

Analysis of ESG importance and current level of educational needs of university faculty

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ABSTRACT

This study aims to derive strategies for realizing the social values of universities in the reality of the times where the need for ESG (Environment (E), Society (S), and Governance (G)) is being raised in the field of university education beyond companies. To this end, the awareness level of university faculty and staff on ESG is analyzed in terms of importance and current level, and the degree of demand for ESG practice necessary for university faculty is to be identified. This needs analysis can introduce ESG into university management and form a strong relationship between stakeholders. This study was conducted as an online survey, and data were collected from professors and staff of a 4-year university E in Gyeonggi-do. The collected data were analyzed using IBM SPSS 23.0 statistical program and MS Office Excel. As analysis procedures, frequency analysis, reliability analysis, paired-sample t-test, Borich analysis, and the Locus for Focus model were applied. The results of this study revealed that there was a statistically significant difference between the importance and the current level in all three ESG areas, and the importance was higher than the current level. Also, among the three ESG areas, the environmental and governance areas were the priorities of educational demand for ESG awareness among university faculty. The priority of educational needs based on sub-factors by area is as follows. First, energy-saving education for faculty members should be strengthened in the environmental field. Second, universities need to make efforts to improve the environment. In the area of governance, it is necessary to first operate programs for the welfare of faculty members. Second, efforts are needed to provide non-discriminatory treatment and equal rights among faculty members. Third, a fair and transparent faculty and staff performance evaluation should be conducted. As such, a management strategy to improve ESG awareness for university faculty should be introduced, focusing on two environmental factors and three governance factors.

Keywords: ESG, educational needs, university faculty.

1. Introduction

Our society is experiencing problems such as rapid climate change, aging, and social polarization, which are not problems that one country or individual can solve, but global challenges that the whole world must ponder upon and find solutions for. Accordingly, various attempts are being made to solve the problems facing the world together and pass on a safer environment to the next generation. ESG (Environmental, Social, Governance) norms were presented according to the trends and needs of these times. ESG is named after the initials of a company's non-financial factors such as environment, society, and governance. Ahn Soo-hyun (2021) defines ESG as a management paradigm that changes in a desirable direction by demonstrating entrepreneurial thinking and innovatively solving social problems that are classified into the environment (E), society (S), and governance (G) (Eunjin Hwang et al., 2022).

Companies have been actively implementing ESG the ESG paradigm by declaring ESG management and establishing an ESG committee. The government is also implementing a carbon-neutral policy and presenting ESG evaluation guidelines, so ESG management has become an unavoidable new standard (Kim Yeon-Seong, 2021; Kang Tae-seon et al., 2021). Recently, countries have been more actively intervening and spreading ESG management. In particular, the EU announced it would restrict the investment activities of companies that do not meet ESG requirements. In addition, domestic universities are also embarking on ESG management at the school level, such as establishing ESG governance and disclosing performance.

Korea University emphasized university management principles for sustainable university development and established the ESG Committee for the first time as a university.

It has also announced that it will achieve carbon sequestration by 2045. Konkuk University also established an ESG committee and is promoting various ESG activities, such as reducing carbon emissions on campus, promoting stakeholder human rights, and preparing ethical management practice strategies. Hanyang University announced mid- to long-term development plans and activities related to ESG through the 'Hanyang University Sustainability Report', which it publishes on its own, and declared that it would start ESG management. In this way, introducing ESG management not only in corporate management but also in university management is not a trend, but a strategy for university sustainability.

Looking at the cases of applying ESG in universities, related preceding studies are still insufficient. However, ESG-related organizations or committees are newly established in universities, and publicity activities in the form of campaigns are the main focus. However, as the social influence of universities has grown and recent social, environmental, and governance trends have spread to university management, there are increasing attempts to quantify and disclose information about the economic and social impacts created by universities (Suyeol Lee and Jaeheum Park, 2022). In addition, some universities are establishing ESG-related subjects or curricula in their university curricula. Business education in universities should be market-oriented education that can respond to the rapidly changing environment. Therefore, it is necessary to find ways for university management education to realize management suitable for the ESG era.

To introduce ESG into university management, it is necessary to analyze the educational demand for ESG management among faculty members who are members of the university and to seek a program and support system for strengthening faculty competency according to the priority of needs. Universities with a public nature of education and talent cultivation should pay attention to the environment, social responsibility, and transparent governance and fulfill their social responsibilities. To this end, university education should take responsibility for confirming the awareness level of university members, professors, and staff on ESG and fostering ESG experts. However, although some universities express their support and aspirations for ESG management in principle, there are difficulties as there are no clear guidelines or guidance on specific measures for ESG management. Therefore, as basic data for the spread of ESG management culture in universities, a strategic direction based on the current level of ESG awareness of university members and the results of the analysis of educational needs should be presented.

Therefore, this study aims to determine the priority of educational needs by identifying the level of awareness and importance of ESG for faculty members of a 4-year university E in Gyeonggi-do. The results of this study can be used as meaningful basic data in deriving the strategic direction for ESG management in university management in the future. In addition, it is expected that it will provide implications for the sustainable management of universities when studies conducted in connection with ESG in university management are very scarce.

For this research purpose, the following research questions were set.

Research question 1. What is the difference between the importance of ESG among university faculty and the current level?

Research question 2. What is the high demand for university ESG management planning?

2. Theoretical Background

2.1 ESG Application Cases in Domestic Universities

The ESG strategies introduced by domestic universities can be largely classified into three types. First, ESG-related courses or majors are newly established. Second, university ESG committees are newly established or related advisory committees are launched. This promotion councils are formed. With Yonsei University, in connection with SK Group, a new liberal arts course, 'Corporate Social Value and Social Innovation', is provided to educate corporate social values and ESG management philosophy. Yonsei University Institute for Higher Education Innovation held a student presentation on a business model for creating social value that incorporates ESG as part of a student project within a lecture on 'Corporate Social Value and Social Innovation' opened with SK Group. It was held as an online-offline setup, and three groups of business models selected as excellent teams were announced in advance. Each student presented a business item that can generate profits while solving social problems such as solving environmental problems caused by excessive use of data communication networks, preserving the terrestrial ecosystem, and upcycling.

Kangwon National University also established an 'Understanding of Sustainable Development course in connection with SK Group and is operating it as a basic liberal arts course for freshmen. In addition to Kangwon National University professors, and experts from other universities, companies, and research institutes participate in the lectures. They Foster ESG talent by sharing ESG cases of SK Group and overseas companies. In addition, Kangwon National University established the Center for Sustainable Innovation, an organization for the implementation of the United Nations' Sustainable Development Goals (SDGs), for the first time among national universities. They have been spreading the value of sustainability within the school by linking ESG education and extracurricular programs through the Sustainable Innovation Center.

Konkuk University was the first university in Korea to establish an ESG research group and apply ESG management. It spread ESG values to affiliated organizations such as Konkuk University, Konkuk University Hospital, and profitable businesses, and set 'Think Green, Thank KU 3-3-3' as its management goal. In addition, it created a green campus to save energy and solar power generation facilities are operated on the roof of the university campus building. Along with the operation of power generation facilities, financial income was also raised. Through server virtualization, Glocal Campus is taking the lead in environmental protection by reducing operating costs and carbon dioxide emissions. Affiliated organizations are practicing environmental protection by reducing the use of packaging materials and replacing disposable products with large-capacity products. In addition, the Konkuk University Educational Foundation enacted property management regulations to enhance management transparency and accountability of affiliated institutions, and extensively overhauled related regulations and organization.

In 2022, Chung-Ang University signed an MOU with Daeryuk Aju, a law firm, to expand carbon neutrality and ESG management, and opened a carbon-neutral ESG CEO course. Chung-Ang University, along with Seoul National University, Sookmyung Women's University, Inha University, and Hanyang University, formed a consortium of ESG future-leading practice problem research groups and plans to foster future-leading talent by solving carbon neutrality issues through the educational platforms of several universities rather than a single school.

Seoul National University is jointly operating the ESG Executive Education with the ESG Happy Economy Research Institute. Convergence education programs and on-site training at home and abroad are provided so that ESG leadership can be demonstrated in the business field. The participation of ESG officials belonging to each company and institution was high, and it was evaluated as beneficial as a venue for sharing ESG-related information and forming a network.

Korea University established the ESG Committee and has been discussing sustainable development such as eco-friendliness, socially responsible management, and governance improvement Through the ESG Committee, it aims to realize ESG values within universities and build an ecosystem model within universities that can implement Sustainable Development Goals. In addition, the ESG Academy has been opened for undergraduate and graduate students to spread the value of ESG. Korea University signed an MOU with the Hyundai Department Store in July 2022 to practice ESG values. Korea University students and companies are carrying out social contribution activities together, such as the support project for the underprivileged in the climate crisis.

Eulji University has established the EULJI-ESG promotion system for the creation and realization of the social values of the university according to the university's founding philosophy in 2022 and the strategic direction of the university's mid-to-long-term development plan. Detailed project tasks related to EULJI-ESG are operated by the University Innovation Support Project Team, and a promotion plan to monitor and review the EULJI-ESG project is prepared by the University Innovation Steering Committee. To this end, internal and external campaign activities such as carbon neutrality were carried out in the environment field, and community contribution activities and volunteer programs were operated in connection with majors in the social field. In governance, communication channels with members were expanded to secure publicity and transparency of the university, and a system was established to allow members to participate in university management in various forms.

Seoul Institute of the Arts announced the introduction of ESG management for the first time as a university of the arts ahead of its 60th anniversary in 2021. Through this, the goal of cultivating talents with an ESG management mindset and artistic capabilities was set. It aims to prepare for the next 100 years through the introduction of ESG management values, strives for all members to practice ESG management values, realize social responsibility values, and promote social contribution through culture and arts.

Chungnam National University formed an SDGs-based ESG promotion consultative body to realize social values and promote regional strength and sustainable development through the vitalization of ESG-based

networks in the Daejeon and Chungnam regions. The ESG Promotion Council organized subcommittees according to the environment, society, and intellectual property structure to promote ESG projects tailored to the needs of each institution, and held the ESG Academy for professional development. In addition, Chungnam National University emphasized linkage and cooperation between universities, local governments, and public institutions, and proposed the establishment of a platform that promotes social value sharing, coexistence, and cooperation through the ESG Council.

Chonbuk National University, together with Chonnam National University, is conducting education related to greenhouse gas reduction technology and carbon neutral development for undergraduate and graduate students to 'cultivate innovative talents for greenhouse gas reduction'. In particular, the '2050 Carbon Neutral Practice Action Relay Declaration' was held with six universities in Jeonju, and each university announced 10 actions for 2050 Carbon Neutrality that can be practiced in daily life under the theme of '2050 Carbon Neutrality, Practice with Universities'. These universities declared and decided to put it into practice. Specifically, these actions are △Maintaining indoor temperature at 26 degrees in summer and 18-20 degrees in winter △Turning off unnecessary lights △Turning off unused computers △Using stairs △Using buses or bicycles to and from school △Using mugs and tumblers △Separate disposal of recyclables △Minimizing paper use when printing △Saving water △Not leaving food behind.

Looking at the cases of ESG management strategies, ESG subject openings, and councils to achieve ESG goals at domestic universities, it is necessary to look at ESG from two perspectives for its concept to enter the higher education curriculum. Given that the concept of ESG started from the perspective of a new investment strategy for sustainable development, when universities introduce ESG strategies, ESG education on how to establish these strategies from the perspective of business administration and sustainable development approached with the concept of sustainability, there is already the so-called Education for Sustainable Development (ESD). Therefore, ESG and ESD are used interchangeably (Lee Heung-yeon, 2020). Education for Sustainable Development is a process of building an environmentally friendly, inclusive, and equal environment, building leadership, and improving communication skills. In particular, the field of higher education is an integrated and comprehensive program that can understand the context of management and investment under the concept of sustainability based on ESD. It is necessary to establish a systematic curriculum (Lee Heung-yeon, 2020).

2.2 Examples of applying ESG in Overseas Universities

In the case of overseas universities, the introduction of ESG started relatively quickly compared to Korea. For Harvard University, through the 'Net-Zero 2050' declaration in April 2021, greenhouse gases were reduced by 2050 to meet the goals of the Paris Climate Agreement, and the accuracy and transparency of carbon emissions were raised. In the case of Arizona State University, the opinions of stakeholders inside and outside the university were collected through the establishment of the ESG committee, and BlackRock advised on investment and risk management considering sustainability. In July 2019, through the fundraising of 100 million dollars, the university established strategies related to sustainable development and invested in action plans.

The University of Michigan is the first public university in the United States to set a goal of achieving zero carbon by 2050. The University of Iowa has attracted a fund jointly invested by French energy company Engie and investment company Meridiam to use \$15 million annually for the university's ESG-related policies and projects. As such, major overseas universities are presenting ESG as a strategy for university management. In addition, an increasing number of universities are actively running ESG-related courses. Cambridge University [Sustainable Finance], Harvard University [Reimagining Capitalism: Business and Big Problems], Yale University [Sustainable Finance and Investment], French Grand Ecole Business School EDHEC [Climate Change and Sustainable Investing], Erasmus University Rotterdam [Principles of Sustainable Finance], and the Delft University of Technology [The Economics of Energy Transition] are being developed and taught.

Stanford University is the first American university to issue bonds based on Environmental Stewardship (E) and Social Responsibility (S) standards. Ohio State University issued \$600 million in green bonds to improve hospital energy efficiency and water conservation. The University of Tokyo, Japan, issued ESG bonds for the first time since its establishment in October 2020 studied new global response strategies after the post-COVID-19 era, and created a campus that meets the principles of safety, smart, and inclusiveness. In addition, in the management of donation funds, Harvard University, California University, Boston University, Georgetown University, Cambridge University, and Oxford University in England are disposing of investments in the fossil fuel industry and turning them into ESG-compliant industries.

As such, domestic and foreign universities are establishing a cooperation system with companies that are conducting ESG management, and are opening and operating liberal arts courses. In addition, efforts are being made to introduce ESG management strategies into university education and management by preparing related organizations that can practice this. In particular, major overseas universities have implemented ESG education in MBA courses since 2010. The Harvard Business School MBA sustainable investment course is as follows.

Module		Case Studies	Takeaways	Key Exercises
1	Overview of Sustainable Investing	<ul style="list-style-type: none"> • Morgan Stanley • Goldman Sachs • Omidyar Network 	<ul style="list-style-type: none"> • Understand key terminology • Develop an understanding of the sustainable investing sector and its importance and viability 	<ul style="list-style-type: none"> • Categorize business model characteristics and environmental, social, and governance criteria • Reflect on the challenges and opportunities of sustainability strategies
2	Public Equities	<ul style="list-style-type: none"> • CalSTRS • Generation Investment Management 	<ul style="list-style-type: none"> • Understand the role of ESG factors in public market investing • Evaluate different approaches to incorporating ESG as an asset owner or manager • Reate EGS-based investment strategies to risk and return 	<ul style="list-style-type: none"> • Evaluate the ESG performance of various companies • Match ESG use cases to corresponding strategies • Articulate divestment goals and theories of change
3	Venture, Private Equity, and Sustainable Debt	<ul style="list-style-type: none"> • DBL Partners • Meridiam • TPG: The Rise Fund 	<ul style="list-style-type: none"> • Identify sources of value-add in private impact investing • Analyze how managers weigh financial and social returns, including understanding "impact washing" • Develop an understanding of different types of sustainable debt 	<ul style="list-style-type: none"> • Analyze characteristics and assess the performance of funds and fund managers

3. Research method

3.1 Subject of Research

The survey for the analysis of this study was conducted as a complete enumeration of all faculty members of a 4-year university E in Gyeonggi-do. Excluding the response data with many missing values among the response data, the number of effective samples used in this study was 73 (35% of 207 full-time faculty members and regular staff members participated). The survey was conducted online for one month from March to April 2023. In addition, to comply with research ethics standards such as personal information protection and prior consent in online surveys conducted by individuals, consent forms of research participants were collected and submitted in electronic form during online surveys. The general characteristics of the study subjects are presented in Table 1.

Table 1. General characteristics (N=73)

Observed variable	Frequency (persons)	%
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Faculty/Staff	full-time faculty	24	32.9
	full-time employee	49	67.1
Sex	man	34	46.6
	female	39	53.4
Position experience	Yes	46	63.0
	No	27	37.0
Job satisfaction	not satisfied at all	2	2.7
	not satisfied	5	6.8
	average	19	26.0
	satisfied	33	45.2
	very satisfied	14	19.2

3.2 Measuring Tool

A researcher-made measurement tool was used to analyze the importance and current awareness level of ESG among university faculty. The development of ESG measurement tools modified and supplemented the measurement tools used in the studies of Lee Heung-yeon (2020) and Kim Ji-yoon et al. (2022). The measurement questions used in this study consisted of 24 questions: nine questions related to the environment, eight questions related to the social domain, and seven questions related to the governance domain. All variables were measured on a 5-point Likert scale (1 = not satisfied at all to ~ 5 = very satisfied). The measurement items and reliability coefficients for each factor are presented in Table 2.

Table 2. Questionnaire and reliability coefficient

variable	item	question content	Cronbach's α
environment	1	Our university establishes and promotes environmental management goals.	.975
	2	Our university actively considers and reflects eco-friendly factors in education and service planning.	
	3	Our university considers and reflects climate change and eco-friendly factors when maintaining buildings and facilities.	
	4	Our university is working to reduce carbon emissions with an interest in climate change.	
	5	Our university has pollution and waste discharge management.	
	6	Our university conducts education on environmental pollution for faculty and staff.	
	7	Our university conducts activities to conserve resources and energy.	
	8	Our university conducts education on energy conservation for faculty and staff.	
	9	Our university strives to improve the environment.	
Social	1	Our university establishes goals for community development and regional development and operates a mid-to-long-term	.968

		promotion system.	
	2	Our university operates external education programs to spread ESG consensus.	
	3	Our university conducts activities that contribute to the national, regional, and neighboring social communities.	
	4	Our university actively participates in addressing local ESG issues through community projects or partnerships.	
	5	Our university actively participates in community activities.	
	6	Our university has a system for handling complaints and grievances of faculty and staff.	
	7	Our university has a system for safety in case of crisis or emergency.	
	8	Our university has a system for protecting personal information.	
Governance	1	Our university establishes transparent governance goals and operates a mid-to-long-term promotion system.	.965
	2	Our university is notifying the composition and role of the ESG board of directors.	
	3	Our university organizes and operates a board of directors including various stakeholders (employees, students, local communities, etc.) to present ESG agendas.	
	4	Our university conducts performance evaluations of faculty members fairly and transparently.	
	5	Our university is conducting a fair and transparent selection policy for faculty members.	
	6	Our university runs a program for the welfare of faculty members.	
	7	Our university treats faculty and staff without discrimination and provides equal rights.	

3.3 Data Analysis

To verify the research question set in this study, the IBM SPSS statistics 23.0 was used.

First, frequency analysis was conducted to find out the general characteristics of faculty members. To analyze the reliability of measurement items based on the survey data, Cronbach's α coefficient value was calculated and reliability was confirmed.

Second, a paired-sample t-test was conducted to analyze the difference between the importance and the current level of the university faculty's ESG.

Third, to introduce ESG strategies to universities, it is necessary to analyze the needs of university faculty members for ESG. As a method of needs analysis, the Borich needs diagram was used. The calculation formula is as follows.

$$\text{Borich requirement} = \frac{\sum(\text{importance} - \text{current level}) \times \text{importance}}{N}$$

Through the Borich educational needs analysis, the educational needs for ESG for university faculty were also prioritized. However, in the Borich needs analysis method, the limitations of the average often result

in cases in which other needs are prioritized rather than needed. In other words, if priorities are selected based only on differences in average values, there is a limit to the precise analysis of what to prioritize. To exclude these limitations, the Locus for Focus Model analysis was additionally conducted. The Locus for Focus model is a model that expands the Borich needs analysis one step further and shows the analyzed needs more visually. In particular, a map using a 2x2 matrix is created to determine the priority of the demand. The X-axis is the average value of the importance (required level), and the Y-axis is the average value of the difference between the importance and the current level. As shown in Figure 1, the first quadrant is the part that needs to be developed first.

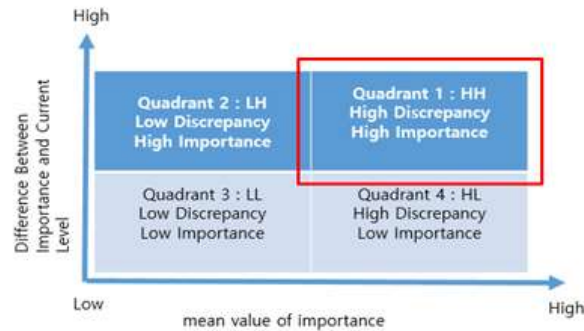


Figure 1. The Locus for Focus Model (Mink, et al, 1991)

4. Result Analysis

4.1 Differences in the importance and current level of awareness of ESG among faculty members

Tables 3 and 4 show the results of descriptive statistical analysis of the importance of ESG and the current level difference.

Table 3. Level of Awareness of the Importance of ESG

Factor	Min	Max	Sum	M	SD	Skewness	Kurtosis
E	1	5	279	3.82	0.986	-0.461	-0.158
S	1	5	288	3.94	0.945	-0.654	0.192
G	1	5	279	3.82	0.929	-0.376	-0.087

Table 4. Level of Awareness of the Current ESG

Factor	Min	Max	Sum	M	SD	Skewness	Kurtosis
E	1	5	255	3.49	1.055	-0.268	-0.299
S	1	5	269	3.69	1.001	-0.404	-0.177
G	1	5	264	3.62	1.009	-0.360	-0.239

A paired-sample t-test was conducted to see if there was a difference between the perceived importance of ESG factors by university faculty and the current level.

Table 5. Paired-sample t-test results for the difference between the importance and current level of ESG factors

Factor	Significance mean (SD)	Current level mean (SD)	Importance - current level mean difference	t	p
E	3.81(0.82)	3.62(0.87)	0.19	3.557	0.001
S	3.94(0.82)	3.69(0.87)	0.25	3.903	0.000
G	3.81(0.10)	3.49(0.93)	0.32	4.403	0.000

** $p < .01$, *** $p < .001$

As a result of the analysis, it was found that there was a significant difference in all items, and the

importance was higher than the current level. Among ESG areas, social factors showed the highest level of importance and current level.

4.2 Education needs of faculty and staff on ESG

Table 6 shows the results of the Borich need priority order for the overall awareness of university faculty by ESG domain. As a result of Borich's demand analysis for the entire ESG area, it appeared in the order of organization, society, and environment.

Table 6. Borich demand analysis results for ESG

Factor	Current level	Importance	Gap	Rank
E	3.62	3.82	0.26	3
S	3.69	3.94	0.32	2
G	3.49	3.82	0.42	1
Mean	3.6	3.86		

Table 7 shows the results of analyzing Borich's needs centered on questions by area to analyze specific educational needs by ESG area.

As a result of analyzing Borich's demand for each sub-factor in the ESG area, 'Our university considers and reflects climate change and eco-friendly factors when maintaining buildings and facilities', and 'Our university considers and reflects the highest demand in the environment area.' We strive to improve the environment.' The highest demand in the social area was also ranked as a priority, with 'Our university has a system for handling complaints and grievances from faculty and staff.' The highest demand in the area of governance was also identified as 'our university operates a program for the welfare of faculty and staff' as a priority.

Table 7. Result of Borich Demand Analysis by ESG Area Sub-factor

	Item E	Importance (necessary level)	Importance - current level	Rank
1	Our university establishes and promotes environmental management goals.	3.78	0.19	6
2	Our university actively considers and reflects eco-friendly factors in education and service planning.	3.69	0.25	4
3	Our university considers and reflects climate change and eco-friendly factors when maintaining buildings and facilities.	3.61	0.27	1
4	Our university is working to reduce carbon emissions with an interest in climate change.	3.71	0.26	3
5	Our university has pollution and waste discharge management.	3.9	0.05	8
6	Our university conducts education on environmental pollution for faculty and staff.	3.69	0.25	4
7	Our university conducts activities to conserve resources and energy.	4.09	0.03	9
8	Our university conducts education on energy conservation for faculty and staff.	3.91	0.18	7
9	Our university strives to improve the environment.	3.93	0.27	1
	Item S	Importance (necessary level)	Importance - current level	Rank
1	Our university establishes goals for community development and regional development and operates a mid-to-long-term	4.00	0.08	8

	promotion system.			
2	Our university operates external education programs to spread ESG consensus.	3.82	0.23	4
3	Our university conducts activities that contribute to the national, regional, and neighboring social communities.	3.97	0.14	6
4	Our university actively participates in addressing local ESG issues through community projects or partnerships.	3.86	0.23	5
5	Our university actively participates in community activities.	4.00	0.12	7
6	Our university has a system for handling complaints and grievances of faculty and staff.	3.86	0.64	1
7	Our university has a system for safety in case of crisis or emergency.	4.00	0.29	2
8	Our university has a system for protecting personal information.	4.03	0.29	3
Item G		Importance (necessary level)	Importance - current level	Rank
1	Our university establishes transparent governance goals and operates a mid-to-long-term promotion system.	3.79	0.27	5
2	Our university is notifying the composition and role of the ESG board of directors.	3.62	0.23	6
3	Our university organizes and operates a board of directors including various stakeholders (employees, students, local communities, etc.) to present ESG agendas.	3.75	0.33	3
4	Our university conducts performance evaluations of faculty members fairly and transparently.	3.85	0.33	4
5	Our university is conducting a fair and transparent selection policy for faculty members.	3.92	0.18	7
6	Our university runs a program for the welfare of faculty members.	3.84	0.51	1
7	Our university treats faculty and staff without discrimination and provides equal rights.	3.96	0.44	2

The results of Borich's demand analysis revealed the priority for each sub-factor in the ESG areas. For the environmental area, 'Our university considers and reflects climate change and eco-friendly factors when maintaining buildings and facilities' and 'Our university considers and reflects the highest demand in the environment area' is the top priority. The highest demand in the social area was also ranked as a priority, with 'Our university has a system for handling complaints and grievances from faculty and staff.' The highest demand in the area of governance was also identified as 'Our university operates a program for the welfare of faculty and staff' as a priority.

The Locus for Focus Model analysis of university faculty's ESG awareness is shown in Figure 2 as a result of analyzing the priorities of educational needs by area, focusing on the contents of each area of ESG.

As shown in Figure 2, in the first quadrant, which has the highest priority in the environment area, "Our university conducts energy conservation education for faculty and staff.", and "Our university strives to improve the environment." In the social domain, no distributed content appeared in the first quadrant, which had the highest priority. In the first quadrant, which has the highest priority in the governance structure area, "Our university conducts performance evaluation of faculty members fairly and transparently", "Our university operates programs for the welfare of faculty members", and "We The university treats faculty members without discrimination and provides them with equal rights."

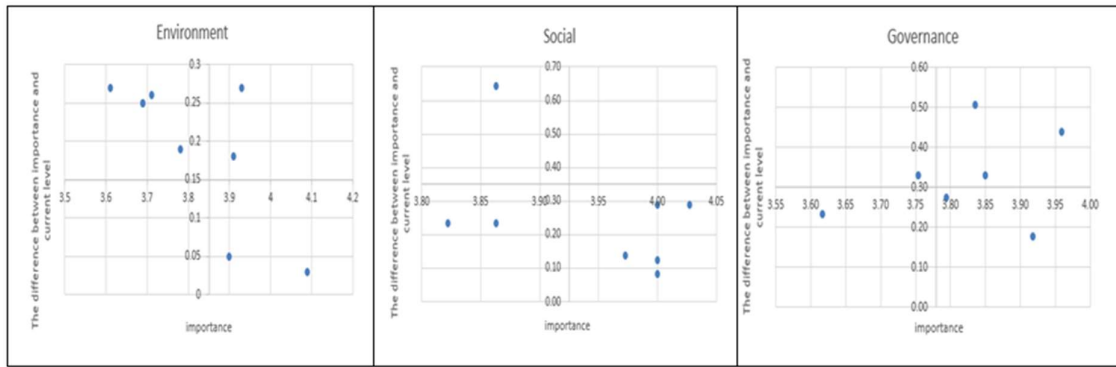


Figure 2. The Locus for Focus Model-based ESG Education Needs Priority for Each Area

Looking at the analysis results of Borich's needs and The Locus for Focus model, the first quadrant (HH) has high importance, and the degree of mismatch between achievement and importance is also high, which is the highest priority level for improvement. In the second quadrant (LH), the importance is lower than the average, but the degree of discrepancy between achievement and importance is high. In the 3rd quadrant (LL), both the degree of discordance and importance between achievement and importance is lower than the average value, and in the 4th quadrant (HL), the average of importance is high, but the degree of discordance between achievement and importance is low, and improvement priority is low or not considered.

The analysis result using The Locus for Focus model is shown in Table 8.

Table 8. Prioritize the need for ESG sub-factors

top factor	subfactor		Borich requirements	The Locus for Focus model
environment	1	Our university establishes and promotes environmental management goals.	6	LH
	2	Our university actively considers and reflects eco-friendly factors in education and service planning.	4	LH
	3	Our university considers and reflects climate change and eco-friendly factors when maintaining buildings and facilities.	1	LH
	4	Our university is working to reduce carbon emissions with an interest in climate change.	3	LH
	5	Our university has pollution and waste discharge management.	8	HL
	6	Our university conducts education on environmental pollution for faculty and staff.	4	LH
	7	Our university conducts activities to conserve resources and energy.	9	HL
	8	Our university conducts education on energy conservation for faculty and staff.	7	HH
	9	Our university strives to improve the environment.	1	HH
Social	1	Our university establishes goals for community development and regional development and operates a mid-to-long-term promotion system.	8	HL

	2	Our university operates external education programs to spread ESG consensus.	4	LL
	3	Our university conducts activities that contribute to the national, regional, and neighboring social communities.	6	HL
	4	Our university actively participates in addressing local ESG issues through community projects or partnerships.	5	LL
	5	Our university actively participates in community activities.	7	HL
	6	Our university has a system for handling complaints and grievances of faculty and staff.	1	LH
	7	Our university has a system for safety in case of crisis or emergency.	2	HL
	8	Our university has a system for protecting personal information.	3	HL
Governance	1	Our university establishes transparent governance goals and operates a mid-to-long-term promotion system.	5	HL
	2	Our university is notifying the composition and role of the ESG board of directors.	6	LL
	3	Our university organizes and operates a board of directors including various stakeholders (employees, students, local communities, etc.) to present ESG agendas.	3	LH
	4	Our university conducts performance evaluations of faculty members fairly and transparently.	4	HH
	5	Our university is conducting a fair and transparent selection policy for faculty members.	7	HL
	6	Our university runs a program for the welfare of faculty members.	1	HH
	7	Our university treats faculty and staff without discrimination and provides equal rights.	2	HH

The first quadrant (HH) area with high demand in the Environment was shown by the university's efforts to improve the environment and conduct energy-saving education for faculty members and is the same as the result of the paired sample t-test. The 2nd quadrant (LH) area has the highest priority after the 1st quadrant (HH), promoting the establishment of environmental management goals for universities, considering eco-friendly factors in university education and service planning, climate change, and eco-friendly factors when repairing university buildings and facilities. Consideration, efforts to reduce carbon emissions, and environmental pollution education for faculty members appeared. The 3rd quadrant (LL) and 4th quadrant (HL) areas correspond to low-priority or unconsidered areas, so the results are not analyzed.

In Social, it was found that there was no area in the first quadrant (HH) with high demand.

In Governance, the first quadrant (HH) area with high demand was the operation of welfare programs for faculty members, equal rights among faculty members, and fair and combative performance evaluation of faculty members. In the 2nd quadrant (LH) area, the organizational operation of the board of directors including various stakeholders for the presentation of ESG agendas was shown. The 3rd quadrant (LL) and 4th quadrant (HL) areas correspond to low-priority or unconsidered areas, so the results were not analyzed.

In conclusion, the priorities of educational demand for ESG awareness for university faculty were found to be environment and governance. The priority of educational needs based on sub-factors by area is as follows.

5. Discussion

UNESCO (2020) advises that “it is necessary to strengthen the curriculum and teaching capacity, and that ESG must be reflected in various and specific curricula within the higher education system” to innovate university education to prepare for the changing society. ESG education is suggesting solutions to changes in the role of university education in response to social changes such as changes in universities, school-age population and aging, and social problems such as inequality. Therefore, it is necessary to redefine and strengthen the role of university education based on ESG as a base leading sustainable development (Lee Chang-eon, 2020; Wang 2018; Kundu and Dey 2022”).

Social responsibility (SR 3) mentioned in the United Nations Declaration on the Human Environment emphasizes the responsibility of citizens and local communities in addition to the responsibility of national and local governments to solve global environmental problems surrounding humans. All companies and institutions are given social responsibility. The social responsibility (USR) of universities is also the mother of the United Nations Declaration on the Human Environment as a new mission of universities to create social values. Now is the time when more participation and cooperation from universities, corporations, and civil society are needed to establish and practice the universal public values of a sustainable human community (Kim Chang-hwan, 2020).

Now, universities must internally reflect content for self-sustainable university management and social contribution in the curriculum, and actively cooperate with the local community to resolve social issues. In particular, the participation of all members is essential. Due to the public nature of education and human resource development, universities have the characteristics of public institutions, such as receiving financial support from the state, so they are interested in the environment, social responsibility, and transparent governance, and fulfill social responsibilities, just like other public institutions. In the same context, the results of this study showed that among the ESG areas, the areas in which the educational needs of university faculty were drawn as a priority were the areas of environment and governance.

Based on the results of this study, environmental education should be emphasized among ESG areas to secure sustainability in universities. As a form of sustainable development education based on environmental education, it has already been conducted as an actual subject in the elementary school curriculum since the mid-2000s. In addition, related research has been actively conducted. Even with middle and high school education, education for sustainable development has been carried out according to the UN's 10-year plan for education for sustainable development and the implementation of the ESD International Action Program. As found in the study by Lee Seon-kyung et al. (2011), ESG education is not conducted at the whole school level, but at the individual level in the field that is interested in the issue. Therefore, ESG education and capacity building for university faculty should be presented as a curriculum that includes continuity, not a one-off campaign or special lecture-oriented education.

Based on these research results, as the active role of universities is required, three things should be given focus. First, universities should expand ESG talent cultivation and ESG research. As corporate demand for ESG professionals is growing rapidly, universities have a responsibility to nurture ESG professionals to respond to social changes and corporate needs. Just as major overseas universities, such as Harvard University and Stanford University run ESG courses as mandatory courses in their MBA courses, domestic universities should also actively promote ESG courses and curriculum reforms. Second, universities should contribute to the spread of ESG culture through practical ESG management. This is because the role of universities is also important in environmental protection and ESG management practices for future generations.

As ESG has recently expanded throughout society, universities are also revealing their aspirations for ESG management, such as the declaration of ESG management, the establishment of an ESG committee, and the formation of an organization, but most of them are promotional events. Therefore, it is important for university members to recognize the importance of ESG and to create a friendly university culture together. Third, it is necessary to prepare disclosure standards for ESG management in universities. There are still no clear guidelines, standards, or guidance about specific measures for ESG management at universities. University ESG management disclosures, such as evaluation indicators and standards according to ESG management, should be prepared in universities and public institutions.

This study seeks sustainable development, which is emphasized in the present era, and emphasizes the

need for the role of the base university for the emerging ESG concept. In addition, as a concrete effort, it is emphasized that first, education for improving ESG awareness and capacity building for university faculty should be preceded. As in the research results, it is necessary to strengthen ESG education for university faculty in the field of environment and governance and to secure the sustainability of university management through this. However, in the field of higher education, research on the intrinsic value of ESG and its educational purpose, practical subject research, and analysis of its research trends are lacking. Considering the results of this study, it is necessary to secure the sustainability of universities by introducing ESG strategies into university education and management. In addition, there is still a lack of ESG-related empirical studies targeting university faculty, in particular, studies on the development of various curricula and their effectiveness. Therefore, universities should prepare university management strategies based on ESG.

When approaching education for sustainable development, each university establishes an ESG management strategy and measures the achievement of the ESG management strategy. Besides the technical aspects that can enhance performance, it is a situation that requires consideration and related research on how to deliver and teach the social value of ESG to students through ESD. Moreover, each university and higher education-related institution should discuss from what point of view they will manage the university in various interests related to the university, such as corporations, faculty members, students, and examinees. specific and in-depth discussions within the university should be preceded on what criteria to evaluate the achievement of sustainability and education for sustainable development.

Finally, the limitations of this study include the following. First, the size of the school in this study was small and medium-sized, and the number of quantitative samples of faculty members was small, making it impossible to analyze the study based on abundant data. Second, there is no development of a standardized scale to measure ESG awareness. In this study, the reliability of the measurement tool is secured, but further research should be conducted with a standardized measurement tool that has secured validity. Therefore, the following contents can be suggested as additional studies that complement the limitations of this study. First, it should be possible to discover implications that cannot be found in quantitative data through by introducing various research methodologies. Furthermore, research on the development of standardized scales that can measure the ESG awareness of members of higher education institutions should be conducted.

6. Conclusions

This study aimed to prioritize educational needs by analyzing the importance and current level of ESG to introduce and educate university faculty with ESG management strategies. The results of the study are summarized below with a focus on the research questions.

First, it was found that there was a statistically significant difference between the importance and the current level in all three ESG areas, and the importance was higher than the current level.

Second, among the three ESG areas, the environmental and governance areas were the priorities of educational demand for ESG awareness among university faculty. The priority of educational needs based on sub-factors by area is as follows. In the environmental area, energy-saving education for faculty members should be strengthened and universities need to make efforts to improve the environment. In the governance area, it is necessary to operate programs for the welfare of faculty members, make efforts to provide non-discriminatory treatment and equal rights among faculty members and conduct a fair and transparent faculty and staff performance evaluation.

In conclusion, the direction of ESG education for university faculty should prioritize the areas of environment and governance. A management strategy for improving ESG awareness among university faculty members should be introduced. In particular, universities should be able to contribute to the spread of ESG culture through practical ESG management. Implementation must not end with a PR-oriented event that simply says ESG management, instead, efforts should be made to improve awareness among university members about why ESG is being done.

First, energy-saving education for faculty members should be strengthened in the environmental field. Second, universities need to make efforts to improve the environment. In the area of governance, first, it is necessary to operate programs for the welfare of faculty members. Second, efforts are needed to provide non-discriminatory treatment and equal rights among faculty members. Third, a fair and transparent faculty and staff performance evaluation should be conducted. As such, a management strategy to improve ESG awareness for university faculty should be introduced, focusing on two environmental factors and three governance factors.

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