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INTERDISCIPLINARITY – AN IMPERATIVE OF LIFELONG EDUCATION

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Abstract

Interdisciplinarity is a way of organizing the objectives, contents and methodologies of lifelong learning with implications on the entire curriculum design strategy, providing a unitary picture of the phenomena and processes studied in the subjects of accounting, analysis, audit and integration of all defining components of the three courses.

Lifelong learning at an interdisciplinary level encourages direct collaboration and exchange between specialists from different subjects, focuses on the educational process with the application of active-participative technologies in lifelong learning, and contributes to sustainable and meaningful learning through ongoing interactions between subjects, through the explicit relevance of the competencies formed in relation to personal, social and professional needs.

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1 INTRODUCTION

The interdisciplinary approach is based on the idea that no education discipline is a closed area, so links can be established between disciplines [1].

Interdisciplinarity refers to an intersection of different disciplinary content by ignoring strict boundaries of disciplines, selecting common themes for different subjects with a higher level of learning, a term found in English as *higher-order learning objectives*.

Interdisciplinarity is a way of organizing the objectives, content and lifelong learning methodologies with implications for the entire curriculum design strategy, providing a unified picture of the phenomena and processes studied within accounting, analysis, audit and integration of all defining components of the three disciplines.

The argument for interdisciplinarity is that it provides an integrated picture of what is being considered separately. In a curriculum area, interdisciplinarity is absolutely welcome, given both content and methodologies as well as teaching strategies. Interdisciplinarity implies, at the same time, a crossroads of different curricula. It not only concerns contents but also involves the inter-skilling of two or more disciplines [2].

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sustainable and meaningful learning through ongoing interactions between subjects, through the explicit relevance of the competencies formed in relation to personal, social and professional needs.

2 METHODOLOGY

Interdisciplinarity of methods refers to applying methods of one subject to other subjects, e.g., mathematics and statistics subjects), while interdisciplinarity of concepts signifies that concepts belonging to one discipline apply to research in another discipline.

Basarab Nicolescu sees interdisciplinarity as a transfer of methods from one discipline to another, with three degrees of transfer. The three degrees are: practical (e.g., nuclear physics methods are transferred to medicine and new cancer treatment is emerging), epistemological (e.g., transfer of methods from formal logic to general legal law) and generating new disciplines (e.g., the use of legislation in accounting has led to the emergence of legal accounting expertise) [3].

The interdisciplinary approach involves three aspects:

- Theoretical – which includes interdisciplinary methodology based on three postulates: the existence of multiple levels of reality, the logic of the embedded third-party and the complexity of the levels of reality;
- Phenomenological - refers to the interdisciplinary model of reality, which includes an object and subject of research with several levels of reality and the hidden third party;
- Experimental – that empirically supports the postulates from the other two aspects.

3 RESULTS AND DISCUSSIONS

Interdisciplinarity develops integrated / transversal / key / cross-disciplinary competences.

At the interdisciplinary level, there are horizontal transfers of knowledge from one discipline to another at a methodological and conceptual level.

The benefits of learning at interdisciplinary level:

- Encourages direct collaboration and exchange between specialists from different disciplines, contributing to the creation of an open character of research, social practices and curricula;
- Focuses the training process on learning, on student, development of active, participatory pedagogues, work on centres of interest, thematic or conceptual learning, project or problem learning, collaborative learning;
- Creates flexible and integrated mental and behavioural structures with transfer and adaptation potential;
- Provides meaningful and sustainable learning, through permanent interactions between disciplines, the explicit relevance of the skills formed to personal, social and professional needs;
- Diverting teaching theory and practice from the idea of discipline and of partitioning learning acquisitions into interactions and correlations [3].

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Italian G. Gozzer published in 1983 an article entitled 'Interdisciplinarity: A Concept Still Unclear'. This concept was considered for a period between a universal pedagogical or epistemological panacea and a formula likely to encourage superficial and spiritual disorder, which may lead to the suppression or mixing of disciplines and, thus, to the calling into question of teachers, by tradition holders of one-disciplinary training.

Today, interdisciplinarity is one of the most important and complex theoretical and practical issues for the development of science, for a new teaching unit.

The theoretical foundations of interdisciplinarity are as follows:

- It is based on an anthology on the essential unity of the various fields of science. Concepts of epistemological order (scientific fact, concept, judgment, judgment, law, method, theory are common to all disciplines);
- The relative interdependence of theories in relation to the facts.

Interdisciplinarity has been classified in different ways.

One can speak of interdisciplinarity of neighbouring fields (where methods and concepts of other disciplines are applied) or interdisciplinarity of problems (problems that go beyond disciplines and study requires collaboration of several disciplines).

Interdisciplinarity study may focus on global environmental issues, payment, the impact of science and technology, etc. Interdisciplinary interplay and research coordination can end up adopting the same set of basic concepts or general methodical elements, i.e., a new field of knowledge or other disciplines.

Transdisciplinarity is regarded as a superior form of interdisciplinarity involving concepts, methodology and language that tend to become universal (systems theory, information theory, cyberspace, modelling, etc.). Transdisciplinarity, according to B. Nicolescu, is between disciplines, along with and above them, and involves dynamic generation through the action of numerous levels of reality [3].

Lifelong learning takes various forms, being placed both in and outside traditional education and training systems. The strength of lifelong learning programs is that it places the responsibility of the individual at the heart of the learning process.

Experimental transdisciplinarity has a wide scope of manifestation: from academic research to transdisciplinary education, from transdisciplinary type educational projects to the development of a new civilization project, to a new humanism, transhumanism [3].

The transdisciplinary method involves a transdisciplinary attitude, based on: rigour, openness and tolerance, which are "fundamental characteristics of transdisciplinary attitude and vision." The argument rigour, which takes into account all existing data, is the best barrier to possible leads. Openness implies acceptance of the unknown, unexpected and unpredictable. Tolerance is the recognition of the right to uphold ideas and truths contrary to those we share ourselves.

- *Rigour* is visible, first at the level of language, in the transdisciplinary type argument, which is based on "living knowledge", unitary at the same time exterior and interior. Transdisciplinarity does not operate with the objective perspective of classical science, imposing a new formula, which would unite "subjective objectivity" and "objective subjectivity". Transdisciplinary language is built on the inclusion of the third party,

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"which is always between "why" and "how", between "who?" and "what?". This inclusion is both theoretical and experimental.

- *Openness* refers to the acceptance of the unknown, unexpected, unpredictable and aims to open the levels of reality and perception, one to the other, the openness to the area of absolute resistance that links the subject to the object. Openness means the refusal of any dogma, ideologies or closed system of thought.
- *Tolerance* manifests itself in relation to ideas and truths contrary to the fundamental principles of transdisciplinarity [4].

The educational vision of the 21st century synchronises the spirit of the age, computerization, sees interdisciplinarity as a possible viable solution, creating added value because its aim is to understand the present world, one of its imperatives being the unity of knowledge, which is no longer merely internal or external, is both internal and external. proposing a holistic approach: student-centred learning, technology integration, project approach, integrated curriculum and constructivism. Lifelong education must be a knowledge adventure, not a memorial race, as is the case in the education system of the Republic of Moldova, for example. Transdisciplinarity makes it possible to move from excessive accumulation of information to understanding it, from the competition phase -- which moves in another plane: I with me and not with others -- to knowledge and exploration.

The development of a **system of validation of learning outcomes acquired in non-formal and informal settings** enables individuals to demonstrate what they have learned beyond formal education and training, including mobility experiences, to achieve the validation of knowledge, skills and competences, achieve full qualification and use these results for their professional career and to continue learning throughout their lives.

The specificities of the lifelong learning approach in relation to the classical educational paradigm are shown in the table below.

Table 1. The specificity of lifelong learning in relation to the classical paradigm [5]

The characteristics of the classic educational paradigm	**The specificity of lifelong learning**
The learning approach is essentially mono-disciplinary, rarely interdisciplinary, and the focus is on content and on the acquisition of a certain amount of knowledge.	The approach to learning is a pluri- and transdisciplinary one, the focus is on the links between information, receptiveness to new concepts, learning meta-cognitive strategies.
Learning is mainly addressed as a result.	Learning is addressed as a process of knowledge ownership and takes into account scientific knowledge and as a result.
Respect for a hierarchical and authoritarian structure. Conformism is rewarded, non-conformism in thinking and actions is disregarded.	Respect for a flexible, mutual structure. Teachers and students collaborate, become actors, partners aware of their functions; nonconformism and creativity are appreciated.

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The structure of the education process is rigid, driven by mandatory analytical programs; traditional training methods and strategies.	The structure of the education process is flexible, including mandatory and optional disciplines; alternative education and training methods, strategies and technologies.
Focusing on the reproduction of knowledge; developing logical thinking; learning is acquired at a rate that is binding for all.	Focusing on skills formation, developing divergent creative/convergent thinking; allowing individual driving rates as the development of intellectual potential is different.
The focus is on performance, on success in teaching.	The focus is on the process of developing the cognition and the meta-cognition that facilitate the optimal social integration of the individual.
The focus is on developing the potential of left-brain hemisphere, linear, analytical thought.	An integral education is promoted, demanding the participation of the whole brain, aiming to combine the rationality of the left-brain hemisphere with non-linear strategies based on intuition and the possibilities of right brain hemisphere.
Students' appreciation is based on strict rules and labelling, leading to uniformity, sometimes even stigmatization and capping.	Appreciation is more flexible, individualized, initiative, creativity and meta-cognitive learning strategies are encouraged, labelling is limited.
Concern about learning rules and standards.	Report student performance to student's capabilities and aspiration level.
The focus is on theoretical knowledge.	It is promoted to complement theoretical knowledge with practical experience in a real context.
Classrooms shall be designed according to strictly functional criteria.	The classrooms comply with ergonomic, aesthetic criteria that ensure psychosocial comfort (lighting, chromatographic, ventilation and psychophysical and intellectual convenience).
Learning is carried out for the present moment, the information recycling being a result of scientific progress.	Learning is forward-looking, and it is done for the future, information recycling anticipating scientific progress.
The flow of information is designed to have a unique meaning, from teacher to student.	Two-way and forward-looking thinking is promoted, which can come from both actors.

In this context, it is appropriate to draw a distinction between continuous learning and lifelong learning:

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- *Continuous learning* is a guiding principle of education;
- *Lifelong learning* is the educational process designed according to this principle and carried out throughout human life, which aims to capitalize on all dimensions and forms of education.

4 CONCLUSIONS

Interdisciplinary research in economic sciences makes it possible to solve recent scientific problems; it is possible to explain and forecast certain events and phenomena which, without interaction with other sciences, could not have been achieved; opens up ways to develop new methods and approaches, to determine priority tasks in research.

Through interdisciplinarity, a number of problems relating to the training, development and education of students can be addressed and the basis for an integrated approach to solving complex problems of reality can also be laid.

There is a global trend towards training highly qualified specialists with employment potential in several adjacent areas. In this context, the methodology for initial training of the accounting students' professional skills, in order to demonstrate efficiency, requires interdisciplinary correlation between the content of accounting courses, business analysis, audit, etc.

The accumulated educational skills will enable the effective integration of people into society, its completeness in the labour market, and would respond to its satisfaction interest. Promoting interdisciplinarity/transdisciplinarity in education will make it easier to understand reality from system positions, to form inclusive, flexible, and creative thinking.

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