THE POSITIVE EFFECT OF USING THE INTEGRAL APPROACH FOR IMPROVING QUALITY OF LEARNING AND STUDENTS' MOTIVATION

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Abstract: The Integral Approach used in the Informatics and Information Technologies (IIT) training has a positive effect on improving motivation to learn as well as on students' engaging, studiousness and curiosity towards the learning content. At the same time, the implementation of that approach in the process of education facilitates the activities in the seminars and reduces the time for acquiring knowledge and competences, typical of the relevant discipline. All this has been accomplished through interdisciplinary connections, having been considered in advance in the system of higher education.

Key words: integral approach, interdisciplinary links, learning motivation, realization

1. Introduction

The Integral Approach and the need of its implementation in the IIT training are based on the understanding that information technologies are more and more used in different educational disciplines and our daily round. The use of IT is an obligatory prerequisite for success. It is extremely important for the development of coming generation and all those who wish to increase their qualification in the new digital world. Deep knowledge of using IT in not sufficient enough to meet the new challenges, but it proves indispensable. This knowledge is an obligatory component of the concept of lifelong learning and the formation of the new information society.

2. Essence of the Integral Approach as an innovative method

Integral theory, a philosophy with origins in the work of Sri Aurobindo and Jean Gebser, and promoted by Ken Wilber, seeks a synthesis of the best of pre-modern, modern, and postmodern reality. It is portrayed as a "theory of everything" and offers an approach "to draw together an already existing number of separate paradigms into an interrelated network of approaches that are mutually enriching." It has been applied by scholar-practitioners in 35 distinct academic and professional domains as varied as art and organizational management [1, 3].

Within the boundaries of the academic-disciplines educational system, typical for elementary and secondary education, and characterizing the higher education in Bulgaria to a great extent, the Integral Approach used in the Informatics and Information Technologies training has been accepted as an innovative one.

Innovation is a difference, a contrast to the prevailing, a novation, a change in a given phenomenon. Innovation is a solution with practical application. Or more:

- any implemented novelty;
- a means of creating a competitive advantage;
- a set of principles, methods and tools for selection and implementation of strategy, organization, management, etc.

Innovation is an innovatory activity that brings success and result. In an educational context, it is mostly associated with the development of knowledge and skills by students in a positive direction. Satisfaction, quality, efficiency, time and competitiveness are the objectives and the results of its implementation.

What forms the innovation of the Integral Approach? Above all, it is the experience of teachers from different disciplines to work together on the educational needs of students which, at the present moment, is a practice that remains only wishful. Secondly – It is the teacher's ability to highlight interdisciplinary connections in terms of common themes, concepts, problems. And third – the Integral Approach is innovative in its objectives, namely – the creation of conditions for more qualitative and faster acquiring of knowledge and skills; development and maintenance of an adequate and sustainable competence in the field of IIT; development and enhancement of personal qualities of individuals with integral, comprehensive thinking and understanding.

According to Ken Wilber an integral approach ensures that you are utilizing the full range of resources for any situation, with the greater likelihood of success. In short, the Integral Approach helps you see both yourself and the world around you in more comprehensive an effective ways [6].

3. Implementation of the Integral Approach in the process of IIT training

In order an innovative practice to be successfully implemented in education, the following necessary conditions have to be available:

- There has to be a need of innovation in order to increase students' level of knowledge and skills;
- The innovation to arouse interest in both students and teachers;
- To be useful and effective in the acquiring of skills and knowledge;
- To be a pleasure for students;
- Followers to be attracted;
- To be carried out in conditions of freedom; calculated risk; controlled experiment.

It is important to note that there is a difference between innovative method and innovative content:

The Integral Approach as an innovative method	The Integral Approach as an educational innovative content (textbooks, training programs, educational projects, etc.)
Innovative methods are in favor of learning content. They are universal – aimed at various systems and specific aimed at particular systems.	It has a structure in terms of the system.

In order to emphasize on the need for Integral Approach in IIT training, we will use the meaning of the term 'information technologies': It is associated with the development of tools for: collection, storage, processing and dissemination of information. Information technologies (as it is determined by the Information Technology Association of America – ITAA) are: *research, design, development, implementation, maintenance and management of computer-based information systems*.

It is these definitions that can help us in highlighting the important role of Integral Approach in the IIT training as its fundamental and essential characteristic is that it is informative.

Often in practice we observe students' lack of commitment and interest, low learning motivation. Likewise, a particular problem is the lack of knowledge from previous years as well as knowledge concerning separate disciplines. Here the teacher often faces a situation in which teaching a new learning material and the attempt for learners to upgrade or acquire new knowledge, is frustrated precisely because students lack appropriate foundations. By applying the Integral Approach that can still be called interdisciplinary, teachers can significantly facilitate this process.

It is important to note that the Integral Approach has its own structure that is always dynamic. This approach cannot be applied in any case, and in any conditions. The need for its implementation arises in a particular situation, context, and case.

The IIT training deals with its own learning contents, goals and tasks. With regard to this, the article has scrutinized and summarized the basic principles in applying Integral Approach in the IIT training with the purpose of achieving higher levels of knowledge and skills among learners.

4. Fundamental principles in the implementation of the Integral Approach in the IIT training

4.1. Through interdisciplinary links – so-called 'investment' – taking a loan from another object

The use of computer technologies in higher education system makes the integration of the IIT discipline possible. Integration is a complicated process that has a structure that consists of two or more disciplines (D1, D2, D3, Fig. 1), connected by **common methodological binding units**. It has a positive effect on students' psychics, indicating that acquiring knowledge is not an end in itself [5].

Figure 1. Model of interdisciplinary connection

Example:

Case	Implementation of the Integral Approach
Web Design students admit that they experience difficulties in dealing with the tasks because they do not understand the meaning of buttons and commands written in English.	*The case must be resolved simultaneously stepwise as:* − *In English classes relevant information is taught that will support assimilation knowledge from other disciplines;* − *Tasks in web design training use information that has been taught before in other discipline. Thus in the process of acquiring new knowledge, other knowledge is reinforced.*

Methodical system for interdisciplinary linking of the "IIT" course with "other discipline" (Fig. 2), suggests a conceptual framework of IT training by creating electronic applications for the learning process, namely:

- IIT training is a process of development and providing information that students will then apply in their professional activity.
- When setting the framework of the whole learning process of future professionals, the place and role of electronic applications developed by the teacher must be determined.

‒ Development and use of software applications must include IIT training support as well as support for other disciplines that take part in the establishment of the model of interdisciplinary connection. Thereby, students have the opportunity to upgrade their knowledge in IIT.
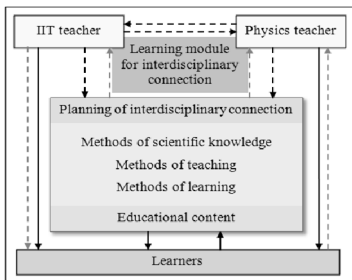

Figure 2. Methodical system for interdisciplinary linking of the "IIT" course with "other discipline" [5]

4.2. Through transfer of information from other areas of everyday life that personally engages learners

Example:

Case	Implementation of the Integral Approach
Visual programming in MS office students experience difficulties in acquiring new knowledge, along with the observed lack of motivation for learning, curiosity and commitment.	*In the learning process - tasks for acquiring new knowledge - instead of giving an abstractive work to the students, the teacher could replace it with a topical one regarding the knowledge needed in everyday life. For example, preparing a curriculum vitae, writing an application, a motivation letter, recipes, etc.*

4.3. By using a common theme, a concept, and a problem in the input of a new concept

Example:

Case	Implementation of the Integral Approach
Input and use of a series of data in MS Excel.	*In the learning process – when setting a series of numeric data in MS Excel, a cross-reference to the concept of numerical range of the school mathematics course can be made. The simplest examples of numerical sequences are arithmetic and geometric progression. These terms are used in Informatics and thus the discussion of their usage in other disciplines is very relevant and may lead to a discovery of methodological binding units.*

5. Implementation of the Integral Approach in the main stages of the learning process

The main factors that affect the training process are a subject to a number of studies. One of the basic tasks of the teaching methodology in computer science and IT is related to the determination of the learning activities system. Decisive for the assimilation of the knowledge system of the computer area are [2]:

- Knowledge system's structure represented by the volume of educational content;
- The combination of specific approaches to organizing the system of concepts, understanding the characteristics of objects and associated operations;
- Methodological system of introducing new knowledge;
- A system of practical tasks and formal algorithms for their solution;
- A system of inter-disciplinary connections related to computers, information, communication and multimedia technologies;
- A system of relations of Informatics and IT to other areas of knowledge.

IIT training methodology is a system that includes in its structure a few basic elements – objectives, contents, methods, tools and organizational forms of education. Each one of the learning process's five components and their rational combination can modernize and improve the training's quality (Fig. 3).

Preparation

In the application of the Integral Approach, as well as in any other training approach, the greatest amount of time and effort are required by the teacher during the stage of planning. As the most important components of the preparatory stage we should point out:

- Diagnosis of students' needs and problems in acquiring new knowledge and skills;
- Analysis of the need for applying a new approach and the adaptability of students;
- Attracting followers - collaboration with teachers from other disciplines;
- Preparation of integral materials in the form of tasks, helping for better assimilation of educational content.

Teaching

During the stage of teaching, along with obtaining feedback from students through reinforcing knowledge assignments, the implementation of the Integral Approach stands out the most. This may be accomplished by the following ways:

- Implementation of information from other disciplines in the statement process (teaching of new learning material) in order to:
  - support the process of acquiring new knowledge;

- increase the level of students' awareness of the interdisciplinary relationships;
-                 internalizing knowledge from different areas and its global adoption;
− The use of the Integral Approach in order to enhance learning motivation by engaging the students' attention with topics and issues from their personal life;
− Integration of information from other fields of science, art, etc., according to the teacher's estimation and the emerging educational needs.
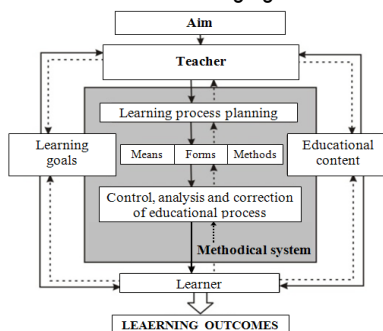

Figure 3. Basic training elements [4]

Evaluation

During the evaluation process the teacher can actually find out the results of applying the approach. At this stage, he should analyze the effect of the application of the IP on both individual learners and on the group as a whole. The teacher must be able to collate the results with those from previous tasks where other types of approaches have been applied. The evaluation provides a good feedback on the effectiveness of the IP in relevant educational cases occurred during the process of working with students, and is an occasion for further debate on the issues by teachers from different disciplines.

Conclusion

Here again we should note the essential characteristics of the IP – it is informative and dynamic. In other words its application, duration and intensity depend on a number of factors. The Integral Approach may be applied both completely or partially during the IIT course. Its application depends on the teacher's discretion in the context of educational needs and learners' knowledge, skills and competencies.

IT set the dynamics of the contemporary world and education has to take into consideration concepts like globalization, interculturalism, qualification, competitive ness and so on. It is exactly the integrally educated person who possesses the intellect to find similarities and investigate components' connections and wholeness in professional and personal plan. Only that person will succeed to develop him/herself of full value.

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ПОЛОЖИТЕЛНИЯТ ЕФЕКТ ОТ ИЗПОЛЗВАНЕ НА ИНТЕГРАЛНИЯ ПОДХОД ЗА ПОВИШАВАНЕ КАЧЕСТВОТО НА УЧЕНЕТО И МОТИВАЦИЯТА НА ОБУЧАЕМИТЕ

Светлозар Цанков, Валентина Войноховска

Резюме: *Интегралният подход, използван в обучението по Информатика и информационни технологии (ИИТ) оказва положително влияние за повишаване на мотивацията за учене, ангажираността и любознателността на студентите към учебното съдържание. Едновременно с това, имплементирането на този подход в процеса на обучение улеснява дейностите в семинарите и съкращава времето за усвояване на знания и компетентности, типични за съответната предметна област. Това се осъществява посредством интердисциплинарни връзки, заложени в системата на висшето образование.*

Ключови думи: *интегрален подход, интердисциплинарни връзки, мотивация за учене, реализация*