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# Online biology journal Ritm ProBiologic – a teaching/learning strategy in the biology discipline

The educational process in all historical periods, identifies solutions to motivate the young generations to learning, which also promotes the dominant values of the human society. The efficiency of the applied solutions is externalized by the specific particularities of the didactic strategies undertaken in the development of the learning activities.

Currently, this correlation is redirected by the expansion of technologies, which have dominant effects on all levels of school learning. As a result, teachers undertake activities to promote the educational goals through the disciplines included in the Framework Plan, which are respected by the educational institutions in the Republic of Moldova.

The communication and information technologies, lately, have determined in the young generations the way of thinking, which depends on the experiences obtained with the tools of the digital age.

The use of new information and communication technologies facilitates the transition from the traditional model of training to the modern one, which valorizes the language of digital natives. By improving the instructional-educational process with the help of ICT, the students will develop their acquisitions and cognitive performances, and the teachers will become competent in the field and will adapt to the evolution of the interactive character of learning [1].

The motivational specificity of the modern didactics is achieved based on strategies with transdisciplinary character, which have an opportune role in valorizing the cognitive abilities of the human personality.

The teaching strategy represents the interdependent totality of the means, methods, materials and educational resources meant to achieve the planned objectives.

With the help of the didactic strategy, the designed learning activities are fulfilled according to the teacher's vision. The didactic approach is carried out by interposing the specific features of the teaching-learning-evaluation process, which render the coherence between the achievement possibilities, objectives and the selected methods. The strategies for outlining the methodological path for concrete learning situations can prevent difficulties in valorizing the motivational attitude towards the school subjects.

The components of the didactic strategy are individualized through the system of forms of organization and development of the educational activity; the methodological system, respectively the system of teaching methods and procedures; the system of educational means, respectively of the resources used; the system of operational objectives.

While the characteristics of the teaching strategy are expressed through the involvement of the learner in specific learning situations; rationalization and adjustment of the training content at the level according to the psycho-individual particularities of the learner; creating the premises for the optimal manifestation of the interactions between the components of the training process; contextual, original combination of the elements of the teaching-learning-assessment process [2].

The activities of learning organization, at present, are diverse and depend on the advantages of the resources with which they can be planned, organized and carried out. Due to the integration of information and communication technologies (ICT) in the teaching-learning-assessment process, the spatial limits of a classroom are exceeded, offering the possibility of a dialogue between groups of students, beyond the borders of a state, even globally, and the character of transdisciplinary learning becomes relevant in maintaining a motivational environment with its apparent, intrinsic and extrinsic components. Thus, the use of ICT in school could become one of the important achievements, with the effect of the radical changement of the educational paradigm foundations of our actual society [3].

Those resources facilitate the process of presenting information, processing it by the student, building knowledge. *Multimedia* (MM) technologies offer the user different combinations of image, sound, voice, animation, video, while *hypermedia* (HM) technologies combine multimedia with hypertext, make it easy to navigate, without obstacles, between different types of data: texts, sounds, images, still, animated images.

The role of the teacher in the traditional education, *as a transmitter of information*, must be transformed into that *of learning facilitator* by rethinking his own mission: creating an environment (purpose, information, resources, strategy), *which allows the student to build/develop knowledge through ICT* [4].

The combination of teaching strategies and information and communication technologies was the basis for the development of the online *Biology journal Ritm ProBiologic (ProBiologic Rhythm),* which can be accessed via the link https://sites.google.com/view/ritmprobiologic

The purpose of the journal is to preserve the motivational aspect of learning, and in the created pandemic situation, to represent a convenient and efficient platform in online learning in the Biology discipline.

The coordinators of the journal show a friendly and productive collaboration among students, teachers and biologists.

The results of the work, are appreciated by the general public, increase the quality of media products and the consistent diligence of young thinkers. Thus, the motivation to learn, the formation of research and investigation skills in the field of Biology, the promotion of creative ideas and projects, the use of media skills, with

inter-and transdisciplinary valences, based on digital skills, are invaluable, as they develop collaboration between local, national and international institutions [3].

The journal, created with the help of the website, contains articles that can be accessed through a menu consisting of thematic pages: *Home, Online Biology Lessons in ProBiological Rhythm, Pillars of Biology Experts, About Us and Contacts* (Fig. 1). *The main page* includes a pop-up menu that contains links to the pages: *Development of biological sciences in the Republic of Moldova, Personalities in the field of Biology, Biological reflection, Ecological point, Purpose through a microscope, In step with the digital generation, Case study, Biological entertainment, Practice and learn.*


Fig. 1. *The main page of the online journal Ritm ProBiologic*

The page *Development of biological sciences in the Republic of Moldova* (Fig. 2), informs visitors about the main objectives of institutions concerning biological sciences in the Republic of Moldova.

On the page *Personalities in the field of Biology* (Fig. 3 the contribution and value of the research of notorious personalities in the field of Biology are described. Thus, what is promoted is the image of a researcher in biological sciences, as well as the professional dedication, presented in the periodical articles, representing a good example and aspiration towards a successful career.


Fig. 2.The page *Development of biological sciences in the Republic of Moldova of the online journal Ritm ProBiologic*


Fig. 3. The page *Personalities in the field of Biology* of the online journal *Ritm ProBiologic*

In Fig. 4 it represents the symbolic image of the page *Biological reflection*, in which the authors write on various biological topics, exposing their own point of view. The personal vision of each author, on a certain topic, denotes the critical, creative character towards the researched topic.


**Fig. 4. The page** *Biological Reflection* of the online journal *Ritm ProBiologic*


**Fig. 5. The page** *Ecological point* of the online journal *Ritm ProBiologic*

The digital pages of the journal contain the space reserved for acute approaches to the quality of the environment and the effects caused by the algorithmic deterioration of ecological processes. Thus, the page *Ecological Point* (Fig. 5) promotes the objectives of ecological education, as a strategic element in forming a responsible attitude among the population.

Purpose through microscope (Fig. 6), also, being a thematic page from the online Biology journal *Ritm ProBiologic*, illustrates the results of the research in Biology of young generations, for practical and laboratory activities.

Once digital applications have become an obligatory part of Biology teaching/ learning strategies, the online Biology journal *Ritm ProBiologic* presents certain applications relevant to the teaching-learning process on the page *In step with the digital generation* (Fig. 7). This page is also intended for a much more successful understanding of the specifics of the study disciplines.


Fig. 6. The page *Purpose through microscope* of the online journal *Ritm ProBiologic*


Fig. 7. The page *In step with generation* of the online journal *Ritm ProBiologic*

The page *Case Study* (Fig. 8) embodies the attitude and possibilities of the students to estimate the consequences of some realities on biological topics identified in certain learning contexts. Existing or possible solutions to the case described, denote the cognitive potential of the author, to present concrete solutions to prevent unwanted consequences.

The page *Biological Entertainment* (Fig. 9) aims to attract readers to assimilate the messages in a light way, excluding the complexity of scientific terminology, stimulating positive emotions in a fun way. The spectacular messages arouse interest, because learning is assimilated through fun. This motivates the authors to place articles with funny content or poems from their own creations, on the topics studied, in Biology classes [3].

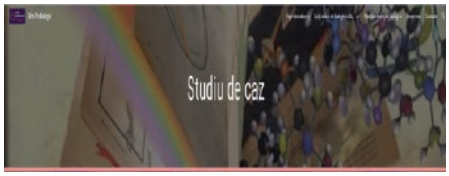



Fig. 8. The page *Case study* of the online journal *Ritm ProBiologic*


Fig. 9. The page *Biological Entertainment* of the online journal *Ritm ProBiologic*

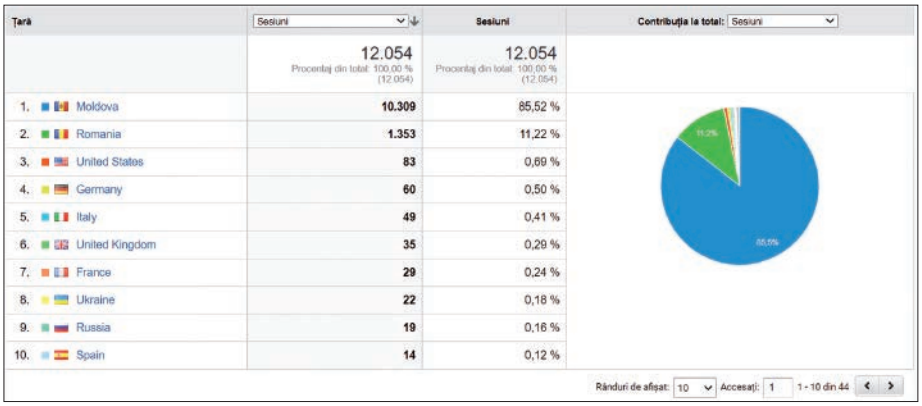
The didactic approach in the online version requires certain strategic adaptations, so that the continuity of the subjects destined for learning to be studied could be integrated, the page *Practice and learn* (Fig. 10) presents concrete stages of learning - evaluation of some concrete thematic contents.

The informational support of Biology researchers, placed on the page *Pillars of Biological Experts* (Fig. 11), provides truthful information to users about the most current results and directions for acquiring new scientific knowledge.


Fig. 10. The page *Practice and learn* of the online journal *Ritm ProBiologic*

Fig. 11. The page *Pillars of Biology Experts* of the online journal *Ritm ProBiologic*

Since the launch of the journal in the virtual environment (March 19, 2018) and until now, there have been registered users from 40 countries of the world, the most active are indicated in Fig. 12. These statistics, recorded with the help of Google Analytics, indicate that the journal is of interest to most European countries. The United States holds the third place according to the number of users, interested in the indicated platform.



| Țară | Sesiuni | Sesiuni | Contribuția la total: Sesiuni |
|---|---|---|---|
| | 12.054 Procentaj din total: 100,00 % (12.054) | 12.054 Procentaj din total: 100,00 % (12.054) | |
| 1. Moldova | 10.309 | 85,52 % | |
| 2. Romania | 1.353 | 11,22 % | |
| 3. United States | 83 | 0,69 % | |
| 4. Germany | 60 | 0,50 % | |
| 5. Italy | 49 | 0,41 % | |
| 6. United Kingdom | 35 | 0,29 % | |
| 7. France | 29 | 0,24 % | |
| 8. Ukraine | 22 | 0,18 % | |
| 9. Russia | 19 | 0,16 % | |
| 10. Spain | 14 | 0,12 % | |

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Fig. 12. Percentage distribution of the top 10 states with the most active users of the online journal *Ritm ProBiologic* [6]

There were 115 respondents who descriptively illustrated their opinions on the online journal *Ritm ProBiologic* regarding the elaborated product.

The percentage indices of the criteria for the general appreciation of the journal (Fig. 13) and the diagram of the pages requested by visitors (Fig. 14) are used by the coordinators to improve some areas.

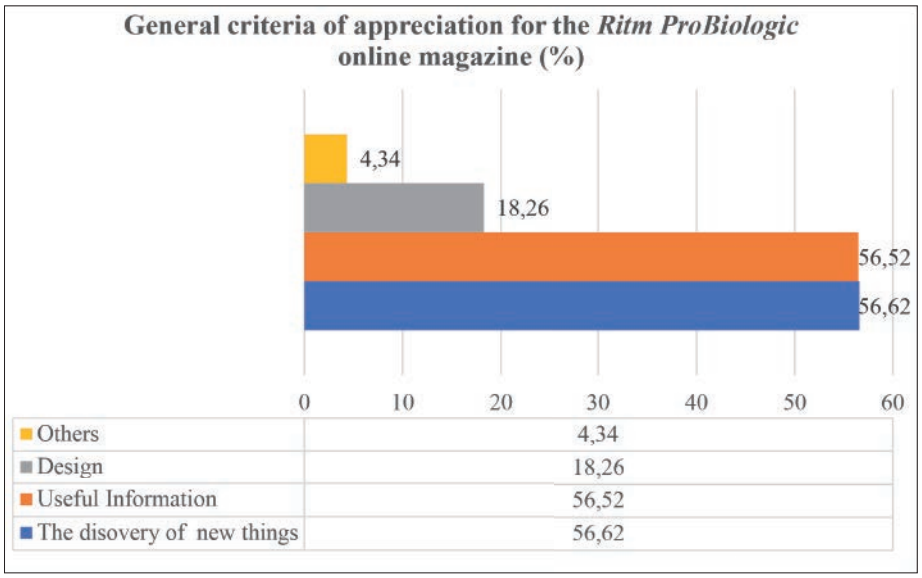


Fig. 13. Percentage attribution of the evaluation criteria of the journal.

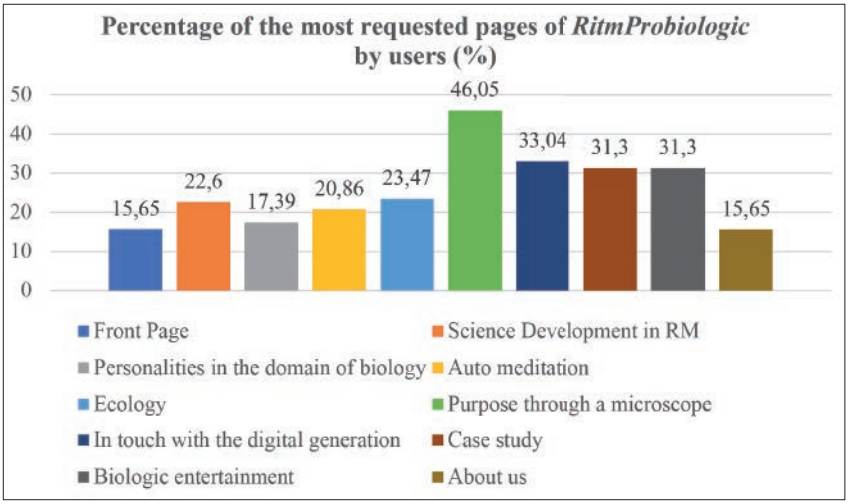


Fig. 14. Requested pages of the journal

The probability of collaborating with the journal (Fig. 15) and writing articles (Fig. 16) is favourable in the perspective of project development.

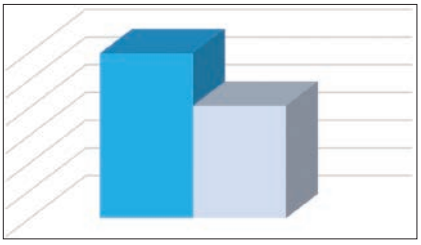

Fig. 15. Potential journal collaborators

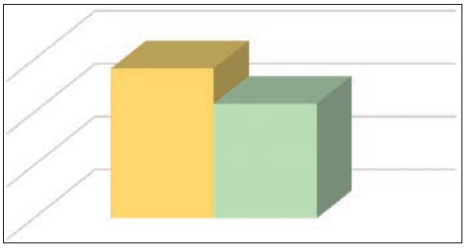

Fig. 16. Percentage of those who want to publish articles in the journal

***Advantages:*** it contributes to career guidance; useful and accessible information for learners; convenient platform for collaboration between learners and other persons on biological topics; it complements the topics in the textbook with interesting information; the messages reflect the tangents of Biology with other sciences; it is a platform with free access; any reader can come up with proposals to complete the topics described in the journal; it allows the development of digital skills; it represents a successful systematization of the thematic pages; it develops learners' interest in the subject, forming a positive attitude towards Biology-related sciences; the examples of published practical works have a novelty effect; knowledge of illustrious personalities

in the field of Biology, of institutions that develop biological sciences in the Republic of Moldova; it is a favorable environment for relaxation, because it is fun, etc.

***Disadvantages***: the proposed information is only in Romanian; it is not a page for feedback and comments; lack of fun games that would attract young people; difficulties in finding a concrete topic; few people know about the existence of the online biological journal, etc.

In conclusion, we can say that the integration of ICT resources in the instructional-educational process, digital skills and the Internet network become a priority in achieving school success and curricular standards. Thus, the act of learning is no longer regarded as the effect of the teacher's efforts and work, but the product of learners' interaction with the computer and collaboration with the teacher. The positive impact is felt by increasing the efficiency of learning activities, developing communication skills, individual study, etc. The media experience, initiated by the dimensions of education in which the teaching process is student-centered, avoids lack of motivation and disinterest in the planned activities. The practical applicability of modern teaching strategies and methods complements the personality of young people with a certain social and professional predestination, able to transmit the fundamental values of a progressive society in all fields of human activity [5].

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## Online biology journal *Ritm ProBiologic* – a teaching/learning strategy in the biology discipline

**Abstract**

The learning process in Biology requires adaptations to various conditions for achieving the didactic approach. Thus, the teacher undertakes the best strategies in maintaining the

motivational character towards the Biology discipline. The online Biology journal *Ritm ProBiologic (ProBiologic Rhythm)* is a local product that promotes the values of education through thematic pages that address the multilateral aspects of biological sciences while promoting the principles of transdisciplinary learning as an element of modern teaching.

**Keywords:** teaching strategy, Biology, information and communication technologies, online Biology journal *Ritm ProBiologic (ProBiologic Rhythm)*

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