E-Identity: Responsibility or Commodity?

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Summary

The aim of this paper is to analyze importance of e-identity, related issues (e.g. trustworthiness of information, pseudonimity, privacy, fraud, property, etc.) and role of virtual life in the real one. As Internet users are in great proportion service-oriented and interested in interaction, intermediation and social network communication, the reputation of e-identity has become increasingly important. In this paper two aspects of digital identities are analyzed: encrypted identity (e.g. passwords) and personal virtual identities, used in forums, chats, blogs, etc. which are created through explicit statements (true or false) of users and by implicit ways of interaction and behaviour.
After the analysis of the main types of identification and web services, results of the pilot study, conducted among students of the Faculty of Humanities and Social Sciences, regarding reliability of information of e-identity has been presented. The aim of the paper is not to list detailed issues but to raise the awareness related to the potential problems in the sphere of e-identities and suggest the appropriate actions.

Key words: e-identity, real identity, virtual identity, information, reliability, reputation, protection

Introduction
Online identity vs. real life identity?
In most dictionaries identity is defined as the condition of being the same with something described or asserted. While humans feel unique and have unique physical identity, digital identity is a set of characteristics asserted by one digital subject. According to Nabeth (2005a) the quality of online identities (how they represent themselves and how they are perceived) has direct implications

on the quality of the space and interactions (e.g. evaluation of the product, relevance of information, raising interest for certain topics). In its simplest way digital identity is represented through the user name and the password, which is just one type of authentication.

Using e-identities in different areas of life (finances, education, fun, etc.) in some instances people can freely redefine themselves on the Internet as they wish and in many cases it involves deception: most users prefer to identify themselves by means of pseudonyms, which allow them to hide their real identities while online, but still let them build a reputation with their usernames. Also, often users have more than one e-identity (e.g. eBay for bids or simply for escaping the consequences of negative reputation). One of the greatest fears of e-identity is having one's identity stolen or abused, and in most services these issues are being dealt with by law protection.

Regarding e-identities in the academic area, users can ask their provider to hide their identity but then they lose the possibility of using certain services in the system. Here, as well as in e-banking, the question of trusting the "guaranteed privacy, without fear of unauthorized access" is being posed. Also, major concerns regarding virtual identity revolves around the areas of misrepresentation, the effects between on and offline existence, as well as the validity of online relations. Whether we refer to online communities, e-classes, e-banks or blogs, these include the same issues, being either positive or negative and building up a sense of e-identity and its preservation.

The notion of human identity is an intuitively understood concept, but hard to formalize. Identity is created out of attributes that differentiate each individual from other individuals.

According to Wiki, "digital identity refers to the aspect of digital technology that is concerned with the mediation of people's experience of their own identity and identity of others" or it is defined as the representation of a "human identity used in a distributed network interaction with other machines or people with purpose to ease human communication".

Digital identity is created through a set of claims made by one digital subject about itself or another digital subject, therefore it is a subset of the characteristics that identify a person. Closely related notion is digital identity management described as an "interaction between user and his identity information stored and maintained digitally" (Gautirez, 2006).

The saying *in cyberspace nobody knows you're a dog* reflects part of identity problems in the electronic environment.

E-identity raises many issues, such as trustworthiness or reliability of data, pseudonimity, privacy, fraud, property, propagation, etc.

Virtual life vs. real life

Every Internet user is dealing with this doubt: should there be difference between my virtual life and my real life? In every sphere of e-life (finance, educa-

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tion, fun, etc.) exists request for e-identity. When will users disclose or hide themselves? What is the main reason of hiding or consequence of disclosing? Considering student's opinion we will try to answer some of these questions and elaborate on e-identity in the areas of finance, education and fun showing positive and negative sides.

The idea of a virtual world, such as that found in Second life, is all about wish fulfilment. People are not showing who they are but who they would like to be. Here is misrepresentation in charge. What can virtual life offer? For some users, it is easier to express their opinions and feelings incognito on chats, blogs or forums, or to use services on Internet (e.g. e-banking), or to check a lesson using e-learning system. One blogger said that virtual life is a great opportunity to escape from problems of real life. That's his way of dealing with problems. But if virtual life is so perfect, why are users then afraid to use e-banking or online buying services? There is also threat of stealing usernames, passwords and disturbance of privacy. So virtual life besides the lack of face-to-face communication could also bring problems that users can hardly avoid.

e-Banking
Users of e-banking services require e-identity. Users are given a token (password protected device) that gives access to the control bills, of buying and selling ect. The token is used for protection of electronic identity.

One of the key aspects is an authentication, providing codified assurance of the identity. Authentication methods include in most cases passwords, bank credit card or encryption methodologies, but also some new techniques such as handprinting or voiceprinting. According to Tsui (2006) today there are two main problems on the Internet: safety (security and privacy) and convenience.

The study undertaken by Arcot (2007) claims that "the identity theft and fraud is the nation's fastest growing crime (…) and a big business too" thus showing the necessity for protection of e-identities.

E-identity in education
Security and identity management at universities are ranked as critical issues because of their strategic importance. Applying basic functions for access management (identification, authentication, authorisation accountability – IAAA) the system is required to:

- request or assign the username (identification),
- validate if the token belongs to the user (authentication) which can be password, identity card or personal attribute (fingerprint, voiceprint, retina pattern),
- ensure the user has allowed level of access to the services and data (authorization),

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- ensure that only authorized persons can assume authorized sessions, providing the appropriate identification, authentication and authorization (accountability).

AAI@EduHr is an infrastructure enabling a unique authenticity and authorization check created with the purpose to ensure simple and efficient use of all resources of the system, including CARNet (Croatian Academic Research Network) services, Edu Roam (using the same computer during the visit in European universities), CMU (CARNet Modem Access) etc. The system is cheap and can be used only by students, professors and members of CARNet. CARNet's e-identity is a virtual identity that is proving student's status and enables him or her Internet access, e-mail address, CARNet online courses ect. E-identity is determined by username (login, user id) and password. User also gets account on public server. Anonymous or group accounts are not allowed. User can ask other extra services (ftp, web site). Personal information about a user is public and can be changed by the user. On user's demand information could be removed. But in that case user is losing the possibility of using services of AAI@EduHr system.

E-identities and web services

Reputation of e-identity has become increasingly important, since Internet is more and more used for interaction (online chats, forums, multi-player online games, virtual community system, Wiki, CMS, e-mail, MUDs-Multi-User Dimensions) or intermediation (digital marketplaces, online social networks) with other people creating social life of the virtual community. According to Nabeth (2005b) a considerable part of population is less centred on information and more on the social process.

E-identities can reveal various amounts of personally identifiable information. Online users at different web services (including forums, instant messaging, massively multiplayer online games etc.) can freely redefine themselves as they wish and in most cases, it involves deception. Most users prefer to identify themselves by means of pseudonyms, which allow them to hide their identities online, but still let them build a reputation with their username. Users can hide behind their computers saying whatever they want to say with little consequences and without fear of persecution.

Although these "online masks" do not reveal the actual identity there seems to be certain connection between virtual and real identities. When it comes to online communities such as MySpace and Facebook, people create their own social network and an important part of it is popularity. The attention one gets as a result of their page visits makes signing in onto the networks on the daily basis even more addicting. In MMORPGs (Massively Multiplayer Online Role Playing Games) such as World of Warcraft, online identities that people choose are "less ordinary" than their real selves. Virtual environments can be a way of

expressing a different side of personalities or escaping the social constraints of the real life, and they often mirror human behaviour in the real world.

An online reputation is often achieved while in a pseudonymous state. A digital reputation can be useful in situations where credibility must be established, but exposure of one's real life identity is undesirable or possibly hazardous.

An online identity that has acquired an excellent reputation is a valuable one. A person invested a great deal of time and effort to build the identity's reputation while other users decide whether it is sufficiently trustworthy. Some of those online identities have been put up for sale at online auction sites, but there are conflicts over the ownership of online identities – whether they belong to the person who created them, or to the company that owns the software used to create those identities.

Because of the malleability of online identities, different sites, such as the trading ones, have developed certain forms of reputation management (e.g. eBay's feedback system that records transactions and provides the technical means by which users can rate each others' trustworthiness). Here, when pseudonymous identities propose to enter into an online transaction, the deal can succeed only if the parties are willing to trust each other, but they have no rational basis for doing so.

One of the situations is selling online identities with good reputation. According to the information on wiki, a good reputation player of the online game Everquest, owned by Sony Online Entertainment, attempted to sell his identity on eBay. Sony protested pointing out that this identity is their intellectual property. Therefore, the question arises: who is the owner of identities on commercial websites?

Stealing & abuse

One of the greatest fears concerning e-identities is having one's identity stolen or abused. In most online services these issues are being covered by law regulations. The law forces often state that online anonymity gives access to criminal actions willing to mask their identities and call to start with identity management infrastructure that would relate online identity with person's legal identity. Identity thieves can be divided in groups concerning the type of identity theft committed: financial (obtaining goods and services), criminal (including e.g. terrorism and espionage), business (using other's business name to obtain credits) and identity cloning (using other's information to assume his or her identity in the real life).

One of the examples regarding the role of the reputation and selling e-identities (Nabeth, 2005a) is when a committer has succeeded to already take $200,000 before being caught and his real identity revealed. After creating an excellent reputation on eBay, by selling computers in order to create vision of authenticity, he used multiple user IDs and every time when he was discovered he had already assumed a new identity.

Another example was in online gaming when certain users with unauthorized powers made other players impossible to win or survive (Becker, 2002). Another illustration could be an example of false identity created by social phishing (Nabeth, 2005a). The story says that after being disfigured in the car accident, caused by a drunk driver, the girl remained mute and in wheelchair and her boyfriend was dead. Using computer and participating in a BBS (Bulletin Board System) the girl made many friends and showed shining personality. Afterwards it was revealed that the girl was not at all a disabled person and that "she" was actually "he".

According to the BBC Alerts, the Javelin Identity Fraud Survey Report and an update of the Federal Trade Commission's Identity Theft Survey Report "despite the growing fears about identity theft and online fraud these crimes are more frequently committed offline than online. Internet-related fraud problems are actually less severe, less costly and not as widespread as previously thought". The Javelin study also says that computer crimes are included with 11.6 per cent in overall identity frauds in 2004 (often by opening pop-ups). The most frequently committed fraud was done by stealing a wallet or a checkbook. Another question relating to the fraud committer, reported that half of all identity fraud is done by a person who knows the victim. The report also indicates that the majority of crimes are self-detected by the victims which show the importance of monitoring electronic transactions. Based on the previous findings, some advices for consumers are given regarding regular updating, being suspicious to sending account numbers, taking care of important documents, keeping passwords hidden, ignoring suspicious Internet links, checking credit cards' status and resolving fraud promptly.

Who would you like to be?

According to Chan, a photographer, analyzed relationship between gamers' real and online identities by comparing images of the two persons – the real one and the online version, aiming to show whether digital representations in the role-playing environments were echoes of true personalities. He indicates that in the beginning the users enjoys the anonymity, but then this character becomes a bigger part in the life. Online identity is more flexible, can change attributes (gender, age, occupation, etc.), and generally were more interesting (good-looking, more power, better, faster) and when trying to find a fat one, he did not succeed.

A study at the Stanford University (Yee/Bailenson, 2007) has shown some measurable trends in the character creation, e.g. introvert persons would generally choose their avatars as ideal version of themselves. Study suggests that virtual environment can also be an escape from the real life, but when having complete freedom, users often bring themselves into appropriate norms and do regular things (like shopping) thus falling into a trap of complete freedom. One

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of the conclusions is that avatars change depending on the way of our communications with others (Yee/Bailenson, 2007).

According to Wiki, although a person is hiding behind a mask, it does however reveal certain interests. To prove that fact and research further into the opinions of the students on the questions concerning e-identities we have decided to conduct a study.

Research at the Faculty of Humanities and Social Sciences

The study was made among the students of the Faculty of Humanities and Social Sciences in Zagreb regarding reliability of e-identity representations. The questionnaire that was given to 30 randomly chosen students had eleven questions. Some questions allowed multiple answers. Here we present only the most important results.

Chart 1: What kind of person do you think you are in real life?
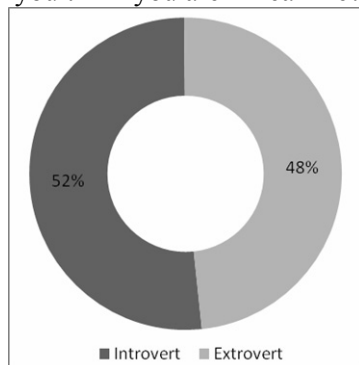
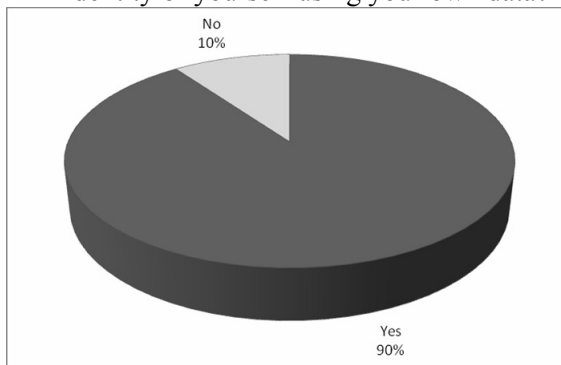Chart 2: Have you ever created virtual identity of yourself using your own data?

Chart 1 interestingly shows that roughly half of the surveyed students consider themselves as extrovert and the other half as introvert person. In our opinion this result makes further results personality independent. Chart 2 unexpectedly showed that 90% of the surveyed students have created a virtual identity by themselves. This does not include formal virtual identities created by, e.g. a bank or the Faculty. Such a high percentage shows great involvement of the students with the electronic environment. This result is an important one for gaining a better insight in the functioning of the young population. Results from Chart 3 show that the students are mostly involved in the discussions on Internet forums and chats followed by the virtual identities created for the purpose of education. Chart 4 shows that they use their virtual identities fairly regularly although some of them have obviously created a virtual identity, probably for some one-time reason or out of the curiosity, and never used it afterwards.

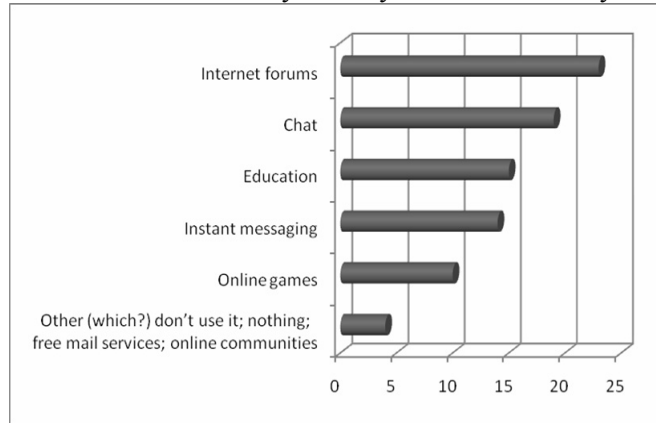Chart 3: Where did you use your virtual identity?

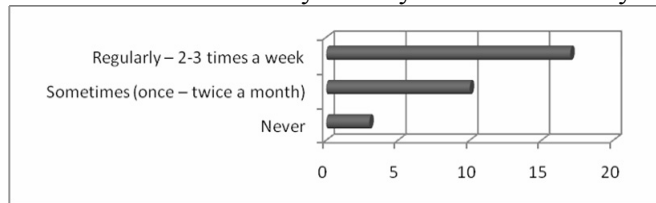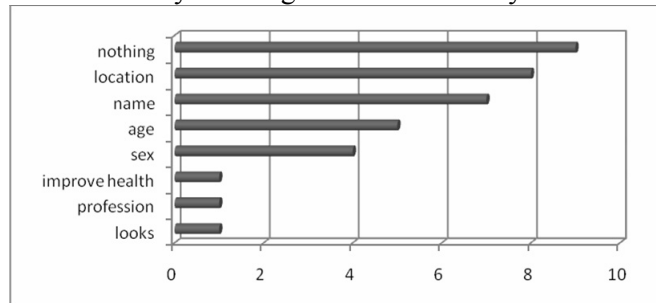Chart 4: How often do you use your virtual identity?

Chart 5: What would you change from real life in your virtual identity?

It is worth pointing out that the surveyed students claimed that their virtual and real identity would not differ, as seen from charts 5 and 6. Usually, it is believed that people are creating a different personality in the virtual environment. It seems that their experience goes in that direction too, as seen from chart 7. However, Chart 5 shows that they would change the information about their location and name which enables them to achieve anonymity. Other results, not graphically presented here, showed exactly their opinion that the main advantage of virtual identity is anonymity which allows them to speak freely (56.3%). Yet they claim the main disadvantage of virtual identity is its difference from

the real identity. It seems that although the students liked the anonymity and freedom of speech enabled by the creation of a virtual identity, they in most cases either did not use the opportunity of an anonymous questionnaire in the paper form to state that they would probably change something in their virtual identities or the surveyed pool of students on overall did not fit in the general picture.

Chart 6: If created, what would be the main difference between your virtual identity and your real identity?
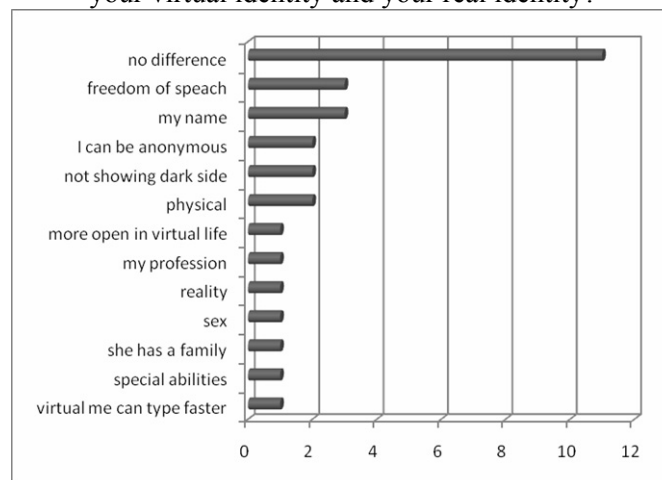

Chart 7: In your opinion what is the main disadvantage of virtual identity?
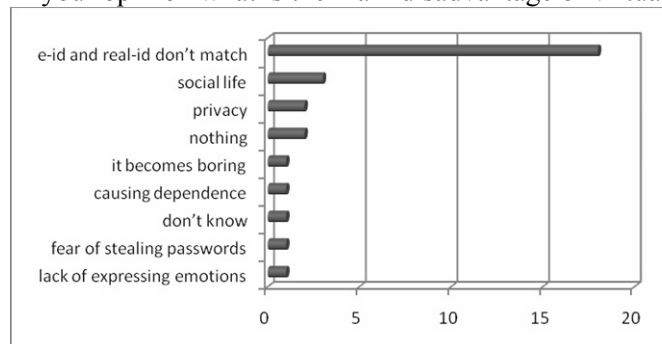

Chart 8 shows the dilemma whether give or sell private virtual identity to some-body else or not. The results showed that 7% of students would give their vir-tual identity to other person, but when asked whether they would sell it – the percentage doubled to 14%. It is clear that the dangers of giving or selling an identity in the electronic environment should be explained more thoroughly to

their users prior the exchange or transaction occurs. These results show what ideas should be stressed out in the process of education.

Chart 8: Would you give/sell your virtual identity to somebody else?
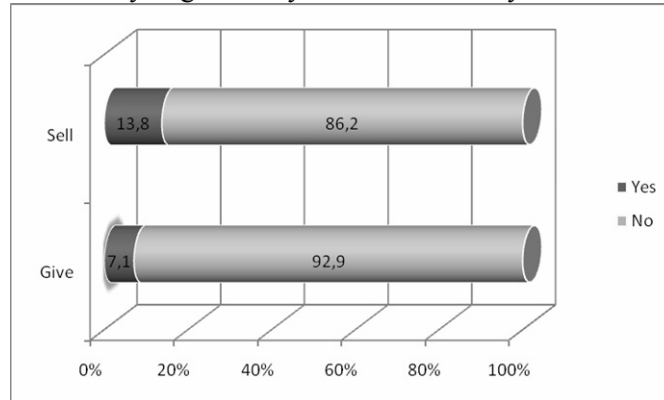
The idea of the ability of every user to self portrays his or her virtual identity has resulted in much discussion about the validity of online relations. The connection between online and offline lives poses the question what are real experiences and how a virtual one may affect one's offline emotions.

It was proved that an e-identity is actually an echo of people's true selves (e.g. real portraits and virtual images of gamers and people's digital representations in role-playing environments). According to several researches, most people enjoy the anonymity at first, but the character they created then becomes a bigger part of their life. An online identity has given people the opportunity to feel comfortable in wide ranging roles, some of which may be underlying aspects of the user's life. In a virtual world, an online identity is potentially much more flexible than the real identity, allowing easy changes of race, gender, age, socio-economic background and even species. It more freely offers self-definition, including multiple identities and shared identity, where there are no behaviour guidelines or prescribed etiquette.

Conclusion

The concept of this paper relies more on an informal perspective of e-identities than on the formal, financial perspective or security and technical issues. Users are engaged, through a number of web services and mechanisms (blogs, e-mails, wikis, reputation systems, forums, Massively Multiplayer Online Role Playing Games), in the creation of e-identities using either their own views of themselves or their virtual identities form according to the views of others. Social digital networks bring benefits in quick and easier communication, interaction, mediation, but also raise the important questions regarding privacy, reli-

ability, trust, establishment of social relations, identity management in e-educa-tion, e-banking, etc.

Digital identity is one of the key issues in economy, research and ICT educa-tion, addressed by different EU initiatives and projects, conferences, workshops, forums and education courses.

As the border between the real and the virtual world has become interwoven and is constantly changing, there is certain complementarity between virtual and real lives. This was proved in the survey of the students where 90% of them claimed that they have created at least one virtual identity. That finding showed the amount of possible impact of the mutual influences of virtual and real iden-tities. It is very important to acknowledge that fact especially knowing that, ac-cording to the survey, 14% of the students, i.e. future young professionals, would sell their virtual identities. This fact calls for a wider action of raising the awareness of the importance of the responsible management of e-identities. These ideas should became embedded throughout the education system and thoroughly studied and analyzed in the information sciences' curriculum.

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