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Context based learning in ecological education - the experience of A. Baitursynuly Kostanay regional university

Abstract. Context based learning serves the effective tool for developing ecological education at teacher trainees. The article is devoted to the process of introduction of context education (quasi-professional and pedagogical contexts) within the discipline "Community service". 114 students of A. Baitursynov Kostanay regional university underwent the public defense of the interactive social projects with eco-aspect in Kostanay. The methods of active participation into the social life of Kostanay (patronage, team-teaching, self-assessment) resulted in the level of social responsibility of teacher trainees, forming positive intrinsic motivation to ecological aspect of teaching. The authors present the entry data on the levels of motivation to the use of ecological education in teacher trainees' future pedagogical activity, the content plan of the modernised discipline "Community service", final data on project assessment of teacher trainees at the end of their theoretical and practical study. The gained results demonstrated the improving the quality of the motivational sphere of teacher trainees (intrinsic positive) to implement the ecological aspect into their pedagogical activity based on context learning within the given course.

Keywords: context learning, teacher trainee, project based learning, ecological education, motivation.

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Introduction

Context learning has been thoroughly scrutinised since the beginning of the XXI century and is associated with A. Verbitsky who introduced the term as the new type of education based on 'the oppositions between the real life and educational process' [1].

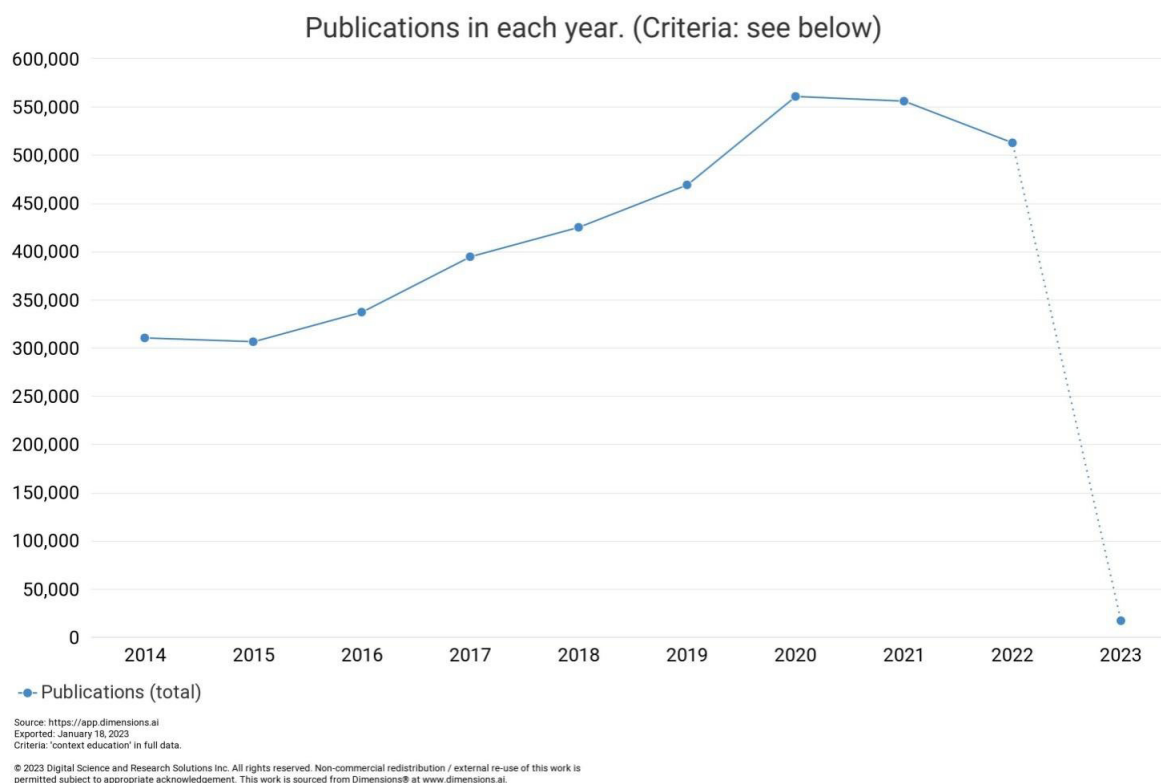
Education has always been the source of forming competences of future specialists. However, the gap between the education and real life can foster the modernisation processes in both teaching and learning.

As A. Verbitsky states, the dynamics of students' development in context education is as follows: study/learning activity, quasi-professional activity, social activity.

The given research proves to introduce the inverted model of A. Verbitsky – social activity as the first stage of the teacher trainees' education, simultaneous character of study and quasi-professional education.

T. Kugushina considers the context education to be the link between the education itself as knowledge acquisition, and the professional activity as highly socially responsible and motivated [2].

As the quantitative content analysis shows, the density of the researches was in the progress in 2020, while there is a slight tendency on decreasing the number of specialised works (general character of the publications dominated)- see the Pic.1 below.



Picture 1. Retrospective quantitative analysis of the publications on “context education” concept (Dimensions AI, 2023)

The analysis of articles and relevant research on the topic of the context education demonstrates the stated below points:

- There is a stable correlation between the social background and the grow of publications in this sphere (bifurcations in both social and educational spheres – 2015-2019 – pandemic education);
- The highest period of context education connected with pandemic 2020 is biased on the introduction of digital education demanding integration of many spheres;
- The growth of the interest in context education lies in the social sphere through its first introduction proliferating into contiguous education area.

Ecological education has always been the area of detailed research since ecology became the subject matter at schooling.

Thus, some newly published articles view various aspects of ecological education: ecological upbringing of primary school students by Karpacheva [3]; Internet mediated ecological education globalising this type of education to the rank of civilisation [4] or the ‘evolution path’ [5] for the development of personalities.

Consequently, as a **contradiction** of the research, there is a gap between the demand of the society to create the in-action forming of ecological component of future teachers’ personalities through context education and the inability of the existing system to fulfil this gap.

Scientific Basis and research methods

The given research seeks to attempt the use of the modernised course ‘Community service’ to be applied to the system of ecological education based on the context education.

The choice of the context education applied to ecological one is justified in the following way:

- 1) The context education is effective due to its focused character;
- 2) Context education deals with real world and minimizes the gap between reality and university training;
- 3) The aim of the context education is to enhance the processes of subject education including eco-component of the teacher trainees.

The **aim** of the research is to present the strengths of the context education as a methodological basis for the ecological education through the discipline modernisation for teacher trainees.

The objectives of the research:

- 1) Study of the added value of context education;
- 2) Presentation of the steps for discipline modernisation;
- 3) Identification of the ecological component in teacher training education;
- 4) Implementation of the modernized course 'Community Service';
- 5) Analysis of the gained results based on pre- and post-implementation stages of the research.

The **methods** are as follows:

1. Modelling of the educational process;
2. Pedagogical analysis of the educational reality;
3. PBL (project based learning) method applied to teacher trainees' education;
4. Statistical method of data mining and analyzing.

The **hypothesis** of the research: the context education serves the basis for ecological education due to its practically-oriented character and specified direction of teacher training.

The experimental work was organized on the basis of Baitursynov Kostanay regional university (Kostanay, Kazakhstan).

All of the changes into the content of the discipline "Community Service" (dedicated to 1st-year students) will be disclosed in the formative stage of the research.

The experiment was based on three levels:

- Level 1 – Pre-experimental (data collection, survey, course modernisation plan);
- Level 2 – Experimental/formative (course modernisation, implementation);
- Level 3 – Post-experimental (analysis of the gained results, survey 2).

Level 1 presupposes the data collection. Initial survey 1 as well as the algorithm of the discipline modernisation.

The number of participants and their parameters are presented below (see Table 1):

Table 1. The basic parameters of the participants

The parameter		
Age, average	Gender	Year of study / course
18,5 years old	25 male 89 female	1 – 100%

The survey 1 contained the following questions:

1. Do you consider ecology necessary for the introduction at schools? Universities?
2. Do you think your eco-culture is well-formed?
3. Do you follow any eco-friendly ways of life?
4. Would you like to have more practical knowledge on ecology?
5. Does the teacher of English need eco-culture?

All 114 students gave the answers to the stated above survey. The results demonstrated the following aspects:

- 85 per cent of students consider necessary to have ecology at schools, 62 per cent – at universities that demonstrates the low value of eco-culture in professional sphere.
- 93 per cent of students do not state that their eco-culture has been well-formed; only 7 per cent of students are unsure about this issue.

- 82 per cent of respondents do not follow any eco-friendly way of life, but consider it necessary and difficult;
- 90 per cent of students are willing to have more practical knowledge and skills to be developed, as the training at school was theoreticised.
- 84 per cent of respondents consider the eco-culture necessary for any teacher irrespective the discipline taught.

Accordingly, the analysis of the results shows the insufficient level of practical readiness for eco-culture implementation in their personalities, but there is a stable motivation to use eco-culture as a part of their professional activity. The results demonstrate the dissonance between the actual level of the eco-culture of teacher trainees and their motivational sphere.

Discussion. Formative stage of the research

The modernisation of the existing course for the 1st-year students has become the easiest way to develop the process of forming the eco-culture using the context approach at the **Level 2** of the research.

Below, there is a thematic plan, the aim of the course as well as the fields for modernisation. The algorithm of course modernisation includes the mentioned below stages:

- 1) The aim alternation/ improving;
- 2) Changing/substitution of topics, methods of teaching and learning;
- 3) Correcting the planned results.

The thematic plan of the course is presented below (see Table 2):

Table 2. The thematic plan of the discipline “Community service”

The topic of the course/week
Week 1: Volunteering and <i>Eco-Volunteering</i>
Week 2: The main categories and concepts of volunteering. <i>Eco-culture of the person</i>
Week 3-4: The Community Context of Volunteering. <i>Eco-culture of the teacher</i>
Week 5-6: Moral and ethical aspect of volunteering
Week 7: Organizational aspect of volunteering. <i>Ecology at schools</i>
Week 8-9: History of the volunteer movement
Week 10-11: The history of the formation of the Community Service program. <i>Ecology based acts and programmes</i>
Week 12-13: The history of the development of the volunteer movement in Kazakhstan. <i>Eco-future of Kazakhstan</i>
Week 14-15: Current state and organizational models. <i>Eco-projects in Kazakhstan, Kostanay</i>

New subtopics have been introduced into the course content – eco-oriented topics. All of the changes are presented in italics.

During the 15-weeks course duration, the students underwent the following types of the work:

- student-centered learning based on a reflective approach to learning on the part of the student;
- competency-based learning;
- role-playing games and educational discussions of various formats;
- case study (analysis of specific eco-situations);
- method of projects on Ecological aspect;
- brainstorming;
- cross discussion;
- patronage (over Kostanay orphanage “The Dolphin”, the shelters for pets, schools).

The special attention was given to the real volunteering work in practical character – the patronage – that includes the systemic visits to the subjects of inspection and assistance (material and non-material volunteering aspects).

Post-experimental work and Results

The duration of the course “Community service” brought the following results based on the survey 2 at the **Level 3** of the research:

- 89 per cent of students consider necessary to have ecology at schools, 82 per cent – at universities that demonstrates the low value of eco-culture in professional sphere.
- 73 per cent of students do not state that their eco-culture has been well-formed; 23 per cent are ready to implement the eco-culture component in the professional sphere, only 4 per cent of students are unsure about this issue.
- 88 per cent of respondents are ready to follow any eco-friendly way of life, but consider it necessary and difficult;
- 90 per cent of students are willing to have more practical knowledge and skills to be developed but think the course helped them a lot.
- All respondents consider the eco-culture necessary for any teacher irrespective the discipline taught stating that ‘real patronage must be included into the school programmes’.

The eco-projects as well as the visit to eco-oriented industries in Kostanay, invitation of eco-leaders of the region had the positive influence on the forming of students’ eco-culture.

The analysis of the ecological social fund “NECO” (Fedorov village, Kostanay region) shows that the mission of it fully justifies the context education based on the course “Community service” (the invitation of the fund’s head – N.M. Birmagambetov):

The main objectives of the Fund are:

- 1) Development of the ecological community, volunteer movement, and civil initiatives through the implementation of programs for children and youth, older people aimed at promoting a healthy lifestyle, protecting the environment, and developing environmental values;
- 2) Promotion of environmental values through environmental education of students in schools, colleges, universities, and other organizations, people of younger, middle and older ages in the Kostanay region and the Republic of Kazakhstan;
- 3) Implementation of environmental projects in the Kostanay region and the Republic of Kazakhstan;
- 4) Assistance in the implementation of environmental initiatives, projects, promotions, competitions to the population of the Kostanay region and the Republic of Kazakhstan;
- 5) Solving the environmental problems of the Kostanay region and the Republic of Kazakhstan by combining commercial and non-profit organizations, government agencies and individuals;
- 6) Employment in the framework of environmental projects [6].

Some of the excerpts from the eco-Projects by students are presented below (see Pic. 2).



Picture 2. The excerpts from the Eco-volunteering projects of students (BKRU, Kostanay)

Statistical data on Level 3 (introduction of “Community Service”, modernized syllabus) of the experiment demonstrated the following growth in the number of students involved into real ecological context compared to Level 1 (pre-modernised course, school experience – see Table 3):

Table 3. The percent of involvement of students into the ecological context

Level 1(involved students, %)	43
Level 3 (involved students, %)	98

As it can be traced, the per cent of students has been doubled due to the obligatory introduction of the course “Community service” with groups involved into special area of community work in the region.

The effectiveness of the modernized course is verified by the comparison between the pre- and post-modernised curriculum through expert evaluation of the course.

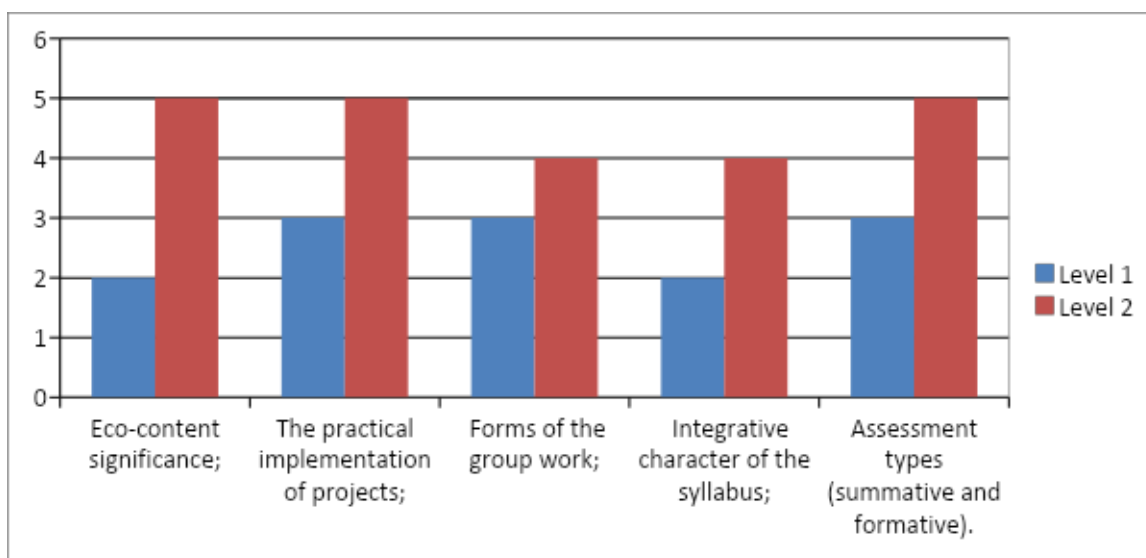
Expert evaluation has been chosen as the method to assess the modernized content of the “Community service” syllabus. The analysis of 6 experts (blind reviews by 2 teachers of English and 3 teachers of ecology, 1 representative of the local eco-project team) showed the following results(assessment grades: 1 low – 5 high):

- Eco-content significance;
- The practical implementation of projects;
- Forms of the group work;
- Integrative character of the syllabus;
- Assessment types (summative and formative).

The results of the expert evaluation demonstrated the stable improvement of the ecological context introduction based on the integrative character of the syllabus (see Pic. 3).

The most visible changed occurred in practical significance of the syllable as it indicated the real results of the community valuable projects realised through life-tailored issues and tangible assistance.

The least developed / developing point concerned the forms of the group work as the forms of individual or pair work can be both effective.



Picture 3. The results of the comparative analysis of the Level 1 and Level 3 (expert evaluation marks on the content of the syllabus “Community service”)

Conclusion

The results of the experimental work demonstrate the planned growth of the motivation to use the eco-cultural component [7] in education for future teachers.

The use of the context education applied to the course “Community service” included the following stages:

- Content modernisation;
- Aim improving;
- Results visualization.

All 10 projects (within 114 students of the 1st year of study) reflected the eco-aspects of education:

- Volunteering cleaning;
- Patronage over the orphanages;
- Visits to shelters for homeless pets;
- Meetings with Eco-leaders of Kostanay and region;
- Participation in coaching and training programmes (114 certificates of participation in management of eco-oriented projects);
- Projects presentation, team learning and self-evaluation.

Consequently, context based learning for ecological education serves the leading tool to transform theoretical learning into real practical implementation in the real world, excluding quasi-professional stage of the work.

The results gained from the projects defense cannot be called ‘complete’, but they carry the character of motivational aspects to eco-cultural education of future teachers.

Summing up, it must be noted that the further work on eco-education based on the context learning must be organized through all of the process of professional forming of the personalities of the future teachers as the ones to demonstrate the example for the schoolchildren.

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Экологиялық білім берудегі контекстік оқыту – А. Байтұрсынов атындағы ҚӨУ тәжірибесі

Аңдатпа. Контекстік оқыту болашақ мұғалімдерге экологиялық білім беруді дамытудың тиімді құралы ретінде қызмет етеді. Мақала «Community service» пәні аясында контекстік білім беруді (квазикәсіби және педагогикалық контексттер) енгізу үдерісіне арналған. А. Байтұрсынов атындағы Қостанай өңірлік университетінің 114 студенті Қостанай қаласын зерттеу материалында эко-аспектісі бар интерактивті әлеуметтік жобаларды ашық қорғаудан өтті. Қостанай қаласының қоғамдық өміріне белсенді қатысу әдістері (патронаж, ұжымдық оқыту, өзін-өзі бағалауы) болашақ мұғалімдердің әлеуметтік жауапкершілік деңгейін арттыруға, оқытудың экологиялық аспектісіне деген оң ішкі мотивациясын қалыптастыруға ықпал жасады. Болашақ мұғалімдердің алдағы педагогикалық қызметінде экологиялық білім беруді пайдалануға деген мотивациялық деңгейінің бастапқы мәліметтері, «Community service» жаңартылған пәні мазмұнының жоспары, теориялық және тәжірибелік оқуды аяқтағаннан кейінгі жобаларды қорғаудың қорытынды деректері келтірілген. Алынған нәтижелер болашақ мұғалімдердің педагогикалық қызметте экологиялық аспектіні іске асыру бойынша мотивациялық сфера сапасының (ішкі оң жоспарлар) аталған курс аясындағы контекстік оқыту негізінде артқандығын көрсетті.

Түйін сөздер: контекстік оқыту, болашақ мұғалім, жобалық оқыту, экологиялық білім, мотивация.

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Контекстное обучение в экологическом образовании – опыт КРУ им. А. Байтұрсынова

Аннотация. Контекстное обучение служит эффективным инструментом развития экологического образования будущих учителей. Статья посвящена процессу внедрения контекстного образования (квазипрофессионального и педагогического контекстов) в рамках дисциплины «Community service». 114 студентов Костанайского регионального университета имени А. Байтұрсынова прошли публичную защиту интерактивных социальных проектов с эко-аспектом на материале исследования города Костанай. Методы активного участия в общественной жизни г. Костанай (патронаж, коллективное обучение, самооценка) привели к повышению уровня социальной ответственности будущих учителей, формированию положительной внутренней мотивации к экологическому аспекту обучения. Приведены исходные данные об уровнях мотивации к использованию экологического образования в будущей педагогической деятельности у будущих учителей, план содержания модернизированной дисциплины «Community service», итоговые данные защиты проектов по окончании теоретического и практического обучения. Полученные результаты свидетельствовали об улучшении качества мотивационной сферы будущих учителей (внутреннего положительного плана) для реализации экологического аспекта в своей педагогической деятельности на основе контекстного обучения в рамках данного курса.

Ключевые слова: контекстное обучение, будущий учитель, проектное обучение, экологическое образование, мотивация.

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