

Barrier to thriving plagiarism

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Plagiarism is a phenomenon that existed in the past, exists today and will exist in the future. Slovakia with its population of 5.4 million is confronted with theses and dissertation plagiarism like other countries. The rapid growth in the number of higher education institutions and students, the ICT and internet penetration growth plus low copyright and intellectual property rights awareness in our country contributed to the expansion of plagiarism – an unwanted kind of „creativity“. And there was an inherent lack of systemic action, which would be a barrier for its future growth.

The paper analyzes the establishment of the electronic central repository for theses and dissertations and the nationwide plagiarism detection system in Slovakia obligatory for all higher education institutions operating under the Slovak legal order and evaluates the first two years of its existence.

¹ Research, Innovation and Science Commissioner Máire Geoghegan-Quinn awarded EUR 100 000 the Slovak Nationwide Plagiarism Detection System for Higher Education Institutions as one of the winners of the European Prize for Innovation in Public Administration during the Week of Innovative Regions in Europe Conference in Cork in June 2013.

The Background

The study “Zavádzanie pravidiel akademickej etiky na slovenských vysokých školách (Implementation of the Rules of Academic Ethics at Slovak Higher Education Institutions)” mapping the state of academic ethics in Slovakia shows that the majority of respondents among pedagogical staff have had direct experience with cheating students. The presence of cheating and plagiarism was reflected in media, and these two issues were frequently-debated topics in the context of academic ethics. In the period from 2001 to 2006, the topics related to academic ethics occurred only very rarely, just a few times a year. The academic ethics topics began to appear in the media regularly in 2007 and 2008 and also in the first two months of 2009 (Králiková, 2009). The absence of a broader discussion of academic ethics has its consequences: the members of the academic community and the general public do not fully understand the importance of academic ethics, hence they are less sensitive to the violations (Králiková, 2009).

The dynamics of changes in higher education and in internet penetration contributed to the spread of plagiarism after the Gentle Revolution². There were thirteen higher education institutions in Slovakia in 1989, now the number grew up to 39 and the number of students increased from 63 thousand to about a quarter of million (Krčmárik, 2011). This trend is often criticized and a common denominator for the criticism can be expressed as follows: „The focus on quantity instead of quality.“ (Kleštincová, 2011). In 1989, the internet was just beginning to emerge as a commercially available service (Cerf, 2009), the internet penetration in time of the Gentle

² The Velvet Revolution (Czech: *sametová revoluce*) or Gentle Revolution (Slovak: *nežná revolúcia*) was a non-violent revolution in Czechoslovakia that took place from November 17 to December 29, 1989. Dominated by student and other popular demonstrations against the one-party government of the Communist Party of Czechoslovakia, it saw to the collapse of the party's control of the country, and the subsequent conversion to capitalism (Wikipedia).

Revolution was zero – and gradually reached 79.2% in 2011 (Internet World Stats, 2012).

The questions concerning the collection of theses and dissertations in an electronic form and the plagiarism matters were a recurring discussion topic in the academic community, but without any significant progress. The first higher education institution – the “early bird” – started to use the plagiarism detection system in 2001 and it was a lone runner for a long time.

Ordering and paying for the elaboration of a thesis or dissertation is not a Slovak speciality. If it was detected before the end of the study, a disciplinary action may have prematurely terminated the study. If the fraud was detected after obtaining a university degree, nothing would happen. Our Higher Education Act does not recognise withdrawal of a university degree. Therefore moral principles are broken, but the degree remains intact in the hands of the owner (Hospodárske noviny, 2012).

“R. Králiková from the Slovak Governance Institute (Inštitút pre dobre spravovanú spoločnosť) says that there are no publicly-known cases that the academic community functions as a self-cleaning mechanism against frauds and plagiarists. ‘Covering-up prevails.’” (SME.SK, 2012).

The seed for the future changes was sown by the 36th Plenary Session of the Slovak Rector’s Conference in September 2006 (Slovenská rektorská konferencia, 2006c) when two documents related to the academic ethics were approved. One concerned students “Measures to Reduce the Ethical Violations of Standards for Preparation and Presentation of the Bachelor’s, Master’s and Dissertation Theses” (Slovenská rektorská konferencia, 2006a) and the other concerned the teaching staff “Code of Ethics for Higher Education Institutions Employees” (Slovenská rektorská konferencia, 2006b). These documents dealing with ethics of teachers and students were documents of national importance. But the proposed measures to eliminate plagiarism were not put into life (Králiková, 2009). In February 2008,

the Conference (43rd Plenary Session) revisited the issue of plagiarism and asked the Ministry of Education to coordinate the activities, especially those related to the acquisition of the plagiarism detection system, and it was recommended that higher education institutions amend their regulations in such a way that plagiarism will be penalized. A creation of electronic archives of theses and dissertations was recommended (Slovenská rektorská konferencia, 2009).

The fundamental decision of the Ministry of Education brought dynamics and vigorous progress in these matters. It was decided to implement a project that will provide a comprehensive nationwide solution for the collection and processing of bachelor's, master's (diploma), dissertation (doctoral) and habilitation theses produced at Slovak higher education institutions. The goal: copyright protection, increase in the quality of and dissertations by their originality check, creation of the national theses and dissertations repository (in Slovakia) and building a barrier to thriving plagiarism.

Iacta Alea Est³

The decision was made and the everyday diligent work could start. The first task was to map and analyze the present state. The team for this task was created in 2008 and the results were published after a period of intensive work (Skalka, et al., 2009).

The present state in higher education in Slovakia was described in relation to project activities. The legal analysis part of the study analysed the issues especially in relation to the collection of electronic theses and dissertations – Copyright Act, Higher Education

³ “The die has been cast” is a Latin phrase attributed by Suetonius (as *iacta alea est*) to Julius Caesar on January 10, 49 BC as he led his army across the River Rubicon in Northern Italy. With this step, he entered Italy at the head of his army in defiance and began his long civil war against Pompey and the Optimates. The phrase is still used today to mean that events have passed a point of no return, that something inevitably will happen (Wikipedia).

Act, Libraries Act. In my opinion, the key conclusion of the study is that “A change in legislation is a necessity in the near future if we want to talk about efficient and effective model of plagiarism detection at higher education institutions in the Slovak Republic.” (Skalka, et al., 2009).

The next part describes the proposal for a life cycle of a thesis from the determination of its topic to its transfer and deposit in the central repository. This is followed by the summarization of requirements (hardware, software, organization) for higher education institutions to ensure data exchange and communication with the central repository. Another section describes broader aspects of plagiarism such as technical and social aspects of combating plagiarism at home and abroad. Methodological Guidelines of the Ministry of Education together with the Draft of Higher Education Institutions Guidelines are an integral part of the study.

The analysis showed that nearly 75% of higher education institutions already collect theses and dissertations in an electronic form and store them in their academic information systems and libraries. The rest of them planned to collect theses and dissertations in a short time. It was recommended to collect the theses and dissertations in the local electronic repositories at higher education institutions. The local repositories were defined as communication partners for the data exchange with the central repository.

The study results and recommendations were accepted by Ministry of Education.

The Next Steps

The preparation of the proposal for technical infrastructure of the central repository had started nearly in parallel with the above-mentioned analysis. This process was followed by the completion of the necessary infrastructure at higher education institutions level and its testing.

The preparation of legislative environment represented the fundamental prerequisite for the breakthrough in the fight against plagiarism and created an important step towards the implementation of the central repository and plagiarism detection system. The two key documents:

1. Methodological Guidelines concerning requisites of theses and dissertations, their bibliographic registration, originality check, storage and access (Ministerstvo školstva SR, 2009).
2. The amendment to the Higher Education Act (Zbierka zákonov, 2009).

The most relevant change in the Higher Education Act: Before the defence of the thesis, the higher education institution forwards the thesis in the electronic form to the central repository. The thesis undergoes the originality check. The thesis and the relevant metadata are kept in the central repository for a period of 70 years from the date of registration. The Ministry manages the central repository; its operation is delegated to an institution directly managed by the Ministry of Education (Zbierka zákonov, 2009).

Higher education institutions transposed the Methodological Guidelines and the Higher Education Act amendment to their internal regulations, thus creating the necessary background for the nationwide implementation of plagiarism detection system in all higher education institutions.

The Ministry put the Centrum vedecko-technických informácií SR – CVTI SR / Slovak Centre of Scientific and Technical Information – SCSTI (institution directly managed by the Ministry of Education, Science, Research and Sport) in the position of the central repository and plagiarism detection system operator. The institution had to procure plagiarism detection system, provide the operation conditions for both systems, implement and operate systems in a very short time – from 30 April 2010.

In the course of the procurement process, the tender documents were taken over by eleven companies; however, no offer was delivered to the SCSTI. It is supposed that the requirement to operate the system from 30 April 2010 was the reason for such a result. Pursuant to the Act on Public Procurement, negotiated procedure without publication followed. The company SVOP Ltd. (<http://svop.eu/en/Default.aspx>) was chosen from three companies. By the way, this company won the international competition External Plagiarism Detection Performance at PAN 2011 Lab Uncovering Plagiarism, Authorship, and Social Software Misuse Conference with its new algorithm (CLEF 2011, 2011). This algorithm was best performing in all five indicators.

Grman and Ravas (2011) – the authors of the algorithm – define its objective as detection of similar or matching passages in a suspicious reference text so that the detection is invariant against a change of word order, against the occurrence of changed words, against omissions or additions of words in the passage in a suspicious document, whereby no passage length limits will be set (neither minimum nor maximum length). It is assumed that passage lengths don't have to be the same. The method is based on the quantification of the degree of concordance between tested passages. The quantification is based on a quick calculation (measurement) of the number of matching words in a pair of passages. The degree of concordance or similarity is defined as the number of elements in an intersection of sets of words from passages in a suspicious and reference text (Grman and Ravas, 2011).

Short Trip into Slovak and English

Let me give you an example to illustrate one of the differences between our languages. The Slovak language is much richer than English in the number of forms for one word. Let's take the noun "plagiarism". Its counterpart is „plagiátorstvo“. Here are the forms of

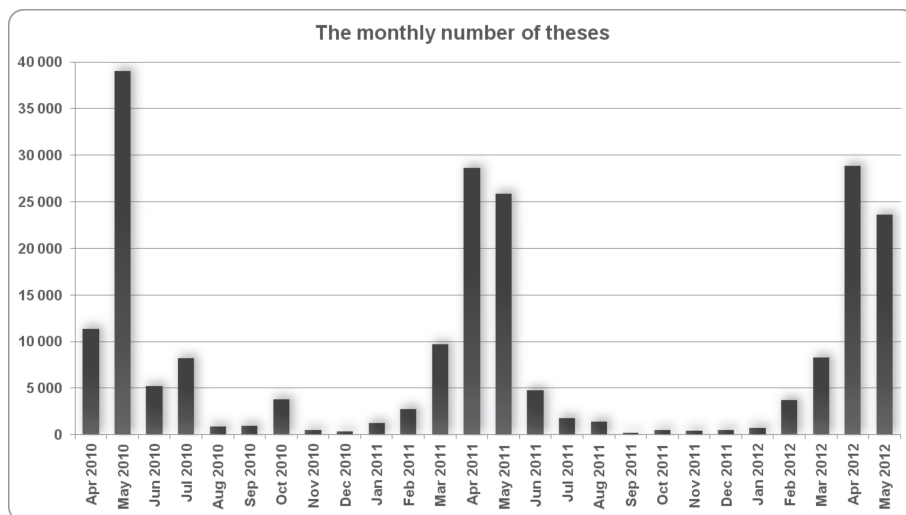
grammatically correct noun „plagiátorstvo“: plagiátorstvo, plagiátorstva, plagiátorstvu, plagiátorstve, plagiátorstvom, plagiátorstvá, plagiátorstiev, plagiátorstvám, plagiátorstvách, plagiátorstvami – the score is 2:10 (taking plural into account). If we also consider the grammatically incorrect forms – by omitting the diacritics in whole or in part (it is a usual habit in the internet communication today) – the score changes to 2:26 (plagiatorstvo, plagiatorstva, plagiatorstvu, plagiatorstve, plagiatorstvom, plagiatorstva, plagiatorstiev, plagiatorstvam, plagiatorstvach, plagiatorstvami, plagiatorstvá, plagiatorstva, plagiatorstvám, plagiatorstvam, plagiatorstvách, plagiatorstvach).

Two Years After

Time is a tireless runner. Two years have passed very quickly. Both systems – the Central Repository of Theses and Dissertations & Plagiarism Detection System – are stable and operate reliably. But the student’s soul is a creative one and does not let us sleep on the laurels. We have seen several minor attempts to outwit the plagiarism detection algorithm and we responded with algorithm modification.

The amendments to the Higher Education Act from December 2010 (Zbierka zákonov, 2011) and from March 2011 (Zbierka zákonov, 2011) has brought us new tasks: from 1 September 2011, theses and dissertations, and opponent’s reports will be available on the internet to the public. This applies to theses and dissertations registered in the central repository after 31 August 2011. In cooperation with our supplier, we managed to do it.

The graph below illustrates the seasonality of the central repository „traffic“:



For the period from the 30 April 2010 to 30 May 2012 (25 months), there are 213 300 theses and dissertations in the central repository. For the calendar year 2011, there are 77 800 theses and dissertations in the central repository and for the academic year 2010/2011 there are 81 800 theses and dissertations. Theses share: Bachelor's 50.4%, Master's 43.6% and Dissertations 2.1%.

The majority of theses and dissertations are in the Slovak language 92.8%, followed by English, Czech, Hungarian – all below 2% and German below 1%. Situation in dissertations is as follows: Slovak language 91.2%, English 6.4%, German 1.7%. The central repository contains a small percentage of theses in other languages: Russian, Ukrainian, French, Spanish, Italian, and Swedish.

We are committed to the maximum response time of 48 hours (from the time the thesis has come to the central repository to the time when the output protocol is generated). Daily maximum of theses and dissertations we registered was 4 595 in May 2010. Theoretical daily capacity is 15-18 thousand of theses and dissertations (configuration with one plagiarism detection server). Thus,

the nationwide annual production should be processed in 7-8 days approximately (if it came at once).

It takes theoretically 4.8 seconds to execute the originality check including conversion, detection and generation of output protocol (corpus + internet resources). Smaller batches mean more time per thesis (more communication breaks between modules, lower level optimization – it takes almost twice as long to process two batches of 100 files than one batch of 200 files).

The theses and dissertations occupy 436 GB of disk space; the plagiarism detection system occupies 3 TB of disk space. A group of 4-5 people takes care of the system operation as a part of their full-time duties.

Summary

The analysed topics can be summarised as follows:

- Before the implementation of the project it was necessary to take into account and to find a solution for:
 - Thriving theses and dissertations plagiarism;
 - The lack of a systemic tool to fight plagiarism at the national level;
 - The lack of access to theses and dissertations from one place by the public;
 - Sporadic efforts of higher education institutions to check the originality of theses and dissertations;
 - Low copyright and intellectual properties awareness.
- And what did the project's implementation immediately bring?
 - The very existence of the central repository and plagiarism detection system acts preventively and not just in the student community. It helps to increase copyright

and intellectual property rights awareness at least in the academic community, improves the work of students with literature, internet, and quotes and contributes to higher quality of theses and dissertations;

- The existence of a real tool for copyright protection and plagiarism inhibition;
- Uniform methodology for the collection of theses and dissertations (creation of a common central repository for all higher education institutions) and for their originality check; setting up a common level of theses and dissertations originality check for all higher education institutions;
- Automated collection of theses and dissertations, originality check and distribution of originality check protocols;
- The public is able to verify the suspicion of plagiarism;
- There is no statistics, no feedback to compare the pre- and post-implementation state of plagiarism with respect to the number of theses and dissertations that were not defended because of plagiarism.
- Instead of statistics:
 - ◆ “The launch of the system had mainly psychological effect – the students were more responsible in writing their work and more careful in the use of resources,” said the President of the Slovak Rectors’ Conference Libor Vozár (SME.SK, 2011).
 - ◆ The implementation of the system was praised by the rector of the University of Economics in Bratislava, Rudolf Sivák, saying that the system had a particular positive effect on the attitude of students. “The theses are being written more independently, they have higher quality and there was also an

increase in the share of the citation of sources,” he summed up (SME.SK, 2011)

Other aspects:

- The central repository and plagiarism detection system is a breakthrough in the fight against plagiarism in our country.
- The comprehensive national theses and dissertations repository and the nationwide system barrier against plagiarism were built and the systems are obligatory for higher education institutions operating under the Slovak legal order. There are 35 higher education institutions of this type and 33 from them are active in using the central repository and plagiarism detection system. The remaining two “were born” in 2011 and are still waiting for their first thesis.
- All the theses and dissertations from the higher education institutions are located in the only national repository; the theses and dissertations will be kept in Slovakia in the central repository for 70 years.
- The only plagiarism detection system is applied to all of the theses and dissertations coming to the central repository; the incoming theses and dissertations are compared to the central repository and to selected internet resources.
- The output protocol is made available to the examining committee for evaluation – it is one of the sources used for decision-making in the matters of plagiarism.
- And the technology used? “The most advanced technologies + very well-known and time-proven 3H technology: heads, hearts, hands.” (Kravjar, 2011b).
- The higher education institutions pay no fee for the service, the system acquisition costs were covered by the Ministry

of Education and the operating costs are also paid by the Ministry.

In Conclusion

- A large reserve in the fight against plagiarism is the upbringing of the young generation. „It is necessary to prevent plagiarism and the processes of education to a non-cheating culture have to start gradually and appropriately from the earliest age. For younger generations, the term ‘copyright’ is vague – because nobody taught them what it means and they think that everything on the internet belongs to everyone.“ (Skalka, et. al, 2009).
- The correctly oriented and properly timed educational process and implementation of advanced technologies have a great potential in the plagiarism inhibition. Technology and other anti-plagiarism measures should walk hand in hand and contribute to the defined objectives.
- Technology is no panacea. “An important role is the role of education – from the early stages of the educational process – in close relation to the prevention and detection in the presence of clearly defined sanctions rules, and interaction of all these components.” (Kravjar, 2011a). Technology is just one of several dimensions of the fight against plagiarism. There is still a long way to go in order to raise the ethical and moral awareness to a higher level. We have to minimize ethical and moral malpractices related to the writing of theses and dissertation by providing appropriate regulations and policies. Education and awareness raising will have the key role.

- The largest room in the world is the room for improvement (Anonymous). That is right – there are gaps in the educational process, in legislation, in regulations and policies whose elimination can significantly contribute to the non-cheating culture.
- The implementation of the central repository of theses and dissertations and the plagiarism detection system on a national level into everyday practice is very likely a unique solution in Europe and perhaps in the world. A milestone was built. „Spiritual fathers”, architects, developers, organizers and all participating parties who contributed to the viability of this solution deserve recognition.
 - The closest follower is the Czech Republic – there are theses and dissertations from 34 Czech higher education institutions (Masarykova univerzita, 2012) – 46% – from the total count of 74 (Ministerstvo školství, mládeže a tělovýchovy České republiky, 2010) in the only central repository that undergo the originality check by the only plagiarism detection system.
 - The next follower is Poland – there are only master’s theses from 64 higher education institutions from the total count of 458 – 14% in the only repository and 149 – close to 33% of higher education institutions are using a plagiarism detection system (Kawczyński, 2012).
- And maybe today we should consider and think about linking individual systems into an international network of interoperable systems.

“The Slovak model” can serve as one of the examples how to fight against plagiarism on a national level. If there is interest, we are open to share our experience. To date, we have no information

about a similar model in real operation. “Many paths can lead to the same, remarkable goal.” (Erin, 2010)

What to add? Maybe this: “Where there’s a will, there’s a way.” (English proverb)

References:

- Cerf, V. (2009). The Internet’s Big Bang. [ONLINE] Available at: http://www.time.com/time/specials/packages/article/0,28804,1902809_1902810_1905184,00.html. [Accessed 14 March 2012].
- CLEF 2011 (2011). PAN 2011 Lab Uncovering Plagiarism, Authorship, and Social Software Misuse. [ONLINE] Available at: <http://www.webis.de/research/events/pan-11>. [Accessed 22 March 2012].
- Erin (2010). Many paths can lead to the same, remarkable goal. [ONLINE] Available at: <http://unclutterer.com/2010/08/03/many-paths-can-lead-to-the-same-remarkable-goal/>. [Accessed 22.5.2012].
- Grman, J. and Ravas, R. (2011). Improved implementation for finding text similarities in large collections of data. [ONLINE] Available at: <http://www.uni-weimar.de/medien/webis/research/events/pan-11/pan11-papers-final/pan11-plagiarism-detection/grman11-finding-text-similarities-in-large-collections.pdf>. [Accessed 25.5.2012].
- Hospodárske noviny (2012). Napíšem vám diplomovku. Stačí zaplatiť. [ONLINE] Available at: <http://style.hnonline.sk/vikend/c1-55146090-napisem-vam-diplomovku-staci-zaplatit>. [Accessed 23 March 2012].
- iEDU (2012). Časové rady. [ONLINE] Available at: <http://www.uips.sk/statistiky/casove-rady>. [Accessed 15 March 2012].
- Internet World Stats (2012). Internet and Facebook Usage in Europe. [ONLINE] Available at: <http://www.internetworldstats.com/stats4.htm>. [Accessed 22 March 2012].
- Kawczyński, S. (2012). Ogólnopolski system antyplagiatowy. [ONLINE] Available at: <http://www.fresnel.org.pl/wp-content/uploads/2012/05/>

prezentacja-dr-Sebastian-Kawczynski-Skuteczna-polityka-antyplagiatowa1.pdf. [Accessed 22.5.2012].

Kleštincová, L. (2011). Prečo máme mizerné školy? Tu je päť hlavných dôvodov.. [ONLINE] Available at: <http://nemajnasalame.sk/news/13/preco-mame-mizerne-skoly-tu-je-5-hlavnych-dovodov/>. [Accessed 19 March 2012].

Králiková, R. (2009). Zavádzanie pravidiel akademickej etiky na slovenských vysokých školách. [ONLINE] Available at: http://www.governance.sk/assets/files/publikacie/akademicka_etika.pdf. [Accessed 21 March 2012].

Kravjar, J. (2011a). Antiplagiátorský systém. [ONLINE] Available at: <http://www.inforum.cz/pdf/2011/kravjar-julius.pdf>. [Accessed 23 March 2012].

Kravjar, J. (2011b). Plagiarism detection system. [unpublished presentation]

Krčmárik, R. (2011). Vzdelanie stráca úroveň, školy ani zamestnávateľia si nevyberajú. [ONLINE] Available at: http://spravy.pravda.sk/vzdelanie-straca-uroven-skoly-ani-zamestnavatelja-si-nevyberaju-py2-/sk_domace.asp?c=A111228_110658_sk_domace_p12. [Accessed 6 March 2012].

Masarykova univerzita (2012). Školy, které používají systém Theses.cz. [ONLINE] Available at: <http://theses.cz/>. [Accessed 20 March 2012].

Ministerstvo školstva SR (2009). Metodické usmernenie 14/2009-R z 27.augusta 2009 o náležitostiach záverečných prác, ich bibliografickej registrácii, kontrole originality, uchovávaní a sprístupňovaní. [ONLINE] Available at: <http://ukzu.uniza.sk/html/usmernenie.pdf>. [Accessed 29 March 2012].

Ministerstvo školství, mládeže a tělovýchovy České republiky (2010). Přehled vysokých škol. [ONLINE] Available at: <http://www.msmt.cz/vzdelavani/prehled-vysokych-skol>. [Accessed 20 March 2012].

Skalka, J. et al. (2009). Prevencia a odhaľovanie plagiátorstva. [ONLINE] Available at: http://www.crzp.sk/dokumenty/prevencia_odhalovanie_plagiatorstva.pdf. [Accessed 21 March 2012].

- Slovenská rektorská konferencia (2009). Výročná správa o hospodárení Slovenskej rektorskej konferencie za rok 2008. [ONLINE] Available at: http://www.srk.sk/images/stories/dokumenty/vyroczne_spravy/2008.pdf. [Accessed 21 March 2012].
- Slovenská rektorská konferencia (2006a). Opatrenia na odstránenie plagiátorstva pri spracovaní a prezentovaní bakalárskych, diplomových a dizertačných písomných prác. [ONLINE] Available at: <http://old.srk.sk/zaznam/90/Stanovisko-plena-SRK-k-plagiatorstvu/>. [Accessed 17.5.2012].
- Slovenská rektorská konferencia (2006b). Etický kódex zamestnancov vysokých škôl. [ONLINE] Available at <http://old.srk.sk/zaznam/89/Eticky-kodex-zamestnancov-vysokych-sk%C3%B4l/>. [Accessed 17.5.2012].
- Slovenská rektorská konferencia (2006c). Zápisnice. [ONLINE] Available at: <http://www.srk.sk/images/stories/dokumenty/zapisnice/36.pdf>. [Accessed 17.5.2012].
- SME.SK (2011). Antiplagiátorský systém vraj vystrašil študentov, viac citujú. [ONLINE] Available at: <http://www.sme.sk/c/5513734/antiplagiatorsky-system-vraj-vystrasil-studentov-viac-cituju.html#ixzz1XuJ1h000>. [Accessed 22.5.2012].
- SME.SK (2012). Plagiátor rozbieha novú fakultu. [ONLINE] Available at: <http://www.sme.sk/c/6385609/plagiator-rozbieha-novu-fakultu.html>. [Accessed 24.5.2012].
- Wikipedia. Velvet Revolution. [ONLINE] Available at: http://en.wikipedia.org/wiki/Velvet_Revolution. [Accessed 17.5.2012].
- Zbierka zákonov (2009). Zbierka zákonov č. 496/2009. [ONLINE] Available at: <http://www.zbierka.sk/zz/predpisy/default.aspx?PredpisID=209327&FileName=zz2009-00496-0209327&Rocnik=2009>. [Accessed 20 March 2012].
- Zbierka zákonov (2011). Zbierka zákonov č. 6/2011. [ONLINE] Available at: <http://zbierka.sk/zz/predpisy/default.aspx?PredpisID=210070&F>

ileName=zz2011-00006-0210070&Rocnik=2011. [Accessed 20 March 2012].

Zbierka zákonov (2011). Zbierka zákonov č. 6/2011. [ONLINE] Available at: <http://zbierka.sk/zz/predpisy/default.aspx?PredpisID=210195&fileName=zz2011-00125-0210195&Rocnik=2011>". [Accessed 20 March 2012].