Ethical perception of Information Technologies at Computer Science Faculties

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Abstract

In recent years, Information Technologies (IT) is increasingly becoming an integral part of the everyday activities of all strata of human society. Their role is undeniable, primarily in the sphere of education and professionalism, as well as in providing benefits for the whole human society. But anyway, it should not leave aside the possibility of misuse of IT by individuals, which can grow from improper behaviour up to cybercrime. In this context, based on the fact that education represents a fundamental component of ethical education of the IT users, a case study was carried out by Research Centre of the Computer Science Faculty at AAB University in Kosovo. The primary purpose of the research has been finding the real situation regarding the ethical perceptions of students, as a massive category of IT user's and resulting conclusions for further cooperation in support of ethical use of IT.

Keywords: Information technologies, ethics, education, computer science

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1. Introduction

Based on the current trend of utilising Information and Internet Technologies, according to the European Commission, published by Internet World Stats, in relation to Internet User Statistics, Facebook & 2015 Population (Figure 1), we see that these technologies are used massively by various users, from different regions, from different races and religions, different ages and different levels of education, etc. Therefore, it is normal that the term Information Technologies (IT) is understood and interpreted in different ways by various categories of users (Pajaziti, Hamiti, Bilalli & Selmani, 2008). Otherwise, from a professional aspect, the expression IT refers to anything related to computing technology, such as networking, hardware, software, Internet or people that work with these technologies (Christensson, 2005). Rightfully, we can say that we are now living in the 'information age' and IT has become an inseparable part of our everyday life (Collins & Halverson, 2009) Collins & Halverson, 2009). Moreover, IT has revolutionised our social and business habits. It has evolved from a network of computers and information into a network of people. And change is far from over.
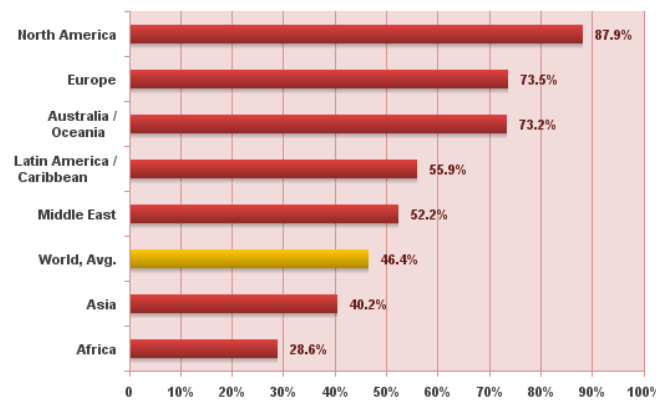

Figure 1. Internet world penetration rates-November 2015[a]

This trend is followed by countries in transition (Hamiti & Dika, 2011) and currently, candidates for European Union (Table 1). It should be noted that the Republic of Kosovo, as the newest state in the region, has exceeded the European average of Internet users in proportion to the number of inhabitants to 10.9%, in which case it advances from all the neighbouring countries in this context. But, are they properly used for what Internet and IT are aimed (Floridi, 2010; Reynolds, 2015), and how does the relevant ethical perception stand (Baase, 2013), this is a matter of research and discussion!

Table 1. Internet usage and 2015 population in the European Union candidate countries[b]

European union candidates	Population (2015 Est.)	Internet users (30 November 2015)	Penetration (% Population)	Users (% Table)	Facebook (15 November 2015)
Albania	2,893,005	1,815,146	62.7	3.1	1,300,000
Bosnia-Herzegovina	3,825,334	2,628,846	68.7	4.5	1,500,000
Kosovo	1,804,944	1,523,373	84.4	2.6	560,000
Macedonia	2,069,172	1,408,278	68.1	2.4	1,000,000
Montenegro	622,099	379,480	61.0	0.6	320,000
Serbia	7,111,973	4,705,141	66.2	8.0	3,600,000
Turkey	77,695,904	46,282,850	59.6	78.4	41,000,000

[a]Retrieved January 5, 2016, from http://www.internetworldstats.com/stats.htm

[b]Retrieved January 5, 2016, from http://www.internetworldstats.com/stats9.htm#links

Nevertheless, the ethics should not be neglected in any way, as a study of how to know what's right and what's wrong, and as a mechanism that needs to be used conscientiously and continuously for maintaining the direction, stability and human society equilibrium. Besides the advantages and benefits that the human society has from the IT, there is always the possibility that the IT can be abused by various users (Hamiti & Selimi, 2015) (Hamiti & Selimi, Ethical Education of Information Technology Users, 2015). In this context, the role and importance of ethics are undeniable. In particular, in advising and suggesting users to use the IT resources correctly and fair (Hamiti, Reka & Baloghova, 2014) (Hamiti, Reka, & Baloghová, Ethical Use of Information Technology in High Education, 2014).

2. Case study: ethical perceptions of IT at computer science faculties

The case study was conducted at AAB University (http://aab-edu.net/) in Kosova, a country that is still in social, economic and political transition. The university is relatively young, with the status of the private institution that is established in 2004. Currently, it is an example of the multicultural environment, where studies and research are done in parallel in Albanian and two local languages, Bosnian and Turkish, and also in English as an international language. The mission of the university is to provide: excellence in teaching and research, equity and openness regardless of ethnicity and broad internal and international co-operation.

Within the university functions the Research Team of the Computer Science (CS) Faculty. Under the leadership of this team, 105 students of CS Faculty are surveyed, all undergraduates. This number represents approximately 24% of the students of this faculty, which is reasonable for the parameters of the social sciences. In addition to research team members, academic and administrative staff, a significant number of students has been directly involved in the implementation of the survey, the distribution of questionnaires, technical data processing and extraction of final findings. In this case, students have been directly involved in the research process and involved in all stages of completion of the survey. Below is presented some of the most characteristic findings of the research.

2.1. How do the students define ethics

The first question students were asked was: What does ethics mean? How do you define it?

After analysing the responses received, the impression that the students of the Faculty of Computer Science does not possess enough basic knowledge about issues related to ethics. This is proven by the fact that nearly half of the students gave no answer to this question (45.71%). But even those who responded (54.29%), they only expressed their personal opinion about the definition of ethics and didn't give a professional definition. Some of them have localised ethics only in the university environment! This can be an indicator of a lack of adequate education from the previous schooling!

2.2. How does students understand IT—ethics and what does it mean and has to do with?

Even more surprising is the case of responses dealing with IT Ethics, considering the fact that 3/4 of the students surveyed did not respond (75.29%) and the rest of the students (24.71%) have just tried to answer with a very poor vocabulary and not summarising a complete answer about the issue. This makes us conclude that students have never deal with courses that treat ethical use of IT regarding the curricula of the first cycle of studying.

2.3. How much do the students and the lecturers respect the ethical principles?

Looking at the answers of this question, there are no significant differences between the answers of the students and the lecturers. *Often* or *always* is declared that the students respect the principles in 94% of cases, whereas their teachers expressed in 90% of cases. Equal is the number of cases (9%) of

those who claim that *sometimes* they respect ethical principles. It is not recorded in any case where a student confirms that he/she *does not* respect ethical principles. But there are two cases where students wrote that there are teachers who do not respect these principles. Although this number is symbolic, it may be a signal to the management of the faculty to verify and investigate the presence of any such possible case. Ne pergjigjen e kesaj pyetjeje nuk verehen dallime te konsiderueshme mes studenteve dhe mesimdhenesve.

2.4. What kinds of activities are preferred for improving ethical values

Students' opinions of all kinds, concerning concrete activities that would like to be taken in the context of ethical education. Below is a list of activities proposed by the students.

- Lectures   (29%)
- Seminars   (20%)
- Conferences   (19%)
- Debates   (39%)

2.5. Adhering to ethical principles positively affect the learning process

This is one more reason why it should be insisted on respecting the ethical principles within the faculty of computer science because students think it has a positive impact and it supports the learning process.
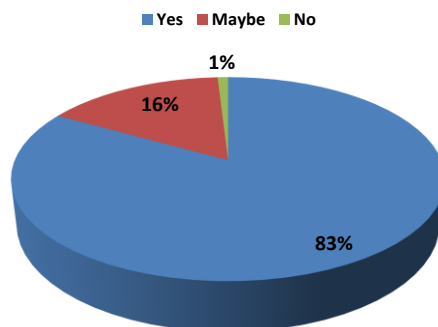

Figure 2. The impact of respecting the ethical principles in the teaching process

Only a minority of students (16%) express indifference in this context. And 1% of them believe that it has nothing to do with the advancement of the teaching process.

2.6. Respecting intellectual property rights, freedom of expression and anonymity

In the context of respecting intellectual property rights, freedom of expression and anonymity, student's responses are variable. This is an issue that should be treated more seriously. Although about 75% of the students think that always or often these principles of professional ethics are respected, still remains worrying percentage of 25% of those who said they sometimes or never adhered to the principle in question. Perhaps the result of this kind can be from untreated professionally, these areas within the faculty and the lack of information. But it is not excluded the possibility of the reflection of the real situation. So the dilemma remains open dealing with ethical issues considering intellectual property rights, freedom of expression and anonymity. The issues which are guaranteed by the actual legislative law and international norms.
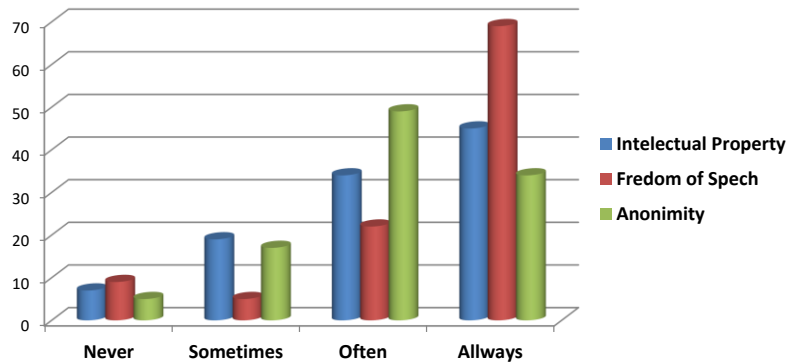
Figure 3. Respektimi i pronesise intelektuale, lirise se te shprehutit dhe anonimitetit

2.7. Njohurite rreth IT crime dhe mundesia e involvimit ne IT crime

Njohurite rreth nocionit IT crime eshte interesante se rriten proporcionalisht duke filluar nga viti i pare ne favor te vitit te trete. Eshte i arsyeshem ky ndryshim duke marre parasysh kembimin e pervojes akademike ne studimet deridiplomike. Por, serish eshte brengosese perqindja e larte (39%) e studenteve qe deklarojne se nuk kane njohuri te mjaftueshme rreth ketij nocioni, si fenomen negative ne shoqeri dhe per fat te keq, mjafte i pranishem ne arenen nderkombetare.
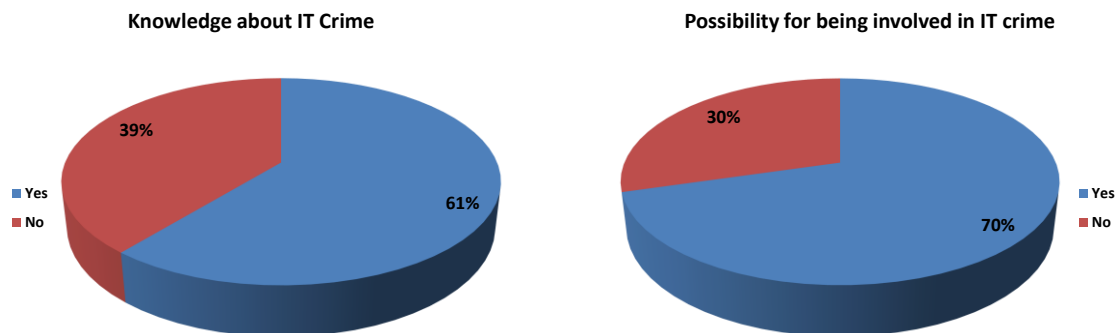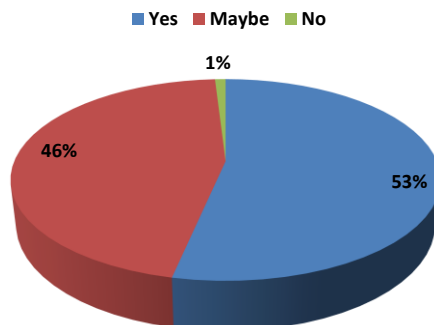

Figure 4. Njohurite rreth IT crime dhe mundesia e involvimit ne IT crime

Sfiduese jane edhe pergjigjet e fituara ne pyetjen rreth mundesise se involvimit padashje ne IT Crime, si rezultat i pakujdesise ose mosinformimit te mjaftueshem. Pothuajse te kunderta jane rezultatet e fituara ne krahasim me pyetjen paraprake. Pra, edhepse shumica e studenteve (61%) konfirmojne se kane njohuri te mjaftueshme rreth IT Crime, serish ne perqindje akoma me te larte (70%) paraqiten studentet qe nuk ndjehen te sigurte ne perfshirje padashje ne IT Crime. Kurse vetem nje pakice e tyre (30%) ndjehen te sigurte nga ky aspekt. Per me teper, ne pyetesor nuk jane perfshire edhe fenomenet tjera negative si: pedofilia, terorizmi, prostitucioni, etj. Qe akoma me teper kane nevoje per tasjtim professional dhe kategorizim perkates nga aspekti i sanksionimit me ligjet ne fuqi.

2.8. Nevoja per lende IT Professional Ethics ne Computer Science Faculties

Nga rezultatet e fituara ne Figure 5, mund te konstatohet qe a significant number of students (53%) understood the challenge of time and see it reasonable that such courses enter their study programmes. Only a very small number of students (1%) feel they have no need for such courses. Por, gjithashtu vlen te theksohet se nje numer relativisht i madh I studenteve ka shprehur qendrim indifferent (46%) dhe te papercaktuar ne lidhje me kete ceshtje. This leaves open the possibility that the interest for such courses within the curriculum to be even greater if it is offered to them.

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Figure 5. Nevoja per lende te etikes professionale ne Computer Science Faculties

3. Conclusion

Since the research has been conducted in Kosova, it is expected that the results will have a local character. Therefore, expanding the research in other countries will contribute to having global results and will help us noticing eventual differences while comparing and processing the results. For countries in transition, it is worth to mention the fact that the education of users for the use of IT cannot be perfect and without gaps. Therefore, within this paper, except determining the current situation, there were attempts to identify characteristic cases which will contribute in planning activities that need to be undertaken on behalf of using IT in positive connotation in the upcoming years.

Based on ethical perception of IT at CS Faculties, which are considered in the context of this paper and also taking into account the results of the random survey in AAB University, it can be concluded the following:

- There are indications that enrolled students in universities with insufficient knowledge in the field of ethics as a result of prior education.
- Code of ethics must be necessarily published in written form in the university premises, in order to inform and to remind constantly students and staff members with the freedoms, rights and obligations, as well as courtesy within the high education institutions and outside them.
- Ministry of Education and Science and the Academic Planning Offices within universities must seriously handle perception of the current trend of ethical values in higher education and to review the possibility of enriching the curriculum with dedicated courses to ethics in general, as well as professional ethics in particular.
- Seminars, debates, conferences and other similar activities can be very productive in the advancement of ethical values within the university and broader.

Such conclusions represent the preferences of the Research Team of AAB University, in favour of guaranteeing sustainable ethical values at the university level.

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