

IS OUR DEPARTMENT PEOPLED BY DIGITAL IMMIGRANTS OR DIGITAL NATIVES?

Stanislava Pavlíková
* Ivana Pekařová

University of Hradec Králové
Faculty of Education
Rokitanského 62, 500 03 Hradec Králové, Czech Republic
stanislava.pavlikova@tul.cz

* Technical University of Liberec
Faculty of Economics
Katedra cizích jazyků
Studentská 2, 461 17, Liberec 1, Czech Republic
ivana.pekarova@tul.cz

Abstract

This paper presents a study on the population of digital immigrants and digital natives at the Department of Foreign Languages at the Faculty of Economics of the Technical University in Liberec, Czech Republic. After defining the main terms and summing up the research findings from abroad, the authors introduce a short overview of examinations into this field undertaken in the Czech Republic together with their own, delivered at their home institution. The outcomes gained from the used questionnaire together with the analysis of the experience gained from project work in classes have proved that the position of the Information and Communication Technology (ICT) skills and motivation to use them is surprisingly positive among the new cohorts of students in Liberec. This situation is a new phenomenon, which will serve as a cornerstone in the subsequent innovation of the study programme.

Introduction

Why did we commence a research project into this area? It is generally agreed that for the 21st century our graduates need profane development of the following skills: collaboration, communication, creativity, critical thinking, and digital literacy. Being fully aware of such priorities, we have been designing individual innovative features of our study courses in order to meet these targets with our students.

The first stage of our work consisted of introduction and utilization of simple activation tasks, such as working with interactive exercises for evaluating listening and reading comprehension, practicing discrete grammar features, and extending vocabulary mastery with focus on stylistic features and semantic meanings. This phase was very important for us to gain more expertise in designing a blended learning context. Yet, we felt our students' role was rather passive in the process. While thinking about a more complex innovation of the courses, we plan to proceed further and start with utilization of tasks for team creation, similarly to what our students will be expected to do when they join the world of work.

To be able to set off on such a path and pilot a follow-up project, it is necessary to guarantee that students are equipped with the necessary ICT literacy from their first-year of university studies. Alongside, it is necessary to study their readiness to use ICT in classes, willingness to work with it, and their general motivation to increase their active participation in learning. We needed answers to the two key questions:

- What is the level of computer literacy of students enrolling at our Faculty of Economics?

- Can we rely on their eager attitude to information technologies or do they spend too much time with them already to be prepared to tolerate any more?

In our study we progress from examining relevant literature on digital immigrants and natives. After this we sum up the experience from abroad and compare it to the one in the Czech Republic and our department. Finally, we demonstrate on examples of good practice how far we have managed to progress and in what direction we intend to move in the future.

Let us start the discussion on where experts in professional literature agree with and contradict each other, and how the theoretical postulates are backed by findings from case studies or research projects delivered around the world.

1 Who Are the Digital Immigrants and Digital Natives?

Before continuing any further, it is necessary to introduce the main characters. In his articles in 2001, and later on in his bestseller, *Teaching Digital Natives – Partnering for Real Learning*, Prensky [1], [2] introduced a debate on digital natives, which is a label he coined for students who are the first generation growing up in the world of technology. He developed a profile of this net generation and the reshaping of the world of learning first designed by Tapscott in [3]. On the other hand, he labels instructors as mainly those belonging to the generation of digital immigrants. It is hardly any surprise that they often struggle to teach a population that speaks an entirely new language, generates different experience and utilizes different tools. In other words, it becomes more striking that the previously established educational system has become ill-designed to teach the present generation of radically changed students.

The educational system must develop itself so that it can be of assistance to the future development of the students of today and the creators of our world of tomorrow. We believe such an aim can be accomplished by tutors taking action and introducing process-oriented guided inquiries into real problems. Being involved in challenge-based or technology-enhanced active learning, students will alter their attitude and approach towards learning. A type of quest-based learning is bound to engage students' curiosity and fuel their inner fire.

Teachers do not need to be technology experts to allow students to use it to retrieve information, collaborate, create, and communicate. These are the types of tasks they will be required to perform in the world of work, which suggests that ICT implementation should be based more on students than teachers.

While many educators are still in the stage of debating the significance of technology as a tool, business and industry are endorsing it. Technology continues to advance and many educators are not even familiar with what possibilities are available. If technology requires a new form of literacy, many of our educators are evidently at least semi-literate. There seems to be less tolerance for educators who do not believe it is their responsibility to move their teaching out of the past. On her blog [4], *The Innovative Educator*, Nielsen (2010) introduces Kent's [5] ideas, in which he challenges teachers who rely on a type of learned helplessness not to be forced to leave their comfort zone. They almost proudly adhere to the label introduced for them by Prensky, whereas they should see their lack of expertise as an urgent matter to tear into. His advice for them is to take ownership of their learning rather than expecting others to provide it.

Our first reflections and back-up from professional literature, for example Lewis in [8], has proved that it would not be realistic to expect that changing the traditionally used model of education will materialise somehow by itself. We are convinced that the development of constructivist, independent learning utilising the tools of Web 2.0 must be carefully

structured, and teachers must assist their learners by scaffolding their understanding. By doing so and becoming more confident, we have been structuring our own learning process too. We fully agree with Lewis, who says that assimilation happens in four stages, namely the stage of a newcomer, casual user, old schooler, and finally innovator. We have followed the same path while working together with our students.

Our first practical experience has foundations in designing initial components of our blended course in the VLE Moodle (<http://moodle.com/>). Lewis in [8, p. 82] reminds that many opponents of VLEs claim them to be tools to control learning rather than instruments aimed at empowering students to manage their own education. While there is some truth in this, we know from our own experience that Moodle has significantly simplified our lives and lives of our students. We could provide them with an access to learning at any time of day or night, and individual types of digital work developed various forms of cooperation within the class. Simultaneously, we have proved to ourselves the versatile nature of digital tasks or tasks utilising ICT. We could address development of various skills, and thus we fully believe that it is the tasks that teachers set which will guarantee the learner centeredness of the study programme. Moreover, we observed that various paths of working with technology suited learners with different learning styles; for example, polls and surveys are preferred by students with a strong logical intelligence, social chat is favoured by those with linguistic intelligence, animations are appropriate for kinaesthetic learners, etc. The more ambitious and complex our educational targets became, the more did we realise how important it was to make sure that our assumptions about the students' readiness to forward with us were correct.

2 Are the Assumptions about Students Worldwide Valid Also in the Czech Context?

The professional literature about students' IT skills describes mainly the situation abroad. We need to have tangible evidence about Czech students being similar to those abroad; or, this postulate must be proved to be mistaken.

Conclusions from past research projects abroad, for example Wagner in [6], formulate the list of the skills necessary for the 21st century. Also Czech national educational documents are proponents of such ideas, but from the observations of employers in the Czech Republic, it is revealed that our graduates often do not possess the required qualities to the extent they are expected. Hrubá in [7] summed up the most significant conclusions of the expert members of the NERV group (The National Economic Council for the Czech government) presented in their analysis of the present situation in the Czech Republic. The team of experts emphasized that in spite of the growing importance of economic, financial and IT literacy in the Czech society, no sufficient attention was devoted to their systematic building in educational programmes for the young generation. Their conclusions were similarly unflattering in connection with the other expected competences being insufficiently fulfilled. As one of the potential causes of this situation the experts sometimes claim the fact that the outcomes of various studies and research projects obtained in this field abroad are not used systematically for inspiration within our educational context. These revelations lead us to wonder if there is something rotten in the kingdom of education and academia. And we believe that if we do not address the problem now, the gap between education and the real world needs will continue to extend till finally reaching the proportions of an abyss.

3 Examples of Research Projects Delivered in the Past

To be able to prepare ourselves for our research project and to avoid potential pitfalls experienced by others, we started collecting information about recent research studies with positive results carried out abroad, e.g. [9], [10], and [11]. The blended teaching approach in

these studies consisted of a vast range of methods ranging from Facebook communication, wiki group projects and blogging to constructing students' own web pages.

Information from these projects' conclusions reveals that although the overall positive effect of implementation of Web 2.0 tool prevails, there are some aspects requiring specific attention when the instruction design is prepared. Tutors should provide their students with concise and clear instructions to lead them through their tasks.

When the teamwork was explored by Alyousef & Picard in [11, p. 477], "the wiki was used for both cooperative and collaborative teamwork. However, although some collaboration took place during the third face-to-face meeting when the group members decided which bits and pieces to take, most of the collaborations did not occur online; online teamwork mainly involved cooperative practice."

In the study which implemented a blended approach combining face-to-face instruction with peer assessment on Facebook, Shih in [9, p. 841] stresses that the students "became more attentive and willing to express their own ideas in writing and more willing to interact with other people. Thus, the students' friendships, communication, and sense of trust were enhanced." In this project the popularity of the Facebook platform played an important role in increasing the students' motivation to participate. On the other hand, the author of the study admitted that a tutor would have to expect to spend a substantial amount of time checking and correcting students' assignments and online peer comments.

The Czech research has not described our field of interest sufficiently yet, even though several studies do offer some relevant information. Šimonová in [12] completed a comparison of study results in a foreign language learning at the Moscow State Automobile & Road Technical University (MADI), Moscow, Russian Federation, and at the Faculty of Informatics and Management, University of Hradec Králové, Czech Republic. The results show:

- 1) Implementation of modern technologies in education seems to be inevitable because of either institutional needs or students' demands, or both equally.
- 2) Educational process supported by information technologies did not represent any obstacles for students – even if their previous experience was based on their private use of computers only.

This research suggests the idea that the computer literacy based on students' interests (games, communication, the Internet search, etc.) is sufficient for the use of IT in the university foreign language courses.

The other example of a Czech research study was carried out by Zukalová in [13] at the Masaryk University in Brno, the Czech Republic, and it focused on ICT in tertiary education from the students' point of view. The author reveals that the potential of new technologies has not been fully recognized and implemented. The students participating in this study think that their teachers do not use the technologies adequately and do not even have the adequate insight into the possibilities the technologies offer.

The more pieces of information scattered elsewhere about the situation in the Czech Republic we had available, the more eager did we become to analyze our own situation.

4 Methodology of Our Research Project

Our study consisted of two stages, quantitative and qualitative. The participants of the quantitative research were students enrolled in the first year of studies at the Faculty of Economics, the Technical University of Liberec. The total number of enrolled first-year students at this faculty is approximately 370. Out of those, 241 completed the questionnaire at

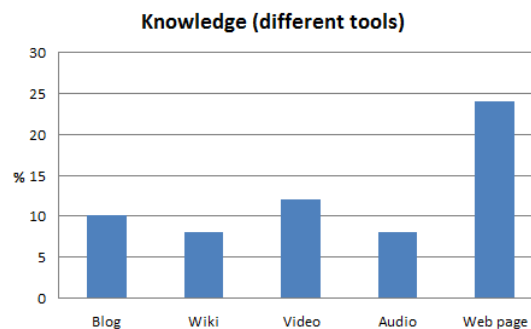
the beginning of the academic year 2011-2012. Afterwards two groups of students of business English worked in teams or pairs using the Web 2.0 technology. The total number of students involved in this stage of research was 45.

The main target of the first stage was to obtain as detailed information as possible about students' attitude towards information technologies, their awareness of different tools of the Web 2.0 technology and other software applications, and also the amount of time they spend using information technologies per day. 241 students of randomly chosen classes filled in the questionnaires designed for the purpose of our study answering all the questions.

The second stage of the study was focused on feasibility of the implementation of teamwork and the Web 2.0 tools in a second language learning/teaching process. The authors employed blended learning, a combination of a course in VLE Moodle providing students with a variety of study materials, the Web 2.0 tools such as students' own blogs or web pages and face-to-face regular weekly instruction during the term.

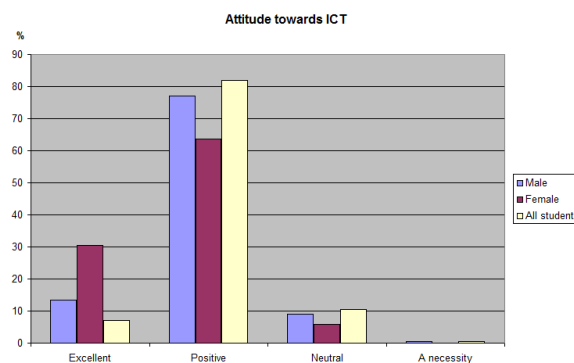
5 Discussion of Research Outcomes

The first theme of the questionnaire invited the respondents to evaluate subjectively how they see themselves in relation to knowledge of individual Web 2.0 tools. From Fig. 1 below it is obvious that the webpage is seen as mastered by almost a quarter of respondents. One tenth of the students are familiar with the other tools. Since most of these tools are very similar in their basic philosophy and design, we can understand this proportion of students as a sufficient base to start from. While students feel comfortable with one tool, they might be expected to deduce working with the other ones more easily. Also, if there is one student in the group who is familiar with this tool, they might be invited to tutor their peers. And finally, the tutors know in which area a more significant input and/or scaffolding is necessary and where it can be omitted.



Source: Own

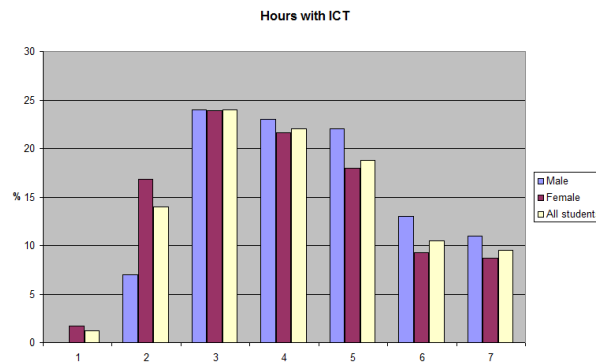
Fig. 1: Knowledge of individual tools in percentages



Source: Own

Fig. 2: Attitude towards ICT

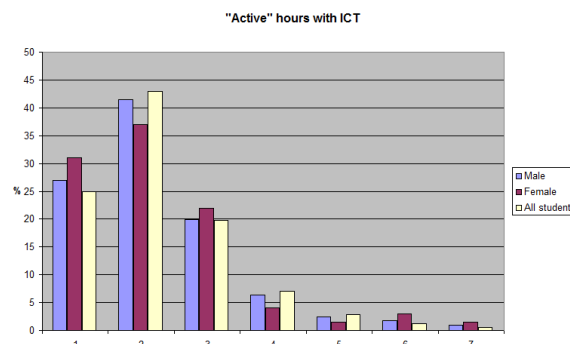
Fig. 2 shows the attitude to ICT in general. Honestly, we expected more positive responses than negative ones, but still we were surprised by the results. What a difference in comparison to students claiming lack of absolutely any ICT skills only a few years ago! It was also striking to see the pattern repeated in the category of “positive” and “neutral” attitudes, where the male responses were stronger. Yet, in the category “excellent”, the females ranked higher than males.



Source: Own

Fig. 3: Hours spent with ICT

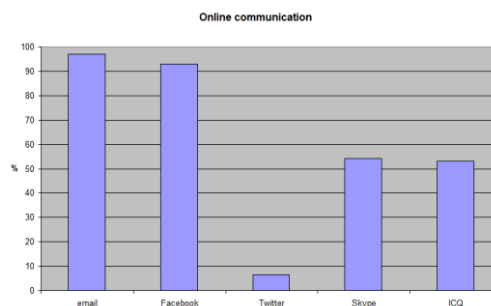
Fig. 3 shows the approximate number of hours spent with ICT per day. This number includes all activities, not only the creative ones, but also the “passive” ones involving watching films, listening to music or playing computer games.



Source: Own

Fig. 4: “Active” hours with ICT

Fig. 4 reveals a very significant phenomenon in relation to the active time proportion. Surprisingly, there is a significant number of students who devote a considerable part of their time to do something active with the technology.



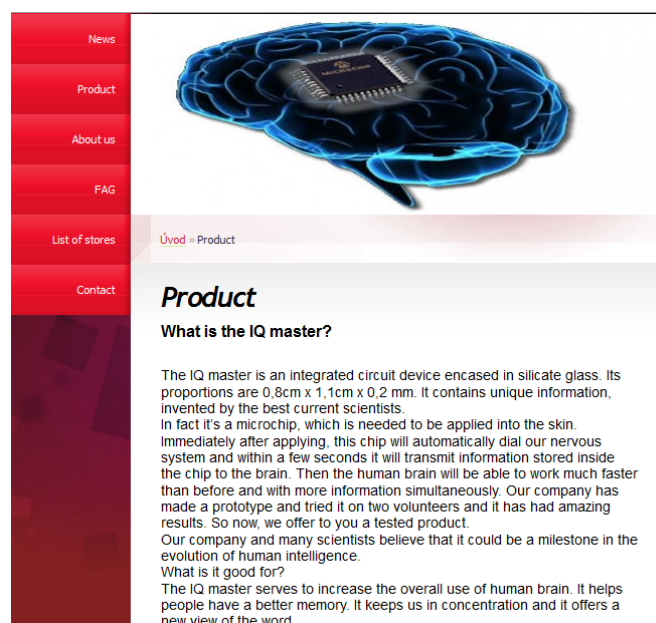
Source: Own

Fig. 5: Online communication

Fig. 5 indicates to tutors, the digital immigrants, which tools they must master themselves if they want to keep meeting their students in the cyberspace.

A variety of channels shows that the teachers should not limit the form of communication to one specific tool, but define the possibilities generally and, when possible, let students decide according to their preferences.

In the qualitative part of the study students worked on designing web pages in teams or pairs. The main purpose of this research activity was to find the answers to the following questions: Are students able to use the Web 2.0 tools to make their own web pages in tasks simulating real life activities? Will their cooperation and motivation be strong enough to overcome some obstacles such as a lack of IT skills or demanding time management of such complex tasks? As the number of participants in this activity was limited to 45 students, we suggest that the research should continue in the following academic year to obtain a deeper insight. Nevertheless, even the partial results reveal that students are capable of completing the above described tasks. They implemented different software applications, mainly blogs and free Internet tools for designing web pages. In their feedback they admitted that the work was more time consuming than the “traditional” form of cooperation, but much more rewarding as the outcome resembled professional and real Internet pages. All the students finished their tasks on time, and no problems concerning the implemented IT tools appeared. The main purpose of this experiment was achieved as the target language structures were practised in situations resembling real life. Moreover, the students were motivated to correct their mistakes after receiving the tutor’s feedback because they wanted to improve the image and layout of their own pages. In the following pictures examples of students’ work are provided.



Source: <http://www.iqmaster.estranky.cz/clanky/product/>

Fig. 6: Example of students’ webpage – introduction

Packaging

Due to the high price and quality of the IQ master we use non-breakable containers which are made from platinum and bulletproof material.

The box is 20 cm long, 10 cm wide and 12 cm high. The packaging is much bigger than we need, but it protects our product against damage.



Price

Due to the challenging conditions and very costly measures for the production the price is set at 1 million euro for each microchip. The price is high, but the microchip will serve you for the whole life and if there is a failure, you will get a free replacement immediately.

Source: <http://www.iqmaster.estranky.cz/clanky/product/>

Fig. 7: Example of students' webpage – packaging and price

Purchase

There are several possibilities how to order the IQ master.

The easiest and most favourite one is to order our microchip online on our web sites from your home. After you order it, we need 14 days for packaging and delivering to your address. The second way is to visit us directly in our stores. There you can ask our assistants any question. And the last option how to order our product is by a mobile phone. Our number is +420326781524.



Source: <http://www.iqmaster.estranky.cz/clanky/product/>

Fig. 8: Example of students' webpage – purchase

Conclusion

From the discussion above we have come to the conclusion that the present situation in our country is more positive than the bleak picture often presented in various commentaries on the state of education. Students enrolling at our Faculty are ready to utilize computer-based learning, they possess the necessary skills and they are motivated to start with real content tasks in the target language. Knowledge on the Internet is transient and well-suitable for constructivist learning. While processing it and applying it in solving real world tasks, students develop their critical thinking skills. We have answered our two research questions. Our students can be compared to students abroad, they possess basic computer literacy and we can rely on their readiness to participate in utilizing information technologies in their study.

Literature

- [1] PRENSKY, M.: *Teaching Digital Natives: Partnering for Real Learning*. Thousand Oaks, Calif.: Corwin Press, 2010, 203 pages. ISBN 978-1412975414.
- [2] PRENSKY, M.: *Digital Natives, Digital Immigrants. On the Horizon* [online]. 2001, Vol. 9, No. 5, p. 5 [accessed 2012-05-01]. Available from WWW: <<http://www.marcprensky.com/writing/prensky%20-20digital%20natives,%20digital%20immigrants%20-%20part1.pdf>>.
- [3] TAPSCOTT, D.: *Growing Up Digital: The Rise of the Net Generation*. New York: McGraw-Hill, 1998, 338 pages. ISBN 00-706-3361-4.
- [4] NIELSEN, L.: *Think You Are a Digital Immigrant? Get Over It!* [online]. [accessed 2012-04-30]. Available from WWW: <<http://theinnovativeeducator.blogspot.com/2010/09/think-youre-digital-immigrant-get-over.html>>.
- [5] KENT, P.: *Learning with ICT: a practical guide for primary teachers*. South Yarra, Vic: MacMillan Teacher Resources, 2009, 96 pages. ISBN 978-142-0268-836.
- [6] WAGNER, T.: *The Global Achievement Gap: Why Even Our Best Schools Don't Teach the New Survival Skills Our Children Need--and What We Can Do about It*. New York: Basic Books, 2008, 290 pages. ISBN 978-0465002290.
- [7] HRUBÁ, J.: *Jak analyzuje situaci ve vzdělávání NERV*. Učitelské listy web o změnách ve vzdělávání [online]. [accessed 2012-04-30]. Available from WWW: <<http://www.ucitelske-listy.cz/2011/03/jana-hruba-jak-analyzuje-situaci-ve.html>>.
- [8] LEWIS, G.: *Bringing Technology into the Classroom*. 1. publ. Oxford: Oxford University Press, 2009, 96 pages. ISBN 978-0194425940.
- [9] SHIH, Ru-Chu: Can Web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology* [online]. 2011, Vol. 27, Special issue 5, pp. 829-845 [accessed 2012-04-11]. Available from WWW: <<http://www.ascilite.org.au/ajet/ajet27/shih.html>>.
- [10] DOHERTY, I.: *Evaluating the impact of educational technology professional development upon adoption of Web 2.0 tools in teaching*. *Australasian Journal of Educational Technology* [online]. 2011, Vol. 27, No. 3, p. 17 [accessed 2012-04-11]. Available from WWW: <<http://www.ascilite.org.au/ajet/ajet27/doherty.html>>.
- [11] ALYOUSEF, H. S. & PICARD, M. Y.: (2011). *Cooperative or collaborative literacy practices: Mapping metadiscourse in a business students' wiki group project*. *Australasian Journal of Educational Technology*, 27(3), pp. 463-480. Available from WWW: <<http://www.ascilite.org.au/ajet/ajet27/alyousef.html>>.
- [12] ŠIMONOVÁ, I.: Moderní technologie ve výuce jazyků: Mezinárodní komparativní výzkum. *Media4u Magazine: Čtvrtletní časopis pro podporu vzdělávání* [online]. 2011, Vol. 8, No. 4, pp. 19-24 [accessed 2012-05-02]. ISSN 1214-9187. Available from WWW: <<http://www.media4u.cz/mm042011.pdf>>.

- [13] ZUKALOVÁ, H.: ICT v terciálním vzdělávání pohledem studentů. Smíšený design v pedagogickém výzkumu. *Sborník příspěvků z 19. výroční konference České asociace pedagogického výzkumu*. Brno: Masarykova univerzita. [online]. 2011, pp. 494-499. ISBN 978-80-210-5774-6. DOI: 10.5817/PdF210-CAPV-2012-0. [accessed 2012-05-02] Available from WWW: <http://www.ped.muni.cz/capv2011/index.php?option=com_content&view=article&id=85&Itemid=107>.

JE NAŠE KATEDRA OSÍDLENÁ DIGITÁLNÍMI IMIGRANTY NEBO DIGITÁLNÍMI DOMORODCI?

V příspěvku je popsán výzkum populace digitálních imigrantů a digitálních domorodců na katedře cizích jazyků Ekonomické fakulty Technické univerzity v Liberci v České republice. Autorky nejprve definují hlavní pojmy a posléze přehledně shrnují dosažené výsledky výzkumných projektů provedených v zahraničí a v České republice. Představují svůj výzkum, z jehož výsledků získaných pomocí dotazníkového šetření a vyhodnocení projektové práce studentů v hodinách vyplývá, že dovednosti nově přijímaných studentů a jejich motivace pracovat s informačními a komunikačními technologiemi (ICT) v hodinách jsou překvapivě pozitivní. Tato nová situace je příslibem toho, že se v dalším inovování studijního programu má na čem stavět.

IST UNSER LEHRSTUHL VON DIGITALEN IMMIGRANTEN ODER DIGITALEN EINGEBOREREN BEVÖLKERT?

In diesem Beitrag wird die Erforschung der Population digitaler Immigranten und digitaler Eingeborenen am Fremdsprachenlehrstuhl der Ökonomischen Fakultät der Technischen Universität in Liberec beschrieben. Die Autorinnen definieren zuerst die Hauptbegriffe und fassen schließlich alle erlangten Ergebnisse der Forschungsprojekte, die sowohl im Ausland als auch in der Tschechischen Republik selbst durchgeführt worden sind, zusammen. Sie stellen ihre Forschung vor, aus deren mit Hilfe von Umfragen und Auswertung studentischer Projektarbeit gewonnenen Ergebnissen hervorgeht, dass die Fähigkeit der neu aufgenommenen Studenten sowie deren Motivation, in den Unterrichtsstunden mit Informationstechniken zu arbeiten, überraschend positiv sind. Diese neue Situation verspricht eine neue Grundlage für weitere Neuerungen des Studienprogramms.

JEST NASZA KATEDRA OBSADZONA CYFROWYMI IMIGRANTAMI ALBO CYFROWYMI TUBYLCAMI?

W artykule jest opisane badanie populacji cyfrowych imigrantów oraz cyfrowych tubylców na Katedrze Języków Obcych Fakultetu Ekonomicznego Technicznego Uniwersytetu w Libercu w Czechach. Autorki najpierw definiują główne pojęcia, następnie podsumowują wyniki projektów badawczych przeprowadzonych za granicą oraz w Republice Czeskiej.

Przedstawiają swoje badanie, z których to wyników osiągniętych za pomocą ankiety oraz opracowanie prac projektowych studentów na zajęciach, wnioskuje, że kwalifikacje nowych przyjmowanych studentów oraz ich motywacja pracować na zajęciach z technologiami ICT są zaskakująco pozytywne. Ta nowa sytuacja jest fenomenem, który pozwala podczas przyszłej innowacji programu nauczania znaleźć uzasadnienie.