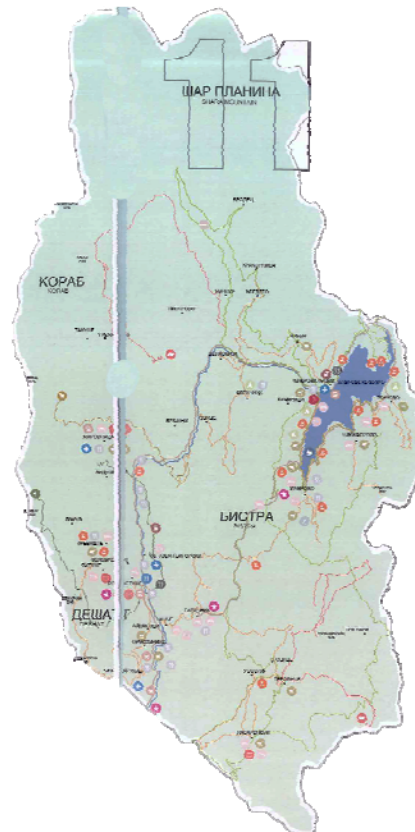
Project 3: Concepts for the Mavrovo area

The area of Mavrovo National Park is the most spectacular park in Macedonia when it comes to biodiversity. It is a home to various, some endemic and endangered, species.

To promote the park and develop the infrastructure on an international level is the aim of this project. The development of the infrastructure should also lead to a better management and maintenance of the park. The economic dependence from the forestry (logging) should be optimized with typical products of the area. The interchange with the communities around the park as well as with the private ski resort owners should be optimized and synergies further developed. A comprehensive education campaign about waste prevention (which is not an isolated phenomenon of the park) will help optimize the heavy waste problems.

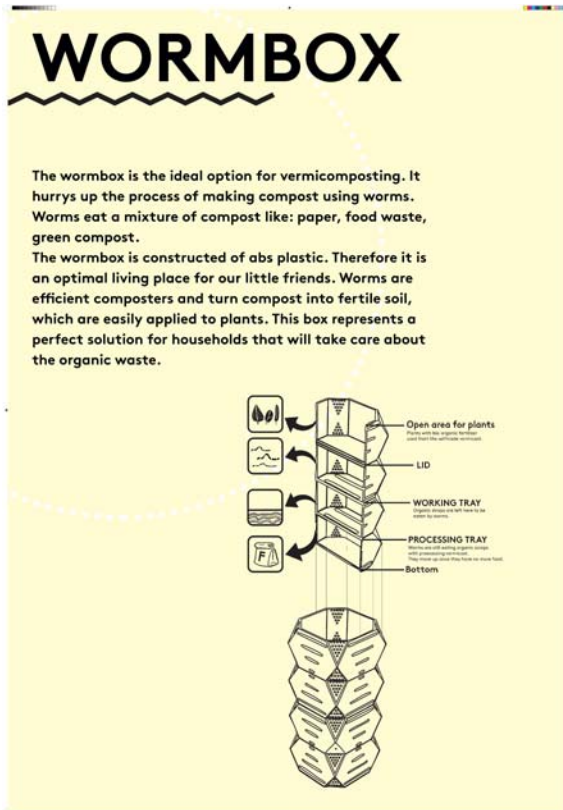


	ЦРКВА CHURCH
	БЕНЗИНСКА ПУМПА GAS STATION
	БОЛНИЦА HOSPITAL
	МЕСТО ЗА СКАРА GRILL AREA
	СЕРВИС WORKSHOP
	ПОШТА POST
	СКИ ЦЕНТАР SKI CENTRE
	КАМП CAMPING
	ИНФО ЦЕНТАР INFO POINT
	ЈАВЕН ТРАНСПОРТ



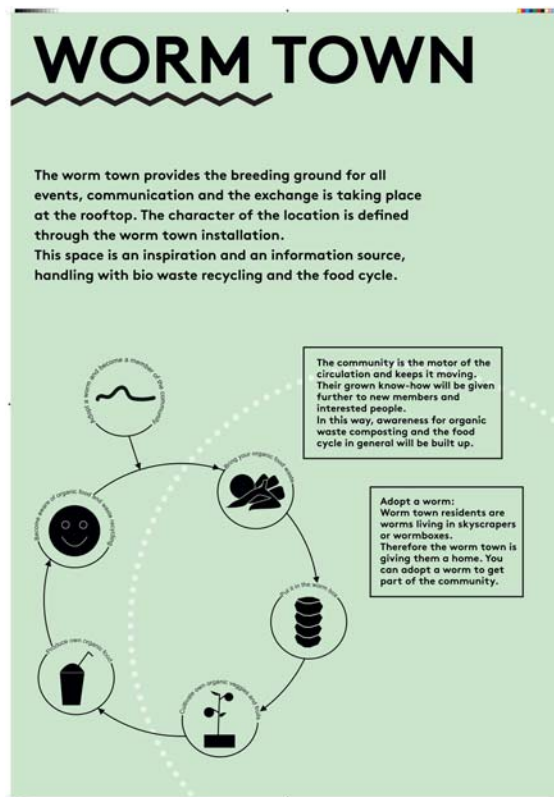
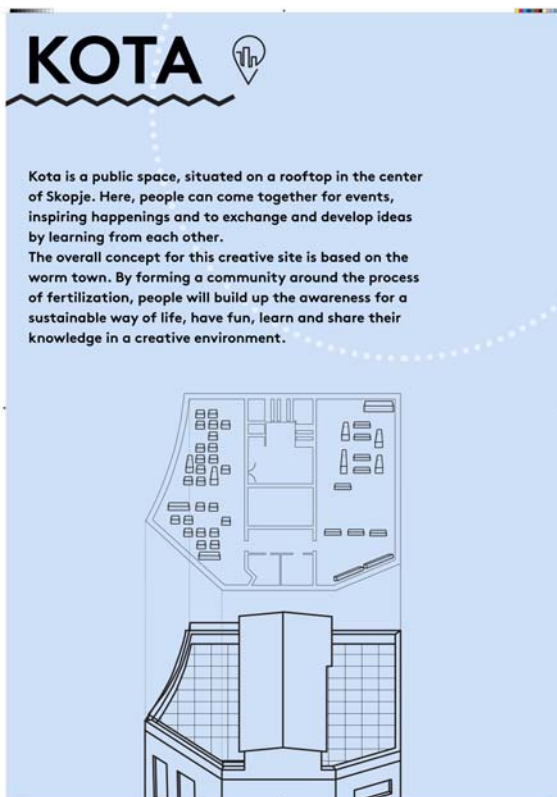
Project 4: Urban center for creativity and sustainability

Worm composting involves the breakdown of organic waste via the joint action of worms and microorganisms into natural fertilizer. The procedure of composting is a fundamental element in producing natural gardening and food production.



In order to introduce this awareness in Macedonia, the idea of a creative place for composting and urban gardening has been developed. The goal was to sensitize people and give them educational information about the process and also about how to grow vegetables in the city.

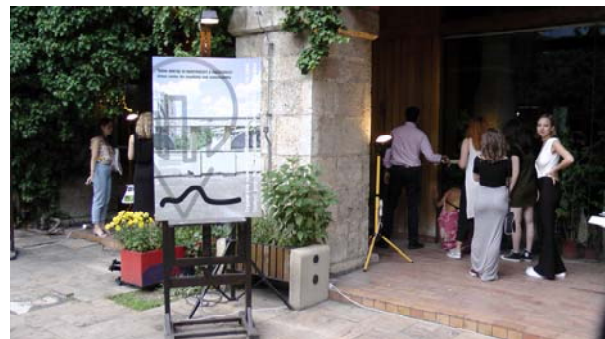
At this open space parties or concerts can be organized, it is an attractive place for enjoyment. At the same time people getting attracted by using a worm box at home. The creation and distribution of worm boxes is the commercial part of the association and contributes to its financing.



More about the projects on: <http://dwsimacedonia.tumblr.com/>

Final presentation and exhibition of the results (Suli An, 10th of June 2016)

The students presented the results of the workshop in a form of a final exhibition in Suli An, one of the most beautiful and most inspiring places in the Old Bazaar in Skopje. Swiss ambassador, the Dean of FME, and plenty of other important guests from the business sphere from Macedonia made this event to become an unforgettable one for all the participants.





After the workshop....

After the finishing of the workshop some of the Macedonian students - participants completed their diploma works with implementation of the experience and knowledge gained during the workshop.

Simona Mihajlovska and Petar Avramov presented their design solutions as examples how traditional Macedonian patterns and colors, recognized in the frames of their participation in the team **New interpretation of Macedonian tradition**, could be used for furniture design. They implemented different design approaches and offered several different furniture designs.

Ana Zdravkova used her experience from the participation in the team **Concepts for the Mavrovo area** and made an effort to find better design solution for the picnic shelter in her diploma work.

Kristijan Vasilev was a member of the observers' team. He was fascinated with the observation techniques that he experienced through the workshop, so he decided to apply and explain his knowledge and to document the whole workshop.

Conclusions after the second workshop

The workshop was generally successful. Working in mixed intercultural and interdisciplinary teams was a valuable experience for all of the students, especially for Macedonian ones. Despite the starting problems they finally realized that team work has more opportunities for better results.

However, there were some problems during the workshop. It was obvious that the students had to work under the different/unequal circumstances. Students from Macedonia were engaged in the teams to work on the project tasks, but they were also occupied with their everyday responsibilities (tests, projects and exams) for other subjects at the faculty. Students from Zurich were free to be dedicated only to the project tasks. This situation was really frustrating for both sides. There were some disagreements between the students, but, finally, it was also important experience for the researchers to take out conclusions for the future leading of the project.

The other negative conclusion was about the number of team members. It became evident that a team of eight members is not efficient enough.

Workshop 3

“DWSI Kenya”, Machakos, April 2017

The decisions about the third workshop were established at October meeting in Zurich. It was expectable that Kenya should be the target country. The negative experience from previous workshops with the unequal working conditions for the host and guest students was the main reason for selection of place where all of the participants could be equally dedicated to the workshop. It was also decided all of the involved schools to enrol 8 students in order to be established 8 international teams, 3 members for each of them.

Kenya’s economy is mostly agricultural oriented, so the possible project cases were explored in this area. BIOVISION’s main activities are dedicated to improvement of organic agriculture in Kenya. Thanks to the BIOVISION’s staff several communities for project cases were selected in a famous agricultural area Machakos.

GARDEN Hotel in Machakos became home and working place for 30 participants - students, teaching and research stuff from Zurich, Skopje and Nairobi, for a period of 3 weeks in April 2017.



Eight mixed teams with students from different cultures and different design background worked together: 7 Swiss students from the Design Department at Zurich University, 8 Macedonian students from the Industrial Design study program at the Faculty of Mechanical Engineering in Skopje, and 8 Kenyan students from the School of the Arts and Design at the University of Nairobi.

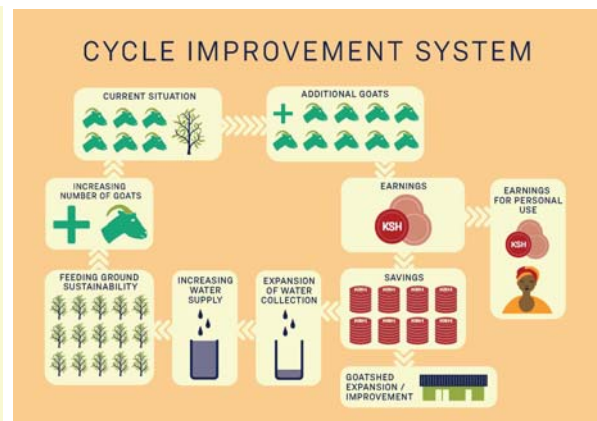
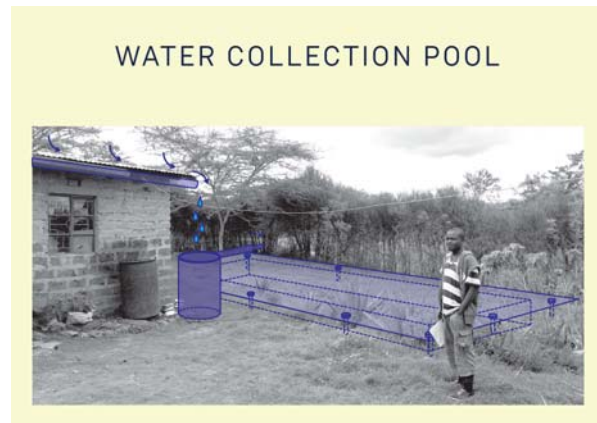
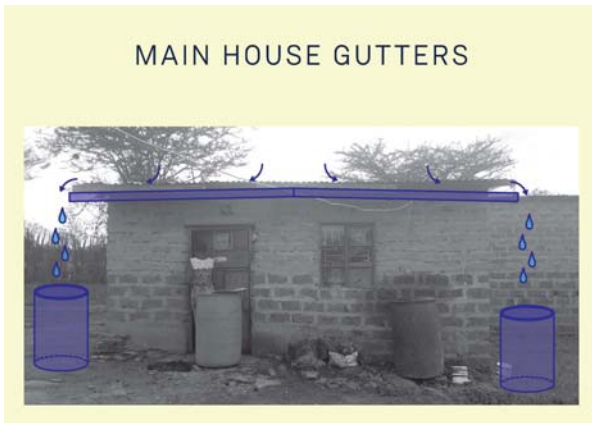
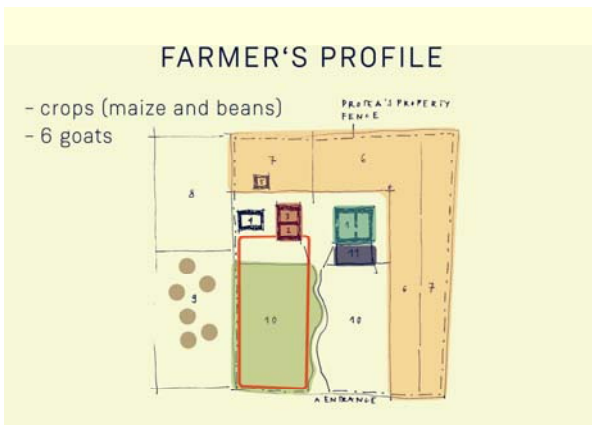
Working together for three weeks they have developed innovative and user-centred design solutions together with farmers in Machakos, Kenya. Interdisciplinary and international teams applied the learnings from the previous workshops to achieve more experience in the social design methodology in the frames of the “Design with Social Impact” Project.

It was a wonderful experience for all of the participants, including the communities’ members, as partners in the social design projects. It became evident that co-creation, cooperation, design thinking and other creative design techniques and methods are useful for achieving broader benefits for the societies and communities.

Project 1: Team Protea Maweu



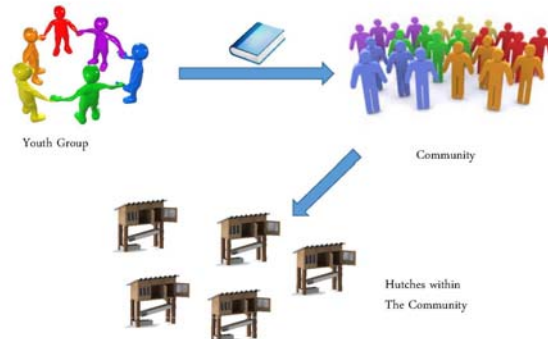
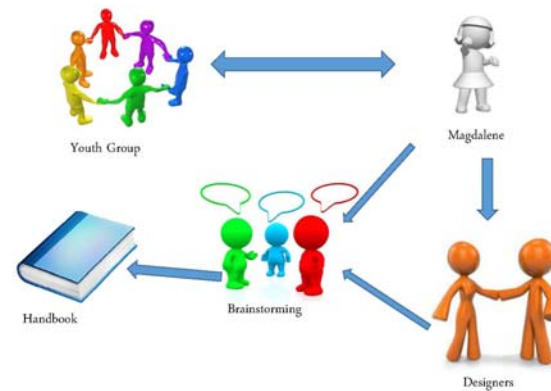
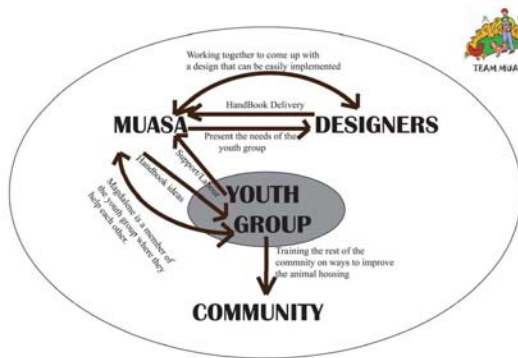
Protea Maweu’s farm is situated in Katheka Kai, where she is living with her daughter Regina. As a subsistence farmer she has no intention of selling her products other than her goats as soon as the number exceeds six. After the several field trips and discussins with Protea the team of students recognized her problems and proposed some solutions of her issues regarding maintenance and productivity of the farm. First of all they made a new space organization of the farm in order to become more efficient for all of her activities. They also proposed collecting system for rain water with gutters on the house and a pool. They made a a design of a goat pen with bigger capacity. Finally they presented Protea the whole system for improvement of the efficiency of the farm, as well as the possible bigger income.



Project 2: Team Magdalene Muasa



Magdalene Muasa is a subsistence farmer in Katheka-kai. She is also a youth group leader at BioVision Africa Trust by the name 'Kukena kwa Sua'. She is a very visionary farmer and her main goal is to keep more animals, especially the rabbit and chicken. The students/researchers identified the areas where they would be able to come up with solutions using a social design process. They suggested that this would be a project carried out by the youth group; they would work unanimously to build the hutch at Magdalene Muasa's farm as a demo and then proceed to the neighbouring houses and also their houses to do the same thing as a group to solve a problem and create cohesion in the community.



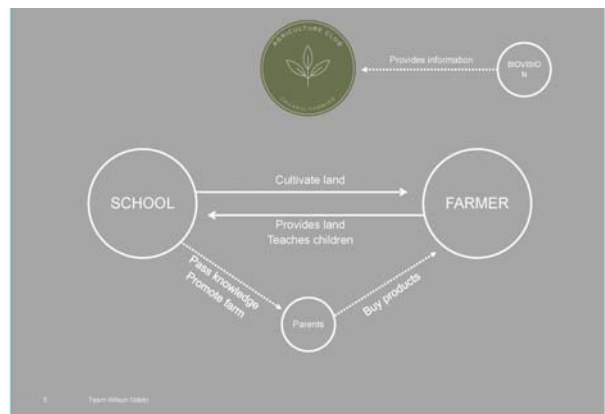
Project 3: Team Wilson Ndeto

Wilson Ndeto is a 67 years old farmer who is living together with his wife and three grandchildren. After the several visits, the team of students recognized that Wilson owns a big piece of land, but it needs to be cultivated. He has no capacity to utilize his land because most of the farming work is done by him with the help of his wife. Wilson needs some kind of help because soon he will be too old to take care of his own land. He also needs to find someone who will buy the production which he doesn't need for himself. Thanks to the students' visit at the high school in Makeni they knew that agriculture is an important subject and the kids there were getting, additionally to their theoretical lessons, also practical ones directly on the small field they have at the school. They suggest connection of the Primary school with Wilson's farm in order to create practical agriculture lessons, where the kids can see first hand how organic agriculture is done. This project could be organized by Biovison and other farmers could give lessons on his farm. The school and Wilson could both benefit greatly from this idea.

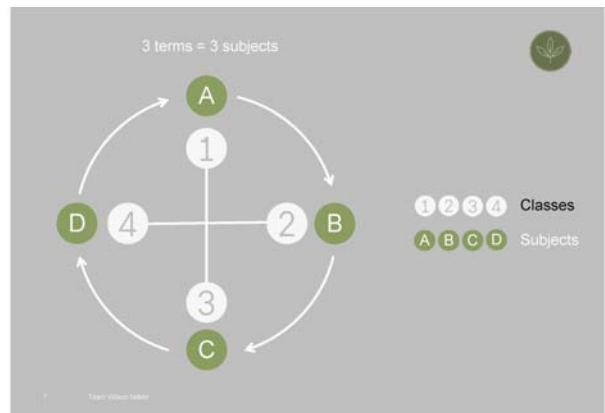


MAIN GOALS

Support elderly farmers
Theory ↔ **Practical**
 Motivate young students to do agriculture
 Promote organic farming



GROUPS	SUBJECTS
A Years 1 & 5	1 Tree planting
B Years 2 & 6	2 Fruits
C Years 3 & 7	3 Animal care
D Years 4 & 8	4 Cereals



Project 4: Team Raphael Mbuvi

Raphael Mbuvi is a commercial farmer from Katheka Kai, Machakos. He owns a 20 acre land that stretches down to the river, from where he uses the water. He plants a variety of fruits and vegetables. As a strategy, he has multiple nurseries containing different crops. Apart from crops, Mbuvi owns different animals: two bulls, one cow and a calf, seven goats and three rabbits. The animal waste products are used as fertilizer on the farm. Mbuvi's farm holds enormous resources. However, a couple of challenges face these resources: surface run-off, soil erosion, termites, expenses for watering of the land etc. As a result of Raphael's cooperation with the students a sustainable system for his farm was developed, based on the improvement of rabbits conditions. The improved rabbit hatches designed for collecting of their waste could provide bigger income for Raphael. An increase in the number of rabbits therefore suggests an exponential growth in the farm produce: more water for farming, organic manure, healthier crops, extended harvest period and income for investment.



CONTENTS

The DMG Design with Social Impact project is a project by university students from the ZUKU The University of Nairobi and The University of Oregon, Medford, Faculty of Mechanical Engineering, aimed at solving problems that farmers face in their day-to-day work, with the social design aspect in mind. The handbook seeks to empower the farmers with knowledge and skills about proper rabbit keeping. The information in this book is as a result of intensive research and evaluation.



Project 5: Team Waita

Kelvin's family plants maize, beans, spinach, and cassava. Kelvin himself is focusing on poultry, which includes breeding and selling chicks. The customers buy the chicks for egg laying chickens and eating. Kelvin also uses the eggs he produces for consumption and selling if they are not good for hatching. Most of the vegetables are for domestic consumption and some are used to feed the chicken. During the field trips students and Kelvin discussed about his problems and about his ideas for improvement of the business. The students recognized the potentials of his farm and his skills and suggested some solutions. They presented their model of Sustainable product service system to increase chick production. They also put an emphasis on his ambition to train other farmers how to grow chickens and designed an equipment and teaching brochure. The other idea was about utilizing of the waste for producing briquettes that could provide valuable income for Kelvin.



- Products sold
- Production process
- Production costs
- Production waste
- Opportunities from business and production waste

KARI IMPROVED KIENYEJI CHICK BASICS

HEALTH AND WELLBEING

It is important to ensure high standards of hygiene and observe strict biosecurity levels. Please refer to the vaccination schedule below.

DISEASE	VACCINE
Avian influenza	Avian influenza vaccine
ND/NDV	ND/NDV vaccine
Avian malaria/Parv	Avian malaria/Parv vaccine
ND/NDV	ND/NDV vaccine

DEATHS
Dead poultry should be immediately removed from a pen or brooder. They can be wrapped in a plastic bag and buried in the ground. Disinfect the chicken house or brooder after death or disease has been reported to avoid spread of disease.

FOOT BATH
It is very important that chickens are kept clean. This can be achieved by providing a foot bath. The bath should be changed daily and the water should be replaced.

SOURCES OF ENERGY

BRIQUETTES
Charcoal dust, sawdust and other waste materials can be used to make good quality briquettes, which can be used to fuel the brooder job. This ensures you reuse the waste you produce.

CHARCOAL BROODER POT
Charcoal can be used to heat up the brooder job, which can be placed directly in the space where the chicks are brooding. The pot should be prepared somewhere safe before being placed in the chick area. Charcoal is a cost-effective way of keeping chicks.

LIGHT
Even if you use a brooder pot you must use a light bulb in the space where chicks are kept so that they can find their food and drink. You can also use UV light to kill germs for heating all the chicks and providing light, although this will be costly. An infrared bulb is best for brooding chicks, but expensive.

Design With Social Impact

Miriam Mwa - Usaidi Prastigi - Mira



5 kg used sawdust

10 kg charcoal dust

1 kg mashed newspaper

+

+

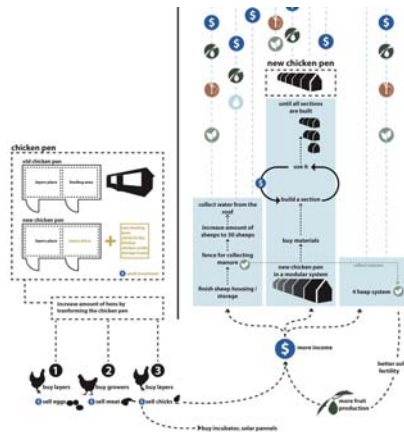
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charcoal sawdust briquettes

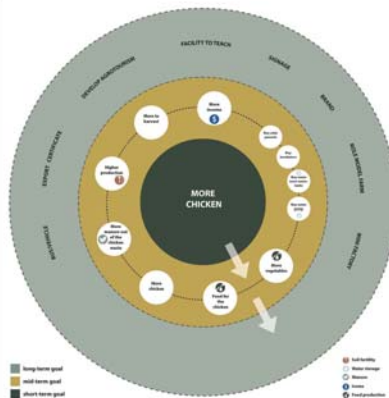
Project 6: Team Joseph Mbithi



Joseph Mbithi is a farmer, trainer and a student of organic agriculture. He is employed in Machakos Resource Center. He has eleven workers on his farm, including his wife and both of his sons. On his big farm he harvests a lot of types of fruits, vegetables, poultry and cattle. He also has water tanks, feed storage and plant nursery, where he grows seedlings for his farm and for selling. The students together with Joseph decided that his vision for the future of the farm has to be divided into three stages. For receiving a regular, stable and higher income the best way is to improve the chicken farm. Through that change he'll get closer to his big wish to teach and changing the farm into a role model farm. Further he can invest the saved money through his chicken farm in other visions which will lead him to his final goal – mango factory.



Step by Step

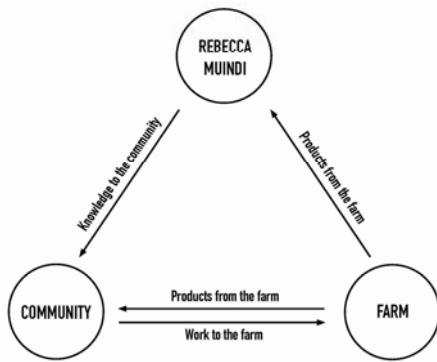


Project 7: Team Rebeca Muindi

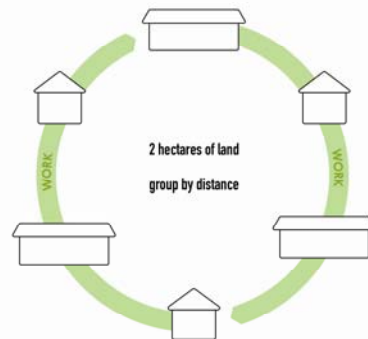
Rebecca is an elderly farm owner who uses her farm to produce food and generate income for her family. Despite being energetic and hard-working, she faces many issues on her farm. Some of them include soil erosion, water and power shortage and pests. Another issue is that her farm is large and she cannot cultivate it all by herself. The students decided to use the size of her farm together with her social capital and her indigenous knowledge to generate ideas which would help her utilize her land entirely and lead to solutions to her other issues. Starting from what Rebecca has to offer they thought about how to use that potential to generate possible solutions. In the near future the farm could be self-sustaining, by involving the community members and benefiting from her social capital. Her skills could be used to create a sustainable social system (possibly organized as a social club) benefiting both her family and the local community. Community members would work on the farm in exchange for knowledge and farm produce.



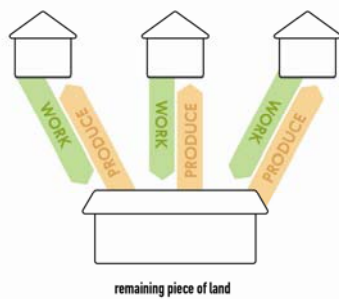
IDEATION social system



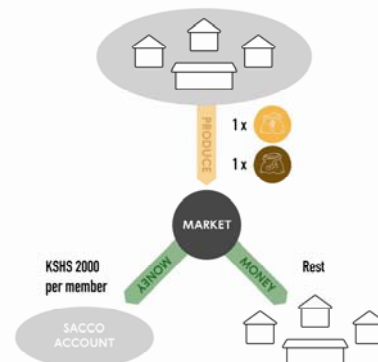
CO-CREATION group work



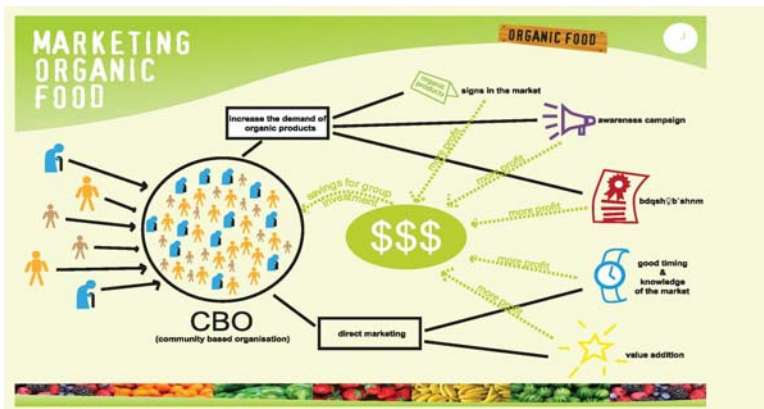
CO-CREATION team-up



CO-CREATION marketing



Project 8: Team Machakos Resource Center



The main task of the **Machakos Resource Center (MRC)** is to distribute information to the farmers. They deal with small to mid-sized farmers which often gather in groups and form community based organisations (CBO). The Center came up with six different ways of spreading the information which are described in the portrait of the center. The farmers are well connected amongst them and the information is appreciated. One of the weaknesses of the Center is, that the knowledge they bring to the farmers are not applied and if only gradually. A big advantage which could be used more often is the Biovision infonet.

During the co-creation process, the students, the MRC staff and the present farmers shared the idea that it is very important to increase the demand of organic products also to make it more likely for the farmers to adapt the knowledge they receive from the CIWs. They suggest the following solutions:

1. Signs on the market
2. Awareness campaign
3. Certification
4. Farmer communication board

See more about the projects dwsikenya.tumblr.com

Final presentation and exhibition of the results (27th of April 2017)

The last day of the workshop was reserved for presentation of the students' works. PP presentations, posters, flyers, prototypes and oral presentations were followed by the audience consisted of the community members, representatives of the University of Nairobi, BIOVISION and other important guests. The presentations were finished in a warm and friendly atmosphere with greetings for the successful cooperation between the students, NGO's and community members, under the supervision of the teaching and research staff from Skopje, Nairobi and Zurich.



After the workshop....

Students from FME, participants of the workshops in Skopje and Machakos are very happy and excited about the extraordinary opportunity to be involved in an international project. Despite the experience with different design approaches and methods, they are also impressed of the awareness about the power of the design thinking, creative approaches and other design methodologies that could be applied for the improvement of the society. They believe and promise that they will follow and spread the social design directions in Macedonia and the region. They are willing to continue and apply their knowledge for new challenges with intention to contribute for making the world better place for living for all the people.

Conclusions after the third workshop

The workshop in Machakos presented and proved that social design is a co-creation process, where the designers could provide valuable solutions only in cooperation with the affected community members, where both sides could contribute the process with their knowledge.

The overall conclusion from all of the involved participants was that the final workshop was the most successful because of the analytical and critical approach in the evaluation phase of the previous workshops. The positive and negative conclusions were implemented in the process of organizing, preparation and implementation of the workshop. All of the participants were witnesses of a power of design thinking, empathy and co-creation process.

The beauty of Kenya

It was a wonderful and extraordinary experience for all of us that we had a chance to see the beauty of Kenya – wonderful and worm people, unique natural wonders. We will always remember the colors of Africa, unforgettable trips and friendship with wonderful people.



THE BENEFITS OF THE PARTICIPATION IN THE “DESIGN WITH SOCIAL IMPACT” PROJECT FOR THE FACULTY OF MECHANICAL ENGINEERING, SKOPJE

1. Improvement of the content and educational methodology of several courses in industrial design study program at FME

During the workshops in the frames of the “Design with social impact” project the students and teaching staff were able to follow the teaching methods of the partners and to recognize the similarities and differences. At the end of the project Macedonian teaching staff made a review of the perceived differences, where the weaknesses and strengths of the teaching process and methods at the FME industrial design study program were stated:

Strengths:

1. The industrial design study program at the FME industrial study program is based on the experience from the engineering education of the involved teaching staff. The applied methods are very strong to equip the students with engineering preciseness, analysing skills, ability of making design decisions on the base of deep reasoning and facts, as well as on the base of previous knowledge of the basic engineering disciplines.
2. The students are skilled for application of contemporary software products for 3D modeling and graphic design: SOLIDWORKS, MAYA, AUTOCAD, ADOBE.
3. The students are trained to solve problems in different design areas, based on the extensive knowledge in many different design and engineering skills.

Weakness:

1. Our students are not trained enough to be opened for more free and more creative approach in the design process. Some of them are talented to think wide, to have more freedom in gaining inspiration, but the teaching staff don't apply creative technics enough in the education process.
2. Team work is not involved enough in our education process. The main reason is a big number of students (about 60 new students every year). In our previous attempts to involve team work we noticed that many students are not interested to work in team. Some of them feel superior in comparison to others; they don't want to share their knowledge and experience with others. Other students are not enough serious, they don't want to contribute the process of group work. As a result, the teachers are not able to make accurate evaluation of the students' works and skills.
3. The students from Switzerland and Kenya are trained to use visual, creative and critical thinking methods. Our students are not trained to use those methods; some of them use them intuitively and according to their personal interest.
4. Our students avoid field research method. Teachers always recommend field research, but students prefer desk research.
5. Our students are not skilled enough in prototyping – making of real models of the designed products. They prefer 3D printing although it is more expensive.

As a result of this review we made a conclusion that our educational process should be improved with implementation of the following methods:

1. Visual thinking

Visual thinking, also called visual learning or picture thinking is the phenomenon of thinking through visual processing. Visual thinking has been described as seeing words as a series of pictures.

Visual thinking is a way how humans organize the ideas and thoughts and improve the ability to think and communicate. Visual thinking tends to externalize the internal thinking processes, making them more clear, explicit and actionable. Drawing is a natural process for thinking, exploring ideas and learning.

2. Critical and creative thinking

Critical thinking is at the core of most intellectual activities that involves students in learning to recognize or develop an argument, use evidence in support of that argument, draw reasoned conclusions, and use information to solve problems. Creative thinking involves students in learning to generate and apply new ideas in specific contexts, seeing existing situations in a new way, identifying alternative explanations, and seeing or making new links that generate a positive outcome. This includes combining parts to form something original, filtering and refining ideas to discover possibilities, building theories and objects, and acting on intuition. The Critical and creative thinking learning continuum is organized into four interrelated elements, each detailing differing aspects of thinking.

- Inquiring – identifying, exploring and clarifying information
- Generating innovative ideas and possibilities
- Reflecting on thinking, actions and processes
- Analysing, synthesising and evaluating information.

Techniques for creative thinking

- Brainstorming
- Story boarding
- Lotus Blossom
- Checklists
- Morphological Analysis
- Mind Mapping Process
- The Excursion Technique
- Computer-based creativity techniques

3. Team work

Team work is a process of working collaboratively with a group of people in order to achieve a goal. Teamwork is often a crucial part of a business, as it is often necessary for colleagues to work well together, trying their best in any circumstance. Teamwork means that people will try to cooperate, using their individual skills and providing constructive feedback, despite any personal conflict between individuals.

4. Field research

The workshops in Skopje and Kenya were very obvious examples of importance of field research for the design process. Designers need to be in direct communication with the related users. Designers have to recognize the needs, possibilities of the users and their experience with previous design solutions. Designers have to evaluate the weaknesses and strengths of the previous design solutions of the same or similar kind in order to provide better design solutions.

As a result of the obtained experience and with the financial support of SWISS CONTACT and PREDA PLUS, the industrial design study program at the Faculty of Mechanical Engineering in Skopje had an opportunity to be improved with involving of new educational experience and methods. It was decided four existing courses to be improved immediately with the recognized and elaborated methods: Industrial design, Design process, Ergonomics for designers and New product development. The courses Ergonomics for designers and New product development in the winter semester 2017/2018 were completed according to the improved content and methodology.

2. Introduction of new course Design Research in the frames of industrial design study program

The Faculty of Mechanical Engineering in Skopje adopted improved study programs, initiated this year. According to the practice and tradition of the Faculty to make an improvement and a revision of the all study programs every 5 years, we had a chance this year to make a great step ahead with transformation of the industrial design study program from 3-year to 4-year study program.

Thanks to the experience of the cooperation in the frames of the project “Design with social impact” and with support of the Zurich University of the Arts, Switzerland, SWISS CONTACT and PREDA PLUS, a new course Design Research was introduced, proposed by the consultants from ZHDK under the name LOOK AHEAD! PRACTISE BASED RESEARCH METHODS FOR DESIGN. We had to correct the title of the course with shorter one because of the internal reasons. We also had to make small corrections and revisions of the course description in order to avoid repetition of the content that is already involved in other courses.

The whole process of the development of the course syllabus was performed through several phases. The first phase was dedicated to exploring of the available literature about the all topics of the course. The books pointed in the offered curricula from ZHDK consultant were carefully studied. Other available materials (websites, scientific papers etc.) were collected for each of the topics. The second phase was dedicated to selection of materials for the lectures and making short description of the content for all of the 15 topics/lectures. The third phase was dedicated to revision of the whole prepared material.

At the end of this process, the teaching material for each topic is collected and ready to be further elaborated and transformed in the form of presentations and texts for the lectures. They will be translated into Macedonian language and offered to the students. Because of the fact that this subject is placed in the 8-th semester of the study program, there will be enough time for finishing (possible publishing) of the materials in the form of book.

3. Implementation of the knowledge gained through the research part of the project for the application for a Master thesis

Slave Ristomanov, a student at the Master studies in Industrial Design and Marketing at the Faculty of Mechanical Engineering in Skopje, was active participant during the whole project, so he had a great chance to improve his knowledge with new research methods and techniques. In this moment he is working on finalizing of his master thesis under the name “Development of web platform for dissemination of design with social impact methodology”. The main goal of his work is to apply his knowledge about social design and to prepare the platform for collecting of social design proposals from different communities in Macedonia and the region.

4. Spreading of the social design concept between young designers from Macedonia

After the participation of the Faculty of Mechanical Engineering in the frames of “Design with social impact” we became completely concerned that social design has a power to create positive social change in the communities in our country. Designers can increase the public awareness about the power of acting together in a society. People of different backgrounds working together could envision more, they can create more, they can improve more. The social impact of design is visible in a broad spectrum of contexts - the impact of products or services for individuals and groups of people. Designers could balance between the needs of the individuals and the needs of the overall community.

The integration of the designers in intercultural and trans-disciplinary teams can provide valuable exchange of experience which could alter their perspectives and expand their visions upon different aspects of human living, offer them more clear recognition of human problems, help them find solutions by designing products and services, as well as promote other forms of acting and cooperation.

Skopje, 12.12.2017

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