

THE BIOETHICS OF URBAN TRAFFIC – THEORETICAL ARGUMENTS AND AN INVESTIGATION IN THE ROMANIAN CONTEXT

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Abstract

The paper puts forth arguments which support the thesis of the convergence between bioethics and environmental ethics, by synthesizing the reference points of the development of the latter and the common general concerns of the two disciplines. Their connection is then approached on a specific topic – car use in the urban environment. After arguing the relevance of this topic in the bioethical context, we briefly present an empirical research on Romanian population. Its objective was to analyze the importance of the subjective dimensions concerning the individual approach on ecological dilemmas for the personal car use behavior. Results indicate, on one side, a high degree of coherence of the subjective level of dealing with the environmental issues (and, indirectly, with the public health issues), and on the other, the significant role of these factors in determining the actual behaviors relevant to these issues. As such, it can be concluded that ethical arguments, at least in this respect – of car use in the urban environment – have a certain practical moral resonance in the personal manner of approaching and acting in the Romanian population.

Keywords: *environmental ethics, bioethics, personal car.*

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Nowadays, bioethics is the discipline which regulates the way researchers and professionals in the field of health must behave in the activities connected to the medical sciences. Yet, this configuration was not its "birth". Yet, it was not born having this configuration. The creator of the discipline, Van Renselaere Potter (1971), intended bioethics to be a science of human survival, of environment and biology.

Bioethics and environmental ethics

In the perspective assumed by Potter [1], who was an American oncologist and biochemist, bioethics had the purpose of freeing philosophy from the ivory tower of purely theoretical speculations, forcing it to enter hospitals, parliament, economic organizations, etc.

On the other side, environmental ethics, another applied field of ethics, born in the same period in which bioethics began its development, focused on the way that people treat natural world. Environmental ethics became a distinct and independent part of environmental philosophy in the beginning of the 70's, but only in the 90's it has received an institutional recognition, in the sense that the results of its research appear in prestigious periodicals (for example, *Environmental Ethics*; *Ethics, Place and Environment*; *Journal of Agricultural and Environmental Ethics*; *Earth Ethics Quarterly*), PhD studies in the field are encouraged and national professional institutions appear.

The birth of environmental ethics marks the environmental repositioning of philosophy. People are the only moral agents, the only beings endowed with the capacity to deliberate and decide on matters of right and wrong. But people, as environmental philosophers notice, value nature just for what it can offer to

human society; thus, they are anthropocentric. They live on the planet alongside other five million species, but act only in their interest. Environmental ethics is, from this point of view, a theory on the moral value of nature [3]. Values are involved when people relate to animals, plants, ecosystems as well.

The two disciplines, bioethics and environmental ethics, developed separately, yet the representatives of both have been aware that they share common grounds. Moreover, there are topics which could be addressed by either of them.

Potter [2] intended bioethics to study the perpetuation and blossoming of the human species, environment and biology. He wished to melt the ethics of biological sciences with the ethics of pro-environmental attitudes and behaviors. Unfortunately, his proposals were never heard. Very soon, bioethics became a medical ethic. In the *Encyclopedia of Bioethics* [4], for instance, it is described as an ethic of medical assistance, dealing with various issues related to health services, doctor – patient relationship, informed consent, medical care accessibility, individual sufferance, new medical technologies and drugs (Reich, 1995). By identifying itself with medical ethics, it has renounced the analysis of environmental factors.

Van Renselaere Potter had always felt the need to relate what had become the dominant bioethics with environmental ethics. While the doctors consider it to be a theory of medical decision, he defined it broadly as the ethics dealing with our relationships with the biosphere. In fact, he thought that bioethics should include not only medical and environmental ethics, but also social ethics and, equally, religious ethics [5]. During his entire career, he tried to take distance of the dominant biomedical bioethics. The

expression of his reserves and critics is the term “global bioethics”, which he chose to label his own perspective [2].

Andrew Jameton [6] tried to connect the two disciplines, by grouping them in the concept of “sustainable bioethics”. In his view, bioethics should deal with the origins of raw material necessary for a medical device or for a drug, and the way that their procurement affects the environment. Also, it should analyze the effects of the waste products of medical activities on the environment. These issues seem to cover, in the American writer’s view, all the connections between natural environment and health care endeavors.

Yet, we think that the re-joining of bioethics and environmental ethics (if Van Rensselaere Potter was right and they should form a single discipline) must take a different course. We tend to agree more with Jessica Pierce [7], who claims that the opportunity of bioethics to survive as an independent field of research and reflection depends on its recognition of the fact that healthy ecosystems are the basis of human health. Pierce [7] states: “If we care from a moral point of view about the health of human beings, if we are convinced that health is a moral state towards which we have the obligation to aim permanently, then we have to be sensitive about what is happening to the natural environment” (p.6). Her conclusion is that bioethics should be interested, above all, in the influence of environmental decline on human health.

The same ideas appear in Mackenbach [8], who draws attention, as well, on the environmental changes in the last decades, and on their multiple medical effects. Among the environmental changes, he includes: climate changes, soil degradation, water contamination and the diminishing of

biodiversity. All of these have a massive influence on public health. All, especially when they result from human activities, should be researched in bioethics as well.

Bioethics and environmental ethics converge on the topic of environmental effects (having mostly human than natural origins) on health. For instance, it is hard to determine whether the effects of global environmental changes on health, in the extent that they have human causes, should be approached by environmental ethics or bioethics. If the criterion is health, then we should integrate the topic in the bioethics field. If the criterion is the environmental origin, then it should belong to environmental ethics. Yet, as bioethics is a much larger discipline, more consolidated and prestigious than environmental ethics, we think that the analysis of the influences of environmental factors on health belongs rightfully to the former, rather than to the latter.

This article aims to identify a field which could be empirically explored in a research endeavor linking bioethics to environmental ethics.

The entire March 2001 volume of the *Journal of Urban Health* is dedicated to the urban bioethics. The editor of the thematic volume, Alan Fleishman, who, significantly, is the director of the Center for Urban Bioethics, intends to sketch a plan of future research [9]. In his view, there are many factors in the urban environment relevant for public health, which should be scrutinized by the specialists in bioethics. Fleishman mentions only racial and cultural diversity and the rich – poor gap. We would include in this list the urban microclimate, severely affected by the pollution generated by car traffic. In our opinion, urban bioethics aims, above all, at examining the health threats

originating in the urban physical environment. The core of urban bioethics should be an environmental urban ethics.

Urban traffic and ecological awareness

In USA, in Europe and also in Romania, people are moving out of the city and choose to live in the suburbs or even in the countryside. The city is seen by many as a hostile, dirty, noisy, dangerous and insecure environment within which to live [10]. However, the city has all the potential to provide the highest possible quality of life within a friendly, clean, safe, quiet and secure environment.

Cars have become so much a part of the life of industrialized countries that they have essentially taken over the economy and the culture of these societies [11]. They are really ubiquitous. In fact, their ubiquity hides the truth about them. So many daily activities require the car that everyday life is unthinkable without them. People are thus largely oblivious to the destructive nature of our car society. They are unable to examine and to choose an alternative way of life [12].

Mobility in urban area is of particular interest because limited space and high density of modes of transport (cars, motorbikes, buses, trams, trucks) often result in congestion. Traffic congestion means reduced automobile speeds, longer travel times and increased fuel consumption, air pollution and discomfort for all road users.

The rapid increases in vehicle traffic and poor planning have combined to intensify traffic congestion on the city roads and thus add to travel time [13]. Average traffic speeds in all cities have decreased significantly. The result is higher fuel consumption by a larger vehicle fleet and, consequently, greater

emission loading from the transportation sector in the city. Additionally, the poor condition of the existing vehicle fleet and inefficient vehicular technology has led to greater emissions from this sector.

The automobile pollution in large cities is increasingly of concern to the general public. Motor vehicles are the major source of pollution in the Romanian cities. Emissions of carbon dioxide and hydrocarbons are more pronounced when engines are idling and nitrogen dioxide emissions are higher when vehicles accelerate [14]. All these emissions are deleterious not only to human health but also to the environment.

The majority of the large cities have effectively encouraged the use of the private car through planning (for example, dispersed properties in the suburbs) and infrastructure (available parking and circulation traffic flow). People gave up walking because using the car is much more practical from an individual point of view. However, using the personal automobile instead of walking or using the public transport is not an environmental behavior and seriously affects the health of the community.

Ethical dilemmas and responsibility in urban car use

As mentioned before, the convergence point between bioethics and environmental ethics assumed in this article is the influences of environmental factors on human health. Even on a narrower topic – as urban pollution caused by car traffic – scientific endeavors can be diverse, often representing interdisciplinary approaches. The question that motivates many investigations of environmental factors under human control which affect public health – such as car driving –

address the measure in which the ethical dimension of individual responsibility for collective negative effects has a practical moral resonance, in the determination or modification of real attitudes and behaviors. A large array of contemporary ecological messages impel to moral reflections about our part in the equations of the health and even life of our contemporaries. Yet, the efficiency of such campaigns is disputable, especially in less rich countries. Consequently, environmental psychology had to assume the task of deciphering the resorts of this “resistance” against such proposals with an ethical foundation which should guarantee, at first sight, their success.

The first step of the task of comprehending these resistance was the recognition of the fact that such behaviors – specifically, urban car use – are anchored in personal and social ethical dilemmas which are difficult to solve [15]. They oppose two categories of interests: personal and collective. In the personal realm, the arguments favoring car use are of a short term utilitarian nature, concerning the individual’s immediate gains (comfort, shorter travel time, etc.). In the collective layer, choosing other transportation means entails personal sacrifices, but brings a long term gain for the whole collectivity, by reducing the negative impact on the environment [16]; moreover, it can be associated to a moral concern for respecting the environment [17].

The second step was oriented towards empirical research, by identifying the theoretical models which would allow the exploration of such dilemmas. Generally, the psychological area in which this equation of the actions relevant to the environment (and, indirectly, to other people) is the determination of behaviors by one’s

beliefs and attitudes. The most widely used paradigm in this field – refined along many versions – is the theory of *planned behavior* [18], which identifies a series of determinants on various levels of proximity to the actual behavior, ranging from the group of distal factors – such as the attitude towards the object of the action – to those directly linked to it – such as behavioral intention. In the studies on environmentally relevant behaviors, this paradigm was applied by searching specific factors, on different levels of generality, which would synthesize and explain the way people relate to the environmental dilemmas.

These studies have introduced two general concepts which proved their utility in the prediction of various types of environmental behaviors: „New Ecological Paradigm” [19] and the personal ecological norm [20]. The first of them has the highest level of generality; thus, it belongs to the group of distal factors of actual actions, describing the personal approach on ecological issues. It characterizes the position of the individual to the whole of ecological problems – including those with a straightforward bioethical resonance – by situating him between the two poles of a continuum. The first pole is the traditionalist, anthropocentric one, called Dominant Social Paradigm, and rooted in the following principles:

- a) Humans are superior to nature and have the right to dominate it;
- b) Natural resources are abundant, and the efforts to conserve them are useless;
- c) Due to culture and technology, humans are able to adapt nature to human ends, rather than adapt to the natural environment [21].

This view sustains the imperative of continuous progress, at any cost, leaving science the task of solving any

environmental problems which could arise on the way. The opposite stand is synthesized by the „New Ecological Paradigm”, which entails:

- a) the valuation of nature;
- b) compassion toward other species, people and future generations;
- c) avoiding the dangers to nature and other people;
- d) the recognition of the fact that human development has limits to which people should adapt, through the careful planning of their actions [22].

This general dimension of the attitude towards environmental issues has been linked to various environmental relevant behaviors, in various cultures. The aim of our investigation was to assess the degree in which it could explain the variations of the target behavior – personal car use – in a Romanian sample.

A second relevant psycho-ethical dimension is the ecological personal norm [20], closer to the actual behavior than the former. The origin of the concept of “personal norm” can be traced to the theory of altruistic behavior [17]. It represents an inner motivational force – opposed to the social norm – based on an ethical conviction of the individual about that issue – in this case, about that issue. The direct consequences of this dimension pertain to the manner in which the individual solves the dilemma of urban transportation, choosing either the option of own car use, either one of the other possibilities which entail a personal sacrifice for the collective good – especially the option of public transport.

Finally, the third bioethical relevant concept, this time specific to the topic discussed here, is the perception of negative environmental consequences of automobiles [20]. Practically, it represents a transposition of the aforementioned dimension – of the individual stand on the ensemble of

environmental issues – to a proximal level towards the actual behavior.

In what follows we briefly describe the methodological apparatus and the results of an empirical study on this topic, insisting on the influence of the factors denoting the individual’s approach on the ethical issues aforementioned on the car use behavior.

Empirical study on the moral determinants of car use in the Romanian urban space

Purpose

The research had two objectives. The first was to analyse the differences between car owners and non-owners on a set of relevant variables, among which are the dimensions described above: New Ecological Paradigm, the ecological personal norm and the perception of negative environmental consequences of automobiles. The second was to identify the factors which predict – in the group of car owners – the behavior of car driving in the urban space. Given the topic of this article, we emphasize the causalities that are relevant for the way in which the bioethical issue of the automobile influence on human health is apprehended on the personal level and influences actual behavior.

Participants

One hundred and twentyfive urban residents participated in the research, students in the Faculty of Psychology and Education Sciences, “Alexandru I. Cuza” University of Iasi, enrolled in the distance learning system, during one of their tutorial activity. 74 participants do not own or drive a car on a regular basis (38 women, 36 men), and 51 own and / or drive a car on a regular basis (31 women, 20 men). Participants’ age varied between 19 and 53 year, with a mean of

29 years and a standard deviation of 8 years.

Instruments

In order to measure the dimensions presented above, we employed the following **instruments**:

a. *New Ecological Paradigm* – we employed the revised NEP scale [23], containing 15 items, each representing a statement supporting either the Dominant Social Paradigm (for instance: “People have the right to change the natural environment to fit their needs”), either the New Ecological Paradigm (for instance “We approach the maximum number of people the Earth can sustain”). Participants are required to express their agreement on a Likert – type scale, ranging from 1 = “complete disagreement” to 6 = “total agreement”. The internal consistency of the scale in our sample was satisfactory – Cronbach’s alfa = 0.75.

b. the personal ecological norm towards the automobile – we adapted and employed the scale elaborated by Hunecke et. al. [20], containing 6 items which reflect one’s responsibility towards the others, as well as the inner reasons for using one’s car as rarely as possible (for instance: “I feel guilty towards the other city inhabitants when I’m driving my car”). Items responses are expressed on a Likert – type scale ranging from 1 = “complete disagreement” to 6 = “total agreement”. The internal consistency of the scale in our sample was satisfactory – Cronbach’s alfa = 0.72.

c. the perception of negative consequences of automobiles on the environment was evaluated through a 3-item scale [20]. Each item refers to this topic on general terms, either affirming the negative impact of automobiles on the environment (for instance “Increasing

car traffic is a serious menace to the environment”), either minimizing it (for instance “The importance of car traffic for the environment is exaggerated by mass-media”). Items responses are expressed on a Likert – type scale ranging from 1 = “complete disagreement” to 6 = “total agreement”. The internal consistency of the scale in our sample was good – Cronbach’s alfa = 0.83.

d. The last two instruments concern the behavioral level. The first addresses the daily time length of own car driving (directly estimated by participants). The second concerns the relative frequency of car use. It contains 4 items, requiring participants to estimate, out of 10 regular times in which they travel in the city, how many times they choose their own car as a mean of transportation, and how often they choose either mean the public transport, either walking, either another transportation mean (such as the bicycle). The measures of the behavioral level, as well as that of the personal ecological norm, were filled in only by participants who own a personal car.

Results

a. differences between car owners and non-owners on the bioethical relevant dimensions: on none of the two variables, the differences between the two groups were not statistically significant. Neither on the overall score on the New Ecological Paradigm scale ($t(130)=1,10$; $p = 0,27$), nor on the perception of negative consequences of automobiles ($t(130)=1,32$; $p = 0,18$). Thus, the option for owning a car is not explained by factors involving one’s position on environmental issues, relevant to collective health.

A significant interaction effect was found between owning a car and gender on the perception of negative

consequences of automobiles ($F(1, 124) = 6,40$; $p = 0,01$). The analysis of the effect revealed that in the feminine group the difference between car owners (mean = 4,12) and non-owners (mean = 4,63) is significant ($t(67) = 2,66$; $p = 0,1$), indicating that women who don't own a car evaluate its consequences on the environment as more serious. Yet, in the masculine group the difference between car owners and non-owners is not significant ($t(54) = 1,04$; $p = 0,3$). Such a result is frequently obtained in the studies taking into account gender differences [24], women's more intense pro-environmental preoccupations being, thus, confirmed by this investigation in the Romanian context.

b. correlations between dimensions in each of the two groups (car owners, respectively non-owners): in the non-owners group, the correlation between the overall score on the New Ecological Paradigm scale and the perception on the negative consequence of automobiles is significant and positive ($r = 0,42$; $p < 0,01$). In the car owners group, this correlation is still significant, but stronger than in the former ($r = 0,52$; $p < 0,01$). Also, in the owners category, another positive correlation was found between the overall score on the New Ecological Paradigm scale and the personal ecological norm toward the automobile ($r = 0,48$; $p < 0,05$). Completing the circle of associations between the bioethical relevant variables, the correlation between the personal ecological norm and the personal ecological norm toward the automobile was also strong and positive ($r = 0,55$; $p < 0,01$). Another significant – yet negative – correlation in this group was between the personal ecological norm and age ($r = -0,31$; $p < 0,05$), suggesting the stronger interiorizing of moral obligations towards car use in the

younger participants, as compared to the older ones.

c. the identification of the predictors of car driving behavior; in this purpose, for both of the evaluated behavioral dimensions we build and tested multiple regression models, taking into account among the possible predictors the total scores on the scales described above.

In the case of the first behavioral indicator - daily time length of own car driving – the regression model obtained (significant at $p = 0,006$) explains 18% of the variance of this behavior. The only significant predictor from those associated to the bioethical field is the total score on the New Ecological Paradigm scale (with the other two significant predictors being age and gender). Its standardized coefficient $\beta = -0,25$ suggests that participants with an environmental position closer to the Dominant Social Paradigm tend to use their automobile for longer daily time lengths than the others.

In the case of the other behavioral indicator – the relative frequency of car use – the obtained model (significant at $p = 0,003$) explains 20% of the variance of this behavior. The only significant predictor from those detailed above was the perception of negative consequences of automobiles on the environment (with the other two significant predictors being age and the perception of city accessibility for walking). Its standardized coefficient $\beta = -0,23$ implies a high frequency of car driving of participants who minimize its consequences on the environment.

Discussion

The ethical layer represents a mandatory reference point for any research endeavor on human participants in all areas [25, 26]. Beyond the necessity of following the rules of

research ethics, the bioethical dimension can deepen the understanding of many empirical results. The present paper illustrates this issue, by relating an environmental psychology study to the complex bioethical framework. Subsequently, it highlights the relevance of a specific behavior for the general topic of public health.

More specifically, our results reveal the utility of the investigation of the psychological area, of the subjective manners of relating to the ethical dimension of the dilemmas put forth by the presence of automobiles in the city environment. These dilemmas, as stated above, concern the conflicts between the car driving, offering short term individual benefits, and choosing other transportation means, which, among others, might reflect one's concern for the environment and, consequently, represents an option that protects the community long term interests. Even though the differences between the two categories – car owners and non-owners – on the bioethical relevant factors did not prove to be significant, the correlations between them indicate their psychological homogeneity, the contouring of coherent links in the Romanian collective mental between the various ways of relating to the environment, and, indirectly, to public health. Moreover, results of the prediction analysis reveal that in the case of each of the two behavioral indicators there is a factor reflecting the individual's preoccupation with the environmental impact of his/her actions, even though the significant dimension in the first model (one's overall perspective on the ecological issues) is more general than the one in the second model (the perception of the negative consequences of automobiles on the environment). These associations suggest that this type

of preoccupations have a role – albeit weak in this moment – in the determination of the behavior under scrutiny – car use in the urban environment.

Conclusions

In the first part of this paper we built arguments supporting the connexions between bioethics and environmental ethics. The conceptual grid on which the empirical study presented is based includes a set of dimensions that had already proved their validity in explaining environmental behaviors, while also having an important bioethical relevance. In the specific behavioral area explored in this research – own car use – two of the three psychological factors under scrutiny emerged as significant for these behaviors: the individual's perspective on the environmental issues and the perception of negative consequences of these behaviors. Furthermore, their significance is not limited to people's relationship to the environment. They condense in an implicit manner, at the same time, people's concerns for the collective interests, specifically for the potential long term threats to its members' health. Our results offer a first glance over the importance of these dimensions for the Romanians' urban car use decisions. Such empirically-based information can be useful for the development of public campaigns directed at environmentally – problematic behaviors, which would also need to aim at increasing people's concerns for collective health.

As such, we consider that among the topics which would mark the convergence between bioethics and environmental ethics there is a place for the empirical investigations of the subjective dimensions of relating to the environment and to the bioethically

relevant dilemmas created by human actions. This field of analysis – of the psycho-social approaches and dynamics in the agents of environmental relevant behaviors – can fundament the

theoretical constructions on these topics, and can offer solutions to increase the degree of awareness, at least, of these dilemmas.

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