ETHICAL COMPETENCE AND CONFIDENCE FOR IT USERS AND DESIGNERS

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Abstract

Ethical issues are very important in our changing, open and global world. IT, which is the motor and channel of the new fast moving world, develops and changes more rapidly itself. The IT world of today implies a series of new unanticipated ethical challenges and, given the high pace IT changes itself and the world, it is impossible to foresee important ethical problems and conflicts, and therefore it is very difficult to construct ethical guidelines with any practical value. Under such conditions it is necessary for individual users and designers of IT, as well as for groups and organisations, to acquire high ethical competence and confidence in handling all the possible ethical problems that may arise in everyday real life professional activities. IT users and designers need:

1. high ethical awareness,

2. adaptive ethical problem-solving and decision-making abilities at individual and group level, and

3. effective ethical argumentation skills.

Development of assessment methods, as well as construction and implementation of training methods for ethical competence and confidence are the aim of this proposal. The application of those in real working life will be necessary in order for individuals, groups, and organisations to be able to cope effectively with difficult ethical problems in the design and use of IT.

Need for Ethics in a Changing Society

People living and working together need ethical rules. These rules tell us how to be with each other and how to cooperate. Moral rules help us to predict the behavior of others, guide our actions, and tell us what we have to expect from our own and other groups, organisations and social institutions. This knowledge is absolutely necessary. Society can not function without moral rules. It would be impossible for people to live and work together if they do not know what is expected of them and how others will act under certain conditions.

The interesting issue today is if we do really have access to such knowledge, that is, moral rules that can guide us right in the fast changing society of today. Or, if we do not have these adaptive rules, do we at least know how to acquire that knowledge? The answer is no and the reasons for that are many.

First and foremost we live in a world that changes rapidly. Our modern society is global, more unpredictable and complex than before. That gives us more pressure to try to find out what the right answers and actions are. But old moral codes, authorities and guidelines are useless. General principles are of course still valid and accepted, but their application under the

conditions of today have changed radically. We can not find any more the right answers in old ways, habits and traditions.

Organisations, groups and societies abandon the hierarchical structure and try to be more decentralized and flexible in order to adapt to the new conditions. They delegate responsibilities to lower echelons often without the corresponding power. Those changes accompanied by an intense public and media interest about every action or inaction forces people and organisations to seek desperately ethical guiding. The construction of functioning ethical rules, however, demands stable conditions, and this is not what we have today. Furthermore it is very difficult to find the right rules because of the nature of moral knowledge which is very controversial with al lot of emotions involved.

Computer Ethics

The first need for ethics in computer use and design emerged when it started to handle information. Information can be gathered in unethical ways. It can be processed in the wrong way and false or inappropriate information can be retained. Misleading information can be spread and important information can be withhold. By using information wrongly people and organisations can be hurt. The importance and amounts of information processed by computers necessitates the construction of adaptive ethical rules.

However, with the advent of internet, e-mail, newsgroups, and world wide web, things have changed. Many important transactions between people can now be done electronically. That means that individuals and groups are related to each other in a way that was not seen before. Everything that can get wrong or done right between people in face to face relations is now possible through the internet. But it is not so easy as to say that we have just to apply the ethical rules of "real" relations to cyberspace. First, as we have seen above, we do not have these rules, and, second, the technical features of internet and its rapid change demand other solutions. It is not the search for answers that is productive but the development of certain skills for individuals and procedures for organisations that can help them to cope with the ethical demands of computer use and design.

The Psychological approach to Ethics

The training in ethical decision-making and conflict resolution is based on psychological theory and research (Kavathatzopoulos, 1988, 1993, 1994). Piaget (1932) and Kohlberg (1981, 1984, 1985) focused on the individual's ability to solve moral problems, rather on the content of moral principles. According to these theories, the function of moral principles is to regulate the relationships among people in unique as well as universal social situations. The autonomous individual is the individual who has improved his/her ability to find the optimal solutions to moral problems, i.e., the suitable moral principles. Therefore, the significant factor in training, as well as in assessment by a test, is the way people think and not the solutions they give to ethical problems.

Training program

The goal of a two-day training program was to provide the participants with a method, i.e., a cognitive tool, to use in solving ethical conflicts. The focus, therefore, was not on moral philosophical argumentation but on the participants' way of reasoning, deciding and acting

when they were confronted with real life moral problems. The goal of training was to improve the decision maker's ability to cope with such conflicts and solve the problems in an optimal way for all parts involved. Another goal was to teach the participants as a group how to construct and develop ethical principles and rules for their profession and their organisation.

The two-day educational program in ethical training consisted of many items such as theoretical background, analysis of ethical problems, resolution of ethical conflicts and formulation of ethical norms for the organisation. The participants worked in small groups with real problems from their professional life which they experienced as significant and which they were concerned about.

The participants in the educational program were trained to use the autonomous method which implied analysis of the concrete situation and critical reasoning to find the optimal solution. The autonomous method in decision-making and solving professional ethics problems meant that the participants focused their attention on the concrete problem: they defined their own point of departure, their position and their duties, and took into consideration the interests and needs of the other actors. Furthermore, they investigated the relationships of influence and dependency among the actors in the problem situation. They explored the alternative solutions to the problem, they weighed and evaluated them, and at the end, as a result of this process, they made a decision about the optimal solution to the problem.

The effect of training was tested by the Ethical Competence Questionnaire (see fig. 1). In addition to that the participants answered a special questionnaire where they evaluated the educational program and the application of the learned skills in their real professional life (see fig 2).
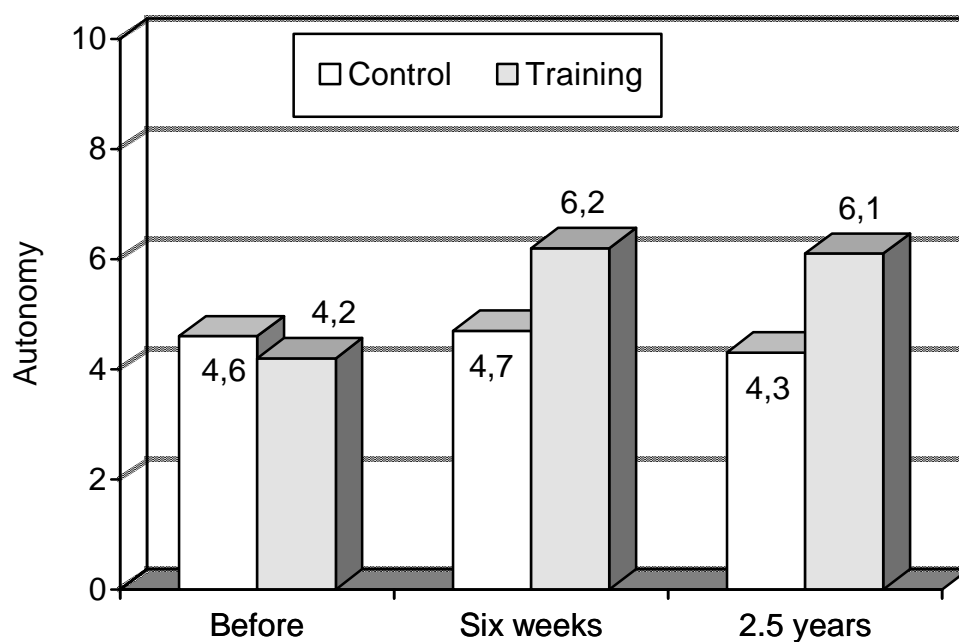

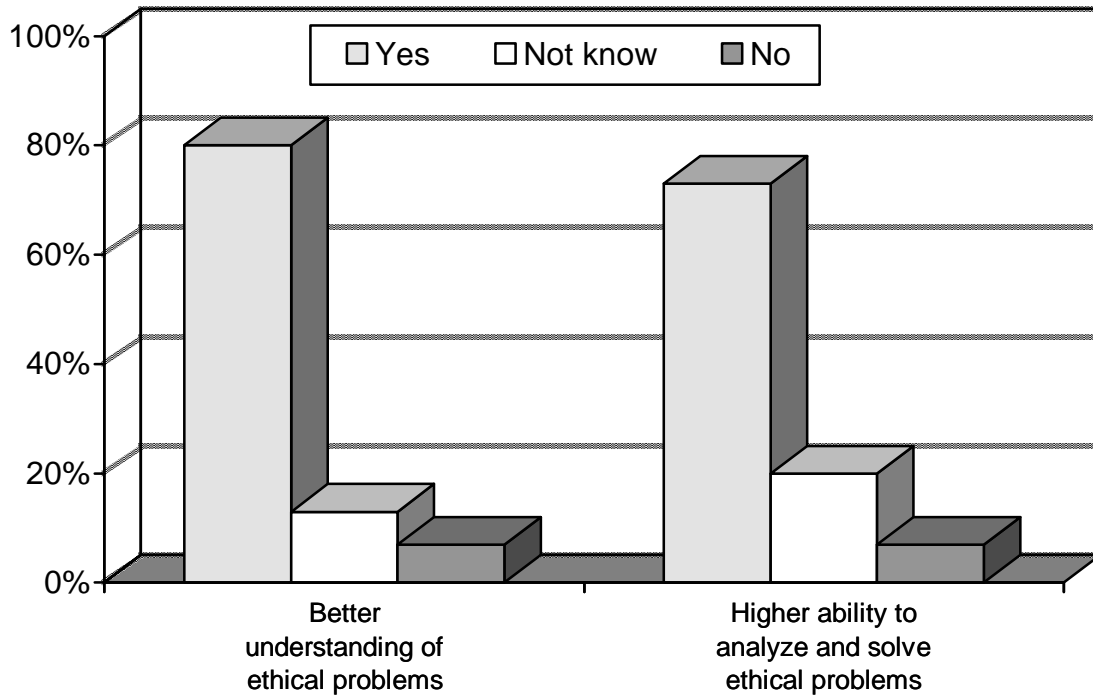Figure 1. The longitudinal effect of training on ethical competence.

Figure 2. Self evaluation of the effect of training on ethical competence.

Ethical Competence Questionnaire

In order to describe the level of ethical competence before and after training, a special questionnaire was developed. This questionnaire was considered necessary since similar studies in the area of professional ethics have shown that the content of the items in such a questionnaire is significant (Kavathatzopoulos, 1994; Kavathatzopoulos & Rigas, in press).

The ethical test consisted of nine moral dilemmas representing conflicts that an individual can be confronted with. The themes of the stories described current ethics issues. Literature studies and several interviews with people were conducted to identify significant moral dilemmas in order to include them in the test. Subsequently, after a pilot study, a final version of the test was constructed which covered broad areas in ethics issues. For example, one of the items:

> You are the C.E.O of a major bank, and you have discovered that one of the oldest and most trusted employees in the organization systematically uses a computer-routine to transfer client capital to accounts of his own. He is a high-ranking executive, known as one of the banks profiles to the public. Will you press charges or discretely settle the matter with him?
>
> *Which of the following alternatives are, in your opinion, the most and second most important to consider before your decision? (Mark with 1 and 2 respectively)*
>
> ( ) He has betrayed, deceived and hurt a lot of people
>
> ( ) Damages claimed will be high

( ) It is important to protect the bank's good reputation

( ) The temptation is great, anyone could have done the same thing

All the items in the test were stories about an individual who encountered a problem of a moral character. Each item consisted of a short story about a dilemma followed by four alternatives representing different motivations, or reasons to be considered before reaching any decision. The task of the subject was to place himself/herself in the position of the main agent in the story and attempt to solve the problem by making a decision. The subject, in order to find a solution, had to reason in some way, and this way became apparent when the two most important alternatives were chosen and ranked. The subject was asked to choose the most important one to consider before any decision was made by marking it with the number 1. Subsequently the subject was asked to choose the second most important one by marking it with the number 2.

The four alternatives were designed so that two of them represented the heteronomous ethical function and the other two represented the autonomous ethical function. Two alternatives of same type were used in order to give the examinee the possibility to choose heteronomy or autonomy independently of the preferred action, e.g., to solve the problem in this or that way. The issue of interest was the way people thought and not the solutions they gave to those conflicts. The preference for a special action was not relevant, i.e., the focus was on the process of making a decision rather than on what the actual decision was. Both alternatives included in the same set (autonomy or heteronomy) had the same score value. The order of the stories in the test and the order of the four alternatives with each story were randomized.

Each individual's score varied from 0-10. A higher score signified a higher autonomy level in the individual's ethical function. The psychometrical results are satisfactory. The results showed that the reliability of the test was sufficient: Cronbach's $\alpha = .74$, test-retest $r = .78$ (Kavathatzopoulos & Rigas, 1998). There was no significant difference regarding sex and age. Organisational level correlates positively to ethical competence (see fig 3.).
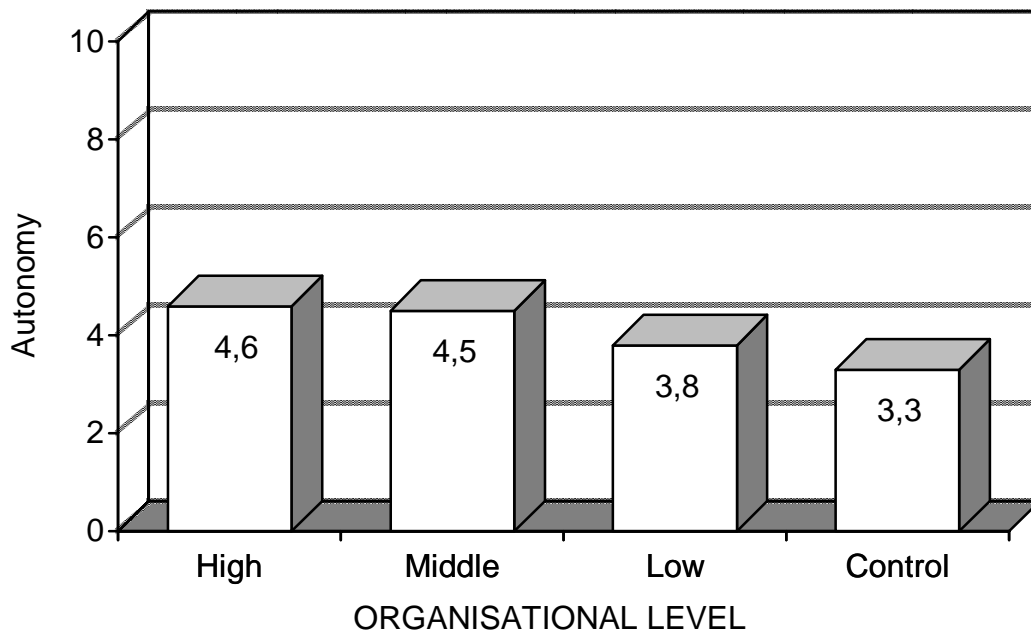
Figure 3. The correlation of autonomy to organisational level.

Conclusions

These studies demonstrated clearly that training in decision-making and problem-solving in ethics promotes the acquisition of a skill, i.e., ethical autonomy, which is the base for ethical competence and confidence. The participants developed a more functional ability to solve ethical problems and formulate ethical rules. They learned a better way, and they acquired a better tool to use in reasoning and discussing such problems. This improvement was stable over time and was demonstrated both by the Ethical Competence Questionnaire, which assessed the way people made decisions and solved ethical problems, and by the participants' own evaluation of the education program. It was also shown that the ethical test is a reliable instrument for the assessment of the skill of ethical autonomy.

Ethical autonomy is a cognitive skill that means that the autonomous individual is both independent from moral authorities and critical. She/he uses scientific methods in searching for solutions to ethical problems and in formulating ethics codices. As a consequence, she/he is aware of ethical problems, and it is easier for her/him to perceive, understand and anticipate ethical conflicts.

Autonomy implies not only optimal decisions and solutions to ethical problems. The autonomous individual knows how she/he reasons, how she/he controls the decision process, and therefore, it is easier to accept the responsibility for her/his decisions. Moreover, this knowledge makes it easier for the decision maker to explain and defend her/his decisions.

Both the ethical test and the training method can be used in the education and testing of both computer users and program designers. The purpose of such education is to promote the acquisition of a better method to solve ethical problems, to formulate ethics codices, to support decisions, etc.

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