

Educational Lab Experiences, Reflections and Perspectives: Unlearn and relearn ways of thinking...

Edu-
cational
Lab im
Lakeside
Park



Funded by the European Fund
for regional development and Interreg V-A | Italy–Austria
2014–2020

Lakeside

SCIENCE & TECHNOLOGY
PARK

Educational Lab Experiences, Reflections and Perspectives: Unlearn and relearn ways of thinking...

The “Educational Lab” brochure was produced as part of the “ITAT 1037 | EES AA | Entrepreneurial Ecosystem Alpe Adria” project, sponsored by the European Regional Development Fund and Interreg V-A Italy–Austria 2014–2020. Educational activities also financed and implemented as part of this project are identified in the texts below.

Foreword

Within an international context, the “Educational Lab” is implementing a United Nations “Agenda 2030” requirement: sustainable development is an educational task and an educational issue.

¶ The OECD called for “connoisseurship” in 2018, and classed teachers as designers. Sustainability does not just need entrepreneurs, it also needs experts, or “connoisseurs”. Associated with this, is the call to question developments and discuss innovations, including their effects on society and nature.

In the “Educational Lab”, not only are lessons learned from the circular economy, education itself is seen as a circle. You can’t get away from it here. Or in other words: You won’t want to get away from it here.

¶ The laboratories are excellently equipped such that chemistry, physics, biology and technology are not simply abstract formulae and phenomena — they become tangible. It’s a place to explore scientific theories, economic and socio-political processes and technical achievements in a playful and experimental way. And sometimes everything at once. But like comparable initiatives in the out-of-school education sector, the “Educational Lab” is also impacted by the warning issued by the OECD in 2018: financial dependence on a single political decision-maker brings with it the risk of quickly disappearing from the radar if there is a change in policy.

¶ An important prerequisite for education is a positive, relaxed atmosphere. Creativity, inventiveness and experimentation guarantee laughter and excited anticipation, ultimately giving way to that seriousness with which the young and young-at-heart adults, set about their series of experiments at the “Educational Lab”.

¶ In an environment like this, “procedural rules” can be ignored. Learning units as well as the sound of the bell at break time. Because education cannot and must not stop when the tension rises and the challenge is at its greatest.

GERMAN AND ITALIAN VERSION

is available in digital form at
www.educational-lab.at

Vorwort

Im internationalen Kontext setzt das »Educational Lab« eine Forderung der Vereinten Nationen aus der »Agenda 2030« um: Nachhaltige Entwicklung ist eine Bildungsaufgabe und eine Bildungsfrage.

¶ »Connoisseurship« fordert 2018 die OECD ein, und erklärt Pädagogen zu Designern. Nachhaltigkeit braucht nicht nur Entrepreneur, sondern auch Auskenner, »Connoisseure«. Damit verbunden wird die Aufforderung, Entwicklungen zu hinterfragen und Innovationen auch in Hinblick auf ihre Auswirkungen auf Gesellschaft und Natur zu diskutieren.

Im »Educational Lab« werden nicht nur Lehren aus der Kreislaufwirtschaft gezogen, sondern Bildung selbst wird als Kreislauf verstanden. Hier entkommt man ihr nicht. Anders gesagt: Hier will man Bildung nicht entkommen.

¶ Die Labore sind bestens ausgestattet, damit Chemie, Physik, Biologie und Technik nicht nur abstrakte Formeln und Phänomene bleiben, sondern greifbar werden. Hier erforscht man spielerisch und experimentell naturwissenschaftliche Theorien, wirtschaftliche und gesellschaftspolitische Prozesse sowie technische Errungenschaften. Und manchmal alles gemeinsam. Aber wie vergleichbare Initiativen im außerschulischen Bildungsbereich, betrifft auch das »Educational Lab« die Warnung, die die OECD 2018 herausgab: Die finanzielle Abhängigkeit von einem einzigen politischen Entscheidungsträger birgt die Gefahr, bei einem Kurswechsel schnell wieder von der Bildfläche zu verschwinden.

¶ Eine wichtige Voraussetzung für Bildung ist eine positive, entspannte Stimmung. Kreativität, Einfallsreichtum und das Experimentieren sorgen für Lachen, gespannte Erwartung und führen schlussendlich zu jener Ernsthaftigkeit, mit der Kinder und Junggebliebene am »Educational Lab« an ihren Versuchsreihen arbeiten.

¶ In so einer Situation kann man auf »Formvorgaben« getrost verzichten. Auf zeitlich begrenzte Lerneinheiten genauso wie auf den Ton von Pausenglocken. Denn Bildung kann und darf nicht aufhören, wenn die Spannung steigt und die Herausforderung am größten ist.

DIGITALE VERSION

in Deutsch und Italienisch zum Download unter
www.educational-lab.at

Prefazione

Nel contesto internazionale, il progetto »Educational Lab« è pensato per concretizzare una richiesta delle Nazioni Unite relativa alla »Agenda 2030«: sviluppo sostenibile è un compito della formazione e una questione di formazione.

¶ »Connoisseurship« è ciò che ha chiesto la OECD nel 2018, dichiarando che i pedagoghi sono designer. La sostenibilità ha bisogno non solo di imprenditori ma anche di conoscitori, per l'appunto »Connoisseure«. Di qui l'esigenza di analizzare sviluppi, di discutere le innovazioni anche sotto il profilo dei loro effetti sulla società e sulla natura.

Il progetto »Educational Lab« non si limita a chiamare in causa i principi dell'economia circolare ma considera la stessa formazione come circolare. Da questa non si sfugge.

O meglio: non si vuole sfuggire.

¶ I laboratori sono perfettamente attrezzati per fare in modo che la chimica, la fisica, la biologia e la tecnica non rimangano concetti e fenomeni astratti bensì diventino tangibili. Con un approccio sperimentale e anche giocoso si esplorano le teorie naturalistiche, i processi economici e sociopolitici, le conquiste tecniche. Talvolta tutto insieme. Tuttavia, al pari di altre iniziative paragonabili in campo formativo extrascolastico, anche per l'»Educational Lab« vale l'avvertimento della OECD nel 2018: la dipendenza finanziaria da un unico potere decisionale politico implica il rischio di sparire dalla scena al primo cambiamento di rotta.

¶ Un presupposto importante per la formazione è un'atmosfera positiva e serena. La creatività, le idee e gli esperimenti mettono di buon umore e incuriosiscono, dando come risultato quella serietà con cui giovani e meno giovani sperimentano nell'»Educational Lab«.

¶ In un contesto di questo tipo si può rinunciare fiduciosamente ai »formalismi«. Come alle lezioni scandite da orari o al suono della campanella della ricreazione. Perché la formazione non si può interrompere quando l'interesse sta crescendo e l'impegno è al massimo.

VERSIONE ITALIANA E TEDESCA

è disponibile in formato digitale sul sito

www.educational-lab.at

Educational Lab at Lakeside Science & Technology Park

The conceptual work for the “Educational Lab” began in 2015. Construction began a year earlier, in 2014. The building that houses the “Educational Lab” also accommodates the administration of “Lakeside Science & Technology Park”, along with event and information rooms.

¶ The out-of-school learning opportunities cover the subjects of natural sciences, mathematics, IT, innovation, entrepreneurship, language and culture. It's not just schoolchildren who get something out of it, students, teachers and anyone with an interest in further education also stand to benefit.

¶ Methods are applied, revised and tested in individual modules before finding their way out of the laboratory and into teaching. And not always just on paper as a means of conveying, but through the minds of the people who leave the “Educational Lab” with a high degree of empathy and are somewhat richer in experience.

Knowledge transfer must not reach a dead end. Collaboration and networking at the “Educational Lab” has to take place not just between teachers and students, but also between the module designers and educational institutions. Whether and how that works is evaluated in the form of “accompanying research”. Accompanying observation is built into the concept from the beginning. Researchers examine the impact of the work and the networking activities of the individual modules, both internally and externally.

¶ The “Educational Lab” wants to bring about change, and is committed to remaining dynamic itself. This is ensured by public calls for tender and the invitation to submit new “innovative educational concepts”. Campaign weeks and the “Long Night of Research” serve as invitations to get in touch and attend.

¶ An advisory board supports all these developments. The members of the “steering group” have assumed the responsibility of advancing the establishment and further development of the “Educational Lab”.

THE FACTS

2013	START OF CONSTRUCTION PLANNING OF THE BUILDING
2014	START OF CONSTRUCTION
2015	CONCEPT PLANNING
2016	CONCEPT IMPLEMENTATION
Spring 2017	SPACE OCCUPIED AND THE FIRST MODULES INTRODUCED

The Lakeside Science & Technology Park makes the spaces available to the modules at no cost. Operational costs and other incidental costs are paid by the organisations that support the modules.

In 2019, around 15,100 people attended the Educational Lab, some 8,600 of them the “BIKO mach MINT” module alone.

Depending on the task, five people from Lakeside Park share the organisational work, representing about one full-time equivalent.

The “Educational Lab” is supported by the Lakeside Science & Technology Park, the Province of Carinthia, the Federal Ministry for Education, Science and Research, and the “European Regional Development Fund — ERDF”.



The modules arranged by date of introduction and partner project

- 12 **NAWimix**
An out-of-school place of education
and further education for the natural sciences

- 16 **BIKO mach MINT**
Educational partnerships in Carinthia

- 20 **inspire! Lab**
Innovation Spirit and Entrepreneurship Lab

- 24 **Global Citizen Campus**
Research and education for the global society

- 26 **Education Studio**
Communication of knowledge and knowledge transfer

- 29 **SustainAbility Lab**
Sustainability education partnership

- 32 **Smart Lab**
The open fabrication laboratory

- 36 **product life lab**
Sustainable Entrepreneurship Education
and Circular Economy

- 40 **Spiderino**
Swarm)robotics as a teaching instrument

- 43 **Equality Lab**
Das Mädchenzentrum Klagenfurt
[Girls' Centre] at the "Educational Lab"

- 46 **Partner project**
Entrepreneurial Ecosystem Alpe Adria
Entrepreneurship knows no boundaries

NAWImix

An out-of-school place of education and further education for the natural sciences

In the entrance area to "NAWImix" hang two chairs. They are both secured to the ceiling with cords. On one chair the ropes run over a pulley, on the other they hang loosely from the ceiling. How is it that you can sit in one chair and hoist yourself up to the ceiling on the rope, but not the other?

¶ First comes the perception. The looking, the sitting down, the experiment. The explanation follows later. What is left is generally not the literal explanation, but the memory of how you managed to reach the ceiling. It's the same for students and teachers as much as for schoolchildren.

"Education" says Bernhard Schmölzer, head of the "NAWImix" module at the "Educational Lab", "Education is what you're left with when you forget everything you have learned before."

The German educational reformer Georg Kerschensteiner said much the same thing over 100 years ago.

¶ At "NAWImix", teachers in education and further training learn what makes the MINT subjects of mathematics, IT, natural sciences and technology so attractive. The answer is: explorative and inquisitive learning. "NAWImix" offers teachers the space and time to deepen their understanding of chemistry, mathematics, physics, biology and general studies.

¶ "The problem teachers have is not the teaching of the subject or the methodology" says Bernhard Schmölzer. Teachers are very well trained in this sense, and are great at it. The students want more support with scientific tasks if they are to feel at all capable of tackling subjects such as "climate change" at school. Supporting them in this is the stated aim of "NAWImix".

¶ While the teachers cannot take the equipment home with them, they get an idea of how the subject can be looked at in a different way. Armed with this knowledge and experience, even the best equipment can take a back seat. The researchers at CERN are proof of this. No one else has access to a "Large Hadron Collider". And yet a really simple configuration is sometimes more useful to the physicists than the particle accelerator itself. No one wants to be without it, but the key point is that the researchers in the laboratory have acquired the necessary knowledge to consider a problem from several angles. Including away from the laboratory, during the break, in the garden in front of the canteen.

¶ The format selected at "NAWImix" is multi-faceted: The teaching candidates first visit, and the students then take up the invitation to attend a "trial lesson". **Every teacher who has successfully completed their first visit to "NAWImix" is granted consent to return with their class.**

¶ To enable this visit to take place, "NAWImix" pays 100 per cent of the travel costs. Despite this, says Bernhard Schmölzer, there is not always a good take-up of this offer. We hear people say it takes too long to travel from Kötschach-Mauthen, the Mölltal region is too far away and the timetable won't permit it.

Conversely, those teachers who are not deterred by such hurdles talk about the motivational effect of this joint visit. On the one hand, this is down to the shine in the children's eyes. On the other hand, it's the certainty of being able to successfully communicate complex topics in an exciting way. The staff at "NAWIMIX" act as "specialist critical friends". They observe and analyse the communication process and give feedback. "NAWIMIX" staff can see immediately whether the children have been prepared for the visit: the children's questions, or silence, are revealing.

The Federal Ministry for Education, Natural Sciences and Research, rewards the teachers' initiative with the "MINT seal of quality". It is awarded for three years to all those educational institutions that teach the subjects of natural sciences, IT, mathematics and technology with passion and imagination. There are currently 23 such institutions in Carinthia.

External collaborations

"NAWIMIX" itself is also constantly learning. Austria has no professorship for primary school mathematics teaching. "NAWIMIX" is thus working with the University of Siegen. As part of an EU project, the team around Bernhard Schmörlzer investigated the question of how primary school teachers can better understand what previous knowledge their children bring with them, and the demands they will be expected to tackle in secondary school. It helps if they can spend a few hours at kindergarten, at their new junior school, or at their secondary school. The results of the research convinced the teachers to such an extent that the curriculum at the Pädagogische Hochschule [teacher training college] has now been changed. From the winter term on, the learning options will be expanded correspondingly.

The Ludwig Maximilian University of Munich has in turn become aware of the activities of "NAWIMIX". At its instigation, "NAWIMIX" was included in the German teachers' network. In addition, as part of the "Erasmus plus" European mobility programme, an agreement is currently being finalised with the chemistry didactics department in Porto, Portugal.

THE FACTS

The "NAWIMIX" name covers the natural sciences didactics centre of the Teacher Training College Carinthia — Viktor Frankl Hochschule. Founded in 2012, this out-of-school learning venue has successfully established the necessary, up-to-date infrastructure at the "Educational Lab" over the past five years, both to conduct research itself and to pass on didactic models for teaching scientific knowledge to teachers and students at the Teacher Training College.

STAFF

There are up to 12 members of staff, or seven full-time equivalents. Specialist colleagues are brought in, according to need and demand.

COOPERATION

The "Global Citizen Campus" is a partnership designed for working together on the topic of "Global Citizenship Education". At the Lakeside Park, "NAWIMIX" finds cooperation partners for regional funding applications and EU projects. And in the "BIKO mach MINT" module, teachers have the opportunity to introduce children and youngsters closer to laboratory life.

SUPPORTING ORGANISATIONS

Teacher Training College Carinthia — Viktor Frankl Hochschule

CONTACT PERSON

Bernhard Schmörlzer, head of the natural sciences didactics centre of the Teacher Training College Carinthia (RECC)
bernhard.schmoelzer@ph-kaernten.ac.at

FUNDS

"NAWIMIX" is supported by the Federal Ministry for Education, Science and Research, the Province of Carinthia, the Carinthian economic assistance fund, the Kärntner Sparkasse bank private foundation and Kelag

BIKO mach MINT Educational partnerships in Carinthia

In the entrance area to “BIKO mach MINT” hang white lab coats with breast pockets. “The white coat is extremely important. It immediately changes the children’s behaviour,” says Robert Münzer of “BIKO mach MINT”. As soon as a child puts the coat on, they are no longer a schoolchild, but a researcher.

¶ The staging is important and leads the children to adopt a seriousness that can easily be lost in the school setting. There are no bells sounding the break here. The schoolchildren and youngsters can take all the time they want to tackle a single issue until they have resolved and understood it. For school students, this is a luxury that from their perspective is afforded only to adults.

Here, the children formulate their own hypotheses rather than following instructions. And they decide for themselves whether they have got it right or wrong. They document every step on a researcher’s record: “Station name. Your name. What equipment are you using?”

¶ Whether the path leads to the chemistry, physics or biology laboratory or to the “Natura 2000” area on the edge of the park, the first question is followed by the second research question: “What do you expect to happen?” “Once the children have put what they expect to happen in the researcher’s record, the experiment takes place. They describe what they think will happen, and give their expected results and why,” says Robert Münzer in describing the “BIKO mach MINT” methods.

¶ In 2016, it all started with a test. Four pilot schools were invited to conduct a trial. There was no comparable project at that time, so no experience regarding what would work and how it would work. The first educational programmes — or modules — were developed together with the students and the first set of equipment was purchased. Up-to-date and in such a volume, that 30 schoolchildren now have their own workspace. Today, international teams come to “BIKO mach MINT” to prepare for competitions and the “Science Olympics”. They couldn’t wish for a better setting.

¶ In 2020, teachers and inquisitive children and youngsters will have access to over 60 themed areas, or in technical jargon, “problem fields”. Fully prepared and equipped with the necessary tools. Robert Münzer thinks the team made a mistake here in the beginning: They sent their offering to schools in Carinthia, and the teachers made their choice. “Like from a menu”. **But the “BIKO mach MINT” team has no interest in education as a consumer product.** The goal is collaboration and independent thinking — a challenge placed not just before the children, but the teachers too.

¶ Today, no lists are sent out. Teachers enquire only when they themselves know which topic they want to address. Furthermore, they have to arrange their own travel. **Every class or school has to pay for its own bus or train ticket.** “BIKO mach MINT” makes teaching materials and facilities in the laboratory available at no cost. It’s a problem that overwhelms some, while other teachers turn to the mayor or try to find sponsors, sometimes to give their children the opportunity to use the equipment in the laboratory several times a year. Schools from the Lavanttal and Kötschach-Mauthen areas are leading the way.

¶ Schools that show particular commitment are awarded a certificate in a visible display for both students and parents. **The committed teachers are those who propose a topic themselves.** “The subject of acoustics was explored on the initiative of one teacher.” Within a month, the materials had been developed, singing bowls and tuning forks had been sourced, and everything was ready for the class to attend.

¶ “BIKO mach MINT” has a workspace available for every “young scientist”. **None of the students simply observe an oxyhydrogen experiment. They get to create their own bang.** You can see the children’s excitement right away when they get to do something themselves, says Robert Münzer: “You just have to let them do it.”

¶ You have to explain to the teachers why it’s not about a student working through all 16 stations of a module. “It’s much more valuable if a student becomes so fascinated by one station that they want to stay there. If they resolve it, they do it excellently, and will have learned more than the other way around”. Just another finding after four years of “BIKO mach MINT”: Less is more.

¶ There are no prescribed ways of working in the laboratory. There are no grades, no homework and no parents’ evenings. **And neither do the children and youngsters need to be afraid of the equipment and chemicals.** It sometime takes a bit more to liberate teachers from their usual experiences. Following the initial introductions and experience, they too, are now left to their own devices to use the space as they wish. Just like the primary, middle and secondary school students. The support is there, but on the peripheries.

¶ **“It’s a joy to see how carefully the students work with the instruments. They really appreciate it. They treat everything with respect.”** Even the behaviour of supposedly ‘difficult children’ changes in the laboratory. Perhaps – thinks Robert Münzer – they’re unable to concentrate on something for an entire morning at school, but what we have seen is that the children become so engrossed that they are able to concentrate on what they are working on for up to two hours. It’s a marvellous success.

¶ The equipment in the laboratories does not just comprise things such as stereo microscopes, pipettes and chemicals. The tables are equipped with small table-mounted cameras that are connected to a projector. If a child wants to explain his research work to the other children with his own arguments, he does it via the camera. This “public” discussion soon makes the special impact of this learning environment clear. It’s fantastic, says Robert Münzer, that we never get a child at “BIKO mach MINT” saying: “That’s rubbish”. No one makes fun of anyone else. Everyone gets taken seriously, and “everyone feels good when they have explored something and have discovered something new for themselves”. **Here, it’s all about what matters, the essence and finding the answer.**

THE FACTS

In addition to the 20 “participating schools”, the out-of-school learning location is open to all classes and types of school in Carinthia. It can be used by appointment for project-related activities. The same applies for interested parents on the “Open Space” day. This was introduced recently on every Saturday from 9:00 am to 12:00 midday.

STAFF

9

CONTACT PERSON

Robert Münzer | bmachmint@gmail.com

SUPPORTING ORGANISATIONS

Office of the Carinthian Provincial Government,
dept. 6 Education, Science, Culture and Sport

COOPERATION

In collaboration with “NAWIMIX”, the natural sciences didactics centre of the Teacher Training College Carinthia — Viktor Frankl Hochschule, as well as the “Smart Lab” and the “product life lab”.

FUNDS

Supported by the Lakeside Science & Technology Park, the Province of Carinthia and the state capital Klagenfurt

inspire! Lab

Innovation Spirit and Entrepreneurship Lab

Entrepreneurship is about far more than simply forming a company. At the “inspire! Lab”, we see it as the ability to take personal responsibility and work independently.

¶ To promote such an attitude and action, a range of skills needs to be honed. At the “inspire! Lab”, students from the business academy [Handelsakademie] meet business administration students, game designers from the HTL-Ferlach [higher technical education institute] meet educators and entrepreneurs meet students.

¶ This can also be expressed in formats: “inspire! build your business”, “inspire! goes to school”, “inspire! the next generation”, ... But it’s more important to realise that the rigid regulations in education systems are under scrutiny here just as much as business structures.

The impacts of learned patterns of behaviour on actions come to the fore at the “inspire! Lab”. All you have to do is open the door to the “Educational Lab” and enter the large bright, white space. “At first glance” – says Ines Krajger of the “inspire! Lab” team – “some visitors find the white sterile”. But the impression doesn’t last long.

¶ **The tables, walls, cupboards, stools – they are white, but they can be written on. The furniture can be moved around. Probably an invitation to do just that.** To understand this, different triggers need to be given depending on the age group and task concerned. That is one of the lessons the team has learned from two years of the “inspire! Lab”.

¶ For example, schoolchildren enjoy using the tables and walls as notepads. They start writing the minute they get here. They’re not allowed to do that at school. Students, conversely, are considerably more conservative. They use the wall and table only when they are invited to. People in work who are attending the “inspire Lab!” for further training really initially find it hard to get used to the idea. They need to be educated. Even presenters have to question their style at the “inspire! Lab”. If they rely on PowerPoint slides and lecture-style teaching, then even this room loses its charm, says Ines Krajger. An indication that “bullet point” presentations were not necessarily invented to promote thinking.

¶ If you change perception and observe the goings-on from the perspective of the discussions, older participants gleam with critical ability and reflection. They are able to question what is said, whereas school students happily write down every word the presenter says in neat lines. While the room was still a free space for the students when they entered, they immediately relinquished that thinking as soon as they were confronted with the transfer of knowledge.

¶ **The “inspire! Lab” thus touches on several of education’s wounds at once. Irritation is part of the concept.** It is not just the methodology of teaching that comes under scrutiny, but the implementation of “learning environments that foster creativity”.

¶ In the first development phase, the spatial design was left to the architects. The team opened it up to competition, and the winners got to work. In the second phase, the students, teachers and school pupils were asked about their needs. A kitchen area was added to the room. Eating and thinking go hand-in-hand after all.

¶ Another lesson concerns the history of how the “inspire! Lab” came into being. “Entrepreneurship Education” is considered a “core competence” in the 21st century. In 2014, it was incorporated into the business academies’ curriculum. This concept can also be communicated in the form of simulations. However, this concept is still not sufficiently incorporated into teaching. The “inspire! Lab” has done it, and also very cleverly combined multiple methods and groups.

¶ A simulation is a role-play with a plan, and is known in the literature as an “experience-based learning concept”. The plan in this case is to form a company. “inspire! build your business”. For that, you need an idea and money. Accordingly, the pupils and students became business founders and investors.

¶ The individuals involved are: business academy pupils and business administration and game studies students from the Alpen Adria University. **While the game gets schoolchildren out of the habit of linear thinking and teaches them analysis and systematic thinking, the students learn from direct contact with entrepreneurs.** They question these entrepreneurs’ business models, change these, and then put the individual parts of the puzzle back together again. The difference is the changed perspective they have gained during the discussions.

¶ It also affects the “inspire! Lab” team. The staff are called on to go further in their thinking and continually questions their methods. The students on the game design master class, for example, still find enough to criticise about the “inspire! build your business” game. They are not happy with either how the game is played or the design. The HTL Ferlach students immediately turned it into a board game, and found that: success should be rewarded. The team had completely forgotten that in the excitement of development. Thanks to the students, this mistake was soon put right, and the game pieces are now decorated with medals.

¶ **The team at the “inspire! Lab” incites you to think with them, and seize the desire for change.** Their methods are not rigidly prescribed, but are continuously revised. Fully in the sense of “Open Innovation”.

¶ As a next step, the team plans to bring more people from outside of educational institutions on board. Life experience is also educational. The combination of theory and practice is the central idea at “inspire! Lab”.

THE FACTS

The “inspire! Lab” employs two people on low hours. External coaches are called in as needed.

.....
Schools — currently the business academy in particular — use the infrastructure as an out-of-school learning and teaching centre. The target audience is now being expanded, however. Companies that financially support the Lab gain access to the infrastructure.

SUPPORTING ORGANISATION

.....
Alpen Adria University Klagenfurt, Institute for Innovation Management and Business Creation [Institut für Innovationsmanagement und Unternehmensgründung], Provincial School Board [Landesschulrat] for Carinthia.

CONTACT PERSON

.....
Ines Krajger | ines.krajger@aau.at

FUNDS

.....
With the support of the private foundation Kärntner Sparkasse, Philips, addIT, Karnerta and Kelag.

Global Citizen Campus

Research and education for the global society

Education needs development. Developments can be introduced and initiated. But it takes time to make changes visible. In this respect, education differs from business, and social processes from natural phenomena.

¶ The “Global Citizen Campus” has one aim: to give schoolchildren a better understanding of the concept of the global citizen. “Global Citizenship Education” is one of the 17 aims identified by the United Nations to facilitate sustainable developments. Key words “UN Agenda 2030”.

¶ Associated with this is the recognition of connections, equal opportunities in access to and the allocation of resources, as much as justice and fairness in interaction with each other. Local and global. These are the central themes of the “Global Citizen Campus” module, which aims to further develop the educational concept of “Global Citizenship Education” and promote the transfer of this way of thinking to educational institutions. To enable this to work, students, teachers and their respective training paths are involved in the concept phase.

Methods are developed for experimental, investigative learning. School students should work independently, with no prior instructions, on what it means to be a global citizen. Similar to the “Philosophise with children” concept, the school students should contribute their own topics. This approach clearly involves a number of risks: ultimately, the common frameworks have to be forgotten in order to understand internationalisation, world citizenship and sustainability.

¶ It’s just that achieving this ambition is a challenge. **Without a pattern to follow, stimulation is needed.** That is a demanding but exciting educational model.

¶ A small, manageable research group is still working on the “Global Citizenship Education” model, according to Heidi Grobbauer. That is set to change with the “Global Citizen Campus”.

¶ The project didn’t get off to an easy start. It wasn’t possible to achieve the financing goals, and the HR resources were scaled back. With the arrival of the “Equality Lab”, Heidi Grobbauer hoped the “Global Citizen Campus” would get a fresh start. At the end of the day, both groups are working on this topic, albeit under different conditions. Heidi Grobbauer was also involved in revising the curriculum for the “Global Citizenship Education” university course. The work was a success, and is now set to benefit the “Global Citizen Campus” module too.

THE FACTS

STAFF

1

SUPPORTING ORGANISATION

KommEnt GmbH, Gesellschaft für Kommunikation, Entwicklung und dialogische Bildung

CONTACT PERSON

Heidi Grobbauer | heidi.grobbauer@komment.at

COLLABORATIVE PARTNERS

University College of Teacher Education Carinthia — Viktor Frankl University and the Alpen Adria University Klagenfurt

Education Studio

Communication of knowledge and knowledge transfer

An offer for research organisations, business and political decision-makers

¶ Education doesn't stop when students leave school and stop studying, that's when it really starts. The "Education Studio" is thus a space that provides for the communication of knowledge and knowledge transfer.

Local authorities, organisations and businesses are practically obliged to continually refresh their level of knowledge. They need information about legislation, regulations, standards and the latest research results in order to act efficiently and take advantage of offers.

¶ Technology policy, new findings from research, developments in education policy and economic policy are as valuable to them as knowledge about "information retrieval".

¶ **The "Education Studio" attracts adults.** Like students or schoolchildren, they also need a space in which they can escape the strictly organised daily schedules. Particularly when they are called on to tackle a complex of topics in an interdisciplinary way.

¶ **Example of an "environmental impact assessment": Companies must implement this group of themes; authorities have to phase it out.** Between the two groups however, there is active communication only when the issue becomes a problem. In the "Education Studio", these two groups were networked from the outset. "With the aim," explains Jürgen Kopeinig of the KWF, "to better understand the other group's situation."

¶ The result is the guidelines "Optimisation of approvals procedures - nature conservation toolbox". In the next step, local authority staff joined the group of individuals.

¶ **The "Education Studio" thus acts as a mediator.** It is operated by the "Carinthian Business Development Agency [Kärntner Wirtschaftsförderungs Fonds]" and thus by an organisation with an exciting network behind it. They know the relevant people in the state institutions, organisations, companies, and actors in science. They know the topics that are on the daily agenda.

¶ Data analysis, for example. **The authorities are currently just as interested as businesses in merging databases and facilitating data exchange. And it is a challenge for both sides.**

¶ In science, several research institutions are engaged in this: IT, statistics and mathematics as much as sociology, political sciences and philosophy. Ultimately, it's not just about technology and business. Quite incidentally, a new social contract is also being negotiated. This is confirmed by the lengthy discussions on basic data protection regulation and e-privacy within the European Commission.

THE FACTS

The "Education Studio" is currently under construction. Personnel resources and financial opportunities are limited, and Jürgen Kopeinig did not adopt this agenda until six months ago.

Fundamentally, the "Education Studio" has the potential to create a new mini-Davos. The World Economic Forum once also started small, low-key and with few personnel resources. The initial situation is the same: a basis and network are in place.

CONTACT PERSON

Jürgen Kopeinig | kopeinig@kwf.at

THE OPERATOR AND SUPPORTING ORGANISATION

is the Carinthian Business Development Agency, the Kärntner Wirtschaftsförderungs Fonds, KWF

The Kärntner WirtschaftsförderungsFonds is partner to the "Entrepreneurial Ecosystem Alpe Adria" project, and has part of this has developed and delivered a series of workshops with the "product life lab". With the "inspire! Lab", the "CoWorking Fellas 4 Business" for dissertations across school types.

SustainAbility Lab

Sustainability education partnership

The "SustainAbility Lab" could be described as an educational lab within the "Educational Lab".

¶ The six institutions that merged in 2016 form the most diverse group within the "Educational Lab". Together, they are asking themselves questions about sustainability and nature. The subject forms the Lab's intersection. Everything else remains fluid.

The “E.C.O. Institute for Ecology”, the Alpen Adria University Klagenfurt, together with the institutions “Networked and Embedded Systems”, “Unterrichtsentwicklung und Schulorganisation [teaching development and school organisation]” and “Game Studies and Engineering” Master’s course, the Carinthian University of Applied Sciences with the “civil engineering” field of study, the “World Commission on Protected Areas” and the “Bündnis Alpenkonvention [Alpine Agreement Alliance]” — the list of partners is long and is still growing, when you realised there are additional organisations and associations behind the organisations listed.

¶ The challenge of connecting so many groups is as big as the subject itself. **Here, everything that can be said about sustainability is said.** In the 21st century, this includes subjects such as biodiversity, national parks and nature education, but also drones, sensors and games.

¶ The organisations form groups which in turn divide themselves into sub-groups. That doesn’t make organisation any easier. One lesson from this could be to refrain immediately. The focus at the “SustainAbility Lab” is on self-organisation. **How do you manage, despite this, not to think past one another but to gain something from others? By not covering your tracks.** To come up with this idea, you probably need people who are concerned with nature, wildlife and habitats.

¶ When a working group leaves the room, it removes any waste, but leaves messages for the next group. In the form of notes, placards and posters. Even the seating arrangement becomes a bearer of information and is not changed. Because it says something about the mood that prevailed at the previous workshop. The written materials left behind in the room tell about the subject that was discussed.

¶ The principle is as old as reading tracks. The information left behind is seen, read, and arouses colleagues’ interest. Knowledge is exchanged when you can pick up a thread. At the “SustainAbility Lab”, it fosters the next working group’s curiosity and gives them something to talk about.

¶ **Another joint knowledge location, while not necessarily a meeting point for the members of the “SustainAbility Lab”, is the “Sustainability elective module” at the Alpen Adria University Klagenfurt.** “All the partners are represented there”, says Christina Pichler-Koban. They teach the fields of ecology, energy and education. In the lecture hall, the networking takes place to the outside world. The elective subject is not just an invitation to students, it is also an offer to all citizens to listen, join the discussion and become active.

¶ Over the last three years, the team has created and expanded its own learning facility. By crossing the Lakeside Park, stopping off at the resident companies and non-university research institutions and walking on – to the university and to the Lendspitz-Maiernigg European nature reserve.

¶ **Teaching and learning are sometimes like a game of ping-pong:** two students from the “Games Studies and Engineering” Master’s course are developing a role play for mobile phones. At the “SustainAbility Lab”, a “round table” on the subject of “Environmental Story Telling” was also convened. And the designers were able to use the Lab’s partners, with their varying expertise, as beta testers. They all benefited from that. One side recognised the advantage of computer games, the other side learned to better understand and consider users’ needs.

¶ An interdisciplinary approach could be described as an attempt to promote “networking externally and internally”. Bringing together people from different disciplines to address the topic of sustainability in a variety of ways is in any case one of the Lab’s objectives. You could say there is no other way. **If you take sustainability seriously, you have to stop closing yourself off. And there will be no quick successes. Sustainability has that in common with education.**

¶ “Through mutual exchange,” says Christina Pichler-Koban, “you learn a lot about the demands that others make on information.” How should you prepare something so the next person can use it? It doesn’t matter if it’s in the form of knowledge or in the form of products. “Even if this all sounds very abstract, at the “Educational Lab” and the Lakeside Park it becomes real and tangible.”

THE FACTS

There are no paid staff at the “SustainAbility Lab.” Everyone works voluntarily and comes from the partner organisations. They use the space jointly for workshops and knowledge-building, for discussion and to pass on information.

.....
CONTACT PERSON

Christina Pichler-Koban | pichler-koban@e-c-o.at

.....
SUPPORTING ORGANISATION

Alpen Adria University Klagenfurt

Smart Lab

The public fabrication laboratory at the "Educational Lab"

The "Smart Lab" is open to children aged nine and over, young people and their parents, school groups and youth clubs.

¶ They don't need to bring any prior knowledge with them, just ideas. Children, for example, agreed to revise the board game "ludo" and create it with the help of a 3D printer.

¶ To do this, the children were first appointed as directors. To create an unmistakable identity, logos were designed and fashioned. Once these formalities were completed, the children faced the next challenge: they had to draw and design plans for the board and the game pieces. Every group, every company, wanted to launch an unmistakable product. Ultimately, their company's reputation was at stake.

A few business meetings, discussions, designs and production phases later, the young entrepreneurs proudly left the "Educational Lab" with their own board game in their arms. "Technology is fascinating when it enables you to implement your own ideas," says Paul Amann of the "Smart Lab" summing up the children's and youngsters' enthusiasm.

¶ When you visit the "Smart Lab" for the first time, you will first be offered an introduction to the "Educational Lab". This is followed by an introduction to the offer and the technology at the "Smart Lab".

¶ **3D printers, laser cutters, microprocessors and sensors are available.** And the untiring commitment of the teachers, of course. Because ideas such as these can be realised only if the school groups visit the "Smart Lab" more often. In the case of a third-grade primary school this means: once a month. The potential and the limits of a machine can only really be discovered and understood through ongoing discussion.

¶ This class's teacher also plays a particular leading role. She also uses the laboratory to clearly convey mathematical concepts to the children. "Together, we developed a workshop to introduce the children to the topic of "dimensions", explains Paul Amann. For this, we used the laser cutter to build plugboards. **The pins were fixed in place and a wire stretched around them. That was the fence. A small unicorn was placed within the fence. Voilà. What are the dimensions?** The children looked at what they had built, reflected, the dimension is not the surface area, and began to calculate. Their result was measured, and they immediately received confirmation that their result was correct.

¶ The school children's learning success was also a success for the teacher, and an inspiration for the "Smart Lab" team. They developed a thirst for more and recognised that it makes sense to develop learning materials on additional topics. Her aim is not just to introduce the students to the 3D printer, but to encourage them to operate the machine themselves.

¶ Not every school makes the effort to travel to the "Educational Lab". On the one hand because of the costs associated with making the journey, on the other hand because schools divide their teaching into fixed units of 50 minutes. Spending several hours on a topic and conveying knowledge in the form of workshops does not correspond to the Austrian education system. Whether visits go ahead despite this, depends on the commitment of the school board, the teachers and the parents. But the "Smart Lab" offer is available in two places in Carinthia. At the "Lakeside Park" Klagenfurt and at the technical college in Villach. **The second offer targets young adults, the first is primarily for children. Parents and grandparents are also welcome, however.**

¶ Under the title “Smart Repair”, they can join their children in a workshop to print replacement parts. Scroll wheels, covers for radios or saws, everything conceivable has already been repaired using 3D printers. **The “Open Space” offer is all about creating things.** Following a short introduction, the children are able to plan, design and equip their own toy car with sensors and microprocessors. Like the children who came as part of a scholarship programme for gifted children and got their car moving using the torch on their mobile phone.

¶ “Open Space” takes place in collaboration with “BIKO mach MINT” and the “product life lab”, two further modules of the “Educational Lab”. **This too gives children and young people the opportunity to deal with technology and to experiment for a longer period.** “Basically,” says Paul Amann, “the technical out-of-school offer in Carinthia is organised as follows: as a child, you build your own toy at the “Educational Lab” in Klagenfurt. As a young person, you exploit the opportunities at the “Smart Labs” in Villach. And if you are serious about starting a company, you get the support you need from the Makerspace Carinthia.”

¶ **But the team at the “Smart Lab” is concerned with one problem in particular: the waste they produce through printing.** They offer repair workshops, but recycling in 3D printing remains a challenge. “We face the same problem as industry here,” says Paul Amann. “How do you get a filament that is more environmentally-friendly but still of high quality?” The biggest problem here is stability. It has to be guaranteed in order to print usable parts.

¶ We are working with our colleagues next door, the “product life lab”, to find solutions. One thing that already works is shredding the printed material and recycling it that way. That is, however, subject to the material containing no contamination. “This is another instance that illustrates how hugely important this exchange is and how mutually inspiring it is,” say Paul Amann and Gerald Zebedin.

External collaborations

The “Smart Lab” is working with the Institute for Mathematics on methods to communicate knowledge. The team is participating in the “3D Druck macht Schule [3D printing leads the way]” project, an initiative of the “tutolino education networks” in Germany. The aim is to motivate school children to build their own 3D printers in schools. After all, the construction plans are freely available and “open source”. There will soon be a workshop at the HTBLVA Ferlach that will allow students to use the “Smart Lab” over the course of a term – and not reduced down to hours.

THE FACTS

The number of participants at a “Smart Lab” workshop is limited to 15 to 16 people. There is, however, the opportunity to share the group and book a different workshop in parallel. This has resulted, for example, in thematically coordinated offers in collaboration with “product life lab” and “inspire! Lab”. The “BIKO mach MINT” and “NAWlmix” modules are also working with the “Smart Lab”.

.....
The workshops for educational institutions are free of charge. Private individuals are asked to make a small contribution to costs. How much? That is currently being negotiated.

STAFF

.....
2 members of staff to look after school groups, teachers, children and adults, further develop the offer, maintain the machines, and for public relations and organisation.

CONTACT PERSON

.....
Paul Amann | p.amann@fh-kaernten.at

SUPPORTING ORGANISATION

.....
University of Applied Sciences Kärnten | Carinthia, non-profit foundation, Industrial Engineering and Management course

FUNDS

.....
“Smart Lab” is supported by the Kärntner Wirtschaftsförderungs-Fonds [business development agency], the Lakeside Technology private foundation, the European Regional Development Fund (ERDF) and the “E-Edu 4.0” project, sponsored by the European Regional Development Fund and Interreg V-A Italy–Austria 2014–2020.

.....
The pilot phase of the workshop for developing teaching materials was rolled out as part of the “Entrepreneurial Ecosystem Alpe Adria” project.

product life lab

Sustainable Entrepreneurship Education and Circular Economy

Innovation also means recycling and repairing instead of extracting raw materials and throwing them away. In the “Circular Economy”, a spiral becomes a circle again. The “product life lab” uses LEGO® bricks, waste, and sometimes also toilet paper. Objects that lend themselves to questioning and rethinking companies’ products, systems, locations and service activities.

Raphaela Egger is the joint initiator and designer. “Design Thinking” is their specialism, “Sustainable Entrepreneurship Education” their aim. As part of this, attention is focused on processes and procedures in the individual companies. From the idea to the organisation. From the product, via the supply chain, to the customer. The example of toilet paper is a good choice. Because even this question is fascinating: **why on earth is toilet paper wound onto rolls?**

¶ If it wasn’t, you could get considerably more packs of it onto a truck load. And if you think about it, you might well question the design of how the paper is torn off. That’s precisely what visitors to the “product life lab” did, for example. The team around Raphaela Egger and Sören Lex is responsible for investigating the facts. The visitors provide the ideas.

¶ **In 2018, the “product life lab” was awarded the “Innovative Educational Concepts” call for tender.** Since then, it has continually been extending its offer at the “Educational Lab”. The offer is aimed at children, young people and adults. “So to the dreaded target audience that no one in branding wants to hear: Everyone,” says Raphaela Egger, laughing.

¶ The “product life lab” extends its invitation to the research laboratory, and visits schools. It takes with it a box of “Zero-waste products”. Products designed to help prevent waste. That’s what the brochure says, at any rate. Once emptied out onto the table, the “product life lab” team opens up the question: **Is that really the case?**

¶ Which is better: bamboo cotton buds that have been transported over long distances, or ones actually made from cotton, or the ones you can wash like a toothbrush? They might be made from plastic, but they last for up to ten years.

¶ Raphaela Egger and her small team is working on finding that out. **They closely scrutinise the products and examine water consumption and the CO₂ footprint. “What about the waste that occurs during production? Where do the components come from, what working conditions are they produced under, etc.”** There are many points to consider for anyone to seriously assert: Buy me. I am one of the good ones.

¶ In communicating this, the focus is on practice and vivid examples, which are presented with humour and wit. But most importantly, it takes time. **The questions are so diverse that they provide enough substance for six days.** If you take that time, the school children keep their minds free for expeditions to the supermarket, for research and for reflection.

¶ “product life lab” has already successfully implemented this format with several groups and schools. “The youngsters were engaged because they saw so much sense in it themselves,” says Raphaela Egger. “These are formats that have an effect.” **The youngsters’ enthusiasm knew no bounds when the group left the “Educational Lab”.** They created posters to explain to their parents and fellow students what they had learned and how their own purchasing behaviour had changed since then.

¶ “Education”, says Raphaela Egger, “means developing characteristics, serving as an example, and permitting independent thinking. Instead of saying: That’s right, there should be a realisation that it’s important to think differently.”

¶ They also implemented this approach with the “Transport School Lab” project which was developed jointly with Logistikum Steyr. As part of this, a workshop format was developed that uses augmented reality elements and the learning application “Logistify” to communicate the challenges of the sustainable mobility of goods.

Collaborations within the “Educational Lab”

The “product life lab” focuses on measures to raise awareness, and thus finds connections with all the other modules of the “Educational Lab”. The collaboration with “Smart Lab” is particularly close. The topics and ideas complement each other. After all, both are concerned with repairing, implementing and modern entrepreneurial thinking. They also have this connection with the “inspire! Lab”. The subject of sustainability with the “SustainAbility Lab”. The “product life lab” analyses the “internationality” approach in the context of global waste flows, thus establishing a connection to the “Global Citizen Campus”.

THE FACTS

FOUNDED IN

2018

STAFF

2,5

SUPPORTING ORGANISATION

plia — Product Life Institute Austria, an association that promotes the circular economy

CONTACT PERSON

Raphaela Alexandra Egger | hello@plia.at

The start phase of the “product life lab” and the “Transport School Lab” (Logistikum Steyr) project, as well as the LEGO® Education facilities in the “Education Innovation Room” were implemented in the context of the

As part of this project, the “Educational Summer Labs” as a three-week summer programme in collaboration with “product life lab”, “BIKO mach MINT” and “SustainAbility Lab” as well as the “Design, Education and Prototyping with LEGO® Mindstorms” seminar as part of the “Game Studies and Engineering” Master’s programme at the Alpen Adria University Klagenfurt were piloted.

Spiderino Swarm)robotics as a teaching instrument

Anyone can programme microprocessors. The “Spiderino” team took four hours to teach fifth to 12th grade students the principles of swarm intelligence, robotics and programming. Prior knowledge? Preferably not.

¶ Such is the pleasing finding of the “Spiderino” project, which in 2019 won the “Innovative Educational Concepts” call for tenders issued by the “Educational Lab”, and was awarded 5,000 EUR.

This prize money required preparatory work. **The idea and the development of the “Spiderino” toy emerged from the EU research project cpswarm at the “Lakeside Lab”.** During this project, the initiators Melanie Schranz and Midhat Jdeed got to know each other, and were encouraged to modify the “Spiderino” platform for the education sector.

¶ Basically, a commercially available toy, the “Hexbug Spider” is used in the research. The team turned to the 3D printer for the new look. **Where the “head” would normally be, space was created for sensors and processors.**

¶ The “Department of Informatics Didactics” at the Alpen Adria University Klagenfurt provided scientific support. They prepared a questionnaire which was submitted to the students and teachers before and after the workshop. **The result: what most surprised all the participants was how easy it is to program a robot.**

¶ “Spiderino” was intended for people who shy away from and are in awe of technology, programming, and perhaps also mathematics. And it worked.

¶ The “Education Innovation Room”, a space in the “Educational Lab”, served as the educational space.

¶ During its term, the project was expanded with a Bachelor’s degree thesis by Kristina Wogatai. “Modular programming techniques” is a field of research that investigates the extent to which programming can be reduced to pushing and connecting modules. If you believe the advisory company Gartner Inc., this is the future of programming. Regardless of the application. But the “Spiderino” team would certainly not go that far.

¶ **The team found new associates in the “Educational Lab”.** Project proposals have already been written and submitted jointly. And one thing is clear, the Spider robot will need a new substructure in the future. Perhaps printed in the “Smart Lab” of colleagues at the University of Applied Sciences Kärnten | Carinthia. And that might reduce the material costs of 70 EUR per “Spiderino”.

¶ The project was completed at the end of 2019 at the “Educational Lab”, to restart in 2020. On the agenda is the development of a new business model, followed by the establishment of a company. The team wants to stick to its offer for schools. The only question still not answered at the moment: the financing.

THE FACTS

INITIATORS

Melanie Schranz, Organisation
Midhad Jdeed and Kristina Wogatai, Workshop

CONTACT PERSON

Melanie Schranz | schranz@lakeside-labs.at

SCIENTIFIC SUPPORT

Department of Informatics Didactics at the
Alpen Adria University Klagenfurt

Equality Lab Das Mädchenzentrum Klagenfurt [Girls' Centre] at the "Educational Lab"

The youngest member of the "Educational Lab" is dedicated to the subjects of feminism and gender diversity. The project began its work at the start of 2020.

¶ "Research and science always involve inclusions and exclusions," says Christine Erlach of the "Mädchenzentrum Klagenfurt [Girls' Centre]", the project's parent organisation. Which methods can be used to counteract this? How can equal opportunities, greater "mobility", be promoted?

In recent years, the Mädchenzentrum Klagenfurt offered the “Educational Lab” the opportunity to introduce women and girls to technology. “Even today, young women sometimes have fewer opportunities than boys to come into contact with technology,” emphasises Christine Erlach. Many of the modules have already been tested. Women’s positive responses to the offer finally convinced the Mädchenzentrum Klagenfurt to respond to the 2019 “Innovative Educational Concepts” call for tenders by the “Educational Lab”.

¶ It is currently right in the midst of establishing this new branch. The operators hope that this will create new points of contact. Christine Erlach is convinced that many methods and processes can simply be implemented better and more subtly at the “Equality Lab”.

¶ For example, the vocational orientation workshops that have so far been offered in other training rooms at the Girls’ Centre: **Help in making decisions about choosing a course, and information about training opportunities for apprentices.** The “Equality Lab” focuses on identifying and breaking down socialisation-related obstacles that influence the career aspirations of girls and boys.

¶ “Only six per cent of mobile app and software programmers worldwide are women” (UNESCO Report 2019, “I’d blush if I could. Closing gender divides in digital skills through education”).

¶ **Emphasising and communicating the female sides of technology is in any case an important and exciting task.** Not only in developing software, but also content. Because women’s image on the internet urgently needs to be corrected.

¶ The “BIKO mach MINT” module has a good message in this respect. The team here observed that primary school children — once their enthusiasm for a topic — can concentrate on nothing else. The children listen to each and every one with great seriousness. Regardless of gender, all they were interested in was the task at hand and the solution.

¶ **As a first act, the “Equality Lab” will host the “Girls Day” in the “Educational Lab”.** For one day. This initiative will give primary school children an insight into the work of scientifically and technically oriented research institutions and companies.

THE FACTS

In March 2020, the “Equality Lab” will occupy its space at the “Educational Lab”.

CONTACT PERSON

Rosemarie Schöffmann | schoeffmann@maedchenzentrum.at

SUPPORTING ORGANISATION

Mädchenzentrum Klagenfurt

Partner project “Entrepreneurial Ecosystem Alpe Adria” Entrepreneurship knows no boundaries

If you want to create a vibrant corporate culture within the “Entrepreneurial Ecosystem”, it’s important to communicate the principles of entrepreneurship at an early stage. If you’re taking it seriously, initial experiences should be gained in a playful way at kindergarten age and entrepreneurial knowledge should be taught in school and by means of out-of-school activities. Universities should offer entrepreneurship courses and practical exercises that go beyond specialised fields of study, giving talented young entrepreneurs access to specific training opportunities.

In addition to the aforementioned contributions in the “Educational Lab”, the “Entrepreneurial Ecosystem Alpe Adria” project enabled additional measures to be implemented.

Thanks to international project partners.

“tzi” developed an in total 12-hour workshop format for high schools. “Design Thinking Methods” are used to teach the basic principles of entrepreneurship and how to analyse customer requirements, as well as how to test the development and validation of the business idea. The workshops have been successfully rolled out with five schools.

Three middle schools were invited to a six-hour workshop. This involved developing skills in relation to team work and project management based on sustainable and sociable business models. The students were also offered the additional service of business planning and brand development mentoring for those intending to set up a business.

“Friuli Innovazione” worked with MITS Malignani Istituto Tecnico Superiore to develop a “Design Thinking Entrepreneurship Innovation Lab”. This resulted in a 12-hour workshop format focused on “Industry 4.0”. In the lab, the “Design Thinking” and “LEAN Startup” methods were used to come up with business ideas, and developed in teams to the prototype stage. Business start-ups are taught the essential skill of “pitching” their business idea.

For students keen to develop their business idea following on from the lab, individual support and mentoring options were available.

Excursions brought two of the MITS student groups to the Lakeside Park, where they gained exclusive insights into the company’s base.

PROJECT PARTNERS

- KWF — Kärntner Wirtschaftsförderungs Fonds
Klagenfurt, Austria
- Friuli Innovazione Centro di Ricerca e di Trasferimento
Tecnologico Scarl | Udine, Italy
- tzi — trasferimento tecnologico e innovazione s.c.a.r.l.
Udine, Italy
- Lakeside Science & Technology Park GmbH
Klagenfurt, Austria
- build! Gründerzentrum Kärnten GmbH
Klagenfurt, Austria

The “ITAT 1037 | EES AA | Entrepreneurial Ecosystem Alpe Adria” project is sponsored by the European Regional Development Fund and Interreg V-A Italy–Austria 2014–2020.

There are several options to reach
the "Educational Lab" by public transport

LOCAL BUS

81, 60, 20, 15 (Universität Klagenfurt stop)

TRAIN

S1, Klagenfurt Westbahnhof

CONTACT OF MODULES

NAWimix

Bernhard Schmölzer

BIKO mach MINT

Robert Münzer

inspire! Lab

Ines Krajger

Global Citizen Campus

Heidi Grobbauer

Education Studio

Jürgen Kopeinig

SustainAbility Lab

Christina Pichler-Koban

Smart Lab

Paul Amann

product life lab

Raphaela Alexandra Egger

Spiderino

Melanie Schranz

Equality Lab

Rosemarie Schöffmann

All rights reserved © 2020

Lakeside Science & Technology Park GmbH
www.lakeside-scitec.com

Editor and responsible for the content

Hans Schönegger
Lakeside Science & Technology Park GmbH
Lakeside B11 | 9020 Klagenfurt am Wörthersee
www.educational-lab.at

Text and concept

Mariann Unterluggauer

Editorial Office

Maria Mack, Martin Krch, David Pitschmann

Correction and translation

KERN Austria GmbH

Cover photography

Johannes Puch

Design

Clemens Theobert Schedler, Büro für konkrete Gestaltung

Font

DTL Prokyon, designed by Erhard Kaiser

Edition

March 2020

Educational Lab

Lakeside Science & Technology Park GmbH

Lakeside B11 | 9020 Klagenfurt am Wörthersee

www.lakeside-scitec.com

www.educational-lab.at

Hans Schönegger

info@lakeside-scitec.com

+43.463.22 88 22-0

Maria Mack

mack@lakeside-scitec.com

+43.463.22 88 22-11

Martin Krch

krch@lakeside-scitec.com

+43.463.22 88 22-21

