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## RECASTING “WIKINOMICS” IN EDUCATIONAL ENVIRONMENTS – CASE STUDIES IN THE WIKINOMICS PROJECT

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### Re-introducing the term Wikinomics

Tapscott and Williams (2006) and Leadbeater (2007) are the experts that introduced and framed the socio-economic term *wikinomics*, internationally. They, essentially, described a new world of web-based economics where cultural values such as participation, collectivism and creativity are its foundation. These values not only form the new business models of the digital economy, but their declared cultural roots suggest an ideological paradigm shift: a move towards a restructuring of post-industrial societies and economies.

The basic principle of this transformation is the following: the new services are created by crowds of (mostly) anonymous users who define their own informational, expressive and communication needs. This process is often called *mass creativity* or *peer production*. As a result, the conventional hierarchical business model of producer–consumer is rapidly replaced by the so-called *co-creation* model (Prahalad & Ramaswamy, 2004). Mass creativity, peer production and co-creation are blurring the distinction between collective (non-market, public) and commercial (market, private) modes of production, as well as between producers and consumers.

In both works of Wikinomics (Tapscott & Williams, 2006) and We-Think (Leadbeater, 2007) *mass collaboration* and *communal creativity* shape the way in which people will work and live in the future. The Internet and the World Wide Web, with the software and service infrastructures built on them, enable people to participate in the economy by being creative: *smart firms* better harness this collective capability, in order to spur innovation and growth. In these events, consumers become workers, devoting some of their time, effort and imagination to developing products for one another.

The wikinomics described above has often been dismantled as a subtle form of exploitation of unpaid labour: its main idea being the outsourcing of labour to globally distributed customers and collaborators that act as prosumers so that labour and other costs are reduced. In this line of thinking, exploitation expands to the realm of spare time, as prosumers, as a tendency, deliver unpaid surplus value. In other words, companies can design and assemble products with their customers, and in some cases customers can do the majority of the value creation. This trend is not a novel form of management and organization and it connected with the

goal of an increasing competitive advantage and the reduction of humans to economic reason in the last instance (Fuchs, Blachfellner & Bichler, 2007).

Another space of criticism, that the established Wikinomics approach creates, is the promotion of certain form of individualism. Treating subjects as anonymous information organisms can be quite problematic, as to how empower and enforce a culture of sharing within innovative structures of collaboration. As Fred Turner (2006) has analysed, the key to this seamless concatenation of communalist thinking and good business sense was the ability of its propagandists to speak within multiple registers simultaneously: the discourses of economy as well as the discourse of friendship and community-building.

## **The Wikinomics project approach**

The Wikinomics project recognizes the contradictions and tensions described above. Its fundamental concept is to go beyond them by adopting a positive learning and experimenting approach. It acknowledges the field of technical education as the cornerstone and the primary testbed of its efforts. It aims that the trainee reuses its outcomes and has an opportunity to develop expertise in a particular group of techniques. It integrates free culture and wiki-based methodologies to achieve autonomy and collaboration both of the trainer and the trainee.

Most importantly the Wikinomics project content creation, evaluation and dissemination process embody the existence of a community of practices among VET and other training actors, both at a European and international level. The transfer strategy of the project consisted of three crucial elements, already at the heart of the Wikinomics practices, and transverse all project actions:

- Reuse of good practices in the project that have already been tested at national and international level, both on VET and wider contexts: an example of this is the adoption of the TEDx conferences practice and methods, in order to organise passionate and engaging events that circulate Wikinomics concepts. TEDx organising is not only a dissemination activity but was deployed as a (a) way to connect and spread ideas, (b) space of networking and working cooperatively, (c) learning experience on running inspiring events, (d) opportunity for volunteers to participate in wider national and international communities.
- Build generic content, then allow for multiple localised sub-products matching partners needs and languages. In this sense, innovative and open, VET compliant, results were deployed in partners’ custom training activities (Wikinomics training module and toolbox, 2015). Inviting partners to reuse generic content and introduce localised sub-products, means that they have a large spectre of open and custom tools and activities to implement, that themselves can reproduce and disseminate openly.
- Introducing collaboration with external communities, scale and team within larger coalitions. This was illustrated, notably by the introduction of the WikiAngels and the TEDx international networks, as well as, the Wikinomics Badges that will be further pursued with more experts (WikiAngels, 2015) and institutions.

These elements proved to be challenging to implement but with enormous value in terms of innovation collaboration and sustainability of these actions.

## **Wikinomics training implementations and relations with ECVET**

Lifelong learning involves understanding that nowadays learning happens everywhere, every time, throughout life and in a range of situations. The European Framework of Key competences for Lifelong Learning defines key competences as knowledge, skills and attitudes applied appropriately to a given context. Key competences represent a multifunctional, transferable package that includes knowledge, skills and attitudes that all individuals need for personal fulfilment, inclusion and employment (European Commission, 2006). These competences add value in the labour market and in the field of social cohesion and active citizenship by providing flexibility, adaptability, satisfaction and motivation. Moreover, in order to encourage the development of key competences, all educational actors (learners, teachers and communities) should be supported in developing new concepts through innovative, non-traditional avenues and venues in which learning can take place. The approach of this project emphasises the importance of understanding that collaboration strategies are essential. The development of these competences is fully coherent with the ECVET framework. They are both based on a socio-constructivist approach which gives learners opportunities to practice 21<sup>st</sup> century skills related with communication, knowledge sharing, critical thinking, among others.

The Wikinomics project and its pedagogical approach is related with ECVET framework as well as it develops key competences within collaborative strategies using some of the key strategies included in ECVET framework, such as qualification design. This includes units of learning outcomes as a qualification component, consisting of a coherent set of knowledge, skills and attitudes that can be assessed and validated. Or, another example, accumulation process of learning outcomes. This process is based on the assessment, validation and recognition of learning outcomes. Various tools can facilitate this evaluation. Among others, in this project we highlight accreditation tools based on badges, which can help engage students in learning, and broaden the avenues for learners of all ages to acquire and demonstrate their skills, as well as the recognition of soft competences that are not recognised by formal education. Open Badges are closely related to the ECVET framework, considering that a badge can serve to communicate learning across the peer, interest and learning contexts of one’s life. In the Wikinomics project, collaborative skills are closely related to Open Badges because OB can help to display, recognise and validate different skills and professional credentials, which are not normally recognised in a VET context or even in a professional framework.

As mentioned above, one of the main goals of the ECVET and other similar initiatives in Europe is to foster the recognition and valorisation of learning outcomes between countries and/or contexts. This *transparency* of qualifications needs to be based on an approach that enables qualifications to be defined in terms of learning outcomes, which ensures a better understanding of qualifications and learning achievements across contexts and even across

countries. Moreover, specific procedures and criteria should be defined and taken into account when designing VET scenarios. Regarding the evaluation and assessment process used in this project, also related with ECVET framework, we highlight the evaluations of the acquisition of key competences. These are understood not as a development of common tools but the criteria for its interpretation, taking into account the complexity involved in assessing soft competences within the scope of the ECVET.

Competence-based assessment makes use of several tools that can be developed for teachers, students or the other agents involved. In this respect, when students gather some experience it can be useful to offer them the possibility of carrying out self-assessment and peer-assessment in order to gain awareness of their own level of proficiency and what they are able to do. Some examples of these assessment tools are: portfolios, self-reflection activities, reflexive journals, surveys, peer-reviews or quizzes, among others. These tools have been used in all the implementation of the following case studies.

## Description and evaluation of the implementations

In this sense, before developing the analysis done of the data collected, is relevant to make note that there are two previous considerations. Firstly, it is important to note that the project main goal is to develop transferable skills that can be applied in different VET sectors. Usually, and in this project that also happens, there are substantial differences between the different contexts of implementation. The second consideration concerns the geographical areas. Different learning scenarios have been designed and used in the Wikinomics project, concretely in the following areas:

- Switzerland: “The road to Wikinomics”;
- Poland: “Learning how to track changes and limit damage on collaborative websites” and “Tagging and reusing images in a wikinomics way”;
- Portugal: “Creating a Small Business: from business model generation to client development”;
- France and Zaragoza: “Entrepreneurship and companies’ innovation”.

Given these two considerations to evaluate the experiences, the methodological approach that has been chosen is the case study (Stake, 2006; Yin, 1994). The case study strategy is based on a research method that involves a process of inquiry characterized by a systematic and in-depth study of cases developed by unique social organizations or education institutions. The purpose of the case study is to know all parts of the case to create hypotheses or making decisions in a particular natural context. Considering the aim of the research strategy chosen, we can summarize the types of studies proposed by Yin (1994):

- Descriptive: the purpose is to analyse how a phenomenon occurs within its real context. It presents a detailed report based on the case, without the prior assumptions or theoretical foundation. Generally it provides basic information on programs and innovative practices.

- Exploratory: try to get to an event or a situation about which there is a well-defined framework.
- Explanatory: seeking to develop or refine theories for what they reveal the causes and processes of a certain socio-educative phenomenon.
- Evaluative: the study describes and explains the case but also aims to formulate value judgements that form the bases for decisions.

The design of the case study can be based on a single case or multiple cases that can be compared (Stake, 2006). The aim is to match the results of different cases, which would add validity to the theory proposed. In the Wikinomics project we have chosen to design many cases, prompted by the composition of teams from various partners and therefore several socio-educational designs.

The next steps for this analysis will be: first it is described the experience of the trainings, a description that will enable comparisons and identify factors of success; and then based on the results of the descriptive-comparative phase we can make some proposals of further work or subsequent courses to ensure greater effectiveness of the training and learning outcomes achieved. The descriptors used to describe the training cases include the planning scheme and a SWOT analysis. For the analysis of the results, the following dimensions have been taken into account:

- Context: centre, VET, platform, course topics;
- Users;
- Methodological approach;
- Planning: objectives, competences, schedule, activities, evaluation;
- Rating: users and teachers.

## **Results on the case studies**

The four teams filled out a questionnaire detailing the process followed in the implementations. The project is organized into different dimensions or categories of analysis, which are discussed.

### ***Description of the dimensions of analysis***

*Context (institution, connection with VET and course subjects)*

The institutions where the courses were implemented were schools of higher education. Two of them are directly connected to the vocational education and training (VET) system of the country of implementation (the Polish team and the Portuguese team) and the others include professional training in university contexts. The subject of the courses was collaboration in virtual environments and wiki culture applied in different disciplines. All the courses were included as part of other studies or courses either as elective or required modules. In the case of the HEG, this institution is indirectly part of the Swiss tertiary vocational training system and students come from basic professional training. In the cases of Zaragoza and Toulouse, the courses aimed to develop entrepreneurship in individuals who may be involved in start-



ups or spin-offs, and therefore the point of this training is that it can be applied in any professional sector. In the case of Poland, the training was closely tied to the development of the country’s vocational education system, given that the certification obtained in the training is recognised by the Poland VET agency and is comparable to the European system of qualifications. In the case of implementation in Geneva and Poland, the subject of the course focused on wikinomics culture (social bookmarking, collaboration systems). In Zaragoza, Toulouse and Porto, the subject also focused on collaborative processes but in the context of entrepreneurship and innovation in the areas of biotechnology and business.

### *Users*

The courses involved a variety of groups, with a total of 150 students: 18 on the Swiss team, 28 on the Belgian team (10 in Toulouse and 18 in Zaragoza), 40 on the Polish team and 62 on the Portuguese team. There was a varied demographic profile: different age groups, from 18-year-olds to individuals over 45; men and women, although predominantly men; and different levels of education, from individuals with a low level of education to individuals with higher education, instructors and skilled workers. In the case of implementation in Switzerland, profiles were young people from 22 to 28 years old with a profile that included instructors, students studying a second bachelor’s degrees and skilled workers. In Toulouse and Zaragoza, the profile of students, who were from 23 to 37 years old, was doctoral or postdoctoral students interested in entrepreneurship for their professional future. In Poland, profiles were essentially professional men in the construction industry who wanted to certify their professional skills, also teachers of foreign languages, social economy workers, and IT students. In Porto, participants were young people and adults regardless of their level of education who were interested in carrying out a project of self-employment or entrepreneurship.

### *Educational and methodological approach*

Most of the implementations were conducted following an educational approach that combined collaborative work with individual work along with the support of teachers in theoretical explanations and the completion of activities. The structure of the courses combined classroom sessions involving theoretical explanations or student presentations of their work with virtual sessions involving individual and collaborative work. Only the Polish team used exclusively a virtual structure, and its focus was the most traditional, primarily based on contents being transmitted by the expert. Different tools were used for the virtual part: Skype, storage systems like Dropbox and Google Drive, social bookmarkers like Diigo and ZOTERO, and only the Portuguese team used the LMS platform Blackboard. In the case of the implementation carried out in Switzerland, the focus was on collaborative work as well as on the presentation and discussion of theoretical aspects. Instructors acted as content providers with participants acting autonomously. Training was mainly conducted in the classroom with specific online results. The courses in Toulouse and Zaragoza were also based on traditional presentations combined with collaborative work through the problem based learning. The training conducted in Poland was primarily conducted online, except for the evaluation, which was done in the classroom. In this context, the theoretical explanations by

experts were also combined with practical group and individual work by students. The courses in Portugal combined an iterative process of theoretical explanations, independent work, group-based improvement and presentations of results.

*Course planning (objectives, skills, hours, activities, evaluation)*

In most cases, the courses were short, lasting from 15 to 40 hours. The skills sought to be developed were related to collaborative culture in general (roles, attitudes), to the learning of tools that aid collaborative processes (publishers, licenses, presentation and communication, etc.) and to critical thinking. Noteworthy activities were practical exercises, studying and solving case studies, and completing projects. The following strategies were used to assess learning: the e-portfolio through the platforms used, self-assessment using a personal journal, and joint presentation of group work. The evaluation was formative as well as summative in some cases: a final exam conducted by the Polish team and the presentation of a final project requested of students by the Portuguese team.

The certification of courses was conducted as part of a higher accreditation. Certification strategies with badges were only used in one case. Perhaps since it was part of other higher courses, the certification was included in the one used by these.

The course in Switzerland took place on 30 days over 15 weeks. The abilities addressed were those related to specific and technical skills as well as analysis systems and tools. The course also included cross-cutting skills related to collaborative work and the use of social tools. The activities allowing such skills to be put into practice were related to the use of tools such as Diigo, Zotero, CoWaBoo and Wikipedia. Everything was evaluated through the creation of a digital portfolio and by completing an evaluation form. The certification was included in the bachelor's degree.

The courses in Toulouse and Zaragoza lasted 12 days. The abilities were related to skills for entrepreneurship and innovation and tasks were based on solving case studies. The evaluation form included participation in classroom activities and the creation of an individual reflective journal.

The implementation which took place in Poland included seven days in the classroom (two hours per session). Abilities were related to collaboration, ICT literacy and information literacy. Activities were based on theoretical explanations and on putting such content (which was primarily related to the use of the digital tools Skype and Diigo) into practice. The evaluation was conducted through an onsite exam, since passing this exam enables individuals to obtain a certification that is officially recognised by the Polish vocational education system, which, in turn, is being restructured to bring it into line with the common European system of qualifications.

Lastly, the training implemented in Portugal entailed three different training activities, each lasting 25 hours. The skills developed and the activities are consistent with the major educational modules existing in Portugal. Specifically, participants worked on skills for

collaboration, communication and creativity. The activities conducted were: creation of a business project based on business models, structuring of the business idea using the web tool Canvas, and lastly presentation and discussion of the work done. Some of the tools used for this work were Dropbox, Blackboard and Drive. Evaluation of the training was formative (based on participation and development of the business project) and summative (evaluating the project itself). The certification obtained was issued by the sponsoring institution and the badges achieved were assigned.

### ***Evaluation of the experience (by participants and teachers)***

#### *Participants*

Teams provided participants with an online evaluation survey for the courses when the courses were completed, and results were for the most part satisfactory. The results for the Portuguese team centre on the need: (a) for additional workshops or courses to expand upon the subject, (b) to create networking opportunities during the course, (c) for a first customer program. The overall assessment by participants on the Polish team was quite positive with these areas to be improved: previous training of the target group considering the group expectations, competences and content should be set more carefully in relation to specific target group needs. The assessment by participants on the Swiss team was between moderate and high in the areas of motivation, activities, explanations by teachers, consistency of the course and the course's ability to promote skills. The assessment by the Belgian team was high in relation to organisation, educational approach, evaluation and usefulness.

#### *Teaching staff*

The opinion of teaching staff was positive in general on all teams, except for the Polish team, where it was low, although this type of course is seen as a potential opportunity for improvement for people with low qualifications. The main difficulties encountered by teachers vary from team to team. Those of the Swiss team were related to the teaching strategies used: specifically, they note how difficult it was to get students to participate more actively and to commit to co-learning. Those of the Polish team were related to the number of hours of the courses (considered to be too few) and to the structure of the courses. In this case, they do not think the virtual course on its own works; they think it would be better to combine the virtual course with the classroom course. And a third difficulty they note is some users' low level of knowledge of technologies.

Both the Polish team and the Portuguese team highlight the need for a prior training programme. The Portuguese team notes the need for participants to have a more specific profile and the need for more possibilities that enable learning to be customised based on participants' interests.



## **Discussion, recommendations and further work**

### **Discussion**

The different contexts of implementation have certain characteristics that make it impossible to make a comparison between cases. That being said, there is a common design that is consistent with the abilities and learning outcomes developed in this project, which are in turn related to the cross-cutting skills established in the ECVET framework, particularly those related to digital literacy and collaboration, both of which are identified as key in developing the common European framework for vocational training. In terms of the educational approach, most of the implementations were carried out by combining collaborative work with individual work. Apart from this basis agreed by all instructors, some specifics of each implementation should be mentioned:

- In the case of training in the HEG, the content undertaken was directly related to the Wikinomics concept and its practical application.
- In the case of Zaragoza, Toulouse and Porto, emphasis was placed on entrepreneurial ability, a key issue in the demands of today’s job market.
- Lastly, in the case of Poland, there was a direct relationship with basic vocational training, as participants were active professionals or professionals in training who were looking for a professional certification that provides them with recognition and mobility in the EU, a basic foundation of the ECVET framework.

The total number of participants in the implementations was 150 students in five countries. Although the number of participants was considerable, it was not possible to extend and repeat the implementations due to the short duration of the project and especially of its implementation phase. Given these constraints, the number of participants and the opportunity to implement the training in different contexts was viewed very positively. Particularly noteworthy were the implementations carried out in Portugal and Poland, cases in which the design of the training as well as its subsequent evaluation and certification were done in line with the national implementation of the ECVET framework, considering its specific requirements in terms of training modules, skills and certification.

Regarding the satisfaction of participants, it was high in many cases, although it should be mentioned that results were better when participants had a higher prior level of training. The instructors, for their part, had a positive opinion, and in the cases in which their opinion was not as positive, they believe that this type of course represents an opportunity for improvement particularly for recipients with low qualifications. One of the common difficulties was the need for prior training to familiarise participants with the tools to be used during the course, especially in the case of professionals who are not used to using ICT in their professional activity.

### **Recommendations**

Considering the dimensions analysed, we briefly discuss recommendations for further application, improvement and integration of the project results in training policies and

practices. The design of the training as well as its subsequent evaluation and certification should be done in line with the national implementation of the ECVET framework, considering its specific requirements in terms of training modules, skills and certification.

Follow formal structure to design learning scenarios is a key point for future recognition. Based on the work developed on the Wikinomics project, the first step when it comes to designing assessment tools based on competences is the development of indicators that display certain operating conditions. Secondly, it is important that the outcomes are correctly documented in order to support the validation and usefulness across contexts and specifically regarding the national ECVET training modules. Learning outcomes can be achieved in formal, non-formal and informal learning contexts. The second level of definition must be completed by the teacher or trainer depending on the characteristics of the context, learning outcomes and assessment.

The development of collaborative key competences in this project is based on socio-constructivist approach in which learners are at the core of the teaching and learning processes that take place beyond time and space limitations. Some considerations to connect learning scenarios with user's interests should be taken into account, to ensure the motivation of the students as well as its implication in the training process:

- to know previous knowledge including, if it is needed, previous training programmes to be familiarized with collaborative tools. Moreover, it can be considered to include an initial assessment for joining sessions;
- to adapt the course planning (objectives, activities) considering the trainee's expectations;
- to expose realistic outcomes and meaningful training practices to their daily and specific job environment.

Concerning the methodological approach, it has to be considered the complexity involved in assessing soft competences within the scope of the ECVET. A competence based assessment is essential to be coherent with overall aims. This process should be based on formative assessment as well as validation and recognition of learning outcomes. Assessment cannot be restricted to grades, focusing solely on memorised information, but rather assessment must offer an opportunity to promote competences rather than to merely discover who has the highest level of proficiency. A high range of tools can be used to facilitate this evaluation, as long as it allows compiling evidences from the learning process and should be chosen based on the length of the course as well as students experience. In this sense, when students gather some experience it can be useful to offer them the possibility of carrying out self-assessment and peer-assessment in order to gain awareness of their own level of proficiency and what they are able to do.

Among others, Portfolio, self-reflective journal, project based learning assessment or peer and collaborative assessment are some recommended assessment tools. All of these examples share the same design, based on active and discovery learning, in which students interact with their environments by exploring and handling objects, tackling questions and controversial

issues or performing experiments. We would also highlight the opportunity to use accreditation tools based on badges, which can help students in learning as well as to acquire and demonstrate their skills. Beyond specific tools, to promote reflection along the learning process is essential to ensure that the learning process can be meaningful, based on the reflection of the own learning experience.

## **Conclusion**

In this paper we tried to redefine the term Wikinomics, mainly, by exploring specific pedagogical practices in a project under the same name. We focused on specific collaborative competences as a response (a) to the original emphasis on individualism of the Wikinomics practices and (b) way to enforce a culture of sharing within innovative structures of collaboration and real life community-building.

Finally, we described the early implementation of different learning activities under the form of case studies structure (Context: centre, VET, platform, course topics – Users – Methodological approach – Planning: objectives, competences, schedule, activities, evaluation – Rating: users and teachers) and provided results analysis with recommendations.

These training activities, as well as, the majority of the project’s activities will continue in 2016 providing these case studies with new results. More details in design and evaluation, as well as, revisited scenarios on collaboration in training activities would be needed.

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