

# Ecoprofessional Consciousness as an Innovative Component in the Educational Standards of the Future for the Sustainable Development of Society

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**Abstract:** This article studies the ecoprofessional consciousness of specialists. In the era of scientific and technological progress the negative impact of some technologies on the environment and individual is significant; in that case aspiring specialists should cultivate ecoprofessional consciousness, which helps to solve problems connected to the co-evolution “a Man and Nature” concepts. This article explains the term ecoprofessional consciousness and discusses the structure of consciousness development. The structure of the specialists’ ecoprofessional consciousness consists of four parts: the cognitive component, value-motivation component, orientation component, conative component. The given study shows all the components’ content as professional oriented skills. The authors argue that the ecoprofessional consciousness development of specialists exerts a considerable impact on society.

## 1 INTRODUCTION

In order to ensure the sustainable development of society and the co-evolution of “a Man and Nature”, the authors discuss the idea of the individual consciousness (Bakharov, 1999; Los, 2000; Solovova, 2018; Biryukov, 2004; Ursul, 1993; Efimova, 2019).


Consciousness is the functional unit of the mind that makes the decision to understand and execute that very decision (Vundt, 1976; Solomkina, 2000; Sorokoumova, 2014).


The concept of ecoprofessional consciousness is complex, encompassing a number of characteristics that have been studied separately in Russian pedagogical psychology, but not considered in a single context. People act on the basis of needs, motives, interests, goals and ideas. In other words, they are acting consciously (Andreeva, 2005; Spirkin, 1960). Human consciousness includes the totality of knowledge about the surrounding world. The structure of consciousness includes the most important cognitive processes by which people


constantly enrich their knowledge (Bekhterev, 1999; Bueva, 1968; Myasishev, 1966).

The ecoprofessional consciousness is based on ecoprofessional knowledge, self-awareness as part of Nature. The understanding of the surrounding world through the lens of ecoprofessional relations lies in the field of positive attitudes towards the rational use of natural and human resources, intentions that ensure environmentally and professionally sound activities for sustainable development and co-evolution of “a Man and Nature” are the guiding principles.

The cognitive component of ecoprofessional consciousness is the cognitive and accumulative function of the personality of students. That component includes scientific knowledge of nature, human interactions with nature; the balance between the prevailing environmental situation and professional activity; and the environmental regularities of the situation in the technosphere. The value-motivation component of ecoprofessional consciousness reflects reflexively-generating functions that include values and ideals based on

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ecoprofessional attitudes, social norms and rules that regulate daily life and work.

The orientation component of ecoprofessional consciousness is the ecoprofessional orientation and the instructions to predict the impact of professional activity on the environmental situation. Instructions for obtaining, searching and development reduce the negative impact of the techno sphere and to use it creatively in their practical professional activities.

The most important component of ecoprofessional consciousness of students is conative. The intentions to conduct practical research and draw conclusions on the man-made burden are professional activities. The students' intention is to pursue a professional activity in accordance with the environmental imperative by using special ecoprofessional knowledge in specific professional conditions.

The criteria for development are defined for each component of ecoprofessional consciousness. High cognitive levels are characterized by: systemic ecoprofessional knowledge; in-depth scientific knowledge of nature; understanding of the relationship of human professional activity to nature; advanced ability to see other than straight, but also backward ecological linkages, not only immediate but also remote effects on nature, of professional actions; development of ecological thinking, the ability to apply ecoprofessional knowledge in the analysis of the environmental situation and professional activity.

The high level of the value-motivational component development is characterised by the existence of: interest in animals, plants and phenomena of nature; positively oriented emotions from communication with nature and negative perception of damage caused by professional activity. The high level of the orientation component development is characterised by the presence of: a stable motivation, beliefs, needs, interests, attitudes towards knowledge and conservation of nature through professional activities; a sustainable need for self-realization to solve ecoprofessional problems. The high level of the conative component development is characterized by: a willingness to engage in professional environmental and worthwhile activities; an active, autonomous, responsible and proactive attitude to environmental activities; promoting the environmental awareness in professional activities. The average level of cognitive component development is characterised by: lack of systemic ecoprofessional knowledge; insufficient ability to see not only forward but backward environmental connections; not only the immediate but also the long-term effects on the nature of the

professional activity: a lack of in-depth and complete knowledge of the norms and rules of environmental behavior and environmentally oriented professional activities. The average level of development of the value-motivation component is characterized by the presence of: expression of not systematic interest in animals, plants, natural phenomena; positively oriented emotions from communication with nature; negative perception of the harm done to the Nature by the professional activity.

The average level of the orientation component development is characterised by: insufficient need for ecoprofessional knowledge and skills; unsustainable situational need for self-realization to solve ecoprofessional problems. The average level of the conative component development is characterised by a lack of readiness to engage in professional environmental and worthwhile activities; a lack of activity, autonomy, responsibility and initiative in ecoprofessional activities; promoting environmental awareness in professional activities. The low level of the cognitive component development is characterised by: lack of exhaustiveness and depth of ecoprofessional knowledge; limited theoretical ecoprofessional knowledge to characterize the relationship between professional activity and ecology. The low level of the value-motivational component development is characterised by: lack of interest in animals, plants, natural phenomena; lack of positive emotions from communication with the Nature; lack of interest in professional environmental activities. The low level of the orientation component development is characterised by a lack of knowledge of the environmental professional behaviour norms and rules; criteria for assessing the natural environment state; poor environmental management skills. The low level of the conative component development is characterised by: lack of desire to be ecologically oriented in professional activities; carrying out an ecoprofessional task, but without desire.

## 2 MATERIALS AND METHODS

The "Unfinished Sentences" questionnaire was used to conduct the ecoprofessional consciousness research. This questionnaire measures the level of ecoprofessional consciousness structural components indicators' development such as: knowledge, attitude, instructions and intention. The questionnaire consists of thirty-three unfinished sentences. The analysis of the results of the questionnaire can be carried out in terms of qualitative and quantitative methodology,

where the taking the number of positive and negative responses were taken into account. Here the examples of the “Unfinished Sentences” questionnaire:

1. I feel that the environmental impact of professional duty is now ...
2. In order for specialists to consider the environmental consequences in their professional activities, it is necessary to....
3. When I receive information about environmental impacts from someone else's professional activities, I...
4. I think that studying environmental consequences in my professional activity...
5. I am concerned with environmental standards in my professional activity....
6. If the specialist knew the environmental norms it would be necessary to
7. If they announce a beautification day at work, I would...
8. I would participate in environmental activities at work if...
9. I consider myself to be a specialist in Nature....
10. I believe that the specialist towards Nature objects is....
11. If, in the process of achieving a professional goal, I have to harm the environment I would...
12. When I see the consequences of professional activities on our environment I....
13. Compared to my colleagues' attitude toward nature I....
14. The features of the interaction of my professional activity with the objects of nature are as follows...
15. When I have some trash at my workplace I
16. Combining professional management practices with environmental control....
17. I feel that performing my professional duties with environmental implications...
18. I believe that professional and environmental knowledge....
19. If I were asked to participate in environmental actions I would
20. If there is a subject in the curriculum that reveals the relationship between environmental and professional intent in professional activity
21. My ecological consciousness compared to the ecological consciousness of others
22. As a professional I could help our environment....
23. My contribution as a specialist is ...
24. I would take part in the protection of our environment, if....
25. My desire to take environmental impacts into account in my professional work....
26. In my professional activity, environmental awareness takes the form of...
27. For a better organization of environmental awareness in my professional activity, I could ...
28. I might be able to better express myself in relation to Nature if...
29. Environmental components in my professional activity include ...
30. My attitude to the environment as a specialist in the next six months can...
31. The main obstacles on my way to environmental awareness are...
32. If I had the opportunity to participate in an environmental event at work, I would...
33. If I see that my colleagues' professional actions is harming nature, I will ...
34. The first-year, third-year and fifth-year students took part in the research. They were divided into 4 groups by their studying interests: humanitarian, natural-sciences, technical and economics.

### 3 RESULTS

The results of the “Unfinished Sentences” questionnaire included: low level of cognitive component development among fifth-year students from humanitarian group is 48%, from natural-sciences group 74,4%, from economics 21,6% and from technical group is 4% respectively compared to the first-year students of each group (44,5%, 62, 5, 26,3%, 11%) and third-year students of each group (43,3%, 56,6%; 30%; 13,4%). A comparative study of cognitive component development among first- and third-year students was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The cognitive component valid differences were found reliably ( $p \leq 0,05$ ). A comparative study of cognitive component development among first- and fifth-year students was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The cognitive component valid differences were found ( $p \leq 0,05$ ). The mentioned above data may mean that first- and fifth-year students show a low level of ability to offer constructive options for solving environmental problems through professional activities. Third-year students have a high rate of negative responses. However, among the first-, third- and fifth-year students regardless of their major, the number of positive responses is 64.5 per cent; negative 25.9 per cent; and non-response 9.6 per cent in order of cognitive component development. The overall percentages for the cognitive component among all

students show the following results: positive - 64.5 per cent; negative - 25.9 per cent; non-response - 9.6 per cent. Consequently, it can be argued that students are generally able to demonstrate ecoprofessional knowledge and offering constructive solutions to environmental problems, however, most of the students believe that increasing the number of garbage cans and fines for littering is the only effective measure to fight for a clean environment. A comparative study of the value-motivation component development among students of the technical group and economics was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ). A comparative study of the value-motivation component development among students of the humanitarian and natural-sciences groups was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ). The low-level of value-motivation component among fifth-year students of humanitarian group is 47,6%; of technical group is 77%; of economics is 18,3% and of natural-sciences group is 14,7%.

The assessment of the surrounding (natural) world, the evaluation of other people (their peers) and the self-esteem of the ecoprofessional activities among first- and fifth-year students are more positive than among third-year students. We can prove it by showing that the third-year students answers high percentage of negative, as well as a reduced rate of positive. The average response rate among the first-, third- and fifth-year students, regardless of their major, show the following results: positive - 64.8 per cent; negative - 23.8 per cent; non-response 11.4 per cent according to the value-motivation component. A comparative study of the value-motivation component development among students of the humanitarian and natural-sciences groups was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ). A comparative study of the value-motivation component development among students of the technical group and economics was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ). The following results have been obtained about the orientation component development. The fifth-year students gave 76.6 per cent of positive responses; 16 per cent negative; and only 7.4 per cent did not respond at all. While the responses of the first- year students were: 71%; 22.6%; 6.4% respectively, and the third-year students were: 66%; 23%; 11%, respectively. There is a slight quantitative advantage (in percentage) but despite this, the first- and third-year students' answers

correspond to the average level of the orientation component development. The above data may mean that the first- and fifth-year students have a higher percentage of positive emotions towards plants, animals, nature in general than third-year students. The average response rate among the first-, third- and fifth-year students, regardless of their major, show the following results: positive – 71.2 per cent; negative – 20.5 per cent; non-response 8.3 per cent according to the orientation component. A comparative study of the orientation component development among students of the humanitarian and natural-sciences groups was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ). A comparative study of the orientation component development among students of the technical group and economics was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ). According to the conative component development the responses of fifth-year students are 78 per cent are positive; 17.3 per cent are negative; and 4.7 per cent respond refusals. Compared to the responses of first-year students (76.6 per cent; 18.6 per cent; 4.8 per cent, respectively) and those of third-year students (76 per cent; 16.6 per cent; 7.4 per cent, respectively). There is a slight quantitative advantage (percentage). The above data may mean that first-, third- and fifth-year students assume that they may show great readiness to take positive practical professional action with regard to the environment. The average response rate for first-, third- and fifth-year students, regardless of their major, show the following results: positive responses 76.8 per cent; negative - 17.5 per cent; non-response - 5.7 per cent according to the conative component. A comparative study of the conative component development among third- and fifth-year students was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ). A comparative study of the conative component development among fifth- and first-year students was conducted using the statistical criterion by K.Pearson ( $\chi^2$ ). The valid differences were found ( $p \leq 0,05$ ).

#### 4 DISCUSSIONS

The participated in survey students are generally able to offer different solutions to environmental problems, they also have a positive assessment of the environment, other people and self-esteem, and are very positive towards nature and its representatives; they are ready to take part in environmental volunteer



actions. We could observe among first-, third- and fifth-year students trend of decreasing ecoprofessional indicators level and its structural components, however, these parameters are slightly higher among the first- and the fifth-year students respectively. Describing the third-year students, the decreasing level of all the above indicators may be due to an increasing amount of studying and training activities or other factors. The fifth-year students have higher level of developed component indicators it can be explained in a way that they have a higher level of environmental issues awareness. The above data may mean that students of the humanitarian and natural sciences groups, regardless of their studying year, are generally more responsible towards the environment in all its aspects. Most the third- and fifth-year students of group of economics are less responsible towards the environment in many aspects and therefore have the lowest level of ecoprofessional intent. However, the first-year student of group of economics show the results with high ratings for the overall level of ecoprofessional intention development, which may mean that they are more responsible towards nature, compared to the third- and fifth-year students of group of economics. Students of technical group can offer as effective ideas for solving environmental problems as students of natural science group can. However, the third-year students of technical group have the lowest level of ecoprofessional intent, due to external and internal barriers to professional, environmental action; and a negative assessment of the environmental situation in the city, an underestimation of the importance of one's own efforts and strong negative emotions associated with the perception of litter in the Nature.

The third-year students do not focus on obstacles to professional, environmentally-oriented activities, but they focus on ways to overcome these obstacles, and at the same time on means of motivation, we can prove with the help of their answers: "laziness" or "no time". Those answers show a clear or implicit lack of motivation and interest. Students of science and economics groups want to help Nature through professional activities, while students of technical group are not interested in that. The third- and fifth-year students from the technical group have a low level of motivation for a professional environmental activity. It can be proved by their attitude to the Nature, where one positive attitude is not enough to seek practical, useful action with respect to the Nature. An exception is made for the first-year students who, in addition to being positive towards Nature, are willing to take part in conservation activities.

## 5 CONCLUSION

Thus, the following conclusions can be drawn from the results of the pilot study: students of humanitarian and natural science groups, regardless of their studying year, are more responsible towards the environment than technical and economics groups' students. The cognitive component of the ecoprofessional consciousness is better developed among the first-year students compare to different year of studying, where the level of cognitive component development is decreasing. It can be proved by the decreasing of scientific knowledge of nature, human interaction with nature, the balance between the prevailing environmental situation and professional activity, and the environmental regularity of the situation in the techno sphere.

In our opinion, during the students' studying at higher educational institutions, more attention should be paid to the students' ecoprofessional consciousness of students as an innovative component in the educational standards of the future for sustainable society development. For this purpose, active forms of education such as: case-stage, business and role-playing games, ecoprofessional discussions, simulation of ecoprofessional situations can be used.

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