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ASSESSING THE DEVELOPMENT OF STUDENTS' SUSTAINABILITY COMPETENCIES DURING FOREIGN LANGUAGE FOR SPECIFIC PURPOSES ACQUISITION

The article is devoted to assessment as a part of educational process in training university students a foreign language for specific purposes in the context of ESD (Education for Sustainable Development), the learning goals, content, forms and instruction methods of which are aimed both at developing students' communicative competence while dealing with professionally oriented situations in a foreign language and at increasing their sustainability awareness and literacy. It is emphasized by the author that getting competencies in sustainability is essential for shaping a personality with the sustainable-earth mentality, able to take responsibility for his/her actions and ready to implement sustainability ideas on local and global scales. Key sustainability competencies including systems thinking, futures thinking (anticipatory), values thinking (normative), strategic (action-oriented), collaborative (interpersonal), and integrated problem-solving ones are specified and described in the article.

It is emphasized that in foreign language training, sustainability competencies have to be developed and assessed in conjunction with the communicative language ones. The author gives analysis of some most efficient currently used tools and approaches to assess students' learning outcomes in sustainability, focusing attention mainly on the advantages of project work, case tasks, sustainability-focused interviews and self-assessment. Besides, certain problems concerning the selection of assessment tools are mentioned.

To assess the level of sustainable development competencies formation of future ecologists, the author presents a system of criteria, indicators and levels. The indicators are developed for cognitive, personality, communicative-activity and reflexive criteria according to which four levels of the formation of competence in sustainability are differentiated: low/initial, satisfactory, sufficient and high. The specification of each level is given.

Key words: assessment, assessment tools, levels, criteria, Education for Sustainable Development, sustainability competencies, foreign language for specific purposes.

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ОЦІНЮВАННЯ СФОРМОВАНОСТІ КОМПЕТЕНЦІЙ ДЛЯ СТАЛОГО РОЗВИТКУ ПІД ЧАС ВИВЧЕННЯ ІНОЗЕМНОЇ МОВИ ЗА ПРОФЕСІЙНИМ СПРЯМУВАННЯМ

Стаття присвячена проблемі оцінювання сформованості компетенцій, необхідних для забезпечення сталого розвитку, під час навчання іноземної мови для професійного спілкування. Автором зазначається, що цілі, зміст, форми та методи навчання іноземної мови в контексті освіти для сталого розвитку націлені не лише на розвиток у студентів іншомовної комунікативної компетентності для вирішення ними професійних завдань, а також на підвищення рівня грамотності та свідомості у напрямку сталого розвитку.

У статті дається аналіз ключових компетенцій, включаючи розвиток системного мислення, нормативної, випереджувальної, стратегічної, міжособистісної компетенцій, вміння вирішувати проблеми, тощо. Автором наголошується, що людина, яка володіє ними, має розвинене мислення, здатна критично оцінювати результати власної професійної діяльності, виявляти причинно-наслідкові зв'язки, вирішувати складні питання на місцевому та глобальному рівнях, брати на себе відповідальність за вчинки.

Вказується на те, що під час викладання іноземної мови за професійним спрямуванням формування та оцінювання сформованості компетениій, необхідних для забезпечення сталого розвитку, та комунікативної мовної компетенції відбувається нерозривно.

У статті також визначаються найбільш ефективні інструменти оцінювання. Акцентується увага на перевагах використання проектної роботи, методу кейсів, опитувань з тем, що стосуються ідей сталого розвитку, само оиінювання тошо.

Для оцінювання рівня сформованості компетенцій для сталого розвитку у майбутніх екологів автор презентує систему критеріїв, показників та рівнів. Визначено показники для когнітивного, особистісного, комунікативного/діяльнісного та рефлексивного критеріїв, відповідно до яких створено 4-рівневу систему сформованості компетенції: низький/початковий, задовільний, достатній та високий. Надано характеристику кожному з рівнів.

Ключові слова: оцінювання, інструменти оцінювання, рівні, критерії, освіта для сталого розвитку, компетенції для сталого розвитку, іноземна мова за професійним спрямуванням.

Problem statement. Over the last decades, there has been an increased interest of global community in promoting the ideas of sustainable development, a tendency which motivates individuals to reevaluate their habits, attitudes, lifestyle in favor of responsible consumption and balanced planning.

The central role in this process is given to education. Education for Sustainable Development (ESD) foresees acquiring knowledge and skills in sustainability, which is essential for shaping a personality with the sustainable-earth mentality, able to reflect on his own actions and ready to practically implement sustainability ideas on local and global scales. «ESD is a program not focused on changing values, but rather one of values articulation, making them explicit, and developing the ability to place problems and issues in diverse contextual appreciations» (A. Dale and L. Newman, 2005: 355).

P. Eagan, T. Cook, E. Joeres believe that in pursuing ESD goals interdisciplinarity is crucially important (P. Eagan, T. Cook, E. Joeres, 2002). UNESCO International Implementation Scheme states that no discipline can claim ESD for its own, all disciplines can contribute. Embedding sustainability issues into the educational process and reorienting the existing educational programs to include more sustainabilityrelated aspects should be done in the interdisciplinary context (International Implementation Scheme, 2005). This integration implies special attention to the selection of the learning content and the outcomes reached by the learners, which involve traditional constituents (knowledge and skills in the discipline studied) in correlation with the ones foreseen by ESD.

Research analysis. The development of sustainability competencies, which is a primary goal of ESD, has been actively discussed in the works of M. Rieckman, L. Galkute, T. Cook, E. Joeres, A. Dale, L. Newman etc. In the scientific literature devoted to sustainability issues, the term «competency» refers to the interlinked set of knowledge, skills, values and behaviors that are purported to enhance task performance and problem-solving while dealing with real-world sustainability problems, challenges and opportunities (A. Dale and L. Newman, 2005, Barth et al., 2007). Various combinations of key competencies have been proposed over the years by Barth et al.,

Lozano, A. Wiek, etc. A. Wiek et al. categorized them into clusters, distinguishing among systems thinking, values thinking, anticipatory, strategic thinking and interpersonal ones (A. Wiek, 2011).

Systems thinking competency implies the person's ability to analyze problems across different domains and scales (local or global), applying systems concepts.

Futures thinking (or anticipatory) competency is regarded as an ability to anticipate future results, to assess the consequences of the actions taken, to create own vision of the future and consider alternative scenarios.

Students competent in values thinking (also known as **normative competency**) are aware of basic norms of sustainable development, its targets, principles and ideas, are able to comprehend, compare, specify, apply these norms, analyze risks and harm.

Those who possess strategic thinking (actionoriented) competency have the ability to plan, model and suggest different strategies to reach the desired outcomes. They are more action-oriented and motivated to solve problems, carry out plans, overcoming barriers.

Collaboration (or interpersonal) competency foresees learning from the others. In other words, it is the ability to exchange knowledge and skills, to negotiate and seek for compromise, to tolerate contradictory thoughts, to collaborate and cooperate while tackling a mutual problem.

Despite the fact that each of the above-mentioned five competencies has their own features and area of relevance, they are mutually interdependent. A. Wiek et al. added an **integrated problem-solving competency** which defines the person's ability to analyze, systematize, evaluate and eventually generate the most efficient and correct sustainable solution options.

The question that has been discussed among scholars is if a student needs to obtain all of these competencies equally while studying. A. Wiek claims that it is reasonable, considering limited time and capacity of academic programs, to get in-depth expertise in one or two of them and a solid grounding in the others (A. Wiek, L. Withycombe, C. Redman, 2011).

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Enhancing students' sustainability awareness and literacy can be achieved during a foreign language acquisition, through various language learning activities, which has been highlighted in the works of Y. Lavrysh and I. Lytovchenko, M. Babanoglu, R. Agcam, O. Kozak etc. In our previous article, we presented some ideas of how to activate sustainability interest and motivation of students of different specialties by incorporating communicative-activity and problem-based approaches while tackling professionally-oriented situations at foreign language classes (V. Chuienko, 2021).

The **aim of this research** is to analyze ways of assessing students' sustainability competencies development, as well as to define criteria and levels of its formation during a foreign language for specific purposes acquisition at a higher educational establishment.

The main material presentation. Getting proficiency in a foreign language may be a favorable prerequisite for obtaining the desired outcomes in sustainable development. It serves as one of the tools for tackling global problems which require communication intercultural and cooperation. Therefore, in training a foreign language for specific purposes with the inclusion of sustainability issues, the learning goals, content, forms and instruction methods are aimed not only at equipping learners with a certain proficiency level for dealing with professionally oriented situations in a foreign language, but also at fostering their sustainability awareness and literacy. In this case, sustainability competence has to be developed in conjunction with the communicative one and should be assessed inextricably.

Being a part of the educational process, assessment in the context of ESD serves the following purposes:

• to give information about the learners' success and progress towards the intended learning outcomes,

• to identify their weaknesses and strengths and target areas that need to be rectified,

• to serve as a signal for a teacher about the necessity to elevate teaching methods,

• to provide feedback about the success of teaching/learning.

It is important to organize this process in accordance with the principles of objectivity, systematicity, differentiation, taking into account individual peculiarities of students and their interests/ needs.

In foreign language training in the framework of ESD, educators use a wide range of forms and methods to assess the learning outcomes throughout and at the end of the course, including traditional and innovative ones, formative which are aimed for learning and summative which are indicators of learning. Together with more reflective self- and peer-assessment, they can provide a more meaningful picture of the learners' competence development. However, in scientific literature review conducted by G. Cebrian, it is revealed that summative evaluation is better studied than formative and self-evaluation assessment (G. Cebrian, 2019).

Scientists argue about reliability and validity of currently used tools and approaches to assess the extent of sustainability competency acquisition and the possibility to measure the changes which occur in competencies over time (M. Rieckman, 2018). What aggravates the situation is that assessment tools are rarely selected with clear intention and thorough consideration of incoming and exiting competencies levels, and, consequently, are often inappropriately used (A. Redman, A. Wiek A., M. Barth, 2021).

A. Redman et al. have classified the assessment tools which are currently in use for research and instructional purposes into self-perceiving, observation and testbased ones. In the self-perceiving-based approach, the students themselves assess their competence level, which enhances their self-awareness and intrinsic motivation. In the observation-based approach, the assessment is fulfilled by educators or experts, while the test-based scenario (for example, a case test) uses a set of criteria/correct answers to evaluate students' competencies development (A. Redman, A. Wiek A., M. Barth, 2021).

Analyzing tools for assessing sustainability competencies development, we consider that project work, case tests, reflective writing, portfolios, concept mapping, interviews are best suited for this purpose. For example, in case tasks, students are asked to deal with a controversial situation concerning a real-world sustainability problem and are expected to express their thoughts in a foreign language, which checks forming, in line with their language proficiency, their critical thinking and problem-solving skills.

Project work stimulates higher level thinking skills and makes students feel responsibility for their own learning. As an assessment tool, it allows estimating their readiness for both autonomous and collaborative work, ability to anticipate future results while dealing with practical tasks and problems.

The sustainability-focused interviews can be used not only as summative, but also as formative assessment to stimulate learning. The interview questions (for example, on the topic «Technological progress: pros and cons») may be the following:

• on ecological consciousness: How do you dispose of the old equipment which got broken

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or is no longer used? If it got into a landfill, what consequences would it have?

• *on technological awareness/risks analysis:* Consuming nanofood has both benefits and threats. Which overweighs, in your opinion? Are you ready to try nanofood or consume it daily?

• *on ethics/values*: Would you ban/support conducting experiments on animals? or Describe the situation when you made a mistake and took responsibility for it, etc.

As a rule, these questions are controversial, sometimes provocative, and when initiated by other students, but not a teacher, can be even more challenging and motivating.

The survey conducted among foreign language teachers of Black Sea National University revealed that questionnaires as a competence assessment tool are less popular, mainly due to specificity of language training. Despite being less time-consuming and multi-faceted, they still give little information about the process of learning, which matters most. Preference is given mainly to interviews (29%), testing (36%), case tasks (19%) and reflective writing (15%) as forms of summative assessment.

Assessing the formation of students' competence in sustainability is possible due to applying the level approach which foresees determining criteria, indicators and levels of competence development. In scientific literature, a criterion is some standard, an attribute on the basis of which it is possible to evaluate, compare, and identify significance/insignificance of a thing, process or phenomenon. The criteria are described by means of a system of indicators, the intensity of manifestation of which allows judging about the level of competence formation. The main factors according to which we selected them for our research include: information value, the clarity and accuracy of content, the possibility of their quantitative measurement, etc.

To assess the formation of students' competence in sustainability during the foreign language training, the following criteria have been developed:

1) cognitive criterion, the indicator of which is the system of linguistic and environmental knowledge of students,

2) personality criterion, the indicators of which are: the ability to self-evaluate and self-improve, to self-motivate and motivate others, environmental consciousness, capacity for empathy and compassion,

3) communicative/activity criterion, the indicators of which are: the ability of students to make sustainable decisions, the readiness for social interaction, knowledge of generally accepted norms and rules of intercultural communication, ability to navigate and manage the situation of communication,

teamwork skills, the ability to go for a justified compromise,

4) reflexive criterion, the indicator of which is critical thinking skills in evaluating personal actions, achievements and learning outcomes.

In accordance with the defined criteria and the system of indicators, we differentiated the following four levels of the formation of competence in sustainability: low/initial, satisfactory, sufficient and high.

High level:

1) a student has a complete understanding of the principles according to which the environment and society coexist;

2) he/she shows great interest in the environment and its problems, is environmentally conscious, demonstrates empathy and compassion, value orientation is formed, ability for self-education and self-improvement is high, has resistant positive motivation to learning, knows how to motivate others;

3) he/she is able to create own strategies to increase sustainability, suggests alternative and non-standard decisions concerning disputable sustainability issues, possesses thorough knowledge of generally accepted norms and rules of intercultural communication, respects the opinions of others, seeks for compromise, actively participates in sustainability-related discussions, in team work and project activities on sustainability issues,

4) he/she is able to thoroughly analyze benefits and threats, to foresee the consequences of his/her actions and act correspondingly.

Sufficient level:

1) a student understands the principles according to which the environment and society coexist;

2) he/she shows interest in the environment and its problems, is environmentally conscious, demonstrates empathy and compassion, value orientation is formed, able to self-improve, selfmotivate and motivate others;

3) he/she is ready to implement ready-made sustainability decisions, possesses knowledge of generally accepted norms and rules of intercultural communication, respects and tries to understand the viewpoints of others, seeks for compromise, eagerly participates in project activities and discussions on sustainability issues,

4) he/she is able to analyze and anticipate the consequences of his/her actions, makes an attempt to create own vision of the future.

Satisfactory level:

1) a student has difficulty identifying the relationship between the society and environment;

2) he/she shows little interest in the environment and its problems, in self-improvement and obtaining

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knowledge and skills in sustainability, has low motivation, value system is not well-formed;

3) he/she hesitates about making decisions concerning sustainability, possesses little knowledge of generally accepted norms and rules of intercultural communication, is not willing to share his/her opinion, reluctantly participates in project work and discussions on sustainability issues;

4) he/she has difficulty assessing the consequences of his/her actions.

Low/initial level:

1) a student can't clearly identify the relationship between the environment and society;

2) he/she shows antipathy to the environment and its problems, is not interested in self-improvement and obtaining knowledge and skills in sustainability, has low motivation, value system is not formed;

3) he/she is unable to make sustainable decisions, demonstrates no desire to understand viewpoints of other students, to participate in

sustainability-related discussions and collaborative projects;

4) he/she is not able to evaluate the results and consequences of his/her actions.

Conclusions. Developing sustainability awareness at the university should be considered as a pedagogical issue, the result of solving which can positively influence the quality of preparation of students for their professional activity and their readiness to cope with life challenges in general. While foreign language training, in the context of ESD, sustainability competencies should be developed and assessed inextricably with the communicative one. To assess their development, there is a variety of methods, tools, with their assets and limitations, which should be properly selected to increase efficiency of teaching in sustainability. The presented system of criteria, indicators and levels enables us to assess the level of sustainable development competencies formation of future ecologists at Black Sea National University, which is the prospect for further research.

BIBLIOGRAPHY

1. Barth M., Godemann J., Rieckmann M., Stoltenberg U. Developing key competencies for sustainable development in higher education. *International Journal of Sustainability in Higher Education*. 2007. Vol. 8(4). P. 416–430.

2. Cebrian G., Segalas J., Hernandez A. Assessment of sustainability competencies: a literature review and future pathways for ESD research and practice. *Central European Review of Economics and Management.* 2019. Vol. 3(3). P. 19–44.

3. Chuienko V. Ways of developing key sustainability competencies of university students at foreign language classes. *Актуальні питання гуманітарних наук: міжвузівський збірник наукових праць молодих вчених Дрогобицького державного педагогічного університету імені Івана Франка*. Дрогобич : Видавничий дім «Гельветика», 2021. Вип. 35. Том 6. С. 279–283.

4. Dale A., Newman L. Sustainable development, education and literacy. *International Journal of Sustainability in Higher Education*. 2005. Vol. 6(4). P. 351–362.

5. Eagan P., Cook T., Joeres E. Teaching the importance of culture and interdisciplinary education for sustainable development. *International Journal of Sustainability in Higher Education*. 2002. Vol. 3(1). P. 48–66.

6. Kozak O. Interactive exercises and games for sustainable development goals: How to develop sustainability competencies in higher education? *Studia Periegetica*. 2020. Vol. 3(31). P. 81–91.

7. Lavrysh Y., Lytovchenko I. The case of education for sustainable development approaches implementation at English language classes at the technical university in Ukraine. *Pedagogy*. 2019. Vol. 91(5). P. 736–749.

8. Redman A., Wiek A., Barth M. Current practice of assessing students' sustainability competencies: a review of tools. *Sustainability Science*. 2021. Vol. 16. P. 117–135.

9. Rieckmann M. Learning to transform the world: key competencies in ESD. Issues and trends in Education for Sustainable Development/ed. by A. Leicht, J. Heiss, Won J. Byun. 2018. Ch. 2. P. 39–59.

10. United Nations Decade of Education for Sustainable Development (2005–2014): International Implementation Scheme. URL: https://unesdoc.unesco.org/ark:/48223/pf0000148654 (date of access: 11.02.2022).

11. Wiek A., Withycombe L., Redman C.L. Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science*. 2011. Vol. 6(2). P. 203–218.

REFERENCES

1. Barth, M., Godemann, J., Rieckmann, M., Stoltenberg, U. (2007). Developing key competencies for sustainable development in higher education. *International Journal of Sustainability in Higher Education*, 8(4), pp. 416–430

2. Cebrian, G., Segalas, J., Hernandez, A. (2019). Assessment of sustainability competencies: a literature review and future pathways for ESD research and practice. *Central European Review of Economics and Management*, 3(3), pp. 19–44.

3. Chuienko V. (2021). Ways of developing key sustainability competencies of university students at foreign language classes. Aktualni pytannia humanitarnykh nauk: mizhvuzivskyi zbirnyk naukovykh prats molodykh vchenykh Drohobytskoho derzhavnoho pedahohichnoho universytetu imeni Ivana Franka [Humanities science current issues: Interuniversity collection of Drohobych Ivan Franko State Pedagogical University Young Scientists Research Papers], no. 35, vol. 6, pp. 279–283.

4. Dale, A. and Newman, L. (2005). Sustainable development, education and literacy. *International Journal of Sustainability in Higher Education*, 6(4), pp. 351–362.

.....

5. Eagan, P., Cook, T., Joeres, E. (2002). Teaching the importance of culture and interdisciplinary education for sustainable development. *International Journal of Sustainability in Higher Education*, 3(1), pp. 48–66.

6. Kozak, O. (2020). Interactive exercises and games for sustainable development goals: How to develop sustainability competencies in higher education? *Studia Periegetica*, 3(31), pp. 81–91.

7. Lavrysh, Y., Lytovchenko, I. (2019). The case of education for sustainable development approaches implementation at English language classes at the technical university in Ukraine. *Pedagogy*, 91(5), pp. 736–749.

8. Redman A., Wiek A., Barth M. (2021). Current practice of assessing students' sustainability competencies: a review of tools. *Sustainability Science*, 16, pp. 117–135.

9. Rieckmann M. (2018). Learning to transform the world: key competencies in ESD. Issues and trends in Education for Sustainable Development, Chapter 2, pp. 39–59.

10. United Nations Decade of Education for Sustainable Development (2005–2014): International Implementation Scheme (2005). URL: https://unesdoc.unesco.org/ark:/48223/pf0000148654

11. Wiek, A., Withycombe, L., Redman, C.L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science*, 6(2), pp. 203–218.

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