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ECO-LITERACY RESEARCH AMONG MONGOLIAN YOUTH

© **B. Bayarchimeg**

Postgraduate, Lecturer
Mongolian State University of Education
Ulaanbaatar, Mongolia
Bayarchimeg.b@msue.edu.mn

© **S. Batkhuyag**

Postgraduate, Lecturer
Mongolian State University of Education
Ulaanbaatar, Mongolia
batkhuyag@msue.edu.mn

© **D. Enkhsetseg**

Doctor (Ph.D), assistant professor
Mongolian State University of Education
Ulaanbaatar, Mongolia
d.enhktsetseg@msue.edu.mn

© **Ts. Delgersaikhan**

Doctor (Ph.D)
Mongolian State University of Education
Ulaanbaatar, Mongolia
d.enhktsetseg@msue.edu.mn

The term environmental education and eco-literacy are the basics of education for sustainable development. The need “to protect terrestrial ecosystem”, which is the 15th goal of education for sustainable development, has become a global critical issue in Mongolia and around the world.

In this research, through the self-assessment of urban and provincial students to assess the ‘terrestrial Ecosystem Protection’, we aim to determine the current state of each of learning objectives, sustainable education competencies, and the education capacity for sustainable development within the Sustainable development goal 15. The survey involved 502 randomly selected urban and rural area students aged 16-24.

For us, the novelty is that we have studied learning objectives, comprehensive competencies and capacities of the SDG 15 in comparison.

According to result of the survey, the participants’ self-assessment of the learning objectives of sustainable development goal 15 was 71.2%, and of which 71.6% were cognitive, 72.6% were social-emotional, and 69.6% were behavioral. Therefore, it is necessary to pay attention to developing students’ behaviors through school and extracurricular activities. The average of ability for education for sustainable development is 73.8%, and the envisioning competency is assessed higher. The average of sustainable development education comprehensive competency is 73.4% and the collaborating competency, self-reflection, and systematic thinking is rated low. That means it is required to work focusing on developing a holistic thinking ability which is important for ecological literacy as primary environmental education.

Keywords: Eco-literacy, terrestrial ecosystem, ESD competencies, SDG education skills, learning objectives, self-assessment.

Для цитирования

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Introduction

From ancient times, the Mongols considered everything in relation to the living world and the physical world and their interdependence. The integrity of physical world depends largely on human activities. The more we love and respect the nature, the more we can protect ourselves. Mongolians has long maintained its natural balance by protecting its rare animals and plants, and areas of world's watersheds and mineral lands.

The famous tourist Marco Polo once commented on the hunting law and rules adhered by the ancient Mongols noting that ‘there is a law in Mongolia that prohibits from hunting. The whole Mongols, even the king or lord are not allowed to engage in hunting of any rabbits, deer, roe deer, gazelles, and black-tailed gazelles during their breeding season every year from March to October. (Ariyasuren Ch. Nyambuu Kh., 1991)

Also, we have long been focused on laws and regulations for the proper use of environment.

Assuming that the value of global ecosystem services is 145 trillion \$ per year (the value of land: ELD Report), the value of Mongolia's ecosystem services for Special Protected areas is 85 billion \$ or MNT 220 trillion per year. By 2050, additional 15 million hectare area will be placed under special protection to prevent losses of land benefit equal to 8.7 billion \$ a year. Larch forests covering an area of 1.85 million hectares under state protection absorb 12.23 million tons of carbon dioxide per year. The value of CO₂ absorption is 47.6 billion MNT per year. 10,600 million m³ of water is generated annually from the source of 6.4 million hectares of state protected areas, and its annual return value is 22.9 trillion MNT. (Government of Mongolia, 2019)

Research methods: Survey involved 502 students from urban and local area aged 16-24. Survey questionnaire is based on ‘Education for SDGs of UNESCO’ which include

- SDG-15 Learning objectives,
- Sustainable education key — 8 competencies,
- Education for SDGs and the competency (Methods for integrating ESD into secondary school program and its supporting activities, 2018)

The survey statistics were analyzed with t-test and analysis of variance (ANOVA) using SPSS software and compared students of Ulaanbaatar and Khuvsgul province within indicators of age, gender, urban and rural area (province, soum). Students made their self-assessment replying a questionnaire with scores of 1-5 (Likert).

Result

According to survey result, questionnaire’s reliability and compatibility indicator is 0.963.

Cronbach's Alpha	N of Items
963	105

Sustainable Development Goal-15 (SDG-15). In terms of learning objectives

Total average of the self-assessment of learning objective is 71.2%, and of which, cognitive average was 71.6%, socio-emotional was 72.6%, and behavioral was 69.6%. Female's self-assessment is higher than male's (68.2% for male and 74.8% for female). Students of Ulaanbaatar have cognitive average of 72%, social emotion 72.4%, behavioral 66.8%, whereas Khuvsgul provincial students have cognitive average of 73%, social emotion 72.2%, and behavioral 70%.

In terms of ESD Competencies(ESDCs)

Survey participants assessed their overall ESD competencies according to the following indicators.

Table 1

Average of students' self-assessment of their ESDCs

Descriptive Statistics			
	N	Mean	Std. Deviation
Systems thinking	502	66.4	847
Predict system	502	74.6	811
Quantitative	502	71	851
Comprehensive strategic capabilities	502	66	935
Collaborate	502	81.2	867
Critical thinking	502	72.4	953
Self-reflection	502	78.4	937
Problem solving	502	76.6	868
Valid N (listwise)	502		

According to students' self-assessment, their *collaborative and self-reflections skills* are in higher.

Table 2

ESDCs average of students

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ТБЦЧдундаж	Equal variances assumed	.092	.762	-4.988	500	.000	-.26053	.05223	-.36316	-.15791
	Equal variances not assumed			-4.984	486.089	.000	-.26053	.05227	-.36324	-.15783

The result shows that the level of significance differs between male and female students ($t = -4.988, p = .000$). In other words, the ESDCs average score of women (3.81) is higher than the average score of men (3.55).

Table 3

ESDCs among students from city and province

ESDCs average

(I) Previous place of residence	(J) Previous place of residence	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
city	Province center	08080	08024	573	1078	2694
	Soum	12126	06751	172	0374	2800
center of province	City	-08080	08024	573	-2694	1078
	Soum	04046	06642	815	-1157	1966
soum	City	-12126	06751	172	-2800	0374
	Province center	-04046	06642	815	-1966	1157

The result shows that average ESDCs of cities, aimags, and soums does not differ significantly in terms of statistical significance.

In terms of educational capacity for the Sustainable Development Goals (SDGs)

According to assessment among overall students, vision rated 79.08%, participation in real activities is 76.93%, creative and critical thinking is 72.35%, and analytical/research skills is 67.13%. In terms of gender, female's self-assessment was higher than male's (male's assessment is lower by 0.1675 and female's assessment is higher by 0.1925). Sequence of self-assessment of male and female students, and of urban and Khuvs gul province students is the same in terms of educational capacity for the Sustainable Development Goals (SDGs).

Conclusion

We conducted our research to determine the current state of students in the context of learning objectives of sustainable development and comprehensive competencies and capabilities. Following conclusions are made based on the results of study.

- 502 students participated in the survey and they rated the overall self-assessment of Sustainable Development Goal 15 as 71.2%, of which cognitive 71.6%, socio-emotional 72.6%, and behavioral 69.6%. Therefore, it is necessary to pay attention more to developing the students' behavior through school and extracurricular activities.

- According to the student's self-assessment for about three main components mentioned above, their eco-literacy is 71.2% on average.

- The average level of comprehensive competency of ESD is 73.4%. Meanwhile, collaborative and self-reflection competency level is higher, and systematic thinking competency level is lower, which means there is a need to focus and work on developing a holistic thinking ability which is important in ecological education — eco-literacy.4

- Average level of ESD ability is 73.8% and ability to be visionary is highly evaluated.

Discussion

• The research provides suggestions to education policy makers, curriculum developers, textbook authors and educators on how to achieve terrestrial ecosystem related goals outlined in the Mongolia's Sustainable Development Vision 2030.

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Литература

1. The Ministry of Education, Culture and Science, ESD project. Methods for integrating sustainable development education into general education school curriculum and educational activities. 2018. 55 p.
2. Jadambaа В., Erdenechimeg L., Bolortuya В., Tungalag В., Education for sustainable development in my life. Ulaanbaatar / В. Jadambaа, L. Erdenechimeg, В. Bolortuya, В. Tungalag. Ulaanbaatar. 2019. 168 p.
3. Muhammad Irfan Hilmi, Dadang Yunus Lutfiansyach*, Achmad Hufad, Mustofa Kamil, Uyu Wahyudin. Eco-Literacy: Fostering Community Behavior Caring for the Environment. 2020.

ИССЛЕДОВАНИЕ ЭКОЛОГИЧЕСКОЙ ГРАМОТНОСТИ МОНГОЛЬСКОЙ МОЛОДЕЖИ

© Баярчимэг Б.

аспирант, лектор,
Монгольский государственный университет образования
Монголия, Улан-Батор
Bayarchimeg.b@msue.edu.mn

© Батхуяг С.

аспирант, лектор,
Монгольский государственный университет образования
Монголия, Улан-Батор
batkhuyag@msue.edu.mn

© Энхцэцэг Д.

доктор наук, доцент,
Монгольский государственный университет образования
Монголия, Улан-Батор
d.enhktsetseg@msue.edu.mn

© Дэлгэрсайхан Ц.

доктор наук,
Монгольский государственный университет образования
Монголия, Улан-Батор
d.enhktsetseg@msue.edu.mn

Аннотация. Основой образования для устойчивого развития являются экологическое образование и экологическая грамотность. Необходимость «защитить наземную экосистему», являющуюся 15-й целью образования для устойчивого развития, стала одной из приоритетных глобальных проблем в Монголии и по всему миру.

В данном исследовании авторами дана оценка «Защиты наземной экосистемы» посредством самооценки городских и сельских учащихся. Основной целью исследования явилось определение текущего состояния каждой из 15-ти целей обучения устойчивого развития, и компетенций в области устойчивого образования. В исследование были включены 502 случайно выбранных городских и сельских студента в возрасте от 16 до 24 лет.

В результате опроса средняя самооценка целей обучения участников составила 71,2%, из которых 71,6% были когнитивными, 72,6% — социально-эмоциональными и 69,6% — поведенческими. Необходимо обращать внимание на развитие поведения учащихся через школьные и внеучебные программы. Средний показатель способности образования в интересах устойчивого развития составляет 73,8%, а способность предвидеть оценивается выше. Среднее значение компетенций в области устойчивого развития составляет 73,4%, а способность работать вместе, самопознание и систематическое мышление недооцениваются, что указывает на необходимость сосредоточиться на развитии всестороннего мышления, охватывающего все аспекты экологической грамотности.

Ключевые слова: экологическая грамотность, наземная экосистема, ОУР компетенции, навыки образования по ЦУР, цели образования, самооценка.

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