

РОЗДІЛ VIII. ПЕДАГОГІКА ВИЩОЇ ШКОЛИ

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DEVELOPMENT OF STUDENTS' COGNITIVE AND INTELLECTUAL ABILITIES BY MEANS OF PODCASTING

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The article deals with the Canadian educators' best experience in strategies and methods to develop skills of the 21-st century in a creative educational environment based on modern digital technologies and authentic audio resources. Higher education does not guarantee high competitiveness of graduates in the labour market. Today, the modern education system cannot be limited to traditional training. It focuses on the cognitive mechanisms of learning and acquisition of knowledge. Human activity is inextricably linked with the external (physical) and internal (mental) aspects (motivational, cognitive and regulatory). To achieve success in modern realities, the essential characteristic of the educational process should prioritize cognitive and intellectual development. The purpose of the study aims at comprehensive analysis of international advanced pedagogical experience in the area of implementation of innovative technologies and learning English.

Cognitive mechanisms are described as higher brain functions and individual psychological abilities that require appropriate technologies and teaching methods. The development of critical and creative thinking is closely linked to the use of Bloom's taxonomy, a hierarchical organization of cognitive skills through planning verbs. Based on the practice, teachers plan educational goals and objectives, project specific methodological steps and achieve high learning outcomes.

The international experience is summarized on the example of a pilot project of the Canadian radio broadcasting corporation "Podcasts in the classroom". It is emphasized that this teaching guide has clearly measurable goals, including resources of activities, such as a lesson plan, slide shows, audio for downloading, texts of episodes, visual aids for classes, bonus mini-episodes. Approbation of innovative resources and methods shows that the components of creative educational environment, modern digital tools, authentic audio resources contribute to the development of students' cognitive and intellectual abilities, form modern key competences: abstract and critical thinking, creativity, self-reflection, personal growth, autonomy.

РОЗВИТОК КОГНІТИВНИХ ТА ІНТЕЛЕКТУАЛЬНИХ ЗДІБНОСТЕЙ СТУДЕНТІВ ЗАСОБАМИ ПІДКАСТИНГУ

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Ключові слова: навички 21-го століття, інформаційні технології, канадська радіомовна корпорація, таксономія Блума, ключові компетенції.

У статті розглянуто передовий досвід канадських освітян щодо стратегій та методів формування умінь і навичок ХХІ століття у креативному освітньому середовищі на основі сучасних цифрових технологій та автентичних аудіоресурсів. Здобуття вищої освіти не гарантує високої конкурентоспроможності випускників навчальних закладів на ринку праці. Нині сучасна система освіти не може обмежуватися підготовкою фахівців тільки в традиційних формах і вимагає звернення до когнітивних механізмів засвоєння і набуття знань. Діяльність людини нерозривно пов'язана з зовнішньою (фізичною) та внутрішньою (психічною) сторонами (мотиваційною, пізнавальною та регуляторною). Для досягнення успіху в сучасних реаліях визначальною характеристикою навчального процесу постає орієнтація на когнітивний та особистісний розвиток студентів. Мета дослідження – всебічний аналіз передового педагогічного досвіду закордонних колег щодо впровадження інноваційних технологій у навчальний процес.

Когнітивні механізми описано як вищі функції мозку та індивідуальні психологічні здібності людини, які потребують відповідних технологій та методів навчання. Розвиток критичного та творчого мислення тісно пов'язаний з використанням таксономії Блума, ієрархічного впорядкування когнітивних навичок за допомогою дієслів планування. Грунтуючись на практиці застосування, викладачі планують освітні цілі та завдання, проєктують конкретні методологічні кроки та досягають високих результатів навчання.

Узагальнено міжнародний досвід на прикладі пілотного проєкту канадської радіомовної корпорації «Підкасти в класі». Наголошено, що методичні матеріали мають чітко вимірювані цілі, включають ресурси діяльності, як-от плани уроків, слайд-шоу, аудіо для завантаження, тексти епізодів, наочність для занять, бонусні міні-епізоди. Апробація інноваційних ресурсів та методики свідчить, що складники креативного освітнього середовища, сучасні цифрові інструменти, автентичні аудіоресурси сприяють розвитку когнітивних та інтелектуальних здібностей студентів, формують сучасні ключові компетенції: абстрактне та критичне мислення, творчість, саморефлексію, особистісний ріст, автономність.

Problem statement. Currently, all over the world new approaches to the analysis, assessment and quality management education are being developed. As our reality shows, the level of knowledge and skills that students get at colleges and universities does not yet guarantee their proficiency and demand in the labour market. Training of a specialist who is for learner's autonomy, ready to manage his personal resources

and can solve professional problems effectively in the context of dynamically changing requirements is a vital concern. The defining characteristic of modern education is its focus on the cognitive and personal development through the implementation of information technologies. These factors determine the relevance of our study.

Recent research and publications. Theoretical and methodological approaches to the experimental

study of the process of internalization as a central mechanism of cognitive development of a personality were considered in the works of L.S. Vygotsky. Three fundamental theories of learning psychology: a theory of the connection between learning and cognitive development by L.S. Vygotsky, a theory of educational activity by V.V. Davydova and a theory of internalization by P.Ya. Galperin in its unity form the conceptual basis for projection of cognitive development and, accordingly, is the basis for many modern pedagogical approaches and technologies. Problems of consciousness development were also studied by O.R. Luria, O.M. Leontiev and many other scientists around the world [1, p. 55].

The critical reviews of psychological and pedagogical literature, in particular, the use of information technologies in the educational process are highlighted in a great number of studies by national researchers such as V.Yu. Bykov, O.H. Glazunova, A.M. Hurzhii, M.I. Zhaldak, V.F. Zabolotnyi A.M. Kolomiiets, O.H. Kolhatin, A.B. Kocharian, V.M. Kukharenko, A.F. Manako, O.A. Mishchenko, N.V. Morze, V.V. Osadchyi, L.F. Panchenko, S.O. Semerikov, O.V. Spivakovskiy, O.M. Spirin [2, p. 362]. Development of students' cognitive-intellectual abilities based on creative and critical thinking activities in the English language classroom are described in details in the articles of O.V. Babenko, and many others [1, 3, 4].

Podcasting as an innovation in teaching foreign languages for professional purposes and honing language skills is considered in many articles [3, 5].

The novelty of the study is in combining multidisciplinary theoretical and empirical studies to develop the 21st century skills based on podcasting.

The purpose of the research is to consider the implementation of podcasting methodology for development of students' cognitive and intellectual abilities.

In the paper general-scientific **methods** are used to analyze and systematize information.

Presentation of the main material. Cognitive (mental) abilities are the highest brain functions that enable a person to be a human. These include thinking, spatial orientation, comprehension, calculation, learning, speech, reasoning ability. Intellectual abilities are individual psychological abilities of a person, which are a condition for the success of various types of intellectual activity [4, p. 264].

A lot of theories and a variety of approaches in the area of intelligence emphasize that intelligence is a multifaceted complex system. The human psyche is an integrity. However, it should be noted that each mental process has its own characteristics. It is necessary to implement such teaching methods that will develop the entire complex of intellectual abilities and monitor the development process of its individual

components. In addition, creative and critical thinking is one of the 21st century skills which are necessary to live and work in the unpredictable world. Creative thinking is about using person's abilities and to come up with new solutions to problems and challenges. In its turn, critical thinking requires to see what evidence is involved to support a particular argument or conclusion. It makes students get out of their comfort zone and challenge their misconceptions about the reality. To enforce this goal different information technologies and tools are used on a regular basis. The classification of visualization techniques includes: mindmap, timeline, infographics, scribing and others. Each type of them has its own peculiarities and advantages. Podcasting (a portmanteau of the words iPod and broadcasting) is an audio file or "radio" type content. It can be downloaded to any gadget. Learners can listen to audio and video files whenever and wherever they want [6]. There are various types of podcasts: authentic podcasts, teacher podcasts, student podcasts, educator podcasts. According to UNESCO, podcasting can be referred to a category of open educational resources.

One of the objectives of the article is to describe the implementation of podcasting methodology to develop students' cognitive and intellectual abilities on the example of a pilot project from the Canadian Broadcasting Corporation "Podcasts In Class" that was initially launched for Canadian students a few years ago, but over time it became popular all over the world for those who learn English as a second language. A few initiative teachers' groups from different School Boards across Canada were involved into this project. Their goal was to design teaching guides around select episodes of the podcasts: "Tai Asks Why" and "The Secret Life of Canada". The first one includes two teaching guides, in particular "Should we trust our gut?" and "How will we fix climate change?", which are aimed at native learners at age 10-13 (grades 6-8). These aids are designed to broaden students' outlook, mindset and develop 21st century skills. A sample teaching guide for the podcast "Should we trust our gut?" includes the following items [5]:

1. Lesson plan.
2. Slide show.
3. Ad-free audio for download.
4. Episode transcript.
5. Activity sheets.
6. Bonus mini-episode.

Key concept of this CBC podcast lies in the fact that there is a connection between our gut and our brain that can affect the way we act and feel. Your gut and brain can communicate, and new research shows the gut may impact the way we think.

Keywords: gut, intestines, conscious, microbe, bacteria, microbiome.

Learning Goal: Students will learn that our gut and brain are connected and the importance of keeping both healthy. The goal is achieved through some multidisciplinary objectives in 4 subject areas that help to develop students' creativity and critical thinking skills [5].

Table 1

**Subject area of the podcast
"Should we trust out gut?"**

subject area	content of the subject area
Language	<ul style="list-style-type: none"> - Oral Communication - Listening Comprehension - Making Connections (to self, text, and world) - Demonstrating listening behaviour and strategies - Visualization - Retelling - Inferencing
Health	<ul style="list-style-type: none"> - Healthy eating - Mental health
Science	<ul style="list-style-type: none"> - Human Body - Bacteria - Biodiversity - Organisms - Interrelationships
21st-century skills	<ul style="list-style-type: none"> - High order thinking - Self-reflection - Critical thinking - Inquiry

Development of critical and creative thinking is tightly connected with the use of Bloom's Taxonomy, a hierarchical ordering of cognitive skills. *Revised Bloom's taxonomy* implies the following digital planning verbs: *remembering, understanding, applying, analyzing, evaluating, creating.*

Based on Bloom's taxonomy, teachers plan their methodological strategies for the development of students' cognitive skills. A list of sample

cognitive-communication questions for the podcast discussion can illustrate this technique.

- Do you feel a "pit in your stomach" or "butterflies" when you get nervous? Is that your gut and your brain are talking to each other? Have you ever felt this feeling before? What did you think was happening?

- Why do you think our gut-brain and head-brain talk to each other? What are some messages that they may need to send to each other?

- Do you remember a time where you felt your gut was trying to tell you something and you ignored the message? What happened?

- We think we do everything independently, but it turns out it may be a mix inside of us of both the microbiome and the brain. How does this change the way you think about your daily actions and decisions?

- If our brain and our gut talk to each other, what does that say about the importance of both mental and physical health?

- Some people feel that the organisms and microbes in their bodies are separate from nature, but the others feel that since they came from nature it connects them more to the world. Whose opinion do you agree with? Why do you feel this way?

In addition, a number of activities in this teaching aid aims at creativity and development of cognitive skills through some visualization (slide show, audio, episode transcript, activity sheets). For example, a slide show serves as the best example to illustrate this. Difficult concepts are explained and debated with the help of signal pictures and thought provoking questions that are highly motivating. In the following slides we can see key concepts of then theme that are depicted in a logical and simply way. To simplify graphically complicated and crucial notions is a way to raise students' motivation.

Overall, a variety of techniques and visual aids are at the disposal of language facilitators. The most preferable of them are total physical response, role play, project activities. Being involved into exciting group and pair work students are supposed to make a conclusion.



Fig. 1.



Fig. 2.

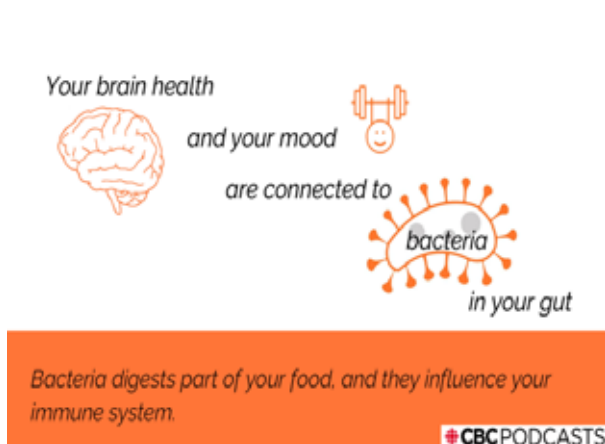


Fig. 3.

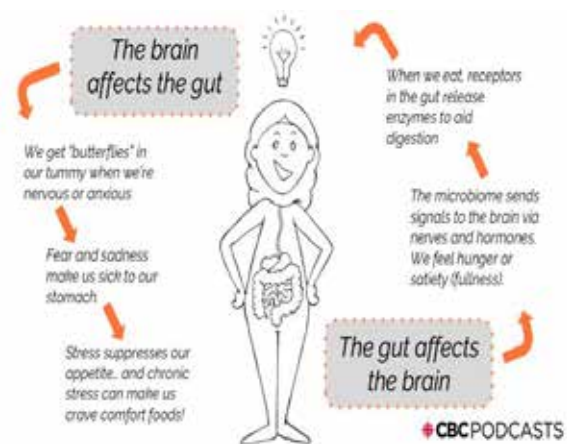


Fig. 4.

Thus, the gut brain is an extension of human nervous system. The kilogram of microbes (bacteria, viruses, parasites, fungi) in the gut form the gut microbiome. The vagus nerve connects the gut to the brain. Through it the gut brain and the head brain are always communicating like good friends! Bacteria enters people, interacts with people, influences their choices and becomes them!

Conclusions. We can conclude that for the development of students' thinking and creativity it is necessary to implement all the mechanisms of cognitive development to form their key competences,

the mastery of which requires significant intellectual development: abstract and critical thinking, self-reflection, personal growth, autonomy. Like any authentic material, podcast audio/video or creating a podcast can be really motivating because these open resources have great potential benefits. The practical experience of university teachers shows that open educational resources differ from traditional teaching tools by their interactivity, authenticity and optimality of their technical characteristics. Further similar studies can be focused on the area of English for specific purposes.

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