Worldview Model as the Result of Education

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Abstract: The article describes the worldview model as the result of cognition. The cognition is envisaged by the example of education. It is shown that every individual has its own worldview. An individual worldview or worldview model is being formed as the objective necessity of development. The combination of individual worldviews results in corporate worldview. The article shows that the individual student's worldview can be the evaluation of education quality.

Key words: Education • Cognition • Worldview • Worldview model • Education result

INTRODUCTION

Scientific worldview is one of the fundamental concepts in science. General scientific worldview is built as the system of knowledge systematization, including the synthesis of scientific theories and schools. General scientific worldview includes and synthesizes the worldviews of separate sciences. All the sciences from Psychology to Quantum mechanics [1] are engaged in studying the problem of worldview building [2]. The scientific worldview is not the body of all the knowledge on objective world. It is the integral system of main concepts on general properties and regularities of current reality [3] at the present moment. The development of sciences and scientific investigations, the formation of variety of models and methods are oriented to the building of scientific worldview [4] of the world or the model of surrounding world in this or that [5] form.

From time to time there appear some conflicts between the results of scientific investigations and some concepts which are included in the scientific worldview. This leads to the review and new systematization of knowledge which form the worldview.

It should be noted that most of works in this sphere emphasize the result of cognition - worldview. Less attention is paid to the process of cognition as the process of worldview model formation. Moreover the scientific cognition, made by specialists with higher education, is considered more often. In practice there are few works which consider the cognitive activity in the sphere of education in the aspect of worldview building [6]. As the consequence the evaluation of education quality is implemented piecewise on the basis of separate indices. To our mind it is wise to study new criterion of education quality assessment - the worldview model which can be built by the specialist with higher education.

Body. General worldview is being built on the unity and variety of different disciplinary studies. It is realized on disciplinary and interdisciplinary levels. In contrast to this, education is being built within the objective system. Education is not aimed at creation of integral worldview, it is aimed at teaching the profession within the groups of disciplines.

Attention should be paid to the following. A human uses information technologies in scientific investigations and education. That's why today the role of information technologies and approaches including the worldview building increases. The statistics shows that the amount of information in world community is doubled every 2-3 years [7]. The scales and intensity of information cooperation increase. This creates information thresholds which prevent the uptake of growing flow of information.

Current branches of information industry grow actively and become global and new branches are being formed [8]. The information component of economic activity of market entities as well as influence of
information technologies on scientific-technical, intellectual potential and nation's health significantly increases.

Information component of the society is the basis of development. It improves and develops. The significance of informatics and information technologies consists not only in information processing but also in the fact of how human and social worldview develops [6]. The significance of informatics and information technologies in the sphere of scientific investigations consists in correspondence of the used model of human living environment. The instruments of use of information technologies at building worldview are information models. The point of worldview in informational concept is the complicated compound information model. The basis for building simple and complex information models are information units and information objects [9 10].

Information technologies are the mediator useful for analysis and generalization of information. Human is the creator of worldview.

Scientific reclamation of the world consists of different components, of which the following should be pointed out [11]: cognitive activity of a human, which leads to the creation of new concepts, principles, theories, models, methods; practical activity of a human which leads to the creation of computer-aided productions, i.e. the process of implementation of scientific investigations; generalization of accumulated experience which allows to form world models that correspond to the achieved level of scientific development and cognition of surrounding world.

Utilitarian view studies education as the total of processes of acquiring knowledge for further professional activity. However due attention is not paid to the building of worldview as the task of education.

At the same time the system of education plays an important role in formation of worldview. However it is oriented not to the building of integral worldview, but to the formation of worldview of separate scientific studies within learning trades. Correspondingly it has a differential impact on formation of social-personal worldview.

We can agree with the point of view of L.A. Mikeshina [12] according to which the worldview, formed by the Russian education in different areas of knowledge, does not correspond to the modern concept of the world and does not strike to the integrated whole.

This can be proved by the analysis made during the conference FIG (2012) [13] by the head of the conference 2 (Professional education) FIG professor Steven Frank (the USA) in his report "Professional education for land surveyors" [14]. Generalizing his point of view of all the technical specialists with higher education we can point out the following.

Professional technical specialists have to learn not only technical skills but he also has to be good at management, natural sciences, communications. They have to have intellectual and social skills. In his opinion the specialists should be better taught innovation theory and presented knowledge in the sphere of innovations.

In his report Steven Frank points out: technical knowledge and skills; professional knowledge and skills; professional intellectual knowledge and skills; professional social knowledge and skills. These four components define a specialist as:

- A person with basic education;
- A specialist in his sphere of professional activity;
- Creative thinker who can manage other people and set and solve new tasks;
- Person of society who can solve tasks within human development and progress.

Person of society must imagine world, i.e. he must be able to build and use worldview models. This means that professional specialist must have his own worldview as the basis for professional and social activity.

However modern professional education doesn't teach to build worldviews and a specialist has to use his own methods and intellect for creation of worldview model.

The worldview model under the modern conditions needs the use of information models. That's why the worldview model can be considered as a complex information model which includes simpler models and elementary integrate models. Any modern information model includes different information units as the basis [9]. These information units are different in their purpose. For example, the model is filled with content while using semantic information units [10]. This is the objective way of worldview model building.

General worldview does not exclude the existence of subjective personified worldviews which are built by the separate subject during analysis and cognition of surrounding world. These personified worldviews are significantly different depending on intellect, amount of knowledge, mindset, mentality, traditions and other factors. This is the subjective way of worldview model building. That's why the world model built by a separate person is called the naive model.
The method of building such worldview is often based on the analysis of an individual position in the information situation [15] in which he finds himself. In the process of cognition of the world and creation the model or worldview one can lack of descriptive means of the subject. This situation characterises the so called the semantic gap [16]. In the simplest situation it is characterised by the lack of language means for description of the reality. In the broader sense the semantic gap is characterised by the lack of means of scientific description of the world.

Education allows overcoming the semantic gap of a certain subject. This allows the education to create instruments of worldview building of every person. The higher accomplishment is the more corresponding is the personified worldview to the scientific worldview.

Not only education, but also the worldview itself, motivates human for different actions including the increase of the education level or get additional education. Perception of the external world is performed by a person by means of the use of available world model, information about the external world and used instruments of cognition. Such approach gives us grounds to show the process of worldview model building in form of expression (1).

\[ F\{M(t), Q(t), P\} \rightarrow Q(t) \] (1)

\( M(t) \) is current information about the external world, available to a person; \( Q(t) \) is the experience (previous world model); \( P \) are instruments of cognition (concepts, theories, methods) acquired on the basis of accumulated experience of studying the world. \( Q(t) \) is a world model built on the basis of modelling process.

\( F\{M(t), Q(t), P\} \) is the generation functional which describes the way of generation information about the external world on the basis of current data, previous experience, familiar instrument of cognition. This functional depends on the accepted model of the external world and accepted familiar instruments of cognition. In practice different processes of model building \( Q(t) \) are possible. These processes are displayed by the expressions (a), (b), (c), (d)

\[ F\{M(t), Q(t), P\} \rightarrow Q(t) \] (a)
\[ F\{M(t), [Q(t)+\delta Q], P\} \rightarrow Q(t)+\delta Q \] (b)
\[ F\{M(t), Q(t), [P(t)+\delta P]\} > Q(t)+\delta Q \] (c)
\[ F\{M(t), [Q(t)+\delta Q], P\} \rightarrow Q(t)+\delta Q \] (d)

Process (a) is realised on the basis of accumulated information about the external world, previous experience and familiar instruments of cognition. It leads to the new model \( Q(t) \)

Process (b) is realised on the basis of accumulated information about the external world, previous experience and modification of this experience \( \delta Q \) and familiar instruments of cognition. It leads to the new model \( Q(t)+\delta Q \)

Process (c) is realised on the basis of accumulated information about the external world, previous experience, familiar instruments of cognition and modification of these instruments of cognition \( \delta P \). It leads to the new model \( Q(t)+\delta Q+\delta P \)

Process (d) is realised on the basis of accumulated information about the external world, previous experience, familiar instruments of cognition and modification of these instruments of cognition \( \delta Q \) and \( \delta P \). It leads to the new model \( Q(t)+\delta Q+\delta P \).

The table presents the comparative analysis of the above mentioned groups. The conditional assessment were made on 10-point scale.

- Students of senior years of study, who are getting the second education (group A1);
- Specialists who have worked up to 5 years and are not satisfied with their first profession (group A2);
- Specialists with big work experience, who are working in the speciality but have other education (group A3);
- Specialists with big work experience who have to look for any new profession to survive (group A4);
**Table 1:** Comparative analysis of different groups of students who are getting the second higher education.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>A1</th>
<th>A2</th>
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<td>Activity of education</td>
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<td>Adaptivity</td>
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<tr>
<td>Basic education</td>
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<td>Graduation dissertation</td>
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<td>9</td>
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<tr>
<td>Relation of a diploma to the profession</td>
<td>7</td>
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<td>10</td>
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<tr>
<td>Self-reflection</td>
<td>6</td>
<td>9</td>
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<tr>
<td>Work with computer educational technologies</td>
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Self-reflection is of great significance for getting the second higher education - it is one of the factors of a person's self-development, which pays attention to the things that happen inside the student. Reflection supposes the way outside the frame of education programs and even individual consciousness. This factor is less expressed in students and persons with little work experience.

There are functions and types of reflection. The leading functions are: cognitive (developing of criteria for assessment of one's own activity); intellectualistic (formation of assessment samples); individual (developing of one's own individuality), self-development.

It is noted [18] that the rate of education significantly depends on three factors: active solving of efficient tasks; active self-regulation of behaviour in the process of education; dialogue mode of education of semantic content.

For the groups mentioned in the table, the difference in worldview models which are used in the process of education, are characteristic. This gives us grounds to say that the personal worldview is built on the basis of critical re-evaluation of oneself and other subjects of the activity.

But the main conclusion is as follows: personal (naive) worldview model is being formed on the stage of getting education. After getting education a new component appears which can be named corporate component. Corporate worldview model generalises individual worldviews and approximates such worldview to the scientific worldview.

The cognitive aspect of a personal worldview model should be noted. The body of knowledge and experience of a human motivates him to create his own cognitive worldview model. Cognitive-information worldview model consists of information situations combined in information area of a human. This specific worldview is called naive worldview to the contrast of the scientific worldview. The higher the intellect of a human is, the higher his accomplishment is, the nearer is the naive worldview to the scientific worldview.

Report: The person's existence in the world is accompanied by his respond to the perceived and realized information about the surrounding world. This respond is implemented in the cognitive activity, which actualises explicitly or implicitly - in the worldview model, created by an individual person. Naive worldview is being built as the respond to the practical human needs - as a necessary cognitive basis of his adaptation to the world. That's why any person in the process of education builds his own naive worldview. In the process of education a human creates and approaches his naive worldview model to the general scientific worldview. This fact is not widely used during the process of assessment of education quality.

**CONCLUSION**

Education can be considered as the process of a human establishment during which his own knowledge system is being created. This system is implemented in a certain form. This form is the worldview created by a human in his own cognitive space. That's why the modern education is not only the transfer of data and knowledge on different disciplines and orientations, but also the formation of integral model or worldview (worldview model) of the younger generation. In the broad sense education must promote to the formation of worldview and provide means for its building.

The result of education can be assessed as the similarity of results and aims of education. The result of education can be also assessed as the similarity of personified worldview and scientific worldview. But such criterion is not yet used in the modern education.

We can point out the difference between the teacher and the pedagogue. The teacher is a person who transfers knowledge and fixes the degree of its uptake. Pedagogue is a person who not only transfers knowledge but opens the worldview for students and helps them to create this worldview, frames of which are beyond the educational establishment.

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