

ЛІТЕРАТУРА

- Гегель Г.В.Ф., 1990 – Гегель Г.В.Ф. Философия права / Г.В.Ф. Гегель // изд. «Мысль», Москва. – 1990. – 524 с.
- Гегель Г.В.Ф., 1978 – Гегель Г.В.Ф. Политические произведения / Г.В.Ф. Гегель // изд. «Наука», Москва. – 1978. – 437 с.
- Маркс К., 1983 – Маркс К. Восемнадцатое брюмера Луи Бонапарта / К. Маркс // Государственное издательство политической литературы, Киев. – 1983. – 120 с.
- Ортега-и-Гассет Х., 2008. – Ортега-и-Гассет Х. Восстание масс / Х. Ортега-и-Гассет // изд. «АСТ», Москва – 2008. – 352 с.

REFERENCE

- Hegel G.W.F., 1990 – Hegel G.W.F. Filosofiya prava / G.W.F. Hegel // izd. «Mysl», Moskva. – 1990. – 524 p.
- Hegel G.W.F., 1978 – Hegel G.W.F. Politicheskie proizvedeniya / G.W.F. Hegel // izd. «Nauka», Moskva. – 1978. – 437 p.
- Marx K., 1983 – Marx K. Vosemnadtsatoe bryumera Lui Bonaparta / K. Marx // Gosudarstvennoe izdatelstvo politicheskoy literatury, Kiev. – 1983.
- Ortega y Gasset J., 2008 – Ortega y Gasset J. Vosstanye mass / J. Ortega y Gasset // izd. «AST», Moskva. – 2008. – 352 p.

УДК 001.89:167

Sergey Porev

COMPARABILITY AND INCOMMENSURABILITY OF RESEARCH ASSESSMENT CRITERIA

Мета нашого дослідження полягає в тому, щоб створити підхід до експертної оцінки науково-дослідних проектів на основі знань про проблему неспівставності та несумірності критеріїв, пов'язану із природою мови і пізнання, використовуючи ідеї Т. Куна і П. Фейєрабенда. У статті запропоновано засоби для подолання неспівставності та несумірності якісних критеріїв і кількісних показників для узагальнення оцінки дослідницьких проектів та їх ранжирування. Розглянуто процедури розкладання критеріїв експертної оцінки та оцінюваних результатів, використовуючи ідеї Ж. Делеза щодо регресу і проліферацію сенсів.

Показано, що неспівставність і методологічна несумірність є загальними для критеріїв систем експертної оцінки. Це положення ми можемо запропонувати як тезу неспівставності критеріїв. Але якщо ми створюємо систему експертного оцінювання як багатокритеріальну, бажано трансформувати неспівставні критерії у їх порівнювані наближення.

Критерії експертного оцінювання мають не тільки основне значення, але й сенси, що регресують. Кожен критерій може бути представлений не тільки через основний текст, а й через додаткові судження, які показують критерій із різних точок зору, що охоплюють різні контексти використання. Якщо кожен критерій має потенційно безліч сенсів, можна використовувати деякі з них в якості доповнення та альтернативи до основного значення. Ці доповнення та альтернативні сенси дають можливість побудувати ще одну версію критерію, який може бути більш сумірним із іншими критеріями набору.

Для двох несумірних критеріїв А і В пропонується побудувати ланцюжок з варіантів критеріїв, зафіксованих смислів і розглянутих положень, що веде від А до В, так щоб значення для А перетворилося в значення для В, і навпаки, якщо це можливо.

У роботі пропонується оригінальний метод декомпозиції критеріїв з метою локалізації несумірності та неспівставності, апроксимації несумірних критеріїв.

Ключові слова: неспівставність, сумірність, значення, сенс, критерії, експертиза колег, регрес, декомпозиція.

Цель нашего исследования состоит в том, чтобы создать подход к экспертной оценке научно-исследовательских проектов на основе знаний о проблеме несопоставимости и несоизмеримости критериев, связанной с природой языка и познания, используя идеи Т. Куна и П. Фейерабенда о несопоставимости теорий. В статье предложены средства для преодоления несопоставимости и несоизмеримости качественных критериев и количественных показателей для обобщения оценки исследовательских проектов и их ранжирования. Рассмотрены процедуры разложения критериев экспертной оценки и оцениваемых результатов, используя идеи Ж. Делеза касательно регресса и пролиферацию смыслов.

Показано, что несопоставимость и методологическая несоизмеримость являются общими для критериев систем экспертного оценивания. Это положение мы можем предложить как тезис несопоставимости критериев. Но если мы создаем систему экспертной оценки как многокритериальную, желательнее трансформировать несопоставимые критерии в их сравнимые приближения.

Критерии экспертной оценки имеют не только основное значение, но и регрессирующие смыслы. Каждый критерий может быть представлен не только через основной текст, но и через дополнительные суждения, которые показывают критерий с разных точек зрения, охватывающих различные контексты использования. Если каждый критерий потенциально имеет множество смыслов, можно использовать некоторые из них в качестве дополнения и альтернативы для основного значения. Эти дополнения и альтернативные смыслы дают возможность построить еще одну версию критерия, который может быть более соизмеримым с другими критериями набора.

Для двух несоизмеримых критериев *A* и *B* предлагается построить цепочку из вариантов критериев, зафиксированных смыслов и рассмотренных положений, которая ведет от *A* к *B*, так чтобы значение для *A* превратилось в значение для *B*, и наоборот, если это возможно.

В работе предлагается оригинальный метод декомпозиции критериев для локализации несопоставимости и несоизмеримости, аппроксимации несоизмеримых критериев.

Ключевые слова: несопоставимость, соизмеримость, значение, смысл, критерии, экспертиза колег, регрес, декомпозиция.

The purpose of the study is to create an approach to the expert evaluation of research projects, based on knowledge about the problem of the criteria incompatibility and incommensurability as related with the nature of language and cognition, using the idea of T. Kuhn and P. Feyerabend. In the article we propose the facilities to overcome incommensurability and incomparability of qualitative criteria and quantitative indicators for generalization of research projects evaluation and ranking. We show the procedures to decompose the criteria of peer review and the proposed results using the ideas of G. Deleuze about the regress and the proliferation of senses.

As we shown, incommensurability and methodological incomparability is common for the systems of peer review criteria. This notion we can propose as the criteria incommensurability thesis. But if we create a peer review system as multicriterial, it is desirable to transform the incommensurable criteria into comparable approximations ones.

Criteria for peer review have not only a core meaning, but the senses in they regress. Each criterion can be presented not only through the main text, but also by additional statements that reveal it from different angles, covering various contexts of use. If each criterion has potentially infinite set of senses, we could use some of them as a complement and alternative to core meaning. This complement and alternative senses give us ability to construct another version of criterion, which could be more commensurable with other criteria of the set.

For two incomparable criteria *A* and *B* it is proposed to construct the chain of the versions of criteria, the fixed senses and the reviewed propositions, which leads from *A* to *B* so that *A*-ness turned into a *B*-ness and vice versa as it is possible.

We propose an original method of decomposition of the criteria for the localization of incommensurability and incomparability, approximation of incomparable criteria.

Keywords: incommensurability, comparability, meaning, sense, criteria, peer review, regress, decomposition.

Introduction. An important problem of Science and Higher Education System is the improvement of research, development and innovation to obtain advanced research results and the creation of competitive technologies. In our country, one of the key objectives of science organization in universities is to create the qualitative system of competitive selection of research and development projects funded by the Ministry of Education and Science of Ukraine from the State Budget. It is well known that a high-quality competitive selection of research projects is an interdisciplinary problem that includes aspects of organization and management, economics and finance, philosophy of science.

In the world practice of science organization there are quite sophisticated schemes and complex measures used for the «peer review» competitive selection of research and development projects [ESF, 2011]. But the difficulty of providing qualitative competitive selection is confirmed by the fact that today there is no a single universal schemes of a peer review system. According to UK officials [Parliamentary Office, 2002], «In general, peer review is held to be beneficial to the scientific community and has become central to the process by which science is conducted. ...Although it is the best available system for assessing the quality of science, it is not perfect. Increased efforts are being made to improve the efficiency and transparency of the peer review process».

Also, the sufficiently perfect and detailed approach, which could provide high-quality selection of research projects for the Ukrainian Higher Education was not created. We suppose, implementation of such approach requires a focus on the needs of socio-economic development, taking into account characteristics of the organization and functioning of the existing system of research and development, the needs and opportunities for optimal organization of an expert evaluation. It should be noted that the creation of a developed competitive selection system requires the use of methods and means of the philosophy of science.

It is known [Mayo, 2006], the best method of peer review is a combination of qualitative and quantitative indicators to provide a concentrated, systematic and reliable information. However, for the peer review and selection of the best proposals it is necessary to use different quality criteria and numerical indicators, compare and combine them to produce the single appraisals for research projects ranking. At the same time we are faced with incomparability and, in general, with incommensurability of criteria. In particular it is not clear how to use quantitative indicators for complex qualitative criteria, the components of which are often difficult to name a comparable and quantitative indicators can't simply be added.

We face to the problems of criteria incomparability and incommensurability, which connected with the nature of cognition, communication activities and relations between different theories and paradigms studied by T. Kuhn [Kuhn, 1970; 1982], P. Feyerabend [Feyerabend, 1987; 1993] and other philosophers of science [Chang, 1997; Raz, 1997; Soler, 2008].

The purpose of the study is to create an approach to the expert evaluation of research projects, based on knowledge about the problem of the criteria incompatibility and incommensurability as related with the nature of language and cognition. This approach should propose procedures to partly overcome incompatibility and incommensurability of qualitative criteria and quantitative indicators to summarize the evaluation and ranking of research projects.

Literature review and conceptual framework. The European Peer Review Guide noted that funds may define different schemes of peer review, «different weighting factors may be applied to different criteria with a differing degree of importance» [ESF, 2011]. There was proposed an example, based on qualitative assessment, which used three criteria: «relevance and impact of the proposed research», «scientific quality of the proposal», «applicant qualification». According to NSF [NSF, 2011], reviewers are asked to evaluate all proposals against two criteria: Intellectual Merit and Broader Impacts. The documents did not specify interdependence and weight of individual components of the criteria.

With the problem of research evaluation P. Gluckman noted: «Problems emerge when assessments of science and impact are combined in a single panel or score... New metrics and criteria may be needed to assess potential and actual impact, an approach several jurisdictions are exploring» [Gluckman, 2012].

In this area, the organization, promotion and management of science occupies an important place conducting qualitative examination of research projects as a solution of multicriteria tasks in which there is uncertainty of the criteria, the need to give preference to different criteria depending on the purpose of competitive selection and other tasks common to multi-criteria analysis, decision-making theory and practice, reducing complexity in multi-criteria evaluations, compensation among criteria etc. According to the last one [Garmendia, 2012], «we can distinguish two types of weights: importance coefficients and trade-offs. The main difference between them is the use of compensation among criteria – the possibility that the good performance of some criteria can offset the bad performances of others. Weights must be derived in a manner that is coherent with the multi-criteria model used».

Hierarchical weighting methods are widely used in the analysis of decision problems that are characterized by incommensurate objectives, competing alternatives and conflicting interests. But most multicriteria methods are based on the assumption that complete information about the model parameters (scores, attribute weights) need to be elicited as «exact» point

estimates [Salo, 2010]. However [Engau, 2010], in the presence of several and typically conflicting or incommensurable objectives, however, a unique best decision usually does not exist so that we need to weigh or trade off the different criteria to find an optimal compromise that satisfies fully articulated, gradually revealed, or initially unknown preferences by the decision-maker.

It should be noted, that scientific community faced to the problems of criteria incomparability and incommensurability for the peer review schemes, but there is no proposed constructive decision to solve one.

The term «incommensurability» was independently adopted from mathematics, where the term means «lack of common measure». The incommensurability thesis was independently introduced by Thomas Kuhn and Paul Feyerabend, but conception of T. Kuhn more well known to the philosophy community. According to R. Chang [International Encyclopedia, 2013], these ideas divide into two parts, one of which relatively underdeveloped matters mostly in epistemology and the philosophy of science. Kuhn (1977) and Feyerabend (1978), and their followers suggest that different theories of the natural world often presuppose «incommensurable» conceptual schemes and thereby represent «scientific paradigms». The second part matters mostly in value theory, normative theory, and the philosophy of practical reason.

L. Soler write [Soler 2008: 299], that, «incommensurability names a relation between elements of the *theoretical* sphere.» Three kinds of incommensurability defined as «semantic», «taxonomic», and «methodological».

The Stanford Encyclopedia of Philosophy [Hsieh, 2008] and The International Encyclopedia of Ethics [International Encyclopedia, 2013] present the definitions of notions «incommensurability» and «incomparability» as different. J. Raz defined two bearers of value as incommensurable if it is false that of two «either one is better than the other or they are of equal value» [Hsieh, 2008].

R. Chang [Chang, 1997] proposed to differentiate the notions of incomparability and noncomparability: «The distinction between comparability and incomparability on the one hand and noncomparability on the other can be regarded as an instance of the distinction between the applicability and nonapplicability of a predicate. Two items are comparable or incomparable if the pair belongs to the domain of application of the comparability predicate; they are noncomparable if it does not... Two bearers of value are held to be incomparable if no positive comparative judgment of their value is true» and «Two items are noncomparable when the formal conditions required for there to be a claim of comparability or incomparability are not met».

Questions of weak and strong comparability, the concept of incommensurability are often discussed in accordance to the problems of multicriteria evaluation [Martinez-Alier, 1998].

Our study and results. According to Expert Group on Assessment of University-Based Research [Expert, 2010], the table and comments for «primary

form of communications for the main discipline groups» presents types of the main scientific results in the relevant field of science. But we should ask questions: what results are more perfect for application of the project – 4 articles or book chapters? What is more important – value «B» for «intellectual merit» or «A» for «broader impact»? How can we define comparability of indicators?

T. Kuhn noted [Kuhn, 1982], that most discussions on incommensurability have depended upon the assumption that, if two theories are incommensurable, they must be stated in mutually untranslatable languages. If there is no way in which the two can be stated in a single language, then they cannot be compared. The phrase 'no common measure' becomes 'no common language'.

But is it possible to find a commensurable part among incommensurable unity?

T. Kuhn wrote [Kuhn, 1982]: «Only for a small subgroup of (usually interdefined) terms and for sentences containing them do problems of translatability arise. The claim that two theories are incommensurable is more modest than many of its critics have supposed».

According to [Soler, 2008]: «Two theories are taxonomically incommensurable when there is no straightforward translation between taxonomies of the two theories... To the question «what is incommensurability?», the classic answer is... an incompatibility irreducible to a logical contradiction, which arises either at the level of scientific language or at the level of scientific standards, and which appears astonishing and potentially significant from the epistemological standpoint, for it happens to arise between two rival theories and theoretical practices for which everybody would expect a common measure of such a kind».

The fruitful definitions are also notions «strong» and «weak» for commensurability and incommensurability. R. Chang in [International Encyclopedia, 2013] presented the definitions:

«Weak incommensurability claims that there is no single unit by which *all* values can be measured. That is, there is no single cardinal scale by which every value can be measured. Strong incommensurability goes further; not only is there no single unit by which *all* values can be measured, but, between *any two* particular values, there is no single unit by which they can be measured».

Comparability is a relation: X is comparable with Y with respect to V, where V is a covering consideration [Chang, 1997].

We know, that in some sense disciplines and smaller units, like specialties, are incommensurable [Sismondo, 2010]. The work done by a molecular biologist is not obviously interesting or comprehensible to an evolutionary ecologist, although with some translation it can sometimes become so. Disciplines are «epistemic cultures» that may have completely different orientations to their objects, social units of knowledge production, and patterns of interaction. However, Sismondo said, people from different areas interact, and

as a result science gains a degree of unity. Languages allow parties to trade goods and services without concern for the integrity of local cultures and practices. Sismondo introduced the idea of boundary objects, which can form bridges across boundaries. Despite some incommensurability across social boundaries, there is considerable coordination and probably even some level of communication. He notes, that «researchers come to understand what their colleagues in other disciplines know, and translate what they have to say into a language that those colleagues can understand. Simultaneously, they listen to what other people have to say and read what other people write, attuned to differences in knowledge, assumptions, and focus. ... In addition, some knowledge within a tradition is tacit, not fully formalizable, and requires socialization to be passed from person to person».

C. Kelly in his article «The impossibility of incommensurable values» [Kelly, 2006] tried to find a way to overcome the incommensurability of certain kind. Kelly pointed out: «The simplest account is to think of ‘value’ as a kind of umbrella term. An umbrella term covers several different but closely related referents (this is also known as polysemy). Generally, two measures are incommensurable when they measure genuinely different properties (e.g. heat and intelligence). If one and the same term refers to genuinely different properties, that term could embody incommensurable measures. ... In conclusion, if value is an umbrella term, if it is truly polysemous, it is so in some manner that does not threaten the commensurability of value. There is a fundamental connection between value and desire, one widely accepted, that has been neglected in the debate over incommensurable values».

As J. Broome noted [Broome, 1999], «For many comparatives, the indeterminacy arises because the comparison involves several factors or dimensions, and it is indeterminate exactly how the factors weigh against each other... Many evaluative comparatives are indeterminate for this reason. They depend on a combination of values, and it is indeterminate how the values are to be weighed. The values are *incommensurable*, we say».

In his research Broome used the notions of «chains of things», «standard configuration», «zone of vagueness» and «zone of indeterminacy» in order to define, how it is possible to connect the incomparable and incommensurable values. He said [Broome, 1999, p.124-125]: «For most comparatives ‘*F*er than’, we can form whole *chains* of things, each of which is *F*er than the next in the chain. A well-chosen chain may run from things that are very *F* to things that are not at all *F*. For instance, we could form a chain of colour patches, each redder than the next, starting from a pure red and running through orange to a yellow with no red in it at all... So as we move down a chain from top to bottom, comparing its members in *F*ness with some object outside the chain, we may start in a zone where the members of the chain are *F*er, then move into a zone where the comparison is indeterminate, and finally come to a zone where the other object is *F*er».

Why is it important for our case of criteria comparison? In our view, J. Broome offered a good facility to search the comparability of things that can be used to overcome, at least partially, the problem of criteria incommensurability. If we want to determine the means of common assessment for criteria A and B, it should be useful try to determine the «chains of things», which leads from A to B so that A-ness turned into a B-ness and vice versa as it is possible.

Kuhn himself not only introduced the concept of incommensurability of theories, but also gave a clue as to how to motivate the approach to try to overcome incommensurability and incomparability of propositions based on meanings changes. He wrote [*Kuhn, 1982, p. 671*], that: «insofar as incommensurability was a claim about language, about meaning change, its local form is my original version. If it can be consistently maintained, then the first line of criticism directed at incommensurability must fail. The terms that preserve their meanings across a theory change provide a sufficient basis for the discussion of differences and for comparisons relevant to theory choice. They even provide, as we shall see, a basis from which the meanings of incommensurable terms can be explored.»

In a similar way we can interpret the notion of meaning when we discuss the conception of P. Feyerabend. According to [*Oberheim, 2013*]: «Feyerabend argued, that... changes in meaning affect our theoretical and observational terms, as well as our conception of the nature of reality. When this occurs, there is incommensurability; ...The idea is intended to capture conceptual incompatibility due to changes of meaning that occur in theoretical transitions that affect our ontological beliefs. Two fundamental theories are incommensurable because the meanings of their terms are determined by the theoretical principles that govern their use, and these principles are qualitatively incompatible».

It should be noted that changes in the meaning not only the path to the incompatibility, but also potential ability to reconstruct theories, scientific explanations, concepts or propositions. The meanings and senses are transformative forms, and this property gives us the opportunity to find a way how to decompose the propositions or criteria to the form, in which they are not incommensurable and comparable.

According to G. Deleuze [*Deleuze, 1969, p. 28*], there are properties of language structures, that make possible the paradox of regress or indefinite proliferation of senses: «When I designate something, I always suppose that the sense is understood, that it is already there... I never state the sense of what I am saying. But on the other hand, I can always take the sense of what I say as the object of another proposition whose sense, in turn, I cannot state. I thus enter into the infinite regress of that which is presupposed».

How should we define the essence of our approach?

Based on Kuhn concept, our analysis shows that incommensurability and methodological incomparability is common for the systems of peer review criteria. This notion we can propose as *the criteria incommensurability thesis*.

But criteria and their numerical indicators are artificial constructive entities. If we create a peer review system as multicriterial, it is desirable to transform the incommensurable criteria into comparable approximations ones.

Criteria for peer review are determined by standards to be met by the high-quality projects. Similarly to propositions, criteria have a core meaning and senses, could contain systematized scientific terminology that creates a more strict form for them. But they basis is an ordinary human language with inherent properties of the endless proliferation of senses. This indicates that a criterion may have a core meaning, complemented by a number of senses. Thus, each criterion can be presented not only through the main text, but also by additional statements that reveal it from different angles, covering various contexts of use. If each criterion has potentially infinite set of senses, we could use some of them as a complement and alternative to core meaning. But this complement and alternative senses give us ability to construct another version of criterion, which could be more commensurable with other criteria of the set.

We said that the criteria for peer review can be strongly or weakly comparable, incomparable or incommensurable. Suppose there are two criteria C_i and C_j having as its core meanings the propositions $C_{i.0}$ and $C_{j.0}$ that are incommensurable. But if to present this criteria by sets of they versions $C_{i.0}, S_{i.1} \dots C_{i.n}$ and $C_{j.0}, C_{j.1} \dots C_{j.k}$, there will be more opportunities to existing options of the criteria $C_{i.l}$ and $C_{j.m}$, which could be commensurable and comparable.

According to our approach, incommensurable criteria should be decomposed in order to for their versions could be defined conditions of commensurability and, as desirable, weak comparability. If some versions of criteria are finally incomparable or incommensurable, we should define an approximation for them.

If we have a system of criteria it is possible not only to carry out decomposition of each for the sense, but to try to create one or more alternative systems of similar criteria. Then it will be possible to introduce the system of criteria through another one – so to speak, to decompose every criterion of the first system in the spectrum of the other.

According to the European Peer Review Guide [ESF, 2011], the assessment schemes have three criteria – relevance and impact, the scientific quality, the applicant's qualification. All these should be evaluated on a numerical scale of 5 points – from the highest to the lowest level. However, the questions immediately arise. Obviously, the scores for all three criteria are highest the total sum is the largest score. But, for example, if only two criteria are highest (5 points), and one – lower (4 points), – then what total score we received? Does it depend on what the criterion has «4»?

Suppose, we agree with proposition of main criteria for peer review of research project: «practical value» («relevance and impact of the proposed research» [ESF, 2011] or «potential for the proposed activity to benefit society or advance desired societal outcomes»[NSF, 2011]), «intellectual merit» (or «scientific quality»), «applicant qualification». We should try to assess the comparability and commensurability of the criteria.

Practical value of research results, according to common notions, could be present by criteria of lower level:

- results impact, relevance, and necessity for society (C1);
- relevance of research results to some fields of practice (C2);
- suitability of research results to transfer, to use or for applications (C3);
- incremental (evolutional) versus transformative (radical) gains (C4);
- associated risks (C5).

It can be expected that the weak commensurability between the C1, C2 and C3 for the different assessment systems. But we can't offer a formal condition for the criteria comparison. As for C4 and C5, they are incommensurable, but strongly or weakly – it depends on the ability to demonstrate certain object. The more radical results, the greater is the associated risk.

A simple example is evaluation of the indicator «the number of research articles» as the criterion of the applicant's qualifications. If we assess the total number of articles as «enough» or «not enough», it is actually simple and comparable. But if we assess articles in journals with high and low citation index, it is not so simple: what is better – 2 articles with high citation index or 5 with low one? We can say that these values are weakly comparable or incomparable depending on our advanced settings.

Our analysis gives the result: the criteria for peer review of research projects are in a wide range from comparability to incommensurability. This confirms our assertion that the numerical indicators of criteria should not be added. With regard to the incommensurable criteria, they should be reduced to the comparable criteria through the use of the regress of senses.

When we consider the quantitative indicators, such as number of publications, we are not looking for differences between articles. This assumption is weak and a good peer review requires evaluation of each publication on an individual basis. But with every formal publication units we combine our understanding of the scientific articles, monographs and book chapters, conference proceedings, which are quite different. How can we add these different indicators to assess the applicant's qualification criteria?

It is unlikely that there is only one possible approach to decomposition of criteria and entities to be evaluated. The transformation of concepts and propositions based on sense regress is logical and intuitive, partly spontaneous.

However conscious use of regression senses can be considered as systematization of such decomposition.

Here is an example of one way of decomposition of the concept of «relevance of research results» as the part of C2, which is made possible by the systematization of the sense regress:

Step 1: relevance of research results → need, absence;

Step 2: the need for (areas of knowledge, other activities), the lack of (the area of knowledge, other activities);

Step 3: the need for (episteme (scientific knowledge), techne (art, technology), phronesis (practical wisdom), sophia (philosophic wisdom)); (according to Aristotle [*Aristotle, 2009*]);

Step 4: the need for → cognition as research, cognition as learning (education), technology, economy, industry, business, politics, other forms of activities;

Step 5: the need as → present, close, strategic, potential, available;

Step 6: absence → complete absence, presence of analogues, prototypes, etc.

And so on.

We can see how the proliferation of C2 senses define the more and more close relations with the criteria C1 and C3.

Note that the criteria C2 and C4 may be considered as incomparable or noncomparable [*Chang, 1997*]. But we could try to do the decomposition of C4:

Step 1: evolutionary versus radical gains for → cognition as research, cognition as learning (education), technology, economy, industry, business, politics, other forms of activities;

Step 2: how evolutionary or radical are gains (in context of the absence) → complete absence, presence of analogues, prototypes, etc. → for concrete technology, practice;

Step 3: the technology prototype vs. the proposed result → determination of the similarities and differences.

And so on.

It can be seen that the fixation of the senses (as meanings) of the results of research and the criteria C2 and C4 helps to find a form for which can be obtained comparable appraisals.

Conclusion. Because even the best systems of peer review are challenged by incommensurability and incomparability of criteria, we aimed try to overcome, at least partially, this problem.

We propose the approach to overcome the incommensurability and incomparability of peer review criteria by they decomposition in accordance with regress and proliferation of senses. This could help to define the set of criteria versions and to construct the chains of them. For two criteria A and B we should construct the chain of the versions of criteria and the reviewed propositions, which leads from A to B so that A-ness turned into a B-ness and

vice versa as it is possible. It is useful to define the «umbrella term» for A and B as they higher level value and the zone of common determinacy.

Further research on the issue should better reveal the commensurability and comparability of peer review criteria. The studies should be required on the incommensurability and the incomparability problem of peer review criteria for different systems of research and knowledge production.

REFERENCES

- ESF, 2011* – European Peer Review Guide – Integrating Policies and Practices into Coherent Procedures. ESF: Strasbourg. – 88 p.
- Parliamentary Office, 2002* – Parliamentary Office of Science and Technology. Peer review. Postnote №182. – 4 p.
- Mayo, 2006* – Mayo N.E., Brophy J., Goldberg M.S., Klein M.B., Miller S., Platt R.W., Ritchie J. (2006), Peering at peer review revealed high degree of chance associated with funding of grant applications. *Journal of Clinical Epidemiology*, Vol. 59. – Pp. 842–848.
- Kuhn, 1970* – Kuhn, T. (1970), *The Structure of Scientific Revolutions*, Second Edition, Enlarged. Chicago: University of Chicago Press. – 222 p.
- Kuhn, 1982* – Kuhn, T. S. (1982) Commensurability, Comparability, Communicability. *Proceedings of the Biennial Meeting of the Philosophy of Science Association*, Vol. 2: Symposia and Invited Papers. – pp. 669-688.
- Feyerabend, 1987* – P.Feyerabend. (1987), Putnam on incommensurability. *The British journal of the Philosophy of Science*. V.38, issue 1. – pp.75-81.
- Feyerabend, 1993* - P.Feyerabend. (1993), *Against Method*, 3rd edition, London: Verso. – 289p.
- Chang, 1997* – Chang, R. (ed.), (1997) *Incommensurability, Incomparability, and Practical Reason*, Cambridge MA: Harvard University Press. – 316 p.
- Raz, 1997* – Raz, J. *Incommensurability and Agency*. In *Incommensurability, Incomparability, and Practical Reason* (pp.: 110-128), Ruth Chang (ed.). Cambridge, Mass.: Harvard University Press, 1998.
- Soler, 2008* – L. Soler, H. Sankey, & P. Hoyningen-Huene, (eds.), *Rethinking Scientific Change and Theory Comparison: Stabilities, Ruptures, Incommensurabilities?* Boston Studies in the Philosophy of Science, Vol. 255, Springer: Dordrecht. – 379 p.
- NSF, 2011* – National Science Foundation's merit review criteria: review and revisions. NSB/MR-11-22. – 310 p.
- Gluckman, 2012* – Gluckman P. (2012). Which science to fund: time to review peer review? Office of the Prime Minister's Science Advisory Committee, Wellington. – 11 p.
- Garmendia, 2012* – Garmendia E. and Gamboa G. (2012). Weighting social preferences in participatory multi-criteria evaluations: a case study on sustainable natural resource management. BC3 Working Paper Series. – 28 p.
- Salo, 2010* – Salo A. and Hamalainen R.P. Preference Programming – Multicriteria Weighting Models under Incomplete Information In *Handbook of multicriteria analysis* Zopounidis C., Pardalos P.M. (Eds.). Springer-Verlag Berlin Heidelberg, 2010. – pp. 167-187.
- Engau, 2010* – Engau A. Interactive Decomposition-Coordination Methods for Complex Decision Problems. In *Handbook of multicriteria analysis* Zopounidis C., Pardalos P.M. (Eds.). Springer-Verlag Berlin Heidelberg, 2010. – pp. 329-365.
- International Encyclopedia, 2013* – *International Encyclopedia of Ethics* (2013), Ed. by H.LaFollette. Blackwell Publishing Ltd. – pp.2591–2604.
- Hsieh, 2008* – Hsieh, N. «Incommensurable Values», *The Stanford Encyclopedia of Philosophy* (Fall 2008 Edition), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/fall2008/entries/value-incommensurable/>>.
- Martinez-Alier, 1998* – Martinez-Alier, J., Munda, G., O'Neill J. (1998) Weak comparability of values as a foundation for ecological economics. *Ecological Economics*, 26. – pp.277-286.
- Expert, 2010* – Expert Group on Assessment of University-Based Research (2010), *Assessing Europe's University-Based Research*. Luxembourg: Publications Office of the European Union. DG Research, EUR 24187 E. – 151 p.

- Sismondo, 2010* – Sismondo, S. 2010 An introduction to science and technology studies / Sergio Sismondo. Wiley-Blackwell – 2nd ed. 257 p.
- Kelly, 2008* – Kelly C. (2008) The impossibility of incommensurable values. *Philos Stud.*, Volume 137, Issue 3, February 2008. – pp.369–382. – DOI 10.1007/s11098-006-0005-5.
- Broome, 1999* – Broome, J. *Ethics out of Economics*. Cambridge University Press, 2004. – 277 p.
- Oberheim, 2013* – Oberheim, E. and Hoyningen-Huene, P., «The Incommensurability of Scientific Theories», *The Stanford Encyclopedia of Philosophy* (Spring 2013 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2013/entries/incommensurability/>>.
- Deleuze, 1969* – Deleuze, G. (1969) *The Logic of Sense*. Trans. by M.Lester with C.Stivale. New York: Columbia University Press, 1990. – 204 p.
- Aristotle, 2009* – Aristotle. *The Nicomachean Ethics/Aristotle*; translated by D. Ross; revised by L.Brown. – Oxford University Press Inc., New York, 2009. – 277 p.

UDK 17:37**Sergii Ryk**

PEDAGOGUE'S PROFESSIONAL ETHICS

The article refers to a set of complex social and globalization issues, which education of Ukraine deals with in the process of integration into European area, and which substantially affect the educational sphere requiring the latest technological innovations from Ukrainian scientists, educators, philosophers. It is emphasized that Ukrainian education system is intensively transformed and is the object of socio-humanitarian specialists' attention in terms of identifying new ethical provision of pedagogue's activity in globalization processes. New tasks which rely on education and training in search of new pedagogical tools and guidelines to mitigate the confusion caused by the collision of cultural, ethnic, religious and economic interests are outlined. Upbringing and education are aimed to find ethical and effective pedagogical approaches to reconcile social and moral conflicts within public national-state space in terms of European integration processes.

Institutionalization directions, theoretical background and praxeological principles of pedagogical ethics, as well as specifics of corporate social responsibility in transitive societies, which include Ukraine are investigated in the article. Attention is paid to the pedagogue's responsibility in the era of scientific and technological innovations, development of responsibility idea and specifying of its content in globalized world; moral and theoretical issues of pedagogue's professional activity and ethical regulation of educational and pedagogical environment in the context of humanistic values transformation as well as the possibility of pedagogue's moral individual improvement within the framework of professional activities have been found. The study relevance of moral content of Ukrainian teachers' pedagogical activities is caused by absence of theoretical and practical works in the field of teaching ethics in the conditions of integration processes.

Keywords: *professional ethics, pedagogical ethics, globalization, education, science, innovations, integration, educational and intellectual space, philosophy of education.*

У статті йдеться про комплекс складних соціально-глобалізаційних проблем, на які нашо́вчується освіта України в процесі інтеграції до європейського простору і які суттєво впливають на педагогічну сферу, вимагаючи від українських вчених, педагогів, філософів сучасних інноваційних рішень. Підкреслюється, що українська система освіти інтенсивно трансформується і є об'єктом уваги спеціалістів ряду галузей соціоуманітарного знання в плані виявлення нового етичного забезпечення діяльності педагога в умовах глобалізаційних процесів.

Ключові слова: *професійна етика, педагогічна етика, глобалізація, освіта, наука, інновації, інтеграція, освітньо-інтелектуальний простір, філософія освіти.*