# Innovation of the courses of information literacy as a way for openness, personification and competencies

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**Abstract:** Implementation of massive open online courses in the university environment is still widely debated topic. Whether it involves activities that universities targeted towards the general public, for example through EDX courser or Udacity. Or conversely courses that are designed to satisfy demand within the institution, but are realized through e-learning. We can discuss on the form, content, but also the meaningfulness and effectiveness of individual activities.

In this paper we focus – form of case study – one of two courses of innovation that tries to combine classical university courses with an openness to the public. We will attempt to describe the motivations, challenges and interesting aspects of the feedback received, which relate to both courses.

The first is the Information Literacy Course that is newly built on a web-based and open to the public without restriction, offering the possibility of studying nonlinear. It is based on text materials and skills development. Course at university normally has between 500 – 1400 students and is an introduction to information work, making professional text or information searching. Although it is fully e-learning is based on pragmatic education. Paper presents basic information about the course evaluation by students and attempts a comparison with previous years, when it was a classic course in LMS IS MU and was closed.

The second course, which is also innovative and open (for any interested person) is Creative Work with Information, which studying about 200 to 300 students each year. The course was developed in collaboration with NOSTIS, on whose platform running. It focuses on creative thinking and work with information through unconventional ways (with the support of technology). Format partly follows the usual MOOC – offers peer assessment of the ongoing tasks, study materials are in the form of video and PDF text support. Originally, it was also a common course located in the LMS, standing on tutor repaired tasks and texts. Now he can besides students of Masaryk University also frequented by the public. The paper will perform a critical analysis of the changes made.

## Introduction

Information education in a university environment is undoubtedly one of the topics that are both vividly discussed and actively addressed in a specialized forum such as IVIG. We do not want to open a debate here about who should be the guarantor of information education at university or about the obligation or facultative nature of such education.

On the contrary, we would like to pay attention to the format of such educational content if it is processed in the form of e-learning. Whatever we try to work on with more general theories

and concepts, we would like to take our reflections on two courses that are being implemented at KISK (Department of Information Studies and Librarianship) in the academic year 2016/2017. We do not have the ambition to offer the only right solution, but we believe that the two courses we mention will saturate some of the problems that have emerged in previous forms of distance development of information literacy. From this point of view, we believe that the contribution can be an interesting stimulus to discuss how to do this information education or not to do it at its own university workplace.

## Default situation

Information education at Masaryk University is realized by a relatively wide range of activities, including both presenter courses and courses of faculty libraries as well as online educational activities. Nevertheless, the pair of KPI11 (Information Literacy Course) and KPI22 (Creative Work with Information) courses are crucial within the university, both in range and the number of students studying across faculties, as well as in the scope and structure of both projects.

KPI11 is a basic course of information literacy, which is based on the problem of creating text and other competencies that students need for successful accommodation in the academic environment. The traditional target group of the course is students of the first year of bachelor study or those who write their first qualifying work. In this respect, the course is actually academic propedeutics, which also creates a specific view of what is the role of information literacy, or how it is treated with it. It is not a new course, it is taught since spring semester 2006, since 2012 has been moved to the autumn semester (Chytková 2011). The number of students is oscillating from about 600 (autumn 2016) to about 1400 (autumn 2013). It is therefore a course with a relatively significant impact in terms of the number of students.

The course has undergone a major innovation change in 2016 in the context of the CEINVE project (Zadražilová 2012, 34-39) when it has changed both in terms of content (significant refinement of the search for information and the enhancement of the topics related to their analysis and creation), thus formally – learning materials, tests and the end of the course. Gradually added videos (2014) or audio stories accentuating the narrative level of the course (2015).

The course took place all the time in the IS MU environment, which allows relatively simple management of the number of students and their tasks or testing. In terms of content delivery, an interactive layout was used that allows for basic HTML formatting. Learning materials consisted of PDF files. (Černý, Chytková, Mazáčová, Šimková 2014, 65-72) The emphasis on this concept was at a certain level of school – defining educational goals, learning and testing, including a summary of each module or a self-test option. In this respect, the whole course was based on a somewhat cognitive paradigm with constructivist elements (Siemens 2014, Kop 2088), which manifested

itself in the partial tasks and especially in the creatively conceived final work. Some limitations of cognitive functions have been achieved by introducing webinars, trying to use Facebook for communication and other elements that have led to greater interaction between students and teachers, so that ultimately it was possible to talk about the predominant constructivist concept.

Otherwise, creative work with information is taught from 2010, originally in autumn 2012 in the spring semester. From the beginning it is conceived as a smaller (for a maximum of about 300 students), which tries to emphasize creative thinking and its development in relation to information. He was originally conceived as a constructivist, except for the IS, he also uses Facebook to share interesting information; He even had a blog on Posterous, but ended up with the end of the app. The study materials were from the beginning mostly text, sometimes supplemented by video. At the time of the CEINVE project, the course was combined with the participation of seminars, where various techniques and themes were presented. (Mazáčová 2013)

## Motivation for innovation

From the above, the basic motivational framework for implementing the fundamental innovations in the two courses described above is evident. In either case, it is a change or at least a rewrite of the basic paradigmatic framework on which we are based, or the identification of a pedagogical school – for example, changes in the KPI11 course are based on Dewey's pragmatic pedagogy (Kadlec 2007; Šíp 2016, 134-151; Dewey 1992). This grasp of the pedagogical framework is something that is not done at many e-learning courses, or is governed by "traffi" handbooks and intuitions. We think that a thought-based thinking base can be the key to doing better, logically more sophisticated courses that will have a consistent character. One of the motivations for change was the loss of consistency of the courses, which was associated with their gradual expansion, adaptation and replenishment. Gradually, the individual elements, but neither the language nor the overall ideological framework of the course, created the impression of complexity and clear delimitation.

The second problem was the over-schooling of both courses, which was largely related to IS MU's e-learning environment, which is visually unpleasant and too linear. Learning materials in PDF format were a textbook impression. We were not completely satisfied with that. We believe that learning – especially in the field of information work – should respect the information behavior and students' environment, not to be extravagant, sterile and too theoretical. This requirement does not reduce the demands on students or the difficulty of the whole study, but to a great extent redefines some goals or means. In both courses, we focus more on competencies and attitudes than on knowledge that would be a prerequisite, for example, for information workers or library students.

Openness is another important concept that we wanted to change during the innovations. The starting point is the social responsibility of the university towards society. There is an aspect of public funding, where we believe it should be logical and correct that products that are used for education are not only for the students of the given field, but can be used for wider development of education. This openness is closely linked to the possibility of impact on the educational activities that courses are pursuing. We were looking for a design that would allow both courses to be offered to the wider public, either for their own study or for the further implementation of individual materials or the whole course in educational practice. Therefore, our ambition is not to preserve study materials for our students only, but to offer the opportunity to educate as wide a range of candidates as possible.

In this area it is possible to mention not only the motivation given by the long-term intention of the university or the simple accent of social responsibility, but also more pragmatic reasons. An open course (Tait 2000, 287-299; Hannafin, Land and Oliver 199, 115-140) may have a greater impact on the professional community and potential citation or infrastructure involvement in further cooperation. As both courses are designed, they can serve as advertising (in good terms) for those interested in studying.

Another motivation for the changes was gradually becoming less logical and a pure content structure that required more interference than continuous patching or replenishment of news. Also, strategic documents related to information education, which are relevant to KPI11 in particular, have undergone some development over the period and could be used as a basis for innovating courses.

Last but not least, the motivation was to reflect on changes in the technological and design environment of online services and online education. The gradual emergence of MOOC courses (McAuley 2010) or web courses has been a significant competition for classical linear projects, often based on a weekly structure and thematic strength. These courses, which are also often open, represent a certain competition that the university environment must deal with. They can do this either by curricular closeness or by trying to innovate and adapt to current trends.

Further incentives for innovation were given feedback from students from the subject survey and other research methods. This set of motivations together created the environment of the basic innovation framework in which we tried to transform the two courses.

## Innovation of the course Information Literacy

The paradigm framework for innovation of the course Information Literacy in the autumn semester of 2016 was the implementation of pragmatic pedagogy by John Dewey. At first glance, this might act as a certain contradiction; to link pragmatic pedagogy and an online course, but we will try to show that it is not.

The first building block of pragmatic pedagogy is the combination of theory and practice. One should learn what he needs for a practical life. Working with information is one of the functional literacy (Elmoborg 2006, 192-199) that is necessary for adaptability in the information society. In this respect, the ability to adequately handle information is something that is needed for life. The entire course is set up so that the student chooses the subject of his / her work, works with resources and databases that are relevant to his / her field and interest. The fact that every student can work on something that is interesting for him / herself, and this throughout the semester, we perceive it as essential, and it is also something the students positively appreciate in the feedback of the course. (Černý, Chytková 2013, 33-39)

The combination of life needs and the course is related to the choice of tasks that do not focus on the practice of any universal skill, but on clearly identified important tasks and competencies that are always associated with the subject. Students should not, ideally, create any role in the drawer, but they should systematically prepare themselves for the creation of their own text, which they will continue to use.

A fundamental change has gone through the whole environment. Instead of IS or Moodle, the entire educational content is transferred to Wordpress (Patel, Rathod, Parikh 2011, 182-187) so that the entire course acts as a website that focuses on the topic of working with information. Instead of a textbook or a script, both the language and the form were directed to a regular site that students read outside of normal learning. The aim was to create a material that would have an ordinary and natural impression. For these reasons, we tried to avoid all the shapes, such as repeating, learning, the frames etc. that are typical of teaching materials, and we have focused on really using the common language.

Also, individual chapters are always set up so that it may be a separate article that has its own message, content and can be interesting in itself. The text contains links of two kinds, both on external sources, but also on other parts of the course that are thematically related to it. This approach allowed us to design lessons in a less linear way so that they can skip or reverse the course in a way that the student understands what to do even if, for example, he was not attentive enough in some previous lesson. Links to external sources offer both the possibility of better contextualization, but also correspond to the concept of a classic URL site. Such a concept reflects standard information behavior and offers better possibilities to link educational content to the external environment.

Designed and conceptually we tried to reflect trends in web courses. (Gilbert, Moor 1998, 29-35) The combination of pragmatic pedagogy and modern technologies in online education enabled students to offer a higher level of study autonomy, the ability to proceed at their own pace (for example, it was principally possible to complete the course outside the final test in the first week of the semester), selecting own tools, Throughout the course we also sought some curatorial activity, which results, for example, in a classified catalog of tools that appear in the course.

This tutorial model of learning materials and tasks was followed by tutorial care. It was a fully online course where a certain social distance was offset by the rather intense and close relationship of the tutor and the student. According to feedback, it was one of the key moments of the course where the tutor not only repairs tasks but also gives overall feedback and help. This relationship was strengthened by the fact that the tutors chose students for themselves. (Ehlers 2004)

## Innovation of the course Creative Work with Information

Another situation in terms of innovation was in the subject of Creative Work with Information. From the point of view of the methods used, he went through a more complex cycle of changes, in which the purely online course became a blended learning course and then again only a distance learning form. The key issue in terms of planned changes was how education should be developed in the field of learning creative thinking and working with information, which is undoubtedly one of the most individual activities. Working with unified tasks or a written test represent only a very limited opportunity to work with feedback, and rather they evaluate the knowledge and mechanical skills of the student, not the individual ability to work creatively with information.

As a key, we also evaluated the students to learn not to stay in their thought schemes and to try to reflect and see the work of others. For this reason, we have decided to use the system of mutual evaluation of students amongst themselves, where the continuous tasks students not only create but also give feedback to their co-workers. It is not just a cost saving but a systematic activity that is supposed to encourage divergent thinking and not to conclude into limited thought schemes.

We tried to solve the problem of individualization of education and its real connection with the student's personal and real problems through a creative diary that forms a significant part of the student's assessment of the course. It is a portfolio in which the student can write his own creative practices, test methods, approaches, warm ups. On the one hand, they try out the different methods and procedures, but they can simultaneously apply to their own needs and problems. The second aspect is that students can more systematically use those techniques that fit them in real situations. This becomes the course of something that affects their way of thinking and behavior.

As far as openness is concerned, we have chosen to publish a course on the NOSTIS platform. They can enroll in MU students (if they want credits, they only have to submit the creative diary at the end), as well as the public who can get a common certificate signed by the lecturers. The primary learning tool is videos that have a dialogic character. Each module is accompanied by a text support and a short task, the repair of which is done through peer assessment. (Topping 1998, 249-276) The course is open and free.

Between each lesson, you can freely walk through the course not (unlike KPI11) open at one time but in three stages. Nevertheless, it offers a certain nonlinearity similar to KPI, where we try to make students aware of the contexts of individual creative techniques or approaches.

From the point of view of connectivist elements, other important elements are available outside the openness of the public and peer evaluation. The first is a Facebook group that acts as a source of mutual inspiration, knowledge transfer, or interesting links. In addition, it fulfills the basic organizational role of the course. Another element is Medium, which we use as a basic publishing platform that allows us to get content that is otherwise difficult to get into classical educational structures and forms, such as mind mapping tools, specific partial tutorials, inspiration, etc.

What is missing from these courses in terms of a large part of the current connctivist courses is the support of Twitter (Downes 2008). We tried to implement it in KPI11 and we were unable to find a suitable communication form and a sufficient number of subscribers. Not even at the level of course participants or the general public.

## Sources of possible data for evaluation

There is a relatively large amount of options for evaluating e-learning courses. Previously, for example, the KPI11 course was studied through the focus group, but for organizational and financial reasons we did not join it this year. On the other hand, abandoning both KPI11 and KPI22 MU Information System has enabled significantly improved measurement and analysis of user behavior through analytical tools.

In the case of KPI11, a pre-test pair and a final test are prepared for the evaluation. They were designed to be mutually compatible so as to enable them to measure the basic quality of the cognitive shift and knowledge course. Unlike common knowledge tests, both were conceived as competencies and were based on the fact that the student had to be able to work with the text. Although this way of working with students allows more focus on competencies than on knowledge, it has been shown that this method of evaluation is not entirely ideal, especially for over-demanding design and complicated construction of questions.

A key source of information is student feedback, which can be obtained through four basic channels. The largest and most important is the subject poll, which is unified and the same for all subjects at the university. It offers insights into basic questions such as the adequacy of the course in complexity, tutoring, or overall satisfaction with the course.

The second source is spontaneous feedback from students sent feedback by e-mail, which is mostly praiseworthy and students will appreciate some aspect of the course directly to the tutor. You can also work with discussions and reactions on Facebook. Last but not least, we did some informal interviews with participants in order to find some more complex information or impression of the course.

In terms of analytical tools, Google Analytics data is available that is associated with the part of the course running on Worpress. Therefore, spending time and other metrics are not counted, for example, for submitting tasks or interacting with Facebook. Google Analytics offers both basic features and reports, such as average time spent on a page, traffic sources, where a user connects, etc., but it also allows you to track more complex and demanding metrics such as the flow of users to your site.

For KPI22, the data differs in that Nostis data is available instead of Google Analytics and no ongoing interviews are conducted. There is also no pretest or posttest, as this does not allow the structure or overall focus of the course. In KPI22, therefore, analytical research methods are poorer. In the interest of better data, there would be opportunities for phenomenological in-depth interviews or the use of methods to map metacognitive processes.

## Some interesting data from the KPI11 course

At this point, we'd like to focus on some of the specific data that emerged in the process of evaluating the KPI11 course, which may be interesting for other innovative projects. The first information we can compare is about course marks and learning success.

**Figure 1:** Marks for the year 2016 – a course on innovation changes
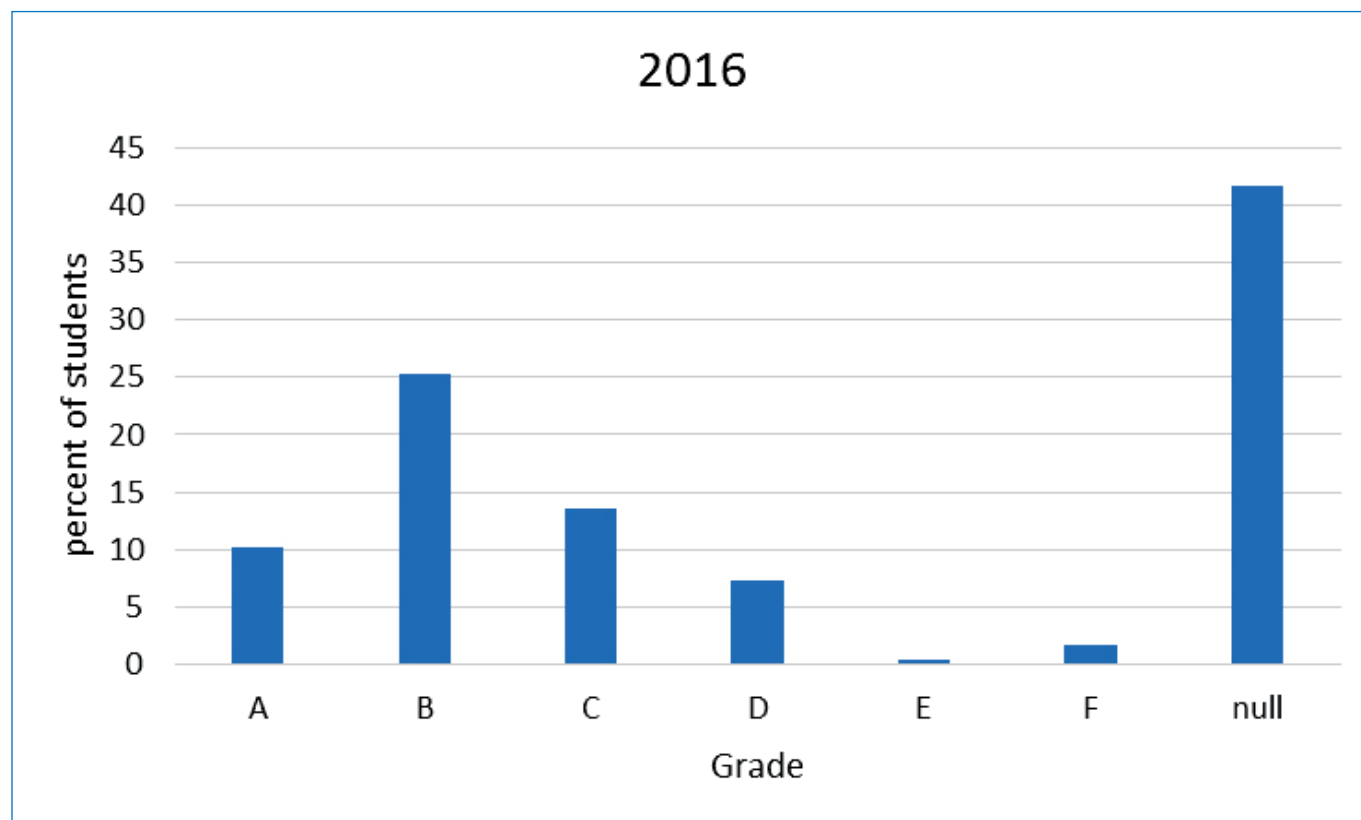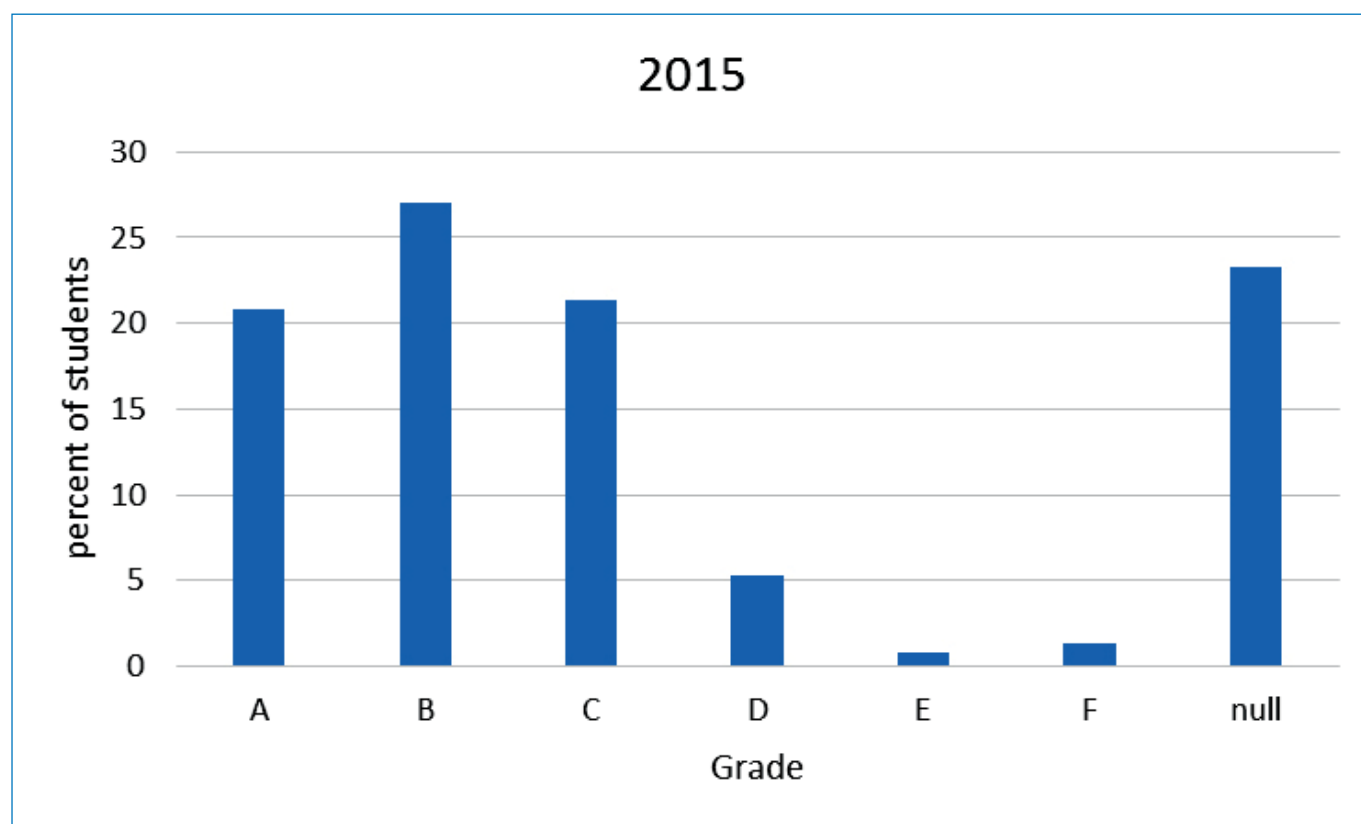
**Figure 2:** Marks for the year 2015 – a course before innovations.



From the graphs above, it can be seen that the innovation change was slightly higher in terms of stamina (from an average of 1.63 to 1.73), but it is particularly problematic that the course has a high degree of inertia, which is related to the fact that The student does not pass all the tasks or do not pass the final test, from 23 % to 42 %. In this context, it is interesting that there was no information in the feedback about (except for a single contribution) that the course would be light, which was a typical complaint before the changes. On Facebook, this view emerged during the entire semester once before the end of the course. It seems that the changes made rid of the course of the easy subject, but at the same time led to a significant deterioration of the study failure.

The hypothesis that is offered here may be whether a change in the structure of the course rather encourages students who are able to identify with their goals and use it for their own learning needs, but at the same time does not lead to those who can not do it. They did not study it until they could pass through more formalistically. This may also reflect the answers from the poll:

*"I'm glad I attended the course. I have learned a lot of interesting and very useful things that I will surely use when writing my diploma thesis. "*

*"I liked the concept of the subject. Even though I have already completed a Bachelor Thesis, I have learned a lot of new ones. I found that less sometimes means more :-) "*

*"It was an on-line course, interesting, but I was terribly lazy, some tasks were a bit difficult some easy overall it was fine"*

*"Overall, I am very glad to have done this subject, although it was, in my opinion, one of the most difficult. I learned not only a lot of useful things to write different seminars or essays but also try to better schedule time, which was given by the obligatory tasks for every week."*

*"The materials were interesting and useful for writing academic and professional texts. I learned a lot of information that I will use when writing my diploma thesis. Task and seminar work repairs were always expressly quick. Praise :)"*

*"Thank you very much for the excellent course, amusing to think about the topic, and the challenges have forced me to try things that I would not find myself. I learned to use new tools. I appreciate very careful feedback, hat down before reading all the seminar work, it must be really challenging. Excellent course!"*

Analytical possibilities of the IS in the case of working with several seminar groups are relatively limited in the feedback analysis. It is not so easy to find out how the course leads to the individual statistics being tracked, and more importantly, the above worded commentary is more valuable. From the outburst, the use of multiple learning and information environments (IS, Wordpress, e-mails…), the need to register with a variety of online services, and ambiguous or difficult assignments and tests appeared. The feedback also shows that a non-trivial part of the students took the course more time than planned.

**Figure 3:** Summary of basic data.
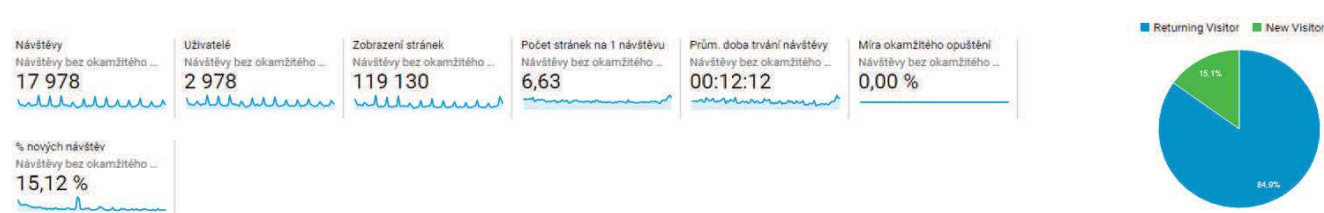


As for the average time of one visit to the site, it takes about 12 minutes if we clean up the immediate departures. This number can be interesting from several views. First of all, the data do not indicate that this time will change significantly over time (that is, for example, remain more motivated and more careful students), beyond the understandable final fluctuation that can be attributed to the test preparation. Another interesting aspect is the absence of time fluctuations during the week. For example, students who study mostly on Sundays, as shown in the following chart, are not less careful.

**Figure 4:** Average time of one visit to the site.



Absolute data should be taken with a certain margin. It is unclear how many visits per student. Above all, course study takes place largely outside of the teaching materials themselves. However, the data offers at least some correction of the myth that students studying on Sundays (the deadline for submitting a task) are less careful. The other interesting thing is that the attendance almost does not show up with the newsletter that was sent every Monday. There are no significant changes to other days.

The data in Figure 5 then shows how the weekly rhythm was studied. Peaks are connected with Sundays. There are two minor dips – one in October that is linked to a public holiday and a longer block of leave, and the second significantly less pronounced at the beginning of the test week, which are obviously easy to understand and interpretable.

**Figure 5:** Web site traffic during the semester.



We will also be able to offer geographic data from other interesting data. The course had several participants abroad, where it is to be expected that Erasmus students who enrolled in the course and went abroad. Interestingly, there are generally more pages displayed on the page for a longer period. The map below shows that the course has the most students in Brno, but that it is actually studied in large part of the territory of the Czech Republic. This map can also serve as a basic idea of where the students of Masaryk University come from. According to our court, a great share of Prague may be surprising, of course, the approaches from Moravia are of course dominant.

The theme that we find extremely interesting is the use of a mobile connection. This accounts for less than 10 % of the visits, which is well below global data. Explanation can be related to the fact that there is a connection between the task and the study (and here it is more convenient to use a regular computer) or in the fact that the students are not used to studying this, mainly because the IS is not well prepared and usable for mobile phones. However, the data give a fairly clear signal that, for example, the development of a mobile application will not be a crucial and fundamental issue for the majority of students.

**Figure 6:** Localization of access points come from the Czech Republic visitors.
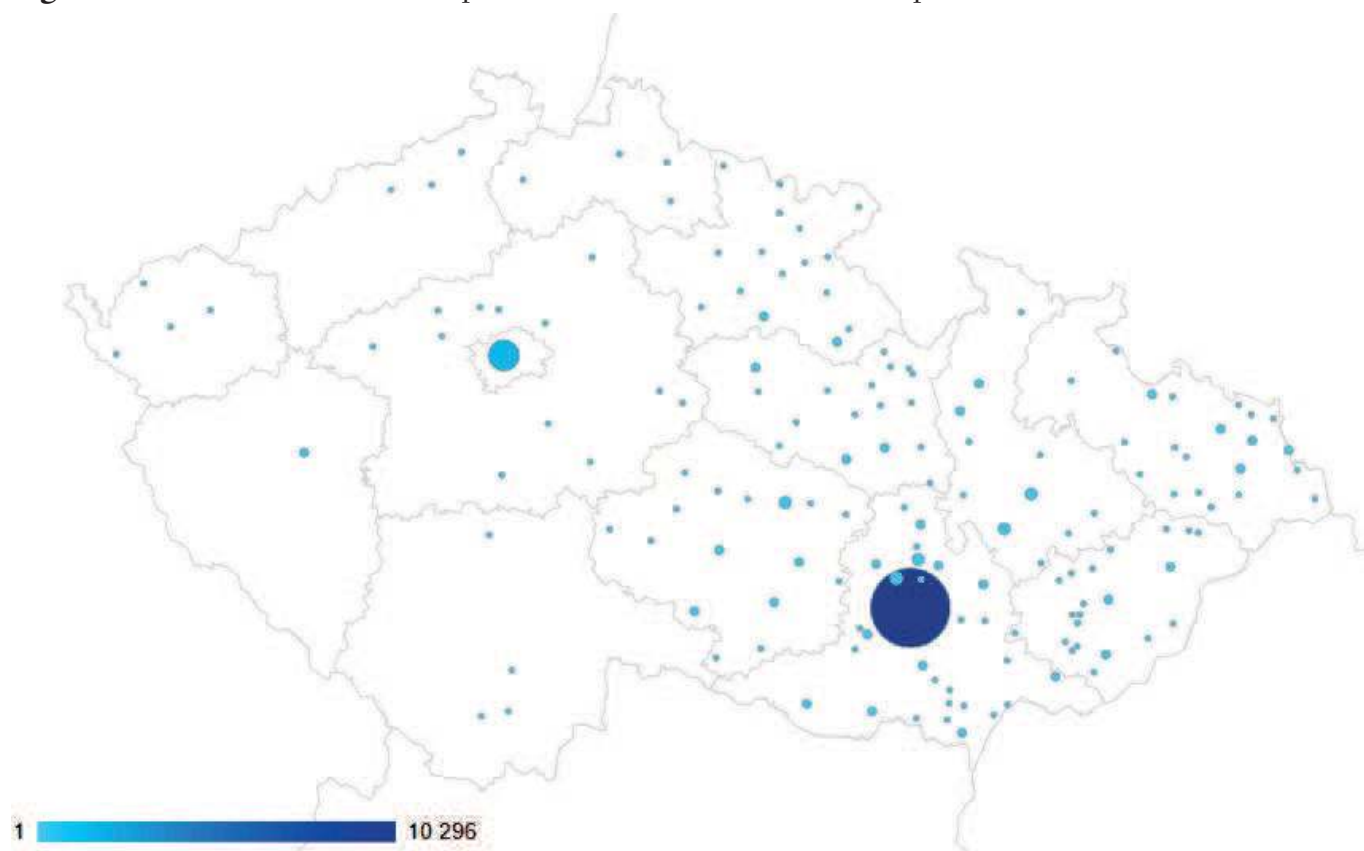


**Figure 7:** Mobile users account for less than 10 % of visits.



Since the beginning, the course has been conceived as nonlinear, meaning students have the ability to click on the terms that appear in the text, and thanks to them, they can easily browse the content according to their interest, not just according to the didactic intent of the authors of the text. The images below show how data from such click analysis can look like. The average clickthrough rate for links is around 2 %, only exceptionally, there are some more. There are more ways to work with these data – links with a very low click (below 0.1-0.2 %) are unnecessary or poorly set. In case of very high numbers (over 5 %), the question is whether it is an ideally conceived link or a concept that is totally unclear, and a large proportion of students are "discovering" this click.

**Figure 8:** An example of a click analysis on internal links.

S formulací názvu projektu, výzkum 2,6% právy nebo diplomové práce vám mohou pomoci tzv. klíčová slova, která jsou společně s anotací nebo abstraktem důležitým prvkem každého odborného textu. Klíčová slova jsou taková slova, která vystihují obsahovou podstatu textu, pomáhají čtenářům rychle se v jeho obsahu orientovat a identifikovat téma bez jeho důkladnější četby. Klíčová slova slouží také při vyhledávání relevantních dokumentů. Díky důslednému označování dokumentů klíčovými slovy si snadno dohledáte odborné práce na požadované téma, stejně tak se k vašemu textu dostanou všichni zájemci o téma, které v práci řešíte.

Klíčová slova využíváte pokaždé, když na internetu nebo v odborné databázi vyhledáváte dokumenty na určité téma. Vyhledávání zdrojů je neoddělitelnou součástí práce na odborném textu, zároveň je také první příležitostí ověřit si, jak dobře (ne)umíte formulovat klíčová slova. Čím lépe budete umět klíčová slova formulovat, tím precizněji budete umět dohledat relevantní dokumenty.

**Figure 9:** An example of a click analysis on internal links.

10% U PLE je silně akcentováno právě to, že spolupracujete s dalšími lidmi na projektech, ze kterých získáváte nové kompetence nebo v nich děláte něco, co vás baví. Právě tohle je jedna z nejefektivnějších forem učení se, protože vychází z vašeho zájmu a reálné interakce s praxí.

Online spolupráce je také užitečná při práci na odborných projektech. Můžete spojit znalosti více lidí a například společně napsat odborný článek či knihu, podílet se na výzkumných grantech, snadno sdílet data či jiné poznatky, případně lze k editaci společné publikace přizvat další osoby, jako je korektor nebo sazeč.

Na druhé straně je třeba upozornit na to, že online komunikace a spolupráce může mít také své problematické stránky. Lidé se necítí tak přísně svázáni termíny a povinnostmi, které musí plnit, když před sebou nemají vidinu osobního kontaktu. Lidově řečeno, v online prostředí je jim méně trapné odevzdat svůj díl práce pozdě nebo ho neodevzdat vůbec. Proto se v online prostředí silně uplatňují přístupy, které se snaží sledovat postup činnosti jednotlivých lidí do detailů, aby bylo možné na případné problémy včas adekvátně reagovat. Druhou nevýhodou online spolupráce a komunikace může být nižší možná míra vzájemného porozumění či ztráta kontextu. Online komunikace je často ochuzena o neverbální složku, takže někdy nemusí být zcela jasný a zřetelný kontext, ironie nebo to, jak někdo uvažuje.

Také samotná forma textové komunikace může vést k tomu, že se lidé vyjadřují jiným způsobem než v běžné řeči. Důsledkem bývají různé bouřlivé diskuse pod články na kontroverzní témata, emotivnější komentáře atp. Je proto dobré, když aplikujete autocenzuru a každý komentář nebo příspěvek po sobě před jeho zveřejněním raději přečtete. Odhalíte tak nejen pravopisné chyby, ale také případné zbytečné emoce.

2,8% Textová forma komunikace je asi nejčastější, ale lze užít také video či audiokonferenčních nástrojů.

## Summary

The aim of our study was to show how it is possible to think about innovations in online courses – from general paradigm grasping, through selected technologies to search for such research tools that will allow us to study the functionality and usability of our theoretical grasp or the first version of the course.

In the article, we have tried to show some possibilities of innovation of of the courses of information literacy, which have an open character. It should be emphasized that the transition from a common closed course to more open and connectivist solutions is not something that would suit everyone or was associated with less work. The more active the social networking course and the more open the interaction with external visitors, the more it requires the presence of a professional who will take care of the social network.

Although the research data presented to us was more probatorial or illustrative than the ambition of a complex research project, we hope to show the basic methodological possibilities that can be associated with the evaluation and analysis of such courses and which may help other innovators develop their own projects.

Throughout the text, we have been striving to make it clear how design and innovations can be considered in the online environment. What, if any, can make these changes interesting, good. But also what are the problems or what to watch out for.

The use of Google Analytics data in education is a relatively small amount of text – *Using Google Analytics to Improve the Course Website of a Database Course* (Romanowski & Konak, 2016) and *Using Google Analytics to Learn Online Learning: A case study of a graduate-level online course* (Luo, Rocco & Schaad, 2015), who are trying to show with varying care what is the difference between the classical concept of Learning analytics, for example in terms of Siemens (2012, 2013), and what data Analytics. We believe that analyzing the possibility of using such a pedagogical approach is one of the key challenges – both in terms of methodology and research, as well as inherent innovations of courses, because appropriately chosen and interpreted data enables students to better understand the online environment and content in a certain way optimize. We would also like to research the Google Analytics link with other tools such as Hotjar, which can offer an even deeper insight into the study behavior of individuals and the entire population.

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