

# The Internet Phenomenon – Ethical Challenge in Engineering Education of the Information Age

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**ABSTRACT:** *When you enter a new culture – and cyberspace has its own culture - you are liable to commit a few social blunders. You might offend people without meaning to, or you might misunderstand what others say and take offence when it is not intended. To make matters worse, something about cyberspace makes it easy to forget that you are interacting with other real people – no just ASCII characters on a screen, but live human characters. A set of general guidelines for cyberspace behaviour will not answer all the netiquette questions, but they should give students some basic principles to use in solving their own netiquette dilemmas, or further dilemmas in their professional practice.*

*With the new power of electronic communication comes the need for responsibility in using that power. We can all enjoy the power and benefit from it if we find new forms of behaviour – even etiquette – that are appropriate. By evolving a set of guidelines we can all use the incredible power of the medium and benefit from it. What is important to us is the way how to deliver this new actual issue to students of engineering study programmes. We are standing in front of a demanding task. It seems to be a challenge to precise methodology, to design new teaching materials, to think about the most effective and efficient techniques to introduce Netiquette - a set of rules for behaving properly online - to our students.*

*Considering the above stated phenomena of new communication environment culture authors deal with new needs in the field of engineering education. The article shows necessity of introducing new items into engineering university curricula and presents the authors' experience in this field at their workplace.*

## 1 INTRODUCTION

Communication revolution has deeply affected our lives, our teaching, and our students. The teacher's role will increasingly be to encourage and facilitate the application of individual learning in social settings, bringing groups of learners together to put them through their paces. An interesting job, but rather different from the balance of presentation, practice and production which we are all too often expected to handle at present. The trend has already started. Teachers and students are gradually becoming more familiar which computers themselves and access to the Internet and e-mail is opening new opportunities in addition to the courseware now in use. At this stage there is a need for experimentation to find what can be done and what gives the best results. This process itself affects the expectations of both student and teacher. Since new communication technology has become the present language of commerce, work, education and everyday conversation, this paper tries to explain why new etiquette rules are needed to be implemented into engineering syllabus at universities, where undergraduates are prepared for professional communication.

People have had more than 50,000 years' experience in the use of speech and gestures, 5,000 years' experience in writing, and more than 100 years' use of the telephone. This cultural history should not be taken lightly; the entire fabric of our society has been shaped in significant part by cultural accommodations to our means of communication. As individuals of the species, living within a particular culture, we have a particular massaging history. From birth we learn speaking roles and rules of conversation. By age four or five, some basic telephone habits are learned. By age of seven we are writing nontrivial messages. The average adult has accumulated hundreds, perhaps thousands, of rules of behaviour regarding telephone and written ethics and etiquette, from practical experiences with these tools since those early days. University graduates whose skills and experience are developed and enriched at the specialised university seminars and lectures, enters the world of business, the world of professional communication. Whether they are doing business on the telephone, at lunch, during a conference or by e-

mail, they project an image that reflects their entire corporation, and the wrong image and attitude can be costly. In highly competitive markets where many companies offer similar services and products at similar, how you treat your customers may be as important to the company's success as the quality or price of the product. When you possess good manners, it puts your clients and customers at ease, increases customer satisfaction, and positively affects the company's bottom line.

There is no doubt that we are in the middle of a communication revolution that will deeply affect our lives, our teaching, and our students. The teacher's role will increasingly be to encourage and facilitate the application of individual learning in social settings, bringing groups of learners together to put them through their paces. An interesting job, but rather different from the balance of presentation, practice and production which we are all too often expected to handle at present. The trend has already started. Teachers are gradually becoming more familiar with computers themselves and access to the Internet and e-mail is opening new opportunities in addition to the courseware now in use. At this stage there is a need for experimentation to find what can be done and what gives the best results. This process itself affects the expectations of both student and teacher.

## **2 NEW NEEDS IN ENGINEERING EDUCATION**

Before 2000 some needs analysis of the Faculty graduates and undergraduates in the field of professional communication had been performed at the Faculty of Materials Science and Technology, Slovak University of Technology in Bratislava, Slovakia. The research resulted into the syllabus design reflecting all the survey results and it met the teachers' and students' expectations. Anyway, although it included oral or paper-based communication skills, it did not include e-mail communication with all the ethical, professional, cross-cultural and language aspects it has brought into life. Partially it was because of the lack of students' experience: only 15% of them had an access to the Internet, and only 3% of them more often, than twice a week, comparing to the current survey results where nearly 93% of students in groups being taught by the author use e-mail regularly and comparing to 21% in 1999 89% of students currently owns their own computer. The figures do not show the exact picture, but reflect the real situation, as well as the fact, that e-mail use is exploding. Bearing in mind the above mentioned results and the fact, that the created syllabus is a working document that should be used flexibly and appropriately to maximise the aims and processes of learning, I proposed to adjust it to the new needs and conditions. Bearing in mind new approach and considering the new reality (new needs, new information, revolutionary changes) we have to think over what makes the current needs so demanding, that we are speaking about new approach to the research process. Probably analysis of the labour market will take part in this stage too, since it can be expected that more and more bachelor degree graduates will enter the market after graduation. That has to be considered in the syllabus content, which will be strongly influenced by the analysis. Second important fact that has involved us at the new research is the fact of information technology expansion, i.e. professional and common electronic communication, use of multimedia (computers, cell phones). There is a place for investigation into professional needs in this area and consequently implementation of needed professional and language skills. The last research did not respond to this current phenomenon. The fact did not appear important in the middle of nineties so the research team even did not consider it in questionnaire. New expressions have been introduced into professional life since then: e.g. e-banking, e-learning, computer assisted language learning, netiquette, etc. Some changes in syllabus has been done spontaneously taking informal research for the starting point, but there is still necessity to do a serious research in this field, in which experts in information technology can play an important role discussing their vision and up-to-date trends. Email is cheaper and faster than a letter, less intrusive than a phone call, less hassle than a FAX. Using e-mail, differences in location and time zone are less of an obstacle to communication. There is also evidence that email leads to a more egalitarian information structure.

Sadly, since I have been using email, I have seen a large number of students, as well as many other e-mail users, suffer mishaps because they did not understand how to adjust their communication styles to this new medium. Therefore I discussed the issue at the lesson to try to help my students avoid those problems. The open discussion opened new professional, communication and language issues like incivility in society, business etiquette, etiquette of cyberspace, and many others. It resulted in a serial of

seminars on topics related to this type of professional communication. We started with clarifying the differences between e-mail and other “traditional” forms of communication.

### **3 COMMUNICATION REVOLUTION**

Electronic communication, because of its speed and broadcasting ability, is fundamentally different from paper-based communication. Because the turnaround time can be so fast, email is more conversational than traditional paper-based media. In a paper document, it is absolutely essential to make everything completely clear and unambiguous because your audience may not have a chance to ask for clarification. With email documents, your recipient can ask questions immediately. E-mail thus tends, like conversational speech, to be sloppier than communications on paper. This is not always bad. It makes little sense to slave over a message for hours, making sure that your spelling is faultless, your words eloquent, and your grammar beyond reproach, if the point of the message is to tell your co-worker that you are ready to go to lunch. However, your correspondent also won't have normal status cues such as dress, diction, or dialect, so may make assumptions based on your name, address, and - above all - facility with language. You need to be aware of when you can be sloppy and when you have to be meticulous. E-mail also does not convey emotions nearly as well as face-to-face or even telephone conversations. It lacks vocal inflection, gestures, and a shared environment. Your correspondent may have difficulty telling if you are serious or kidding, happy or sad, frustrated or euphoric. Sarcasm is particularly dangerous to use in email. Another difference between email and older media is that what the sender sees when composing a message might not look like what the reader sees. Your vocal cords make sound waves that are perceived basically the same by both your ears as your audience's. The paper that you write your love note on is the same paper that the object of your affection sees. But with e-mail, the software and hardware that you use for composing, sending, storing, downloading, and reading may be completely different from what your correspondent uses. Your message's visual qualities may be quite different by the time it gets to someone else's screen. Thus e-mail compositions should be different from both the paper compositions and speech. I adjusted my lessons to show my students how to tailor the message to this new medium. Within this initial part the students met, and I was quite surprised, many of them for the first time, the term “netiquette”. So the next part of our seminar was about what the netiquette is.

### **4 NEW COMMUNICATION TOOLS**

The term e-mail, in general, relates to texts, in particular letters, which are written on a computer and are then transmitted via telephone or another network to a receiver. The Internet was the first e-mail system, it used to be a military communications network in the United States, but already in the seventies it became a communications tool between universities all over the world. The Internet is not the only network; quite a number of others - commercial and scientific - are available and transmit data all over the world. All networks are interconnected and, in general, make use of the public telephone system. The use of a telecommunications system for communication purposes has become more than simple in the age of the “clickable icon”. The software is designed in such a way that it can fulfil all the functions necessary in a modern office: e-mail letters can be stored and filed systematically, e-mail addresses can be saved in an electronic notebook, letters can be sent to different addresses at the same time, attachments can be added to letters, i.e. electronic documents which can consist of data bases of all kinds of digitised data, texts as well as pictures and sounds. It is understandable that e-mail takes over more and more functions of the traditional postal services. The advantages compared to “snail-mail” are enormous: the high speed (an e-mail letter reaches its destination only seconds later) and the minimal costs are the most important. Exchanges of letters which took days or weeks in former times, take only minutes now. It is also important that e-mail letters and their attachments are in electronic form, i.e. they can be directly processed (copied, printed, sent on etc.) without any further delay. And as most documents are in electronic form nowadays, processing, in general, is greatly simplified.

### **5 THE CYBERSPACE ETIQUETTE**

The word “etiquette” means “the forms required by good breeding or prescribed by authority to be required in social or official life”. Etymologically, it comes from the French word for “ticket”. If you know the etiquette for a particular group or society, you have a ticket for entry into it. What is Netiquette?

Simply stated, it is network etiquette - that is, the etiquette of cyberspace. In other words, Netiquette is a set of rules for behaving properly online. When you enter any new culture – and cyberspace has its own culture - you are liable to commit a few social blunders. You might offend people without meaning to. Or you might misunderstand what others say and take offense when it is not intended. To make matters worse, something about cyberspace makes it easy to forget that you are interacting with other real people – no just ASCII characters on a screen, but live human characters. The list of core rules below, and the explanations that follow, are excerpted from different sources. They are offered as a set of general guidelines for cyberspace behavior. They will not answer all the Netiquette questions. But they should give students some basic principles to use in solving their own Netiquette dilemmas, or further dilemmas in their professional practice.

The list of core rules below, and the explanations that follow, are excerpted from different sources. They are offered as a set of general guidelines for cyberspace behavior. They will not answer all the Netiquette questions. But they should give students some basic principles to use in solving their own Netiquette dilemmas, or further dilemmas in their professional practice:

- **Rule 1: Remember the human**

When you communicate electronically, all you see is a computer screen. You do not have the opportunity to use facial expressions, gestures, and tone of voice to communicate your meaning: words - lonely written words - are all you have. And that goes for your correspondent as well.

- **Rule 2: Adhere to the same standards of behavior online that you follow in real life**

In real life, most people are fairly law-abiding, either by disposition or because we are afraid of getting caught sometimes seem slim. And, perhaps because people sometimes forget that there is human being on the other side of the computer, some people think that a lower standard of ethics or personal behavior is acceptable in cyberspace. The confusion may be understandable, but these people are mistaken. Standards of behavior may be different in some areas of cyberspace, but they are not lower than in real life.

- **Rule 3: Know where you are in cyberspace**

Because Netiquette is different in different places, it is important to know where you are. When you enter a domain of cyberspace that is new to you, take a look around. Spend a while listening to the chat or reading the archives. Get a sense of how the people who are already there act. Then go ahead and participate.

- **Rule 4: Respect other people's time and bandwidth**

The word "bandwidth" is sometimes used synonymously with time, but it is really a different thing. Bandwidth is the information-carrying capacity of the wires and channels that connect everyone in cyberspace. There is a limit to the amount of data that any piece of wiring can carry at any given moment - even a state-of-the-art fiber-optic cable. The word "bandwidth" is also sometimes used to refer to the storage capacity of a host system. When you accidentally post the same note to the same newsgroup five times, you are wasting both time (of the people who check all five copies of the posting) and bandwidth (by sending repetitive information over the wires and requiring it to be stored somewhere). In the old days, people made copies with carbon paper. You could only make about five legible copies. So you thought good and hard about who you wanted to send those five copies to. Today, it is as easy to copy practically anyone on your mail as it is not to. And we sometimes find ourselves copying people almost out of habit. In general, this is rude. People have less time than ever today, precisely because they have so much information to absorb. Before you copy people on your message, ask yourself whether they really need to know. If the answer is no, do not waste their time. If the answer is maybe, think twice before you hit the send key.

- **Rule 5: Make yourself look good online**

Take advantage of your anonymity. You reach out to people you would otherwise never meet. And none of them can see you. You will not be judged by the color of your skin, eyes, or hair, your weight, your age, or your clothing. You will, however, be judged by the quality of your writing. For most people who choose to communicate online, this is an advantage; if they did not enjoy using the written word, they would not be there. So spelling and grammar do count. Know what you are talking about and make sense. In other words, make sure your notes are clear and logical. It is perfectly possible to write a paragraph that contains no errors in grammar or spelling, but still makes no sense whatsoever. This is

most likely to happen when you are trying to impress someone by using a lot of long words that you do not really understand yourself. It is better to keep it simple. Finally, be pleasant and polite. Do not use offensive language, and do not be confrontational for the sake of confrontation.

- **Rule 7: Help keep flame under control**

“Flaming” is what people do when they express strongly held opinion without holding back any emotion. It is personal attacks on other citizens of cyberspace via e-mail. A flame is the kind of message which attacks not just your opinion, but your personality, your looks, your personal habits. This does not mean that you cannot disagree with people, it would be very dull discussion if everybody agreed, in fact there would be no point in the discussion at all. Flaming has a lot to do with emotional responses, and nothing to do with reasonable disagreement. Here is a true story: An employee at a small company was severely allergic to perfumes and other fragrances. She sent flame mail to the entire organization demanding that everyone immediately cease using all scented products. The next day, someone sprayed perfume all over her office. Note that Netiquette condones neither the flame mail nor the perfume-spraying. The point, however, is that the arrogance and rude tone of the mail provoked the extreme reaction. The fact that you have the capability to send mail instantaneously to large groups of people does not make it a good idea. Completely apart from the ethics of the situations described here, you need to be really careful if you have access to an all-company mailing list.

- **Rule 8: Respect other people’s privacy**

Of course, you would never dream of going through your colleagues’ desk drawers. So naturally you would not read their e-mail either. So because e-mail is probably not as private as we might wish, it is important to remember this when using your e-mail, too. There are a lot of complicated issues to do with privacy on the net. Electronic networks are different than the ordinary mail system.

- **Rule 9: Do not abuse your power**

Some people in cyberspace have more power than others. There are experts in every office, and system administrators in every system. Knowing more than others, or having more power than they do, does not give you the right to take advantage of them. For example, net administrators should never read private e-mail.

- **Rule 10: Be forgiving of other people’s mistakes**

Everyone was a network newbie once. So when someone makes a mistake - whether it is a spelling error or a spelling flame, a stupid question or an unnecessarily long answer - be kind about it. If it is a minor error, you may not need to say anything. Even if you feel strongly about it, think twice before reacting. Having good manners yourself does not give you license to correct everyone else.

## **6 CONCLUSIONS**

This article does not only supply a new set of rules for this new medium. Electronic mail is in its infancy, as is our understanding of it. We have collected some guidelines that seem to point in proper directions, and have personally used them in our own use of the medium. Many of them appear to be common sense in a new guise, but they are included because we’ve seen them violated in practice too often to ignore. These guidelines are suggestion, intended to generate reflection and stimulate discussion.

With the new power of electronic mail comes the need for responsibility in using that power. We can all enjoy the power and benefit from it if we find new forms of behavior – even etiquette – that are appropriate. The alternative is a rising tide of irrelevant messages and electronic junk mail that will turn off most thoughtful users. By evolving a set of guidelines such as those presented here, we can all use the incredible power of the medium and benefit from it. What is important to us is the way how to deliver this new actual issue to students. We are standing in front of a demanding task. It seems to be a challenge to precise methodology, to design new teaching materials, to think about the most effective and efficient techniques to introduce Netiquette to our students.

Nobody denies anymore that it is necessary to introduce the new information and communication technologies into the educational sector. A society which constantly makes use of information technology in the working world and which has understood by now that telecommunications will radically change the key qualifications required for most professions must be interested in introducing the New Technologies in school and at university as well and to employ them as in the working world. These key qualifications include the ability to acquire knowledge independently but also the ability to work together co-

operatively, the ability to communicate with each other as well as the ability to make proficient use of new telecommunication and information technology. Learning by construction instead of instruction, learning to learn, learner autonomy, social learning in small groups are key terms in modern learning theory and are also being discussed in foreign language teaching. Our schools are being urged from two different angles, then, to reflect on New Technologies and their learning potential, to experiment with them and to adapt to the societal necessities and the learning theory findings.

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