TA and Ethics for Value-driven Technologies: Educational Aspects

Chairs: Jan Kaźmierczak (Silesian University of Technology), Elena A. Gavrilina and Alexandra A. Kazakova (Bauman Moscow State Technical University)

The session addresses the conceptual, methodological and organizational challenges of integrating TA principles into educational systems. Educational institutions are regarded as space of (re)production of values and attitudes, sociocultural meanings and epistemological optics for technical practices, while being constrained by the structural limitations of globalizing markets and growing specialization.

We invite educationalists and all those interested in disseminating the value-driven approach to technologies to share their visions and experience in the field of technical and non-technical education, within a wider comparative perspective on educational systems, including pre-university training and life-long learning.

On the Need of Ethics in General and Ethics of Technology in Particular: Reflections of an Ethics Teacher

Author: Joanna Sośnicka (Lodz University of Technology)

It is very difficult to talk about ethics. It is so, due to the fact that in spite of the universal (omnipresent) use of the notion, ethics is not a very popular field of studying (very often it is taken with a grain of salt). Moreover, the so-called "ethical operations" or "ethical actions" are not associated with entrepreneurial and successful activities.

The difficulty of talking about or teaching ethics is also connected with the variability and ambiguity of social conditioning of ethical actions and the relativity of values (or the universal presence of relativism); however, most of all, with the misunderstanding of the assumptions or ideas of ethics as such, or the problem of morality.

The paper discusses such main problems of this strange presence of ethics in our so quickly changing technological environments, the intricacies of its understanding and the problems occurring in teaching; but, most of all, the great need for promotion and implementation of ethics into our human life. Special attention will be given to the problem of how we – humans – learn about our morality by analyzing it in the context of technology (the results of the moral machine experiment), and how this fragile, yet such essential knowledge should be passed to the students. And since a small mistake at the very beginning is multiplied later a thousandfold, the reflection about ethical education seems to be quite important.

Human dignity in the context of value technologies of the educational process

Authors: G.G. Kolomiets, I.V. Kolesnikova and Ya.V. Parusimova (Orenburg State University)

The modern world is going through a transition to a technogenic-digital civilization, which requires a large-scale introduction into industrial production, into military business and the real human life of electronics, artificial intelligence of robotics. The economy turned to advantageous energy proposals, which provide for the spiritual human factor, as the interaction of scientific knowledge, an anthropo-

axiological approach to engineering, and ethical principles in scientific and technical consciousness has become an acute problem in the light of the future of humanity. Given the innovative trends, we pay attention in the educational process, embedded in a wide information space, on the topic of human dignity.

University education turned on a narrow path demanding an in-depth special knowledge, leaving deep thought for humanitarian knowledge. Humanitarian education, which includes anthropoxiological and ethical values, possesses a self-propelled continuous process, which essentially goes back to the actualization of "human dignity".

Human dignity is not only virtue, self-esteem, due to personal qualities and an experience of social status. Today, the idea of human dignity has acquired an in-depth anthropo-axiological, world historical, cultural, and activity significance. Awareness of everyone in belonging to a certain general, whole world leads to a new understanding of responsibility and responsibility, which determines the genesis of human dignity. No matter how much we focus on human rights and freedoms, our world will not stand without awareness of the classical ethics of duty. Today, Kant's notion of human dignity as an autonomous source of moral law and the unacceptability of violation of human dignity, as the fundamental basis of his existence, regardless of nation, race, gender, intellect, talent, prevails in Europe.

Ethics of human dignity in the technical and educational environment today acquired the highest anthropological value, supercultural, supranational. Let us note the difficultly attained equilibrium between the manifestation of the freedom of the individual self and the ability to perceive oneself as a worthy person who values the values of universal supercultural and supranational values. In the concept of human dignity, we single out the metaphysical foundation as the path to perfection, the pursuit of the ideal, on the one hand, and, on the other, human dignity is to create the most perfect forms of existence. In the university educational process, the preparation of students involves the study of the problem of human dignity, based on European values. Anthropological knowledge of human dignity may include the integration of ethics and aesthetics, art and science, education and politics, rethinking the conditions of the human environment and the achievements of technological civilization. Therefore, it is important to initiate a research and teaching interest in discussing the theory of human dignity and practical actions to realize the dignity of man in the European Union, asserting respect for human dignity in solving the problem of man and nature, man and digital technologies in science and art.

Men, women, technology, and teaching

Author: Renate Dürr (Karlsruhe Institute of Technology)

Naturally, there is a difference between men and women. But there is no masculine or feminine technology and no genuinely masculine or feminine approach to technology, in other words: the Y-chromosome has no "technology code".

Not only our language, but many other tongues as well (most likely all of them, but this lacks proof) have expressions for MALE and FEMALE. They are predicate expressions and in one sense predicates have one single function: to be attributed or not to individual things or subjects or substances. Our interest here, however, is not to philosophize as grammarians – therefore: We are concerned here with a conceptual, not a linguistic distinction – although the contours can get shady. May I also add: The dichotomy in question between MALE and FEMALE should not be understood as a claim that the

concept of dual sexes is necessary for practical reasons; the point is merely that biological sex provides a very basic pattern for discrimination.

Now, some predicates – including those of male and female exhibit a certain peculiarity. Not only are they attributed, but when they are attributed, they seem to carry along excess meaning. The utterance «X is female» opens a mental file in a hearer, a mental file containing – depending on one's socialization - attributes such as «physically weak», «limited powers of reasoning», «emotional», «gentle», etc. This habit of attribution is hardly disastrous, it is fairly normal and common, it is often very practical and it is probably mostly wrong. Certain stereotypes are so solidly linked to this term (and its male counterpart) that they partially have become «real» components of its meaning. One is tempted to claim that the expressions male and female possess extraordinary powers of explanation and prognosis: Why is Hilary a poor driver? – Because she is a woman. Hilary is an aggressive poker player, because he is a man.

In kind of an analogy to Moore's study on the indefiniteness of the predicate adjective 'is good' I defend the opinion that the following is true for the adjectives 'male' and 'female':

- Both are simple concepts inasmuch as they mean nothing more than simply someone or something being male or female (regardless of whether the terminology originates in a construct designed in terms of „pre-scientific" phenotypes or in terms of biology);
- Neither the terms, nor the characteristics they identify are helpful in explaining behavior;
- Therefore, both are unfit for justifying behavior.

Starting from these conditions is my thesis: There is no need to teach female and/or male students in different ways! (And I will make out a case for this thesis).

Readiness to New Technologies as Innovative tools of Education process

Author: Ekaterina N. Yadova (Moscow Business School)

New Technologies can provide high rise of learning effectiveness. But while using it hotheadedly might guarantee the opposite outcome. To make appropriate usage is hardly necessary to study readiness.

Classical Roger's model testifies new technologies are aimed to use by only 2,5% innovators. After innovators get involved early adopters – 13,5%. And for now Roger's model is useful but in transformational and more detailed way. On such assumptions of analysis was executed two exploratory researches with two different groups.

First was testing the idea if students are ready for new technologies, even in declarative way. Survey involved 219 students of additional long programs, enrolled in the system of distant learning. The group of respondents represent present-day skills like, let's say, advanced lifestyles, deep using social networks and Internet opportunities. In consequence such groups will stimulate easier expansion of innovations on a wide range of customers.

Survey participants were asked to select more proper declaration between two: 1. In education it is necessary to practice extremely high technologies such as brain-signals pickup and fatigability online tracking; 2. It would be better to make education in traditional, classical way, not to divert from the content by unusual forms.

The majority preferred education in traditional, classical way, without diverting from the content by unusual forms. But there were 56%. And other 44% told that in education it is necessary to practice extremely high technologies such as brain-signals pickup and fatigability online tracking. It is a significant variation, which may content persons from innovators group, early adopters and event part of early majority (by Roger's model). Outstanding results shows certain stage of acceptance idea of technology profitableness.

Another exploratory research looked into educational process in schools. There was spontaneous sampling with 2314 respondents – members of different, social network communities, focused on new technologies. People were asked if they support studying such stuff like genom editing, brain computer interface, bio-robot making in school education. The majority readily supported – 51.7%, and 32.5% said they would rather support. And 12.8% discommend the idea. Only 3.0% did not choose between options.

The results of the surveys demonstrate high possibility for comfort technology acceptance in educational process. Now efforts must be stepped up to study educational technologies in different aspects of perceptions and assessment.

Ethical evaluation of technology in the classroom – three methods that are practice-oriented and proven in practice

Author: Karsten Weber (OTH Regensburg)

Even if one tries to consider all stakeholders and their interests, judgements about the morally correct de-sign of technology depend on many aspects like conceptions of human beings, ethical theories, understand-ings of professions, normative assumptions with regard to the relationship between generations, prioritiza-tion of normative claims. All these and probably many other normative considerations influence ethical evaluations of technology at the theoretical level. If one wants to give an answer not only on an abstract or theoretical level, but for the actual use of a certain technology in a clearly defined environment, further factors are added, since ethical considerations are now 'contaminated' by personal involvement of the re-spective stakeholders, (mostly unspoken and often unconscious) subjective attitudes as well as external conditions, which make the normatively desirable perhaps impossible, unsuitable for practice or inappro-priate from a professional point of view.

Such ethical evaluations already pose significant challenges for scholars and professionals who are familiar with the respective methods. However, it is much more difficult for students, in particular from engineering and technology-oriented courses. These students cannot be confronted with complex ethical theories in academic training; they neither have the necessary prior knowledge nor the necessary time. Nevertheless, it is increasingly demanded that students from engineering and technology-oriented programs deal with ethical questions of their discipline and/or future profession. However, methods of ethical evaluation of technology exist that are suitable for both field use as well as teaching.

MEESTAR: The basic idea of this tool is that those stakeholders who are directly impacted by the use of technology perform an ethical evaluation of the technology in question in a predefined way; the results of this evaluation are then fed into the development process. Ethical evaluation and the development of solu-tions for moral conflicts ultimately represent a process of negotiation – MEESTAR thus represents a method based on discourse ethics.

Action Sheets: MEESTAR was originally developed for the ethical evaluation of AAL systems; therefore the evaluation dimensions used are tailored to this purpose. If MEESTAR is to be used in other areas, in most cases it will be necessary to adjust the evaluation dimensions. To ensure that the selection of dimensions is not arbitrary or random, so-called action sheets can be employed.

Ethics Canvas: The use of the Ethics Canvas (https://www.ethicscanvas.org) is intended to encourage those involved in the development and use of technology to explicate their assumptions and prior knowledge with regard to various categories such as affected persons or groups, their relationships and conflicts, etc. The aim of the Ethics Canvas is to encourage those involved in the development and use of technology to make their assumptions and prior knowledge explicit. The aim is to give stakeholders the opportunity to reveal unspoken assumptions and considerations or to become aware of them in discussions with other stakeholders.

These three methods shall be presented using examples from practice and in relation to their use in the classroom.