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Интеграционные процессы в образовании как инновация: методологические и технологические аспекты

Статья посвящена изучению особенностей интеграции гуманитарного и естественнонаучного подходов в образовании, в частности, исследования специфики продвижения естественнонаучных знаний в пространстве гуманитарного образования с позиций создания инновационной образовательной среды. Обосновывается тезис, согласно которому активизация инновационных изысканий социума практически во всех сферах жизнедеятельности, в том числе и в образовании как важной культурной и социально значимой институции, определяется вызовами современности. Инновационное развитие и повышение качества образовательной деятельности в современной российской школе рассматривается с позиций гуманитарных практик в системе педагогического научного знания, напрямую связанного с необходимостью учитывать прогрессирующую функцию педагогического образования и самообразования. В рамках предлагаемого подхода к созданию инновационной образовательной среды важной, содержательно оправданной, признается классификация, объединяющая все основные аспекты образования, отражающие инновации по обновлению школы. Социально значимым объектом обновления образования в свете интеграции становится процесс обучения и воспитания, подразумевающий содержание обучения и воспитания, организационные формы, средства и методы обучения и воспитания, обеспечивающие инновационные технологии. Не менее значимой признается социализация детей, объединяющая инновации в области институциональных, стилизованных и межличностных механизмов, инновации по обеспечению рефлексии действия этих механизмов, способности к изменению ценностных ориентаций и предпочтений, в балансировании между своими ценностями и требованиями социума, сохранности соматического и психического здоровья в свете обновления коммуникативных аспектов. Утверждается, что абсолютное большинство инноваций имеет корни в собственном замысле, который может перерасти и во внешний заказ.

Ключевые слова: инновации в образовании, интеграция, гуманитарные практики, культурное самоопределение и самореализация, развивающие ситуации, развивающие задания.

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Integrated Processes in Education as Innovative Efforts: Methodological and Technological Issues

The paper provides the authors' view-point on the opportunities of integrated processes (IP) as innovative efforts in investigating methodological and technological aspects of modern education. The basic claim in this paper is that the integrated processes in education have to reflect both humanitarian and natural approaches, used in teaching new generation, because traditional activities cannot incorporate the wide repertoire of development activities found in

everyday life of man. A continuing interest in investigating different aspects of modern education concerns educational results from the view-point of efficacy, psychological balance, and stability. Having spent much of the past twenty years doing research on various aspects of IP in modern education — in schools, at universities, and retraining courses — the authors came to the conclusion that integrated approach to education as a whole phenomenon, may be considered as one of the most effective ways to create innovative educational space for humanitarian activities of students. Humanities and scientific knowledge, may seem, on the surface, to have little in common, but looking beyond the 'disciplinary dazzle' of superficial differences, we found that either of these two groups, and other groups, all behave in accordance with the same unwritten rules — to define national identity of a pedagogue in the way of communicative and language skills. Thus, while providing humanitarian activities for students we have to collaborate with all groups of pedagogues, for example, with naturalists, in terms of confident communication on different subjects and disciplines of both Arts and Humanities, and Natural Sciences.

Keywords: innovations in education, integration, humanitarian activities, cultural self-determination and self-realization, development situations, development tasks.

IP Goals/Mission of Modern Education

As never before, we, people of the Earth, living in this new technology-driven world, are in close connection, cooperation and collaboration with each other, i.e. both interconnectedness and interdependence, via varied and different means of verbal/unverbal communication — transportation, media, and the Internet. Consequently, this is what School of Modern Age /education/ also should do while providing information about innovative experience, in terms of both innovative approaches to teaching and learning strategies, feedback and encouragement, if Education of our time wants to be in the trend with this temporarily changing technology-driven environment of modern age, if School wants to help students become independent learners and, ultimately, proficient in studying and using the information and skills in different educational and social activities [1; 2; 3; 4; 10; 12; 13; 14; 15]. Ultimately, educational institutions, i. e. schools, colleges, universities, teacher's training and retraining institutes, ought to do their best for the needs of creating the likely atmosphere, first and foremost, in providing integrated processes (IP) to poly-cultural educational environment via dialogue between humanitarians and naturalists.

IP goal is to accelerate the educational process through integration of all groups with the help. Thus, the idea lies in the fact that we should look upon integrated processes (IP) in education as innovative efforts in research on educational space for students, who should learn how to choose the right way of cooperation with each other, how to acquire both expressive means of culture, and values of different cultures, for the sake of confident communication, which is "...not just verbal. Good communication is visual, sensual and aural. It's not being afraid to be enthusiastic and spontaneous. It's not being afraid to express yourself or to reach out to others" [11, p.1].

Methodology/Programme Structure

First, a continuing interest in investigating different aspects of modern education (philosophy, technology) concerns educational results and tools we, as educators, should use in teaching (see: FSES/ФГОС). Secondly, much

of the past twenty years spent on research on various aspects of culture-oriented approach to modern education (in schools, at universities, and retraining courses) made us come to the conclusion that integrated approach to education as a whole phenomenon, may be considered as one of the most effective ways to create innovative educational space for humanitarian activities [4–9; 18].

It is received wisdom that nature does not know any doubts; doubts exist only in the human head. Over the last thirty years, the influence of biological, geological and space factors, mostly negative, in their nature, has considerably increased. But the end always stands for the disguised beginning. Therefore, there is one more direction which is intensively developed in the format of culture-focused project. Close attention which concerns work of a teacher is paid to the opportunities and prospects of integration of humanitarian and natural-scientific approaches in education, to philosophical and technological aspects of integration that underpin spiritual and moral nurturing of the personality. One of the effective ways to bring up human dignity, to teach pupils high moral issues, to be fair, responsible for self-affirmation and mutual understanding, is to develop moral identity of the personality, being the significant measurement of individual distinctions. We, educators, are in great need of neutralization of the global humanitarian crisis in the sphere of global information streams and individual learning, global conversation and inability to abolish the ignorant and ugly prejudices we may harbor against people from other cultures and sub-cultures, and foreign cultures as well. We have to provide students with strategies for both learning and communication — gesture, talk, communicate in the classroom for both naturalists and humanitarians via languages of different and varied subjects in the Curriculum. It cannot be argued that though we teach different sciences and provide values of culture for students, and they learn by means of languages, acquiring information verbally and unverbally, it's a good idea for us, teachers, to follow (in our activities) the words of the great American writer-naturalist of our time, Henry Beston (USA, 1926), "Sen-

tences ought to follow each other like waves of the sea, and be as individual as waves. A sentence ought to come in at a fair speed, rise, break and then withdraw, leaving a free space for its successor”.

Integration as an innovation in education is one of the most positive tendencies in the crucial moments of the time of new knowledge on both human beings and the world itself. The need for integration of humanitarian and naturalistic approaches for self-determination of a being cannot be ignored in the environment of new age because of the necessity for man to adapt, to live and survive in the life and the world. Majoring only in one sphere is not enough for this purpose. It gives only some stability for the time being and for a limited number of messages. Following the idea, we won't argue that in the process of self-determination the information capacity of a culture-oriented man in new knowledge, in particular, of natural character and content, could do a lot for him in the way of adaptation to the present life, because self-determination of a personality is the process of learning new knowledge for the sake of adaptation, not the for the sake of new information of no importance. The process is called the adaptation-driven one, or, in other words, 'generalism'. Some other time ago, humanitarian self-realisation was named spiritual building (contro body building), in other words, the process of formation of personified highly-adapted life scheme, which is, to some extent, similar to top natural laws, not to momentum, to quick effect [18].

Along with it the innovation pedagogics did its utmost in the sphere of formation “subject-subject social-oriented activities for the participants of the learning process” in the classroom. In these conditions the integrated approach is in accord with the communicative approach which may help in self-realization of a personality [3; 8; 16]. Why? The importance of the approach under discussion is in accord with the problem of motivation of a student towards wide knowledge via culture-centered activities based on positive attitude towards both groups of knowledge, natural and humanitarian phenomena. Let's take for observation the combination/mixture of varied methods of learning process, for example, from formal logic to observation, measuring, monitoring, experiment, different models, analogues, etc. The research activities for students on integrated basis is of great importance from the view-point of personality formation (new qualities and characteristics), for example, responsibility for the results, for self-realization in studies and life. And it gives the chance for their permanent education, the personality self-education through the whole life.

Innovative Educational Space Immersion Method/Technology

Which results can we achieve if the human-being is considered to be the absolute value of education (from the view-point of humanistic student-centered approach in education), based on integration of both the humanitarian and scientific approaches to formation of personality. First, it concerns an interaction with the 'personal

structures of consciousness' not mere influence on them via abstract knowledge (of different sciences). Secondly, it concerns the skills of thinking and acting at a personal level to impart the personal sense to the personal activities and his behavior, and to exchange senses. Thirdly, it is the development act of understanding other people's emotions and feelings for supplementation them, for discovering new thoughts, etc. All these characteristic features make up the basis for the 'personal structures of consciousness' (senses, values, system of value-semantic attitudes of a personality via language), representing a development of the personal culture of thinking where the language means a lot because of the integrative function of the language [6; 7].

Therefore, we regard the development of a language personality in the context of the integrated approach as one of the prospective one for psychological and social adaptation in the changed global situation. Acting as the top center of the integrated educational environment, a student realizes his/her necessity to scheme the learning process according to the principles of integration and interaction. As a result of ambiguity and polysemy of each element/language of the educational environment, various expressive means of individual comprehension of each element of the environment are required to be integrated. Individual poly-lingual culture, being characterized by its structural properties, connectedness and wholeness, becomes the basis for personal comprehension.

How can we identify a culture-oriented social subject/being? Via his individual thesaurus, intelligence and status, which reveal the personal/individual language (verbal/unverbal language, his activities) productivity, via his messages, integrated in the personal concept-sphere. The latter means, first, a totality of various language concepts. They reflect individual cognitive experience, personal world outlook, and attitudes verbally, via texts, both oral and written. Thus, the basic psychological mechanisms of the development (memory, speech-and-thought and motivation mechanisms), being in accord with self-control, make up the basis for the spontaneous programme of the personal culture, in its essence, multicultural one.

The individual thesaurus is a totality of language concepts, which reflect diverse elements and attributes of the poly-lingual culture of a person, i. e. cultural concepts. The individual thesaurus is a system of general concepts, ideas, views, cultural concepts/values, the basis of which is formed by the verbal and gesture languages — the leading elements of the poly-lingual space. In turn, the individual language status, which characterizes and forms the personal role repertoire, finds its reflection in speech and communicative strategy of a personality. The individual status implies a set of personal skills in usage of specific and non-specific strategies (first of all speech strategy of behavior) for constructive development of various communicative strategies of behavior, as well as for the personal comprehension of his/her individuality.

The individual language intelligence is the main com-

ponent in the structure of the personality since understanding and personal comprehension of the seen, heard or read through, written or oral text, directly depend on the personal skill to determine various connections. These connections make it possible read context as well as the implied sense, include inter-textual attitudes in the context of the author's message (somebody else's or his/her own), using individual means of expressiveness (named as lingual-didactic strategems), which depend on the individual language thesaurus and form the individual language status of a person subsequently. As a system forming elements of personal culture, the individual language intelligence can expand or narrow the language thesaurus and status, role repertoire of a person.

Language productivity is a set of texts created by a person and reproduced at a creative level, at a level of cultural concepts comprehension by means of various languages of poly-lingual educational environment. These texts necessarily reflect the structure of personal poly-lingual culture, revealing itself in the messages possessing structural integrity and polyphony. Thus, interpretation of such product (often it is virtual) demands from its author and other person (partners) the skill to react on 'language', on 'I-World' at a level of polyphonic interaction of social subjects instantly.

So, having taken for a starting position "The sense of education lies in information of senses", we assume the necessity to create such an educational environment, in which the senses of education mastered by subjects of educational process by means of culture — by languages — in the context of socio-cultural environment and poly-lingual culture are actualized. By virtue of valuable potential of the poly-lingual culture, 'the language pluralism' within the limits of an educational humanistic paradigm is an important factor for the positive interaction of a person, society and cultural-educational activities/practices, because it provides the real 'language access' to the poly-cultural world around. Familiarizing the subjects of educational process with languages of culture in an effort to develop self-expression becomes an important factor for humanization of education. Personal knowledge and individual world-outlook, forming together individual poly-lingual culture, constitute the basis for humanization of education as a whole.

Conclusion

As is the case, we are in the know of the fact that today a number of innovations in education are in the focus of numerous discussions because of their nature. In integrated processes as innovative approach one can see as a powerful programme for school, and the way out for both humanization of the educational environment and self-determination of the participants of the learning process. Taking into consideration most of the issues of research on educational space, the priority (goal and tasks) for modern education at the time of innovations is to minimize negative phenomena both in pedagogy as a science and pedagogical activities/practices at school. First and

foremost, it concerns the term of 'education' itself, and the gist/values of 'innovative education' as a whole [19]. Most of the definitions include the top priorities, most important key-words, i. e. "a new idea, or novelty in methodology, or device", or "to renovate or change." First, let's agree with the concept 'innovations' in general, because it is the top priority. Many inventions in education are new or under change, as are many conceptions/concepts or theories. Innovative efforts are in need to be acquired for their particular purposes. The difference between invention and innovation lies in the following — an innovation is just 'put to use, it is accepted by users, effectively causes reorganization'. In other words, the question is 'For which of a number of aims is this or that innovation?'; the answer is 'For taking something and using it in a new way, thus a way that changes the way we think about these or those concepts, or devices, new elements of technological process, new results'. Ultimately, from the view-point of efficacy, balance or stability? [19].

Nowadays the great role of education as one of the most significant factors for the development of economy and information-driven communicative society of new type is increasing with the ever growing influence of human capital assets on many global aspects of life of human beings because "human assets refer to health of an individual, his/her intelligence, knowledge, work efficacy and life quality. Ultimately, it is important to do research, first and foremost, in classifying innovations according to their place, platform, or objects of education, for the sake of renovation elements of education [17]. One group of innovations covers economic and management elements, attitude goals for cooperation between teachers and pupils, renovation of educational conditions as a whole, external relationship of school, etc. The other group comprises learning process itself, nurturing and education management, methods and devices, in other words, innovative techniques and technologies.

The third one includes the milieu of socialization, which comprises innovative efforts identified by the institutional, stylistic and personal mechanisms of socialization, reflective activities on the mechanisms of socialization, capabilities and abilities to change human capital assets, to keep balance while living in the society. The fourth group of innovations focuses on improving, for example, health of students, i. e. their somatic and psychological health, improving medicine, sanitation infrastructure and hygiene education, didactic devices, social and communicative aspects of improving students' health in educational organizations. Thus, the classification under discussion should be considered from the holistic view-point, because it unites top issues of education of our time. If we choose the type of innovative efforts, first, one can admit, which of them changes the way of schooling fundamentally, which of them means an unbelievable advance in education, secondly, which of the innovations comprise both new and familiar elements.

It is possible to differentiate some more levels of innovation, let's say, five ones — from dominance of innovative efforts in familiar ones to fundamentally new. Sources for innovations may be discussed as another basis for classification. As is in the previous case, here we'd like to suggest two types of innovations, i. e. 1) external message/drive for innovations in education, and 2) the people involved in the process of adopting the innovation, innovators' research, one person's or a group's idea/motive to reorganize the way of schooling or break a particular innovative effort. We have to admit the fact that most of the innovations have the background of the person's own new concept, and just afterwards, the idea finds the way out. Thus, whether the idea gets the outcome or not, it depends on how great or fundamental the idea of an innovator(s) is. New activities for educational workers in the sphere of innovations are of great importance for schooling as a whole. How fruitful is this sphere of their activities? Which factors do they depend upon? For sure, success in this sphere depends on the level of creativity of educators, on their erudition, and scientific competence, etc.

To sum it up, one of the principle factors for fruitful research in innovations may be considered the concept about the holistic approach to the likely activities (on Galperin's 3rd level of orientation basis for activities). What is the initial stage of research in the sphere of innovations? How does it start? What stimulates our innovative efforts? Sociological research in this direction gave us fruits for thought, most of the participants could not answer the question concerning the basis which stimulates their innovative efforts. Along with it, we do know that the initial motive is of primary importance, particularly, for positive innovative efforts, and, with no doubt, the initial starting point in doing a research in the sphere of innovations lies in contradiction between a traditional object of education and the realia, which exist in modern educational environment. This is what makes the actual problem work for innovative efforts. That's why innovators should be very particular and specific while formulating the goal of the innovation, and supposed content and structure of the innovation, i. e. innovative draft. Along with it, it's very important to underline particular tasks and aims for successful results, technology and specific devices, if we want to expand positive innovative efforts.

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ИССЛЕДОВАНИЕ

Китайский язык настраивает детей на музыку

Известно, что музыка влияет на развитие речевых и языковых навыков. Например, психологам из Вашингтонского университета удалось установить, что мозг младенцев, которые играют в музыкальные игры, активнее реагирует на речь, а годом ранее исследователи из Северо-Западного университета опубликовали статью, в которой писали, что занятия музыкой в школе помогают в языковых предметах.

Ничего удивительного тут нет — занятия музыкой развивают слух и повышают умение различать звуки самого разного тембра, высоты и т. д. То же самое требуется и при изучении другого языка — мы должны четко слышать звуки речи, какой бы невнятной она ни была, и чувствовать интонацию говорящего. Но тогда возникает другой вопрос: имеет ли место обратное влияние — влияние языка на музыкальные способности? И если да, то какой язык в этом смысле лучше всего?

Во многих современных языках смысл слова зависит от того, на какой звуковой высоте его произнести; звуковысотные вариации слогов и слов могут полностью изменить смысл того, о чем мы говорим. Такие языки называются тоновыми, и один из самых известных примеров — севернокитайский язык, включая его разновидность пунхуа, который является официальным языком в Китае, Тайване и Сингапуре и в котором выделяют четыре тона. Есть и более сложные случаи, вроде ламско, языка народа нсо из Северного Камеруна. Нсо общаются друг с другом уже на восьми тонах, причем значение каждого тона определяется его вариациями во время произнесения конкретного слова. Можно предположить, что как раз такие языки должны быть особенно тесно связаны с музыкальностью.

Эту гипотезу некоторое время назад выдвинули психологи из Калифорнийского университета в Сан-Диего, работавшие со студентами музыкальных специальностей. Исследователи пытались понять, отличается ли звуковысотное восприятие у студентов, чьим родным языком был китайский, от звуковысотного восприятия у тех, кто с рождения говорит на английском. Однако в первое время речь шла об абсолютном слухе, то есть о способности узнавать звук (ноту) саму по себе, без взаимосвязи с другими звуками.

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