

SNB Quarterly Bulletin Study
2/2018 June

SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
BANCA NAZIONALE SVIZZERA
BANCA NAZIUNALA SVIZRA
SWISS NATIONAL BANK





The Swiss National Bank goes to school – with Iconomix

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In 2007, the Swiss National Bank (SNB) launched its educational programme – Iconomix – to promote basic knowledge of economics in Switzerland. The decisions of a central bank ultimately have far-reaching consequences for the population. Therefore, as many people as possible should be able to understand the considerations underlying these decisions. In Switzerland, where citizens regularly vote on economic issues at all levels of government, a good understanding of economic matters is particularly important.

With its experiential learning approach, Iconomix is a supportive educational tool for economics classes in Swiss upper secondary schools. The feedback is positive – more than ten years after its launch, a considerable share of teachers use Iconomix on a regular basis. This favourable development has encouraged the SNB to maintain its commitment to education and to continue to provide schools with attractive resources for economic education in the future. The SNB is taking the ten-year anniversary of Iconomix as an opportunity to present its educational portal to a wider public and to answer the following questions:

- What are teachers' and students' experiences with Iconomix in the classroom, and what is the concept behind it? (Section I)
- How successful is Iconomix, and how is it positioned for the future? (Section II)

¹ The author would like to thank Carlos Lenz, Bertrand Rime, Enzo Rossi, Marcel Savioz, Andrea Siviero and Marcel Zimmermann for their valuable comments.

1

Economics coming alive in the classroom

Action-oriented and focused on real-life situations, the Iconomix resources make economics classes much more stimulating and fun – and thus ensure long-term learning benefits.

Today, the students of class W3f at Kantonsschule Enge in Zurich, a high school with a focus on economics, are trading coffee. Their textbooks remain tucked away in their school bags. The desks have been arranged in the shape of a horseshoe around the virtual trading floor, and the prices of the concluded trades are continuously being projected onto the wall. In other words, their classroom has turned into a well-organised market, a miniature commodities exchange. And for once, the 21 students of this class are testing their skills as commodity traders. A card instructs them to buy or sell and indicates the price limit set by their virtual customers. It's not for real – it's 'Pitgame' from the Iconomix module 'Market and price formation'. The aim is to buy coffee at the lowest possible price or sell it at the highest possible price. Whenever the students have exploited all trading options, the roles are reassigned. After two more rounds, Frank Hayden, their economics and law teacher, brings the lively trading activity to a close and initiates a new phase in the learning process.

EDUCATIONAL GAMES AS MOTIVATORS

Pitgame is more than just fun. "I immerse myself much more in the topic than when I just sit there and absorb



The instruction on the Pitgame card reads: "Purchase 100 pounds of coffee for a maximum of \$46!"

information," describes Sara. Her classmate Jannik adds that learning only from books gets boring quite quickly. Frank Hayden is well aware of the educational effects of Pitgame. "The games provided by Iconomix are door-openers. They motivate the students to engage with a topic, which then triggers the reflection and learning process," he explains.

For Iconomix, the SNB's web-based educational platform, this didactic approach is part of the guiding concept



Pitgame turns the classroom into a trading floor. As commodity traders, the students learn through play how an equilibrium price is established in the market. (Photos: Stefan Huser)

(cf. Iconomix – economic topics in an educational format, p. 6). “A specific, challenging problem – such as a purchase order in Pitgame – can spark students’ interest and thus initiate and structure the learning process. Moreover, the learning benefits are often more sustainable when abstract theory is linked to a real-life scenario,” emphasises Prof. Dieter Euler, director of the Institute of Business Education and Educational Management at the University of St. Gallen (IWP-HSG) until the end of 2017. He is one of the scientific partners with whom Iconomix cooperates for quality assurance.²

CONVEYING THEORY THROUGH REAL-LIFE SCENARIOS

Engaging with the material, discussing and reflecting, practising and applying – these are the phases of an ideal learning cycle. So what does this mean in concrete terms for the students of class W3f, who are now back at their desks, poring over the tasks of the unit? Based on their experiences as commodity traders in the game, they are now transferring what they have learnt about the commodities exchange to other markets, focusing on advanced questions of topical interest: What conditions must be met for a housing market to function smoothly? Why is there often a grey market for concert tickets, which are sold at inflated prices?

² Besides Dieter Euler (IWP-HSG), the academic partners include Daniel Schmuki from the Swiss Federal Institute of Vocational Education and Training (SFIVET) and Carmela Aprea, previously at SFIVET, currently at the University of Mannheim, Germany. As part of a support evaluation, these educational experts develop innovative solutions for new teaching material in cooperation with Iconomix and help assess the quality of existing units.

In order to be able to transfer their knowledge to these areas, the students must have mastered the economic concepts of market and price formation, trading profit and market efficiency. Iconomix accompanies the entire learning cycle with diverse educational materials, providing teachers such as Frank Haydon with various sets of tasks to choose from.³ In addition, the Iconomix modules contain diverse educational formats, ranging from strategy games such as Pitgame to browser-supported simulations and an online challenge,⁴ from specialist texts to case studies. These resources are complemented by background information and didactic recommendations for teachers.

TOPICAL AND DIVERSE

“Iconomix also tackles highly topical issues – such as online shopping – that I haven't yet encountered in any textbook,” says Chantal Donzé, a teacher of economics and law at Gymnase d'Yverdon. In fact, the Iconomix modules are continuously being revised and updated. “Producing all these materials in the same quality would be a mammoth task for me as a teacher – or not feasible at all in the case of games like Pitgame,” stresses Claudia Joller, specialist teacher at the vocational training centre for economics, IT and technology (Berufsbildungszentrum für Wirtschaft, Informatik und Technik) in Willisau. Iconomix provides teaching materials in German, French and Italian⁵ and in line with the academic requirements of each language region. “It is wonderful to get into a topic

³ A worksheet contains several tasks with different functions (i.e. learning, practising, transferring knowledge) at a pre-defined academic level.

⁴ Iconomix's interactive 'Online Challenge' motivates students by conveying financial knowledge in an entertaining way. It also assists teachers in steering the entire learning process by providing them with suitable analytical tools.

⁵ Some teaching units are also available in English.



After the students have reflected on their approach in Pitgame, Frank Haydon summarises the key findings. (Photo: Stefan Huser)

with all the materials already available in Italian and, on top of that, with content relevant to Switzerland,” enthuses Giorgio Sailer, a high school teacher from Ticino. And Iconomix is not only aimed at high school students such as those in class W3f, but at the entire upper secondary education level⁶ with its wide range of school and subject types.

LESS ROUTINE AND FRONTAL TEACHING

Teachers agree that Iconomix not only reduces preparatory time but also leads to a new, improved quality of teaching. “Iconomix breaks routines. I’ve cut down on frontal teaching, and as a result, the students are more alert and active,” says Chantal Donzé. Christelle Ambrosini, teacher at the Ecole professionnelle artisanale et commerciale in Bulle strikes a similar chord: “The units enable me to let my lessons ‘breathe’ and, most of all, to give the students more space.” All teachers agree that the students interact more and learn through shared experiences. The teachers’ role in the classroom changes accordingly, as Sara Marti, teacher at Kantonsschule

6 Upper secondary schools (secondary level II) comprise all schools that adolescents and young adults attend after compulsory schooling. Included are general education institutions such as grammar schools (Gymnasium) leading to a university entrance level, specialised high schools as well as advanced vocational schools and vocational high schools. The latter teach economics and humanities as part of the general education curriculum.

Iconomix – economic topics in an educational format

With Iconomix, its educational portal, the SNB aims to increase the competence of young adults in economic matters. It is directed at the teachers of economics and humanities in upper secondary schools, slightly over 4,000 teachers in total. Iconomix conveys basic economic principles which many economic situations are based on, e.g. the principle of market, competition and price formation, or the principle of externalities. These topics are professionally prepared and presented in more than 100 teaching units (counting the different language versions). They take didactic concepts of learning by problem-solving into account – when confronted with a particular problem, the students have to work independently with suitable methods to acquire knowledge and skills.

Iconomix is designed as a complementary resource for teachers, which they can employ to suit their own needs and those of their students. Accordingly, the range of topics, academic level, teaching formats and methods is diverse. In addition to teaching units, Iconomix provides a regularly updated list of reliable internet resources on economic issues. With its further education events and seminars, the programme also increases expertise and promotes know-how sharing among teachers.



In the letter game BOB, students experience the transition from barter economy to money economy.



Iconomix uses a newspaper format to highlight topics such as wage differentials, the role and mandate of the SNB, and the future of work from various perspectives.



The browser-supported simulation ‘Urbanias’ enables students to explore issues of urban economics in an analytical yet simple way.

Zürcher Oberland in Wetzikon observes. “When using Iconomix, I am more of a coach and moderator than a transmitter of knowledge,” she notes.

Teachers also need the courage and willingness to familiarise themselves with strategy games such as Pitgame and the related materials, as well as to incorporate them in their own lesson plans – “A little extra effort but definitely worth it,” believes Jan Denier, a teacher for general education subjects at a design school (Schule für Gestaltung Bern und Biel). Moreover, Iconomix offers practical support to teachers, such as workshops where they can familiarise themselves with the contents of the modules and specific implementation options and learn how to deal with any hurdles or obstacles that might present themselves.

BASIC PRINCIPLES AND SKILLS

So what skills have the students in class W3f acquired after completing the module on market and price formation? They have learned that in well-organised and transparent markets, any exchange usually generates a gain, and that sooner or later an equilibrium price is established. And that is not all – the students are also able to explain how the trading profit and equilibrium price come about. They have demonstrated that they can take on

the role of traders and are able to discuss the functioning of markets with each other at a level of detail appropriate to the required academic level. In brief, they have acquired skills extending far beyond purely factual knowledge. “Especially in view of digitalisation, it is becoming ever more important not only to acquire solid expertise, but also to develop skills that cannot be replaced by a machine, i.e. social skills and self-competence,” says business lecturer Dieter Euler. He adds that students have to be able and willing to continuously acquire new knowledge and, by applying it, solve specific problems.

Frank Haydon believes that this is exactly what good economics education can achieve. “I want to prepare my students for life, not just for the final exams,” the dedicated teacher says. “They must be able to put economic issues into context in order to have a basis for making sound decisions.” And what about the students from class W3f? They have developed an appetite after the lively economics class, and some have relocated to the school canteen, where the discussion continues. “Why is the Thai curry so much cheaper here than at the train station?” Jannik wonders. “C’mon, that’s obvious – no market prices,” replies Sara, “our canteen is subsidised!”



In workshops, teachers learn how to use Iconomix in the classroom and share their know-how. (Photos: Matthias Auer)

2

Digitalisation poses new challenges for Iconomix

As the digital classroom takes hold, traditional forms of teaching and learning need to be re-evaluated. Rather than taking radical steps, Iconomix is focusing on well thought-out solutions.

More than ten years after its launch, Iconomix has gained a reputation among teachers of economics or humanities in Switzerland. Almost 40 percent of teachers of these subjects at upper secondary schools actively use the website.⁷ The spread and usage are similarly good in all three major language regions. In particular, the wide range of topics and methods, technically sound content focusing on real-life situations and the modern didactic concept have convinced users, as is confirmed by their feedback.

Does this mean that the development of the educational portal is now completed? The answer is both yes and no. On the one hand, there is no need to revamp the Iconomix concept; this can be deduced from broad-based acceptance among the target group. On the other, Iconomix operates in a dynamic environment and, therefore, regularly needs to reorient itself. Teaching and learning concepts, and also teachers' needs, evolve over time and in the course of social and technological change in general. It is thus pivotal for Iconomix to continually evaluate its

⁷ Active users are defined as persons having used their account at least once within the past twelve months.

Facts on Iconomix

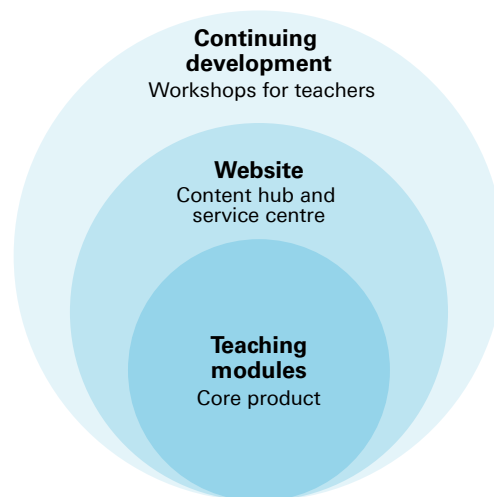
Anyone making a long-term commitment also wants to see results. But how best to measure the spread, usage and impact of a programme that ranges from individual worksheets and educational games to entire teaching sequences and workshops? Iconomix uses a diverse variety of indicators that are regularly reviewed, further developed and supplemented.

The data collected and published for 2017 includes the following:⁹

- 102 teaching units in three of Switzerland's official languages and in English

⁹ For more information please see www.iconomix.ch.

¹⁰ A unique visit is counted as every IP address accessing within a given period.



An overview of Iconomix resources.

educational resources and to measure their success (cf. Facts on Iconomix, below).

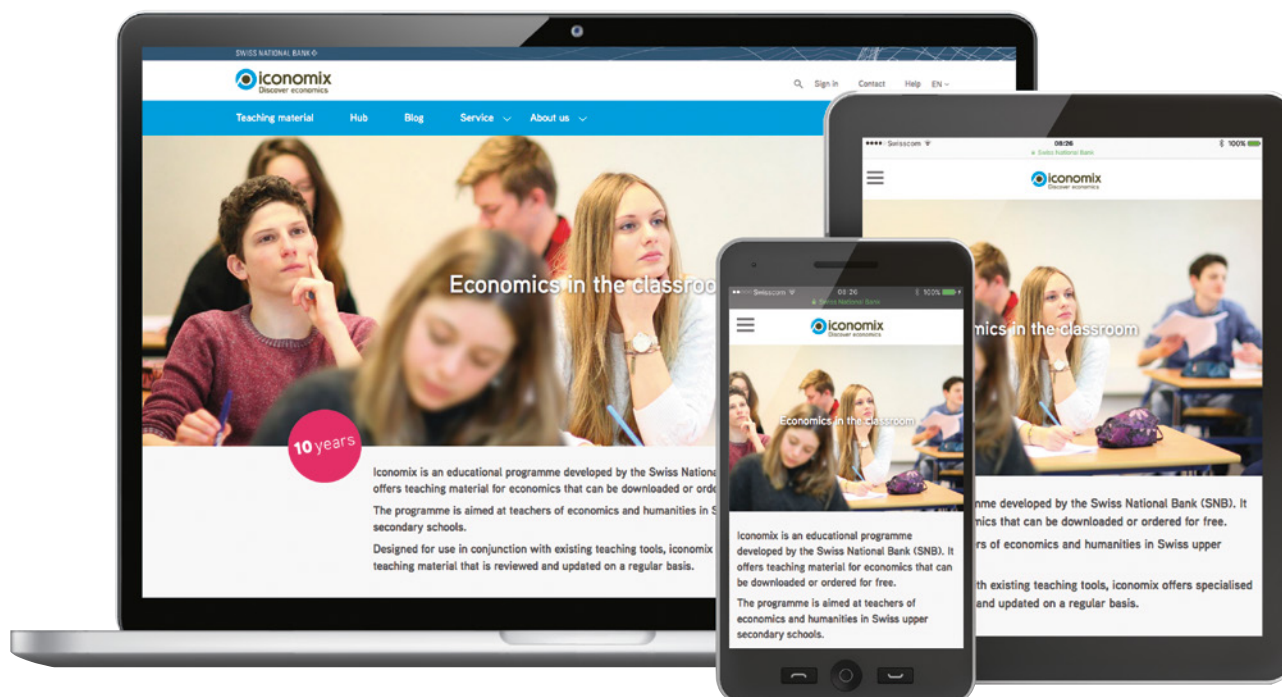
DIGITAL MEDIA FACILITATE INDIVIDUALISED LEARNING

The next few years will see digitalisation, in particular, leading to major changes in schools. Digital media enable students to organise learning according to their own specific prerequisites.⁸ This will bring about fundamental changes in the classroom, including the teacher and student roles. Individualised forms of learning will supplement, if not replace, standard methods of transmitting knowledge. In order to continue its mission successfully, Iconomix needs to move with this change and seize the opportunities arising from it.

⁸ Such as prior knowledge, motivation, cognitive abilities or attention.

- 131 blog posts in German and French
- 110,000 unique visits to the website¹⁰
- 63,000 downloads of teaching material
- 778 class sets ordered including teacher resources
- 22 teacher events held in Switzerland's three major language regions with around 425 participants overall

With the launch of the redesigned website in summer 2017, Iconomix hopes to collect even more and better data on the usage activity, interaction and collaboration of teachers and students in the medium term. This includes the number of teams set up, the number of worksheets completed online by students and the number of views for videos.



The well-structured and responsive website www.ionomix.ch provides teachers with easy access to a wide range of teaching material.

The website relaunch in summer 2017 was a crucial step in preparing Ionomix for the digital future. The initial focus of the technical redesign was on personalisation: The new website adapts to the usage habits and needs of registered users. A personalised start page (My Ionomix) and new functions for digitally generating and managing teaching teams (My teams) and classrooms (My classrooms) provide for efficient and flexible working. However, much remains to be done until teachers can exploit the opportunities of a virtual classroom (cf. Teaching in the digital classroom). In particular, the currently prevailing static elements such as PDF documents must be replaced with flexible, interactive online formats that can be enhanced with multimedia functions.

MULTIMEDIA CONTENT DELIVERY

At the same time, Ionomix needs to revise the tasks contained in the teaching units from a didactic perspective. The goal is to adjust them even better to the specific types of school and learning objectives so they will form the core of the programme in the future. During this process, collaboration with academics from the field of education will play a significant role (cf. footnote 2). The changeover to interactive online formats will also involve a critical assessment of the structure of the teaching and learning formats provided. Nowadays, young adults obtain information more from videos than texts. In the education sector, explanatory and learning videos are thus becoming increasingly important, also for practising and applying

Teaching in the digital classroom

In the future, teachers will open digital classrooms on the Ionomix platform, where they will be able to prepare and distribute worksheets to their students. This will be made possible through access to a central worksheet database, which will bundle all Ionomix worksheets in a digital format. The students can then tackle the tasks as they wish and at their own pace, either during classtime or as homework. Teachers can check progress and results, and also provide feedback, whenever and wherever they like. Compared to the traditional teaching environment, the digital classroom offers more didactic freedom. Of course, teachers will be free to continue using conventional methods, i.e. pen and paper, in their lessons. In future, it will be possible to read and work on documents online or hand them out as printouts. In technical jargon, this is called multi-channel publishing.



In the blog (available in German and French), the Iconomix team and guest authors provide suggestions and food for thought on current issues that can be explored in class, ranging from relevant third-party services and resources to background articles.

the knowledge gained. In this area, Iconomix should explore innovative multimedia learning formats.

DEVELOPING IN LINE WITH USER NEEDS

Quality teaching needs to stay abreast of current developments, and this continually presents challenges to an education platform such as Iconomix. As it stands, the current strategic direction is determined by digitalisation. Iconomix aims to facilitate this progress with modern tools. This does not require any radical changes, but simple solutions accepted by teachers and implemented in schools. Iconomix will not be able to realise all of the innovations envisaged on its own, the expansion of video resources being one example. It will therefore be entering into even more co-productions and partnerships than it has done previously. The favourable development experienced so far encourages the SNB to maintain its commitment to education. It will strive to continue to provide schools with attractive resources for economic education in the future, with teachers' needs remaining the top priority when it comes to any changes. Their trust has had to be earned with sound and practical solutions over the course of many years. Iconomix aims to maintain this trust and seek a sensible balance between change and continuity in the future as well.

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Published by

Swiss National Bank
Secretariat General
Börsenstrasse 15
CH-8001 Zurich

Languages

German, French, Italian and English

Design

Interbrand Ltd, Zurich

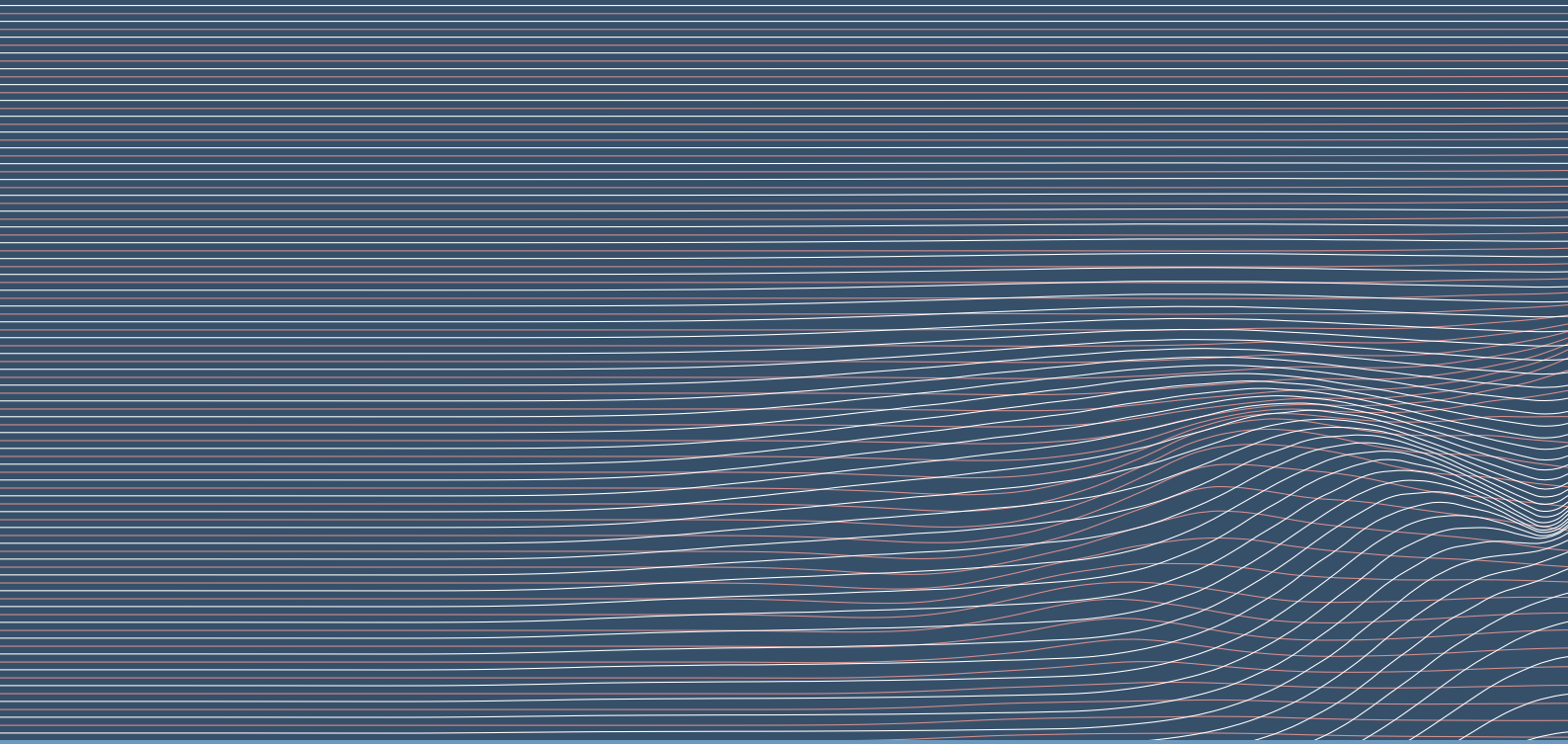
Typeset and printed by

Neidhart + Schön Group AG, Zurich

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